Opioid Prescribing to Medicare Part D Enrollees, 2013–2017: Shifting Responsibility to Pain Management Providers

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Abstract

Objective. To examine opioid prescribing frequency and trends to Medicare Part D enrollees from 2013 to 2017 by medical specialty and provider type. **Methods.** We conducted a retrospective, cross-sectional, specialty- and provider-level analysis of Medicare Part D prescriber data for opioid claims from 2013 to 2017. We analyzed opioid claims and prescribing trends for specialties accounting for $\geq 1\%$ of all opioid claims. **Results.** From 2013 to 2017, pain management providers increased Medicare Part D opioid claims by 27.3% to 1,140 mean claims per provider in 2017; physical medicine and rehabilitation providers increased opioid claims 16.9% to 511 mean claims per provider in 2017. Every other medical specialty decreased opioid claims over this period, with emergency medicine (−19.9%) and orthopedic surgery (−16.0%) dropping opioid claims more than any specialty. Physicians overall decreased opioid claims per provider by −5.2%. Meanwhile, opioid claims among both dentists (+5.6%) and nonphysician providers (+10.2%) increased during this period. **Conclusions.** From 2013 to 2017, pain management and PMR increased opioid claims to Medicare Part D enrollees, whereas physicians in every other specialty decreased opioid prescribing. Dentists and nonphysician providers also increased opioid prescribing. Overall, opioid claims to Medicare Part D enrollees decreased and continue to drop at faster rates.

Key Words: Opioids; Narcotics; Prescriptions; Chronic Pain; Pain Management, Analgesic

Introduction

Opioid overdoses killed an estimated 400,000 people from 1999 to 2017 in the United States [1], a country where opioid use for acute pain management is higher than in any other place [2]. For 23 consecutive years, the annual number of US drug overdose deaths increased, soaring to 47,600 opioid-involved deaths in 2017 (14.9 per 100,000 population) [3,4]. Prescription opioid prescribing is one of many factors thought to have fueled the rapidly evolving US opioid epidemic [5–7]. Americans are prescribed more opioids per person than in any other country and have a

consumption rate some 50% higher than the next largest consuming nation [8]. In 2017, nearly one-third of 45 million Medicare Part D enrollees received at least one opioid prescription [9]. Although US opioid prescription rates dropped 28% from 2012 to 2017, opioid-involved deaths climbed 14.9% from 2016 to 2017 [4,10]. Fortunately, the opioid-involved death rate may have peaked in 2017, according to the Centers for Disease Control and Prevention (CDC), which reported a slight nationwide decline in 2018 of opioid-involved deaths [11]. Despite the overall decrease, overdose death rates either held steady or

increased in more than half of states in 2018, mostly due to deaths from illicitly manufactured synthetic opioids [1]. Research among individuals who use illicit drugs indicates that 31–83% reported abusing prescription opioids before transitioning to illicit drugs [12,13].

As the public health burden of the opioid crisis became clear, widespread adoption began of systems-level interventions designed to prevent opioid overdose. New legislation and recent law enforcement actions are part of a multipronged strategy to curb opioid prescribing and overdose deaths. Prescription drug monitoring programs (PDMPs) and pill mill laws are associated with reductions in opioid prescribing, with a greater effect observed on the highest-level opioid prescribers [14–16]. The US Department of Justice (DOJ) formed the Appalachian Regional Prescription Opioid (ARPO) Strike Force in October 2018, with the stated mission to identify and prosecute nontherapeutic opioid prescribing [17]. Six months later, the ARPO Strike Force announced a multi-state enforcement action leading to federal charges for nontherapeutic opioid prescribing and distribution against 53 medical professionals, including 31 physicians, eight nurse practitioners (NPs), seven pharmacists, and seven other licensed medical professionals [18]. The overall quality of evidence supporting such interventions is low to moderate according to a recent systematic review, in which the strongest evidence identified was for PMDP and pain clinic legislation and insurance strategies [16]. The impact of law enforcement actions on opioid deaths remains unclear due to a lack of outcomes data [19].

