

Short-acting opioid prescriptions and Workers' Compensation using the National Ambulatory Medical Care Survey

Hannah M. Thompson MD¹ | Usha Govindarajulu PhD² | John Doucette PhD¹ | Ismail Nabeel MD, MPH, MS¹

¹Department of Environmental Medicine and Public Health, Icahn School of Medicine at Mount Sinai, New York, New York, USA

²Department of Population Health Science and Policy, Icahn School of Medicine at Mount Sinai, Center for Biostatistics, New York, New York, USA

Correspondence

Hannah M. Thompson
Email: hannah.thompson@mssm.edu

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Abstract

Background: Short-acting opioids have been utilized for pain management with little known about their use in patients on Workers' Compensation (WC) insurance. Our goal was to investigate this association in the ambulatory care setting.

Methods: Using the National Ambulatory Medical Care Survey, visits from patients aged 18–64 during the years 2010 until 2018 were evaluated (excluding 2017 due to data availability). Demographic and co-morbidity data from each visit was obtained along with the visit year. The first short-acting opioid medication prescribed in the database was considered. Survey-weighted frequencies were evaluated. Logistic regression estimated the crude and adjusted odds ratios (OR) with 95% confidence intervals for the use of short-acting opioid prescription.

Results: There were 155,947 included visits with 62.5% for female patients. Most patients were White with 11.7% identifying as Black, and 6% identifying as another race. Over 13% of the sample was of Hispanic descent. WC was the identified insurance type in 1.6% of the sample population. Of these patients, 25.6% were prescribed a short-acting opioid, compared with 10.1% of those with another identified insurance. On multivariable regression, Black patients had increased odds of being prescribed a short-acting opioid compared to white patients (OR: 1.22, 95% CI: 1.11–1.34). Those on WC had 1.7-fold higher odds of being prescribed short-acting opioids (95% CI: 1.46–2.06).

Conclusion: Certain patient characteristics, including having WC insurance, increased the odds of a short-acting opioid prescription. Further work is needed to identify prescribing patterns in specific high-risk occupational groups, as well as to elicit potential associated health outcomes.

KEYWORDS

NAMCS, occupational medicine, short-acting opioids, Workers' Compensation, workers' health

1 | INTRODUCTION

The Centers for Disease Control and Prevention (CDC) reported that almost 645,000 people have died between 1999 and 2021 of opioid-related overdoses.¹ Prescription opioids, including methadone, oxycodone, and hydrocodone, have contributed to not only opioid-related deaths but also misuse and abuse.² Prescription opioids were commonly used to treat noncancer-related pain in the 1990s with several societies, such as the American Pain Society, advocating for their use.³ However, as the epidemic has evolved, organizations have now sought to create guidelines around responsible opioid prescribing. The CDC created a Clinical Practice Guideline for Prescribing Opioids for Pain first in 2016 and then updated it in 2022.⁴ Prescribing rates per 100 persons overall have decreased in recent years with the CDC reporting an 8.1% reduction between 2006 and 2016.⁵ However, overdose deaths involving any opioids, including prescription, heroin, and synthetic, have continued to rise with 68,630 deaths in 2020 and 80,411 in 2021.⁶

Opioids can be prescribed in various formulations, including long-acting or short-acting. Long-acting opioids have a longer analgesic effect thus requiring fewer dosing cycles; whereas, the serum levels of short-acting opioids rise and fall more rapidly.⁷⁻⁹ Both types have been used to treat pain in a variety of conditions.^{10,11} Historically, short-acting opioids were suggested for acute or "breakthrough" pain as well as for initial therapy, with long-acting opioids reserved for chronic pain.^{7,8} Currently, guidance from agencies, including the CDC, has moved away from long-acting opioid use.^{4,12}

The National Council on Compensation Insurance showed a reduction in Workers' Compensation (WC) claims associated with opioid prescriptions from selected states since 2012.¹³ However, there appears to be variability in opioid prescribing across the states.¹⁴ It is important to evaluate opioid prescribing in the WC population, especially given the musculoskeletal injuries that are treated and the concern for morbidity and mortality associated with opioid use. There is limited research on how opioid prescribing in this population translates to potential morbidity and mortality.¹⁵⁻²⁰ A study from the Washington Workers' Compensation Disability Risk Identification Study Cohort found an association between workers with acute back injuries who were prescribed opioids for 7 or more days and long-term disability.¹⁵ This is echoed in a 2017 systematic review evaluating musculoskeletal disorders, although the authors also concluded that additional high-quality research is needed to validate their results.¹⁶ Another systematic review found high-risk populations, including WC patients, had a higher rate of prolonged opioid use following a musculoskeletal injury compared with other populations.¹⁷ A recent study from the Ohio Bureau of WC raised concern for an increased risk of death in those with higher maximum claim-prescribed daily morphine-equivalent doses of opioids; however, another study found that WC was infrequently the payer for the prescription causing opioid overdose or adverse event hospitalizations.^{18,19} Outside of the WC system, a study from Utah showed that of opioid-related deaths 57% had one or more previous work-related injuries.²⁰ Additional research is needed to understand opioid

