



Prevalence of Nonopioid and Opioid Prescriptions among Commercially-Insured Patients with Chronic Pain

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Abstract

Objective—The increased use of opioids to treat chronic pain in the past 20 years has led to a drastic increase in opioid prescribing in the United States. The CDC *Guideline for Prescribing Opioids for Chronic Pain* recommends the use of nonopioid therapy as the preferred treatment for chronic pain. This study analyzes the prevalence of nonopioid prescribing among commercially-insured patients with chronic pain.

Design—Data from the 2014 MarketScan database representing claims for commercially-insured patients were used. International Classification of Diseases, Ninth Revision (ICD-9-CM) codes were used to identify patients with chronic pain. Nonopioid prescriptions included nonsteroidal anti-inflammatory drugs (NSAIDs), analgesics/antipyretics (e.g. acetaminophen), anticonvulsants, and antidepressant medications. The prevalence of nonopioid and opioid prescriptions were calculated by age, sex, insurance plan type, presence of a depressive or seizure disorder, and region.

Results—In 2014, among patients with chronic pain, 16% filled only an opioid, 17% filled only a nonopioid prescription, and 28% filled both a nonopioid and an opioid. NSAIDs and antidepressants were the most commonly prescribed nonopioids among patients with chronic pain. Having prescriptions for only nonopioids was more common among patients aged 50–64 years and female patients.

Conclusions—This study provides a baseline snapshot of nonopioid prescriptions prior to the release of the CDC *Guideline* and can be used to examine the impact of the CDC *Guideline* and other evidence-based guidelines on nonopioid use among commercially-insured patients with chronic pain.

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Keywords

Opioids; Nonopioids; Drug Overdose; Chronic Pain

INTRODUCTION

Millions of adults are affected by chronic noncancer pain in the United States. Although the majority of chronic noncancer pain patients receive care in the primary care setting,(1) primary care providers have reported being inadequately prepared to manage chronic pain. (2) Over the past two decades, chronic noncancer pain was increasingly treated with prescription opioids,(3) while previously, opioids had primarily been reserved for severe acute pain, postsurgical pain, and end-of-life care. As a result, opioid prescribing increased dramatically in the United States and remains high with considerable variation across the country.(4)

In parallel with the dramatic increase in prescription opioid use, drug overdose deaths involving opioids have increased substantially in the United States.(5) In 2016, in response to the increased harms from prescription opioids and as part of efforts to better equip clinicians with evidence-based tools to ensure patient safety, the Centers for Disease Control and Prevention (CDC) released the *Guideline for Prescribing Opioids for Chronic Pain*.(6) Of note, the CDC *Guideline* recommends the use of nonopioid therapy for the treatment of chronic noncancer pain. Nonopioid therapy includes nonopioid pharmacologic options, such as ibuprofen, and nonpharmacologic methods of managing pain, like exercise and cognitive behavioral therapy. It is unclear how commonly nonopioids are prescribed for patients with chronic noncancer pain. The purpose of this study is to examine the prevalence of nonopioid prescriptions among commercially insured chronic noncancer pain patients (herein defined as patients with chronic pain).

METHODS

This cross-sectional analysis used the 2014 Truven Health MarketScan Research commercial claims and encounters Databases for the commercially insured population. The database is one of the largest administrative databases of commercially insured individuals and includes de-identified enrollee-level utilization, expenditures, and enrollment information across outpatient and inpatient visits and prescription drugs.(7) Data on patient age, sex, insurance plan type, prescription drug coverage, and region were collected from the enrollment files. International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) codes were used to identify patients with chronic pain, depressive disorders, and seizure disorders (Appendix A). Patients with at least two outpatient visits at least 90 days apart linked to the same chronic pain condition ICD-9-CM code were considered patients with chronic pain. The study period consisted of 12 months from January 1, 2014 to December 31, 2014, with a 3 month pre period from October 1, 2013 to December 31, 2013 and a 3 month post period from January 1, 2015 to March 31, 2015. Data on prescription drugs was collected from the 12 month study period, while identification of chronic pain conditions utilized the full 18 months to ensure that we were

able to identify all chronic pain patients in 2014. Patients were excluded from the analysis if they were not continuously enrolled during the 12 month study period, did not have prescription drug coverage, or were over the age of 65 years as this is the eligibility age for Medicare.