One might expect providers to have reduced opioid prescribing, even to functional patients on a stable regimen, due to insurance company adoption of the *CDC Guideline for Prescribing Opioids for Chronic Pain* [20], state legislation instituting controls on opioid prescribing, and pharmacy-imposed prescribing restrictions [2,6,21,22]. Primary care physicians (PCPs; family medicine [FM], internal medicine [IM]), dentists, and nonphysician practitioners (NPPs; advanced practice registered nurses [APRNs], physician assistants [PAs]) prescribe the highest overall share of opioids [23]. Previous studies found that pain management and physical medicine and rehabilitation (PMR) providers prescribed the most opioids per provider [23–25], an anticipated finding given that these providers often treat chronic pain.

We conducted a retrospective, cross-sectional analysis of 2013–2017 Medicare Part D prescriber data [26] to analyze changes in opioid prescribing among medical specialty and provider type. The data set included aggregated drug utilization for prescribers with a valid National Provider Identifier (NPI) number and more than 10 submitted Part D claims. We were particularly interested in opioid prescribing rate changes by specialty at the height of the opioid epidemic. We hypothesized that the number of opioid prescriptions would decrease

among most physician specialties and NPPs but remain stable or increase among pain medicine–related specialties. We theorized that non–pain medicine providers would show more reluctance to prescribe opioids and increasingly refer to pain specialists. We further hypothesized that opioid prescribing decreased by a greater magnitude following the CDC’s 2016 opioid prescribing guidelines than in previous years.

Methods

Overview

We analyzed Medicare Part D opioid claims and long-acting (LA) opioid claims by specialty from 2013 to 2017 using Medicare Part D Prescriber Data [26]. We examined opioid claims and opioid prescribing percentage by specialty and provider type to identify changes over time. This study was exempt from institutional review board approval due to the public nature of the data.

Source of Data

We accessed Medicare Part D Prescriber Data for the most recently available calendar years 2013, 2014, 2015, 2016, and 2017. This data set is publicly available from the data repository of the Centers for Medicare and Medicaid Services (CMS; data.cms.gov) [26]. The data set provides opioid prescribing data for providers with ≥ 11 Medicare Part D opioid claims, including both initial prescriptions and refills. Each provider is identified by an NPI number. A specialty description is associated with each NPI based on the provider’s highest number of Medicare Part B claims. We combined similar specialty designations for analysis (e.g., anesthesiology, pain management, and interventional pain management; or nurse practitioner and certified clinical nurse specialist). See the [Supplementary Data](#) for specialty groupings. We excluded providers with either no specialty designation or those not licensed to prescribe opioids based on the specialty designation (e.g., community health worker). The data set did not indicate a subspecialty designation for NPPs. Each specialty that accounted for at least 1% of total opioid claims was included in the analysis. Specialties that accounted for $<1\%$ of total opioid claims were grouped into the category “other.” Orthopedic surgery and general surgery were analyzed as individual specialties, whereas all other surgical specialties were combined.

Definitions

Opioid claims and LA opioid claims are defined as the number of Medicare Part D opioid drug claims and LA opioid claims (including original prescriptions and refills) per year, respectively. Medications classified as opioids are listed in the data repository [26]. To account for prescribing level differences of individual providers, we reported

opioid prescribing percentage as the number of Medicare Part D opioid claims divided by all Medicare Part D prescription claims during a given one-year period, multiplied by 100. Of note, the database lacks detail about individual prescriptions, such as morphine milligram equivalents (MME) or number of pills prescribed.

Analysis

We conducted descriptive analyses to present the change in opioid prescriptions. For the most recent available data (2017), we presented the number (percentage) of opioid prescribers by provider type and specialty and examined their distribution of opioid and LA opioid claims. We presented the mean (SD) opioid claims and opioid prescribing percentage for all providers by type and specialty. Next, we examined the distribution of opioid claims among provider type and specialty from 2013 to 2017. We then analyzed the change in mean opioid claims from 2013 to 2017 by provider type and specialty and reported this as the percent change in mean opioid claims. Further analysis examined the relative change of opioid prescribing percentage between 2013 and 2017 among providers for whom data were available both years. The median (interquartile range) of relative change was calculated for each provider type and specialty. The group of providers that

decreased opioid prescribing percentage was then divided into tertiles according to the magnitude of decrease. All analyses were conducted using SAS statistical software (version 9.4; SAS Institute Inc., Cary, NC, USA).