prescribing trends and factors that may be associated with increased opioid prescriptions.

One useful way to assess the association between opioids and WC insurance is through the National Ambulatory Medical Care Survey (NAMCS), which is a nationwide survey from the CDC and the National Center for Health Statistics that samples non-federally employed ambulatory care physicians across the United States who perform direct patient care.²¹ A previous study looking at long-acting opioids found WC to be independently associated with long-acting opioid prescriptions.²² Thus, our goal was to use this database to evaluate factors including WC that may be associated with a short-acting opioid prescription.

2 | METHODS

2.1 | Data source and study population

As part of the NAMCS nationally representative sample of ambulatory care visits, each identified physician's office is surveyed for 1 week. This database is publicly available and can be downloaded based on the survey year.^{21,23} Data from 2010 until 2018 was used, excluding the year 2017 which is currently not publicly available due to ongoing data integration.²⁴ Patients aged 18–64 were included in this study to select for a working population. The unit of analysis for this database was the patient visit.

2.2 | Dependent variable

Based on previous literature, a list of common short-acting opioids was created.²⁵⁻³⁰ The Ambulatory Care Drug Database System was then searched for codes corresponding to these short-acting opioids excluding medications that were not classified as narcotics (Supporting Information Materials).³¹ Additionally, long-acting opioid codes from our previous work were excluded.²² The survey includes space for up to 30 reported medications, and for our study, we considered the first short-acting medication in the database.²³

2.3 | Independent variables

Demographic variables included patients' age, sex, race, ethnicity, body mass index (BMI), smoking status, and insurance type. The insurance variable was categorized as WC, non-WC (private, Medicare, Medicaid, self-pay, no charge/charity, other), and missing insurance information. Visit year was included to control for changes in opioid prescribing over the years of the study. Other common medical conditions in the United States as well as conditions that have been previously associated with opioid prescribing or chronic pain were included into our regression model.³²⁻³⁸ These included asthma, diabetes, chronic renal failure, chronic heart failure, hypertension, chronic obstructive pulmonary disease (COPD), arthritis,

cancer, and depression. These variables were gleaned from a survey question where the physicians are asked to mark all conditions the patient now has.³⁹ Of note based on the NAMCS survey data, chronic renal failure includes end-stage renal disease, chronic renal failure, and chronic kidney failure. Diabetes includes all types of diabetes with the predefined database coding excluding diabetes insipidus and gestational diabetes after 2013. Low back pain was previously defined using the International Classification of Diseases, Ninth Revision, Clinical Modification and the International Classification of Diseases, Tenth Revision, Clinical Modification codes.^{22,40,41} In addition, given the frequent use of opioids after trauma or injury, we considered a visit arising from an injury as an important independent variable.^{42,43} This variable was predefined in the database and answered the question, "Is this visit related to an injury, poisoning, or adverse effect of medical/surgical treatment?".²³ To accommodate variations in the coded answers across years, a "missing" variable was defined as one marked as unknown or left blank, and a questionable injury status was considered no injury.

2.4 | Statistical analysis

The study was performed using the NAMCS de-identified, publicly available database, and thus it was considered exempt by the Institutional Review Board. The statistical analyses were performed using SAS software, Version [9.4] of the SAS system for Windows (Supporting Information Materials). Copyright ©2016 SAS Institute Inc. SAS and all other SAS Institute Inc. product or service names are registered trademarks or trademarks of SAS Institute Inc. The results were patient-weighted based on survey design.⁴⁴ Binary logistic regression models were fitted to evaluate which variables were associated with short-acting opioid prescription. Subsequently, a multivariable binary logistic regression was fitted to assess the adjusted odds ratio (aOR) and 95% confidence interval (CI) for each selected variable. A c statistic was reported for the logistic regression models as a measure of goodness-of-fit of the discriminative ability of the model.⁴⁵ The reference categories utilized for the analyses were 18–44 years of age, male sex, white, non-Hispanic, not WC insurance, the year 2010, no reported injury, former/never smoking status, BMI < 25, and having no medical condition (diabetes, chronic renal failure, chronic heart failure, hypertension, arthritis, asthma, cancer, depression, COPD, or low back pain). A concordance statistic evaluated the model performance.⁴⁵