Filled opioid and nonopioid prescriptions were identified using the National Drug Code schema (Appendix B). Nonopioid prescriptions included those for nonsteroidal anti-inflammatory drugs (NSAIDs), analgesics/antipyretics (e.g. acetaminophen), and certain medications in the anticonvulsant and antidepressant classes which are sometimes also used to treat pain.¹ Chi-square analysis was used to compare characteristics of patients with chronic pain to patients without chronic pain. Prevalence of nonopioid prescriptions (total and by class); opioid prescriptions; and prescriptions for both nonopioids and opioids were calculated by age, sex, insurance plan type, presence of a depressive disorder diagnosis, presence of a seizure disorder diagnosis, and US Census region.

RESULTS

The study population included 21,745,233 patients, of which 9.5% had chronic pain during the study period. Patients with chronic pain were more likely to be aged 30 years and female compared to those without a chronic pain condition (Table 1). Among patients with chronic pain, 38.3% had filled no prescriptions; however 28.4% had a prescription for an opioid and a nonopioid, 17.4% had only a nonopioid prescription, and 15.9% had only an opioid prescription. Both opioid and nonopioid prescriptions, individually and in combination, were more common among patients with chronic pain compared to patients without a chronic pain diagnosis (all $p < 0.001$).

Among patients with chronic pain, nonopioid prescriptions increased with age and were more common among female patients than male patients, and among patients in a Health Maintenance Organization (19.8%) or in a point of service with capitation (18.6%; Table 2). Patients with chronic pain in the Northeast were the most likely to fill nonopioid prescriptions only (19.3%), while those in the West were least likely (14.9%). Among patients with chronic pain and a co-occurring depressive disorder, 19.0% filled only nonopioids, while 44.9% had prescriptions for both opioids and a nonopioid, and 14.3% only filled a prescription for an opioid.

Among the filled nonopioid prescriptions of patients with chronic pain, NSAIDs were the most common (74.8%) followed by antidepressants (26.7%), and then anticonvulsants (25.9%) (Table 3). NSAIDs were more common among males, while antidepressants were more common among females.

DISCUSSION

This study found that prescriptions for both opioids and nonopioids were common among commercially insured patients with chronic pain in 2014. Nearly one-fifth (19.0%) of

¹Included antidepressant medications were those from the tricyclic and serotonin/norepinephrine reuptake inhibitor (SNRI) classes; included anticonvulsant medications were gabapentin, pregabalin, carbamazepine, and oxcarbazepine.

patients with chronic pain had a prescription for only a nonopioid. The use of only nonopioids was more common among patients aged 50–64 years and females. NSAIDs and antidepressants were the most commonly used nonopioids among patients with chronic pain. The common use of antidepressants among patients with chronic pain (12.2%, data not shown) compared to patients with no chronic pain (2.9%, data not shown) suggests that this class of drug likely is being used to treat conditions besides depressive disorders, or to potentially treat both chronic pain and a depressive disorder simultaneously.

This is the first study to examine the prevalence of nonopioid prescriptions among patients with chronic pain and more specifically the prevalence of prescriptions for both opioids and nonopioids. The CDC *Guideline* recommends nonopioid therapy, both pharmacologic and nonpharmacologic, as the preferred treatment for chronic pain outside of end of life, palliative, or active cancer care (6). The results of this study, using data that predate the CDC *Guideline*, provide a baseline profile of nonopioid prescriptions that can be tracked over time to examine the impact of the CDC *Guideline* and other evidence-based opioid prescribing guidelines on nonopioids prescriptions among patients with chronic pain.