Results

The 2017 Medicare Part D Prescriber Data identified 1,162,898 unique prescribers. We eliminated 671,067 prescribers with <11 opioid claims. We then excluded 11,635 providers not medically licensed to prescribe and 170 providers without specialty information. This left 480,026 prescribers for analysis. A similar process identified 107,873 prescribers with ≥ 11 LA opioid claims. The [Supplementary Data](#) provide cohort details for the years 2013–2017. Although the total number of providers increased during this period, the proportion of those with ≥ 11 Medicare Part D opioid claims decreased.

[Table 1](#) shows total Medicare Part D opioid and LA opioid claims in 2017 among providers meeting inclusion criteria, organized by provider specialty and type. PCPs accounted for 34.7% of opioid prescribers and 47.4% of opioid claims (FM 26.3%, IM 21.1%), and 57.5% of LA opioid prescribers with 38.3% of LA opioid claims (FM 21.7%, IM 16.6%). Pain management accounted for

Table 1. Descriptive statistics of 2017 Medicare Part D opioid and long-acting opioid claims stratified by provider specialty and type

Category	Providers with ≥ 11 Opioid Claims				Providers with ≥ 11 Long-Acting Opioid Claims		
	Prescribers No. (%) [*]	Total Opioid Claims, No. (%) [†]	Mean Opioid Claims (SD) [‡]	Opioid Rx PCT (SD) [§]	Prescribers No. (%)	Total LA Opioid Claims, No. (%)	Mean LA Opioid Claims (SD)
Provider specialty/type							
APRN	60,088 (12.5)	8,367,136 (11.3)	139.2 (347.73)	14.0 (17.34)	15,091 (14.0)	1,329,814 (14.6)	88.1 (184.42)
Dentist	33,675 (7.0)	1,090,513 (1.5)	32.4 (31.67)	26.3 (12.31)	13 (0.0)	222 (0.0)	17.1 (7.25)
Emergency medicine	34,743 (7.2)	1,933,760 (2.6)	55.7 (117.41)	20.0 (8.42)	574 (0.5)	42,609 (0.5)	74.2 (151.60)
Family medicine	86,673 (18.1)	19,483,050 (26.3)	224.8 (347.12)	5.6 (6.60)	34,369 (31.9)	1,973,386 (21.7)	57.4 (93.53)
General surgery	15,943 (3.3)	828,485 (1.1)	52.0 (81.19)	41.0 (21.06)	195 (0.2)	13,988 (0.2)	71.7 (168.43)
Hematology/oncology	9,978 (2.1)	1,058,971 (1.4)	106.1 (123.63)	11.5 (7.78)	6,501 (6.0)	256,312 (2.8)	39.4 (36.70)
Internal medicine	79,877 (16.6)	15,660,351 (21.1)	196.1 (325.26)	5.4 (6.25)	27,619 (25.6)	1,509,780 (16.6)	54.7 (82.51)
Neurology	5,561 (1.2)	898,605 (1.2)	161.6 (497.18)	5.8 (9.84)	1,647 (1.5)	149,632 (1.6)	90.9 (209.03)
Orthopedic surgery	20,617 (4.3)	2,892,651 (3.9)	140.3 (216.81)	45.9 (18.22)	916 (0.8)	45,720 (0.5)	49.9 (143.46)
Pain management	6,978 (1.5)	7,954,774 (10.7)	1,140.0 (1765.02)	51.6 (18.96)	5,614 (5.2)	1,965,958 (21.7)	350.2 (513.31)
Physical medicine & rehab	6,020 (1.3)	3,076,070 (4.2)	511.0 (1104.74)	34.4 (21.84)	3,064 (2.8)	713,197 (7.9)	232.8 (399.54)
Physician assistant	47,740 (9.9)	5,512,126 (7.4)	115.5 (323.10)	23.3 (22.17)	6,787 (6.3)	767,147 (8.4)	113.0 (233.01)
Rheumatology	3,916 (0.8)	1,225,708 (1.7)	313.0 (488.57)	9.0 (6.72)	1,318 (1.2)	93,384 (1.0)	70.9 (121.26)
Surgical subspecialties	34,348 (7.2)	2,092,801 (2.8)	60.9 (92.87)	23.5 (20.29)	433 (0.4)	23,420 (0.3)	54.1 (152.32)
Other	33,869 (7.1)	2,034,952 (2.7)	60.1 (155.38)	12.1 (15.44)	3,732 (3.5)	195,963 (2.2)	52.5 (121.57)
Provider type							
Physician	338,523 (70.5)	59,140,178 (79.8)	174.7 (429.03)	15.3 (18.32)	85,982 (79.7)	6,983,349 (76.9)	81.2 (192.64)
Dentist	33,675 (7.0)	1,090,513 (1.5)	32.4 (31.67)	26.3 (12.31)	13 (0.0)	222 (0.0)	17.1 (7.25)
Nonphysician (APRN, PA)	107,828 (22.5)	13,879,262 (18.7)	128.7 (337.25)	18.1 (20.16)	21,878 (20.3)	2,096,961 (23.1)	95.8 (201.08)