3 | RESULTS

Our study sample included 155,947 ambulatory care visits between 2010 and 2018 (excluding 2017 due to data availability) with most patients being established in the practice or seen before by the provider (82.1%). About 55% of patients were between the ages of 45 and 65 (Table 1). Older patients, defined as 45–65, were more likely to be prescribed short-acting opioids compared to younger

patients (12.2% and 8.2%, respectively). Additionally, men were given more prescriptions than women (11.7% compared with 9.6%). For those who identified as White, 10.4% received short-acting opioid prescriptions. This differed from 12.8% of those who identified as Black and 6.1% of those who identified as another race. Patients of Hispanic/Latin ethnicity were also less likely to receive prescriptions (8.9% vs. 10.6% of those identified as non-Hispanic). The rate of short-acting opioid prescription increased with increasing BMI (8.5% for those with a BMI of <25, 11.9% for those with a BMI of 25–39, and 13.9% for those with a BMI ≥ 30).

Most patients had non-WC insurance, with 1.6% insured under WC. Of those with WC, 25.6% received a prescription for short-acting opioids versus 10.1% of those without WC. Over 10% of visits were deemed injury-related with about 19.1% including a short-acting opioid prescription. Of the WC patients, 63.5% had an injury-related visit. This compares with 9.5% in the non-WC group. Within the study sample, the most common health conditions included hypertension (23.8%), depression (12.8%), arthritis (12.0%), and diabetes (11.0%). Low back pain was the primary diagnosis in 6.9% of the study sample. The conditions with the highest occurrence of short-acting opioid prescription were low back pain (34.3%), arthritis (22.5%), and COPD (22.2%).

The crude and adjusted odds ratios for the dependent variable, short-acting opioid prescription, are reported in Table 2. Our final adjusted model that included all the study variables had a c statistic of 0.71 indicating its discriminative power.⁴⁵ After adjusting for study variables and year of visit, patients aged 45–65 had increased odds of being prescribed short-acting opioids (aOR: 1.15, 95% CI: 1.07–1.24). Additionally, men were more likely to be prescribed short-acting opioids than women (aOR: 0.91, 95% CI: 0.85–0.97). Black patients were 22% more likely to receive short-acting opioids (95% CI: 1.11–1.34); whereas, those who identified as another race other than white or Black were less likely to receive them (aOR: 0.63, 95% CI: 0.52–0.76). Reduced odds were seen for those who identified as Hispanic compared to non-Hispanic patients (aOR: 0.89, 95% CI: 0.80–0.99).

Additionally, those with WC insurance had increased odds of 1.73 (95% CI: 1.46–2.06) of being prescribed short-acting opioids compared with those with another insurance type. For injury-related visits, the odds were 2.03 (95% CI: 1.87–2.21) of getting a short-acting opioid prescription compared with those that had a visit not indicated as injury-related. For the various health conditions, most were associated with increased odds of a prescription for opioids with low back pain having the highest aOR (4.12, 95% CI: 3.76–4.53). Given WC insurance frequently covers injuries, a sensitivity analysis was performed without the injury variable. The odds of a prescription for short-acting opioids increased to 2.44 (95% CI: 2.07–2.87) for those with WC insurance.

4 | DISCUSSION

Our current study evaluated patient visits of working adults aged 18–64 in the NAMCS from 2010 to 2018 (excluding 2017 due to data availability). Patients with WC insurance and with the primary

TABLE 1 Characteristics of study sample stratified by short-term opioid prescription.