This study has some limitations. First, although the sample is large, this study focuses on the commercially-insured population and it cannot be extrapolated to the entire U.S. population, those with public insurance, or the uninsured. Second, this study cannot fully differentiate between patients that take medication solely for chronic pain, for other conditions, or for multiple conditions. Third, the fill date of the prescription may be earlier than the chronic pain diagnosis, as prescription date cannot be linked to date of diagnosis in this database. Fourth, as chronic pain was identified by the presence of an ICD-9-CM code associated with chronic pain, patients experiencing chronic pain who were not assigned a chronic pain ICD-9-CM code would not be captured in this analysis. Fifth, while the list of medications used for this analysis is comprehensive, not all drugs used in off-label fashions to treat chronic pain may be captured here. Lastly, 38.3% of chronic pain patients did not receive either opioid or nonopioid prescriptions for pain. However, these patients may have utilized nonopioids obtained over the counter or other nonpharmacologic treatments such as physical therapy and acupuncture that are not captured in this data.

Conclusions

The prevalence of a prescription nonopioid among patients with chronic pain is higher than that for an opioid prescription. However, both opioid and nonopioid prescriptions are common. This suggests that prescribers are using a combination of opioids and nonopioids to treat chronic pain. Further research should analyze the impact of the CDC *Guideline* on nonopioid use and the timing of nonopioid and opioid prescribing among patients with chronic pain, as this study was not able to discern whether opioids were prescribed first or whether they were prescribed after nonopioids were not effective. Information on prescribing practices of nonopioids and opioids will aid in developing policies and practices to target populations most at risk for opioid misuse and overdose.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Table 1:

Characteristics of all continuously-enrolled patients with commercial outpatient claims, by presence or absence of a chronic pain diagnosis - Marketscan, 2014

Demographic characteristics	Chronic pain diagnosis ^b	No chronic pain diagnosis
Number of Patients	2,072,060	19,673,173
Diagnosis of a depressive disorder (%)	15.01	6.73
Diagnosis of a seizure disorder (%)	1.52	0.76
Age (mean (SD) (years))	45.24 (13.78)	33.22 (18.80)
Age (years) ^a		
<18	5.84	27.00
18–29	8.47	15.72
30–39	14.74	14.16
40–49	23.86	17.05
50–64	47.09	26.07
Sex (%) ^a		
Male	38.30	46.10
Female	61.70	53.90
Insurance plan type ^{ac}		
Comprehensive	2.61	1.84
Exclusive Provider Organization (EPO)	0.97	1.11
Health Maintenance Organization (HMO)	9.61	11.19
Point of Service (POS)	6.05	5.60
Preferred Provider Organization (PPO)	64.63	61.31
Point of Service with capitation (POS/cap)	0.65	0.74
Consumer Driven Health Plan (CDHP)	9.82	10.65
High Deductible Health Plan (HDHP)	5.67	7.56
Region ^a		
Northeast	21.15	20.67
North Central	21.23	20.85
South	38.90	38.96
West	16.36	16.80
Unknown	2.35	2.71
Prescription status ^a		
No opioid or nonopioid prescriptions	38.33	74.63
Opioids only	15.88	9.46
Nonopioids only ^d	17.35	8.93
Both opioids and nonopioids ^d	28.44	6.97

^aColumn percentages are presented

^bAll comparisons between patients with or without chronic pain were statistically significant at the p<0.001 level.

^c Complete definitions for insurance plan type can be found from Truven Health MarketScan® Database⁷

^d Includes nonsteroidal anti-inflammatory drugs (NSAIDs), analgesics/antipyretics, anticonvulsants, and antidepressants.