APRN = advanced practice registered nurses; LA = long-acting; PA = physician assistant.

^{*}Total number of prescribers by provider type/specialty with ≥ 11 Medicare Part D opioid claims, percentage of all prescribers in parentheses.

[†]Total Medicare Part D opioid claims by provider type/specialty, percentage of total opioid claims in parentheses.

[‡]Mean Medicare Part D opioid claims per provider by type/specialty.

[§]Opioid Rx PCT = opioid prescribing percentage, defined as all opioid claims divided by all prescription claims multiplied by 100, per provider by type/specialty.

1.5% of opioid prescribers and 10.7% of opioid claims, and 5.2% of LA opioid prescribers with 21.7% of LA opioid claims. Specialties in which providers prescribed the highest percentage of opioids were pain management (51.6%), orthopedic surgery (45.9%), and general surgery (41.0%). PCPs had the lowest opioid prescribing percentage (FM 5.6%, IM 5.4%). The highest mean opioid claims per provider in 2017 was seen in pain management (1,140) and PMR (511). Physicians accounted for 70.5% of prescribers and 79.8% of opioid claims compared with NPPs, who made up 22.5% of prescribers and 18.7% of opioid claims.

Table 2 shows the distribution of Medicare Part D opioid claims between provider specialty and type from 2013 to 2017. The percent share of opioid prescribing increased most among pain management (+2.9%) and PMR (+0.7%), whereas FM (−3.5%) and IM (−3.8%) showed the greatest decreased share of opioid prescribing. As a group, physicians decreased opioid prescribing (−6.2%) by about the same amount that NPPs increased prescribing (+6.1%).

Figure 1 and Table 3 display five-year opioid prescribing trends by provider specialty and type, based on mean opioid claims per provider. The change in mean opioid claims is noted as a total percent change. From 2013 to 2017, the mean opioid claims per provider increased most in pain management (+27.3%) and PMR (+16.8%). All other specialties decreased mean opioid claims, with the largest decreases seen in emergency medicine (−19.9%), orthopedic surgery (−16.0%), internal medicine (−15.3%), and rheumatology (−15.1%). Physicians overall decreased mean opioid claims per provider (−5.2%), whereas dentists (+5.6%) and NPPs

(+10.2%) increased mean opioid claims from 2013 to 2017. The year-over-year change in overall opioid claims was +1.9% in 2014, −1.9% in 2015, −0.9% in 2016, and −4.3% in 2017 (Table 2).

Table 4 demonstrates the variability with which providers changed opioid prescribing percentages between 2013 and 2017. The median change and interquartile range (IQR) are reported for each specialty. The magnitude of change data shows the proportion of providers who changed opioid prescribing levels by defined amounts. Among providers with decreased prescribing, tertile cutoffs were determined by the relative change of the opioid prescribing percentage. Providers who had either increased or unchanged opioid prescribing percentages are presented separately. Only providers with data available for both 2013 and 2017 are included in Table 4. NPPs had a greater IQR (61.2%) compared with physicians (46.3%). Pain management had the lowest IQR (27.5%).