	Short-acting opioid prescription Frequency (weighted %)	No short-acting opioid prescription Frequency (weighted %)	Total weighted percent
<i>Demographics</i>			
Age, years			
18–44	5958 (8.2)	63,154 (91.8)	44.9
45–65	10,579 (12.2)	76,265 (87.8)	55.1
Sex			
Male	7043 (11.7)	53,387 (88.3)	37.5
Female	9494 (9.6)	86,023 (90.4)	62.5
Race			
White	13,925 (10.4)	117,754 (89.6)	82.3
Black	2015 (12.8)	14,322 (87.3)	11.7
Other	597 (6.1)	7334 (93.9)	6.0
Ethnicity			
Hispanic	1494 (8.9)	14,756 (91.1)	13.2
Non-Hispanic	15,043 (10.6)	124,654 (89.4)	86.8
Smoking history			
Current	6221 (9.5)	58,212 (90.5)	31.8
Former/never	6942 (11.9)	45,697 (88.1)	44.5
Missing	3374 (8.8)	35,501 (91.2)	23.7
BMI			
<25	8188 (8.5)	85,905 (91.5)	58.4
25–29	3187 (11.9)	23,270 (88.1)	18.0
≥30	5162 (13.9)	30,235 (86.1)	23.5
<i>Visit characteristics</i>			
Insurance type			
Workers' Compensation	583 (25.6)	1963 (74.4)	1.6
Nonworkers' Compensation	14,722 (10.1)	128,890 (90.0)	93.0
Missing	1232 (11.8)	8557 (88.2)	5.4
Injury-related visit			
Yes	3125 (19.1)	13,983 (80.9)	10.3
No	13,412 (9.4)	125,427 (90.6)	89.7
<i>Health conditions</i>			
Diabetes	2244 (13.5)	13,490 (86.5)	11.0
Chronic renal failure	275 (15.1)	1554 (84.9)	1.4
Chronic heart failure	200 (12.9)	1068 (87.1)	0.9
Hypertension	5032 (13.8)	29,579 (86.2)	23.8
Arthritis	4052 (22.5)	14,157 (77.5)	12.0
Asthma	1378 (13.6)	8961 (86.4)	6.6
Cancer	1241 (14.1)	7539 (86.0)	4.5

(Continues)

TABLE 1 (Continued)

	Short-acting opioid prescription Frequency (weighted %)	No short-acting opioid prescription Frequency (weighted %)	Total weighted percent
Depression	2844 (14.1)	17,799 (85.9)	12.8
COPD	852 (22.2)	3056 (77.8)	2.5
Low back pain	3446 (34.3)	7204 (65.7)	6.9

Abbreviations: BMI, body mass index; COPD, chronic obstructive pulmonary disease.

diagnosis of low back pain had increased odds of being prescribed short-acting opioids. We also found several patient factors to be associated with a short-acting opioid prescription including patient sex, race, and ethnicity. Our findings highlight the need for further evaluation of opioid prescribing patterns in the WC population, and the need for continued work around policy to curb the use of opioid prescriptions in this population.

We found WC to be independently associated with a short-acting opioid prescription when compared to other types of insurance. This is in line with our group's previous work on long-acting opioids in the NAMCS database, which found increased odds of being prescribed long-acting opioids in those with WC insurance (aOR: 2.00, 95% CI: 1.12–3.57).²² Both types of opioids have been utilized for pain control.⁸ More recent guidelines from the CDC recommend the preferential use of short-acting opioids for initial treatment of all types of pain with long-acting opioids reserved for specific cases of intense, long-term pain.⁴ Our study explicitly compared opioid prescribing across different insurance types. This comparison could highlight specific patterns related to WC that are not evident when examining WC data in isolation.^{46–49} It should also be noted that visit year was adjusted for in our multivariable model, and thus our results can be considered independent of the assumed fluctuations of opioid prescribing throughout the years as seen in previous analyses of WC data.^{46–48} In our current study, we found that more WC patients had an injury-related visit compared to those with other insurance types. It could be postulated that an association between WC insurance and short-acting opioid prescriptions is related to the types of injuries and acuity of the injuries that are seen in the WC system, which frequently include musculoskeletal or conditions that are pain-related.⁵⁰ However, it is possible that there is also a complex interplay of other workplace factors. Previous literature has highlighted elevated psychosocial work demands as well as heavy physical work to be linked with work-related musculoskeletal disorders.⁵¹ Several recent reviews have hypothesized potential pathways between workplace environmental factors and opioid use, which included work-related injuries or ergonomic challenges leading to the need and use of pain medications due to injuries, as well as the impact of socioeconomic and psychosocial factors.^{52,53}

Previous literature has shown demographic differences, including by sex and race/ethnicity, in opioid prescribing in the United States. Two previous studies of the NAMCS database demonstrated an increased risk for opioid prescription after adjusting for other

variables in men, which was also seen in this current study.^{22,54} However, other studies using national databases have found increased rates of opioid prescriptions in women.^{55–58} One study showed that the association decreased after adjustment for other factors, including sociodemographic and health conditions, pointing toward a complex relationship between sex and opioid prescriptions, which suggests that our findings may be affected by this as well.⁵⁵