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Table 2:

Prevalence of opioid and nonopioid^a prescriptions by demographic data among patients with chronic pain - Marketscan, 2014

Demographic Characteristics (n=2,072,060)	Prescription Groupings			
	No opioid or nonopioid prescriptions (n=794,242)	Opioids only (n=328,978)	Nonopioids only (n=359,536)	Both opioids and nonopioids (n=589,304)
Diagnosis of a depressive disorder	21.91	14.25	18.97	44.88
Diagnosis of a seizure disorder	25.51	13.08	21.14	40.27
Age (years) ^b				
<18	69.48	9.56	13.49	7.47
18–29	46.90	14.59	16.46	22.04
30–39	41.45	15.72	15.89	26.94
40–49	36.73	15.75	17.81	29.72
50–64	32.77	17.01	18.22	32.01
Sex ^b				
Male	41.05	18.03	15.04	25.88
Female	36.65	14.54	18.79	30.03
Insurance plan type ^{bc}				
Comprehensive	29.78	20.62	14.86	34.75
Exclusive Provider Organization	43.59	14.48	17.80	24.14
Health Maintenance Organization	34.55	15.57	19.76	30.13
Point of Service	36.03	16.59	17.29	30.09
Preferred Provider Organization	38.53	15.85	17.23	28.39
Point of Service with capitation	32.90	16.62	18.58	31.90
Consumer Driven Health Plan	37.95	15.65	17.38	29.01
High Deductible Health Plan	45.60	15.25	16.15	22.99
Region ^b				
Northeast	44.63	14.04	19.26	22.07
North Central	39.91	16.29	16.02	27.78
South	32.51	16.21	17.97	33.31
West	42.89	16.93	14.90	25.28
Unknown	32.01	15.72	19.09	33.18

^aNonopioids refers to prescriptions for nonopioid pain reliever medications, including NSAIDs, analgesics/antipyretics, anticonvulsants, and antidepressants.

^bRow Percentages are presented

^cComplete definitions for insurance plan type can be found from Truven Health MarketScan®Database⁷

Prevalence of nonopioid pain medication prescriptions by medication class among patients with chronic pain with commercial outpatient claims - Marketscan, 2014

Table 3:

Demographic Characteristics	NSAIDs ^a (n=709,417)	Analgesics/ antipyretics (n=50,868)	Anticonvulsants (n=245,621)	Antidepressants (n=252,831)
Overall	74.77	5.36	25.89	26.65
Diagnosis of a depressive disorder	62.80	6.96	34.34	49.90
Diagnosis of a seizure disorder	56.19	10.76	50.21	37.01
Age (years)				
<18	73.57	5.85	10.61	27.21
18–29	76.27	9.24	16.90	25.54
30–39	75.73	8.16	21.61	25.97
40–49	74.82	6.05	25.73	27.50
50–64	74.34	3.72	29.13	26.54
Sex				
Male	78.88	2.48	25.03	17.66
Female	72.63	6.86	26.33	31.32
Insurance plan type ^b				
Comprehensive	67.97	4.64	34.53	29.84
Exclusive Provider Organization	77.85	4.77	22.99	22.58
Health Maintenance Organization	76.69	5.11	24.71	24.80
Point of Service	73.75	6.06	26.66	27.25
Preferred Provider Organization	74.71	5.46	25.86	26.82
Point of Service with capitation	74.56	7.31	24.63	26.12
Consumer Driven Health Plan	75.55	5.49	25.36	26.07
High Deductible Health Plan	75.39	5.05	22.77	25.33
Region				
Northeast	75.89	4.96	22.83	24.85
North Central	73.46	4.13	26.56	28.25
South	75.21	6.48	27.20	26.64
West	73.95	4.00	24.90	26.62

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Demographic Characteristics	NSAIDs ^a (n=709,417)	Analgesics/ antipyretics (n=50,868)	Anticonvulsants (n=245,621)	Antidepressants (n=252,831)
Unknown	73.89	6.62	26.50	27.54
Prescription for opioid	74.79	5.53	31.99	28.36

^aNSAIDs are defined as Nonsteroidal anti-inflammatory drugs.

^bComplete definitions for insurance plan type can be found from Truven Health MarketScan@Database⁷