Discussion

In this retrospective study of Medicare Part D enrollees from 2013 to 2017, we found that opioid prescribing shifted toward pain management and PMR and away from primary care and surgical specialties. During the study period, the number of mean opioid claims per provider increased in pain management (+27.3%) and PMR (+16.8%). Every other specialty either decreased mean opioid claims per provider or the measure was unchanged. These trends together led to pain management and PMR practitioners prescribing an increasing share of opioids to Medicare Part D enrollees relative to

Table 2. Distribution of Medicare Part D opioid claims from 2013 to 2017 by provider specialty and type

Category	2013	2014	2015	2016	2017
Total No.	78,094,837	79,595,963	78,115,813	77,402,658	74,109,953
Provider specialty/type, %					
APRN	7.2	8.1	9.0	10.0	11.3
Dentist	1.3	1.4	1.5	1.5	1.5
Emergency medicine	3.2	3.2	3.2	2.9	2.6
Family medicine	29.8	29.0	27.9	27.2	26.3
General surgery	1.3	1.2	1.2	1.2	1.1
Hematology/oncology	1.4	1.4	1.4	1.4	1.4
Internal medicine	24.9	24.1	22.9	22.0	21.1
Neurology	1.4	1.3	1.3	1.3	1.2
Orthopedic surgery	4.5	4.4	4.1	4.0	3.9
Pain management	7.8	8.5	9.5	10.0	10.7
Physical medicine & rehab	3.5	3.6	4.0	4.1	4.2
Physician assistant	5.4	6.0	6.5	7.0	7.4
Rheumatology	1.9	1.8	1.8	1.7	1.7
Surgical subspecialties	2.9	2.8	2.8	2.8	2.8
Other	3.5	3.2	3.0	2.9	2.7
Provider type, %					
Physician	86.0	84.5	83.0	81.5	79.8
Dentist	1.3	1.4	1.5	1.5	1.5
Nonphysician (APRN, PA)	12.6	14.1	15.5	17.1	18.7

APRN = advanced practice registered nurses; PA = physician assistant.

Figure 1. Mean Medicare Part D opioid claims per provider for each provider type or specialty group from 2013 to 2017 for (A) provider specialty with <100 claims per year, (B) provider type/specialty with 100–200 claims per year, and (C) provider specialty with >200 claims per year.

Table 3. Mean Medicare Part D opioid claims per provider and percent change for 2013–2017 by provider specialty and type

Category	Figure 1 Panel	2013	2014	2015	2016	2017	Change, %*
All providers	B	161.57	162.31	160.18	158.96	154.39	−4.44
Provider specialty/type							
APRN	B	127.16	133.29	139.58	140.69	139.25	9.51
Dentist	A	30.66	31.19	31.72	32.21	32.38	5.61
Emergency medicine	A	69.50	68.23	67.10	62.25	55.66	−19.91
Family medicine	C	254.10	252.34	242.07	236.54	224.79	−11.53
General surgery	A	59.59	56.77	55.00	54.42	51.97	−12.79
Hematology/oncology	B	115.01	114.95	112.17	111.04	106.13	−7.72
Internal medicine	C	231.44	227.22	213.31	207.32	196.06	−15.29
Neurology	B	164.77	166.72	165.98	165.75	161.59	−1.93
Orthopedic surgery	B	167.02	163.10	152.66	149.42	140.30	−16.00
Pain management	C	895.55	989.03	1,078.93	1,121.27	1,139.98	27.29
Physical medicine & rehab	C	437.35	467.33	496.19	513.33	510.98	16.84
Physician assistant	B	105.43	110.02	116.30	117.52	115.46	9.51
Rheumatology	C	368.85	363.24	342.93	327.94	313.00	−15.14
Surgical subspecialties	A	62.17	61.88	61.11	61.71	60.93	−1.99
Other	A	60.32	59.91	59.26	60.12	60.08	−0.40
Provider type							
Physician	B	184.30	185.25	181.52	180.22	174.70	−5.21
Dentist	A	30.66	31.19	31.72	32.21	32.38	5.61
Nonphysician (APRN, PA)	B	116.77	122.32	128.71	130.11	128.72	10.23

APRN = advanced practice registered nurses; PA = physician assistant.