Another finding from this study was the decreased risk of a short-acting opioid prescription in Hispanic patients. This has been demonstrated previously in the literature in industrial as well as national cohorts.^{59–62} We also found that Black patients are at an increased risk for a short-acting opioid prescription. Whereas, other studies have found decreased opioid prescribing in the Black patients.^{61,63,64} Recently, a study of Medicare claims data found that a lower mean annual dose of opioids for Black patients compared to white.⁶⁵ This current finding may be due to our evaluation of short-acting opioids alone or our definition of opioids, as well as our chosen study-specific variables. Overall, these demographic differences are important because, while curbing the epidemic is imperative, there must be a concerted effort to treat pain effectively, especially in racial and ethnic groups that have been historically undertreated for pain.^{66–68}

Another important patient factor we found to be associated with a short-acting opioid prescription was obesity. This has been seen in previous studies including a 2020 study evaluating the Medical Expenditure Panel Survey and long-term opioid use, which found increasing odds with increasing BMI.^{69,70} Our current study found an association with short-acting opioid prescription and obesity; however, it was not strengthened based on increasing BMI after adjusting for other variables, which may be due to study design. Obesity has been associated with several pain-related conditions, including osteoarthritis and low back pain with a meta-analysis showing that those with obesity are more likely to request care for and to have low back pain.^{71,72} Another important association was with low back pain and short-acting opioid prescription. There is mounting evidence that opioids may provide minimal to no benefit over other treatments for relief of low back pain and may have more potential side effects.^{73,74} More recently, the CDC issued opioid guidelines, in which they recommend optimization of non-opioid therapies for acute pain, including low back pain, and limited use of opioids for subacute and chronic pain.⁴ For workers, low back pain can be complex and intensified by various psychosocial factors.⁷⁵ Recently, there has been an increased awareness of responsible

TABLE 2 Unadjusted and adjusted models for association of independent variables with prescription of short-acting opioids.

	Crude odds ratio (CI %)	Adjusted odds ratio (CI %)
<i>Demographics</i>		
Age, years		
18–44	Ref	Ref
45–65	1.57 (1.47–1.67)	1.15 (1.07–1.24)
Sex		
Male	Ref	Ref
Female	0.80 (0.75–0.85)	0.91 (0.85–0.97)
Race		
White	Ref	Ref
Black	1.26 (1.15–1.39)	1.22 (1.11–1.34)
Other	0.56 (0.47–0.67)	0.63 (0.52–0.76)
Ethnicity		
Non-Hispanic	Ref	Ref
Hispanic	0.82 (0.75–0.91)	0.89 (0.80–0.99)
Smoking history		
Former/never	Ref	Ref
Current	0.78 (0.73–0.83)	0.70 (0.64–0.75)
Missing	0.71 (0.66–0.77)	0.73 (0.67–0.80)
BMI		
<25	Ref	Ref
25–29	1.73 (1.61–1.86)	1.35 (1.25–1.45)
≥30	1.46 (1.34–1.59)	1.26 (1.15–1.38)
<i>Visit characteristics</i>		
Insurance type		
Nonworkers' Compensation	Ref	Ref
Workers' Compensation	3.08 (2.67–3.56)	1.73 (1.46–2.06)
Missing	1.20 (1.03–1.39)	1.21 (1.04–1.40)
Injury-related visit		
No	Ref	Ref
Yes	2.29 (2.13–2.46)	2.03 (1.87–2.21)
Visit year		
2010	Ref	Ref
2011	1.25 (1.13–1.38)	1.24 (1.12–1.38)
2012	1.13 (1.04–1.22)	1.10 (1.01–1.20)
2013	1.51 (1.38–1.64)	1.48 (1.35–1.62)
2014	1.55 (1.42–1.69)	1.24 (1.12–1.38)
2015	1.45 (1.27–1.66)	1.10 (0.95–1.28)

TABLE 2 (Continued)