*Percent change in mean from 2013 to 2017.

other specialties. The specialties with the greatest drop in mean opioid claims per provider were emergency medicine (−19.9%), orthopedic surgery (−16.0%), internal medicine (−15.3%), rheumatology (−15.1%), and general surgery (−12.8%). Opioid prescribing as a percentage of total prescribing was lowest among PCPs (FM 5.6%, IM 5.4%), and these specialties also had the largest

decreased share of opioid claims over time (FM −3.5%, I.M. −3.8%).

We found that increasing numbers of NPPs are prescribing opioids to Medicare Part D enrollees. As seen in the [Supplementary Data](#), the number of NPPs meeting the inclusion criteria increased during the study, whereas that of physicians decreased. From 2013 to 2017, NPPs

Table 4. Relative change of Medicare Part D opioid prescribing percentage from 2013 to 2017, stratified by provider type/specialty (N = 345,399)*

Category	No.	Median (IQR), %	Decreased Prescribing (Magnitude of Decrease [†]), %			Unchanged or Increased Prescribing, %
			<−43	−43 ~ −21	−21 ~ 0	
All providers	345,399	−17.7 (47.6)	22.9	23.3	22.9	31.0
Provider specialty						
APRN	27,017	−23.7 (66.4)	33.4	18.7	15.4	32.5
Dentist	20,428	−13.9 (37.3)	13.5	26.1	29.3	31.1
Emergency medicine	27,856	−20.9 (35.2)	18.8	31.2	27.5	22.6
Family medicine	72,381	−19.4 (49.6)	24.9	23.3	21.6	30.3
General surgery	12,393	−7.8 (45.8)	14.6	19.8	24.8	40.8
Hematology/oncology	7,834	−19.6 (47.7)	23.4	25.0	21.6	30.1
Internal medicine	63,917	−19.3 (49.0)	24.2	23.8	21.7	30.3
Neurology	4,559	−25.8 (54.3)	31.2	23.4	17.4	28.1
Orthopedic surgery	17,648	−14.1 (33.6)	13.5	25.8	32.4	28.2
Pain management	5,282	0.0 (27.5)	6.9	11.4	31.6	50.1
Physical medicine & rehab	4,864	−6.1 (43.2)	16.4	16.0	27.2	40.4
Physician assistant	27,355	−17.9 (56.2)	26.4	20.5	19.9	33.2
Rheumatology	3,280	−20.4 (42.5)	24.5	25.0	25.6	24.9
Surgical subspecialties	26,748	−14.4 (43.1)	18.7	22.9	26.2	32.2
Other	23,837	−22.4 (56.1)	29.0	22.3	17.5	31.2
Provider type						
Physician	270,599	−17.7 (46.3)	22.2	23.8	23.4	30.6
Dentist	20,428	−13.9 (37.3)	13.5	26.1	29.3	31.1
Nonphysician (APRN, PA)	54,372	−20.5 (61.2)	29.9	19.6	17.7	32.8

APRN = advanced practice registered nurses; IQR = interquartile range within specialty (e.g., 25th to 75th percentile); PA = physician assistant.

*Opioid prescribing percentage was defined as all opioid claims divided by all prescription claims multiplied by 100 per provider.

[†]Cutoffs for magnitude of decrease were determined by the percent change among all providers, with decreased prescribing percentages from 2013 to 2017, grouped by tertile. The fourth group includes providers with the same or increased opioid prescribing percentages during the time period.

increased mean opioid claims to Medicare Part D enrollees (+10.2%), whereas physicians decreased mean claims (−5.2%). The overall percentage of opioids prescribed by NPPs also increased (+6.1%), whereas physicians decreased opioid claims (−6.2%). Additionally, a higher percentage of NPP-ordered prescriptions were opioids (18.1%) compared with physicians (15.3%); furthermore, NPPs showed wider prescribing variability (IQR = 61.2%) compared with physicians (IQR = 46.3%). The American Association of Nurse Practitioners reports that 75% of actively practicing nurse practitioners provide primary care [27]. Our findings show that APRNs may have opioid prescribing practices that are divergent from primary care physicians, who had one of the largest drops in opioid claims. These findings may be due to increases in both the number of practicing NPPs and of mean opioid claims per provider among this group. Additionally, NPPs may have increased prescribing roles in surgical or pain management practices, increased assumption of care, or different patient mixes, which might account for higher opioid prescribing. Nevertheless, these findings are consistent with emerging evidence indicating that NPPs prescribe opioids at higher rates than most physicians [24,28,29]. It is unclear whether this difference is due to the laws themselves, inherent regional differences, or a combination of factors [30]. Education about opioid prescribing and safety is crucial for this provider group.

Increasing evidence suggests that opioids have limited effectiveness for treatment of chronic noncancer pain and cause more adverse effects than nonopioid medications [31]. This has forced a fundamental re-evaluation of prescription opioid efficacy, safety, prescribing practices, and pain management options [32]. The CDC responded in 2016 by establishing opioid prescribing guidelines for noncancer, nonpalliative pain [20]. These guidelines appear to have accelerated an overall decrease in opioid prescribing nationwide [20,33]. This is supported by our data, which showed a 4.3% decrease in Medicare Part D opioid claims from 2016 to 2017, the largest single-year change from 2013 to 2017. Analysis of private insurance data indicates that the odds of receiving an opioid prescription decreased significantly after the CDC guidelines were published [34]. Of concern, however, is that unintended application of the guidelines may have resulted in patient harm. This led to a Food and Drug Administration warning against sudden discontinuation or rapid tapering in patients who are physically dependent on chronic opioid therapy [35]. The shifting responsibility for opioid prescribing may be explained in part by increased specialty referral of chronic pain patients by PCPs. However, these changes extend beyond the chronic pain population, as evidenced by our findings showing decreased prescribing among surgery and surgical subspecialties. As increasing attention is paid to opioid prescribing in the acute pain setting, challenges adapting the

CDC guidelines have emerged [36]. Although primarily targeted toward the chronic nonmalignant cancer pain population, the CDC guidelines do touch on acute pain, with the recommendation that opioid prescriptions for acute pain rarely be prescribed for more than seven days [20].

The increasing state and federal scrutiny into opioid prescribing led to the passage of state laws in 2016 that specify opioid requirements, limits, or guidance for prescribing. By April 2018, state laws expanded to reach 28 states in some form [37]. Given the history of opioid prescribing levels to Medicare Part D enrollees, the CMS implemented new policies on January 1, 2019, to identify and manage potential opioid overutilization [21]. Among the changes, opioid-naïve patients are limited to a seven-day supply, and providers are alerted if a patient's cumulative MME/d across all opioid prescriptions reaches 90 MME.

Limitations

Our study is limited by analysis of available data fields in the Medicare Part D Prescriber Summary Data. Given the descriptive nature of this study, we did not apply statistical testing. Due to the substantial number of providers in the data set, statistical significance would be expected to show minimal *P* values even for slight differences. Additionally, the data set does not provide the indication for prescribing, number of pills issued, or MME per prescription, which limits our ability to quantify prescribing. The data set only includes information for providers with >10 opioid claims, which may skew results toward higher prescribing providers. Medicare Part D does not cover all drugs, which may affect reported claims rates. Approximately 70% of Medicare beneficiaries have Part D prescription coverage, so the data set does not include all Medicare participants [26]. Specialty designation is self-reported and may be inaccurate in some cases or not accurately reflect subspecialty. For example, some PMR providers may practice pain management solely, while others practice solely in rehabilitative settings. NPPs also were not identified by specialty type. Our findings from Medicare patients are not generalizable to younger, privately insured patients. Additionally, this nationwide analysis may not fully account for previously demonstrated regional or state variations in opioid prescribing [38]. Finally, the future trend and impact of these findings remain unclear due to rapidly changing opioid policy and the evolving nature of the opioid crisis.

Conclusions

A shift in the responsibility for opioid prescribing is underway in the United States. From 2013 to 2017, pain management and PMR specialties increased opioid prescribing claims to Medicare Part D enrollees, whereas

every other medical specialty decreased opioid prescribing. NPPs increased overall opioid prescribing but decreased opioid claims in the final year of analysis (2016 to 2017). The negative impact of opioids, combined with increased legislation and enforcement action, compels the medical community to self-identify nontherapeutic opioid prescribing, implement changes to prevent nontherapeutic prescribing, and assess the impact of opioid policy measures.

Supplementary Data

Supplementary data are available at *Pain Medicine* online.

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