	Crude odds ratio (CI %)	Adjusted odds ratio (CI %)
2016	1.20 (1.06–1.36)	1.09 (0.95–1.26)
2018	0.97 (0.81–1.16)	0.89 (0.73–1.08)
<i>Health conditions^a</i>		
Diabetes	1.41 (1.29–1.54)	1.12 (1.01–1.24)
Chronic renal failure	1.55 (1.21–1.98)	1.30 (1.00–1.70)
Chronic heart failure	1.28 (0.99–1.65)	0.90 (0.68–1.19)
Hypertension	1.55 (1.45–1.66)	1.21 (1.11–1.32)
Arthritis	3.04 (2.81–3.28)	1.94 (1.78–2.12)
Asthma	1.39 (1.25–1.55)	1.18 (1.05–1.32)
Cancer	1.44 (1.26–1.64)	1.53 (1.34–1.76)
Depression	1.50 (1.38–1.63)	1.42 (1.31–1.55)
COPD	2.55 (2.22–2.93)	2.15 (1.86–2.49)
Low back pain	5.54 (5.10–6.01)	4.12 (3.76–4.53)

Abbreviations: BMI, body mass index; COPD, chronic obstructive pulmonary disease; CI, confidence interval; ref, reference.

^aRef, no health condition.

prescribing, as seen with the evidence-based opioid treatment guidelines from the American College of Occupational and Environmental Medicine in 2014 and low back pain treatment guidelines in 2020, both of which detail specific and limited uses of opioids.^{76,77} These guidelines are more likely to be used by occupational medicine physicians who are treating work-related back pain. Additionally, states have created guidance for prescribing opioids as well as drug formularies, provider education, and other methods to curb the opioid epidemic and provide instruction on safe prescribing.^{13,78,79} For example, Washington State saw decreased opioid prescribing rates in those with WC insurance after implementing dosing guidelines.⁴⁷ Other states have enacted morphine-equivalent daily dose guidelines, with a recent study showing decreased opioid prescribing in two of these states.⁷⁹

There were several limitations to our study. First, the NAMCS does not include the patients' occupation or industry information, so we were unable to control for these variables in our model. Previous work has shown that opioid prescribing may vary by occupation.^{60,80} Additionally, we used WC insurance as a measure of work-related injuries and illnesses. This may have led to under-reporting of the association between work-related conditions and short-acting opioid prescriptions given previous literature suggesting that opioid prescriptions may be paid for by other methods, such as group health insurance.^{81–83} Second, we attempted to control for injury in the adjusted model given the number of injuries that are seen within the WC system; however, the full extent of injuries in this population may not have been accounted for.^{23,84} Future research would benefit from evaluating other common injuries, specifically including knee

and shoulder, within WC to evaluate for similar associations. Third, we recorded the first medication listed for this study; however, this may have underestimated the results as the NAMCS allows for up to 30 medications depending on the survey year.²³ Finally, NAMCS is a nationwide, publicly available, cross-sectional data set, and thus no identifiers are provided to assess for patient duplication, nor information available for patients who received prescriptions outside of the ambulatory setting.⁴⁴ Given that follow-up data is not available, we are not able to assess whether individual patients received their short-acting opioid medications and whether they took these medications as prescribed. Overall, we found higher odds of short-acting opioid prescriptions for patients with WC insurance; however, further work is needed to evaluate the ramifications of this finding.

5 | CONCLUSIONS

WC insurance, as well as several demographic characteristics, was found to be independently associated with a short-acting opioid prescription. Further work is needed to understand the effect of short-acting opioids on morbidity and mortality in the working age population.

AUTHOR CONTRIBUTIONS

Hannah M. Thompson and Ismail Nabeel contributed to the conception and design of the work. Hannah M. Thompson, Usha Govindarajulu, John Doucette, and Ismail Nabeel contributed to the acquisition, analysis, and interpretation of the data for the work. Hannah M. Thompson and Ismail Nabeel contributed to drafting the work and revising it critically for important intellectual content. Hannah M. Thompson, Usha Govindarajulu, John Doucette, and Ismail Nabeel contributed the final approval of the version of the work for publication. Hannah M. Thompson and Ismail Nabeel agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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CONFLICT OF INTEREST STATEMENT

The authors declare no conflicts of interest.

DISCLOSURE BY AJIM EDITOR OF RECORD

Leena Nylander-French declares that she has no conflict of interest in the review and publication decision regarding this article.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available in the National Ambulatory Medical Care Survey at <https://www.cdc.gov/>

[nchs/ahcd/index.htm](https://www.cdc.gov/nchs/ahcd/ahcd_index.htm). These data were derived from the following resources available in the public domain: - Ambulatory Health Care Data, https://www.cdc.gov/nchs/ahcd/ahcd_questionnaires.htm.

ETHICS APPROVAL AND INFORMED CONSENT

Icahn School of Medicine Institutional Review Board deemed this work to be not human subject research.

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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