

Medicaid Opioid Prescribing Patterns by Dentists in New York Prior to the CDC's Opioid Prescribing Guidelines

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ABSTRACT

Purpose of study: The purpose of this study is to describe dentists' prescribing patterns in New York State prior to the implementation of the 2016 CDC opioid prescribing guidelines for Medicaid beneficiaries.

Methods: The study assessed Medicaid claims data from 2014 to 2016 for New Yorkers enrolled in Medicaid. Study subjects were restricted to those who were ages 18 or older as of January 1, 2014 and were continuously covered by Medicaid for over 90 days during that period. Medicaid beneficiaries who were in acute pain, in hospice, with a diagnosis of cancer, or with end-stage renal disease were excluded from the analysis.

Every opioid prescription was converted to a standard morphine milligram equivalent (MME) using CDC conversion charts. Prescriptions and their related visits were classified as dental or non-dental, opioid or non-opioid, and dental visits were then categorized as surgical or non-surgical.

For opioid prescriptions, the total MME and days' supply (DS) were assessed for each year, by claim, by provider type, and per patient. A 15-day care episode was used to match opioid prescriptions to dental visits to study prescribing patterns. Finally, the association between the prescribed opioid quantity and the follow-up visit was analyzed using a multivariate linear mixed model.

Key findings: Dentists provided 6.9% of all opioid prescriptions, with a decrease in share from 8.2% to 5.3% between 2014 and 2016. Dentists prescribed, on average, a total MME of 112.4 compared to 1,335.3 for medical providers.

Over the 3-year study period, 1.3% of claims exceeded 90 MME daily, and 0.7% exceeded 120 MME daily. About 56.3% of claims exceeded the 3-day supply limit but only 3.4% exceeded the 7-day supply maximum. Among all dental opioid prescriptions, 89.7% were able to match a dental visit within ± 7 days of the prescription date.

In the regression analysis, New York Medicaid beneficiaries who had a follow-up surgical visit received significantly higher total MME (50.04mg, $P < 0.001$) compared to those who had non-surgical visits. For each additional day before the follow-up visit, they received 0.60mg more total MME ($P < 0.001$).

Implications: The analysis suggests that dentists' opioid prescribing practices in New York for Medicaid beneficiaries started to change leading up to 2016 in prescribing guidelines. Further research is needed to assess how dentists' prescribing practices might have changed since implementation of the new guidelines. Finally, because the analysis was limited to Medicaid claims, dentist prescribing practices for commercially-insured patients should also be assessed to determine if opioid use differs for this population.

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INTRODUCTION

- Nearly 450,000 Americans died from opioid-related overdoses between 1999 to 2018.¹
- Opioids accounted for 70% of all overdose deaths in the U.S,¹ including nearly 2,000 opioid-related deaths in New York State.²
- Dentists are a major prescriber of opioids, falling behind only primary care physicians and internists as the leading prescribers of opioids.^{3,4}
- Visits to emergency departments (EDs) for non-traumatic dental conditions (NTDC) also contribute to the use of opioids.⁵
- Finally, age also plays an important part in opioid use and abuse, with adolescents and young adults at higher risk of using and abusing prescription and non-prescription opioids than other age cohorts,⁶ and dentists significantly contribute to this by being the number one prescriber of opioids to patients 25 and under.^{7,8,9}

This study aims to describe the 3-year baseline status of dentists' opioid prescribing patterns in New York State prior to implementation of the 2016 CDC prescribing guidelines.

METHODS

- Opioid prescriptions were identified using the Medicaid pharmacy claims data.
- Every opioid prescription was converted to a standard morphine milligram equivalents (MME) per claim, per daily dose, and per total prescription, and per patient.
- Prescriptions were classified as dental or non-dental.
- A 15-day window was used to link opioid prescriptions originating from dentists to patients' potential dental visits by date.
- Current Dental Terminology (CDT) codes were used to categorize dental visits as surgical or nonsurgical.
- Descriptive statistics were calculated for all variables and outcomes.
- For opioid prescriptions, the MME and days of supply were assessed for each year, by claim, by provider type, and per patient.
- The association between the quantity of opioid prescriptions received, the length of time to a follow-up dental visit, and the follow-up visit type were all calculated using a multivariate linear mixed model.

RESULTS

Only a small percentage of prescriptions exceed the recommended MME or day-supply thresholds.

Slightly over 1% of opioid prescriptions exceeded the daily 90 MME threshold, and less than 1% exceeded the daily 120 MME threshold (Table 1). Fifty-six percent of the opioid prescriptions exceeded the 3-day supply limitation but only 3% exceeded the 7-day supply limitation.

Table 1. The Number (%) of Dentist Opioid Prescriptions Exceeding Current Best Practices, 2014 – 2016.

Prescriptions Exceeding Daily 90 MME	Dental Opioid Prescriptions	
	Number	Percent
2014	1,868	1.3
2015	1,467	1.3
2016	1,012	1.4
Prescriptions Exceeding Daily 120 MME	Number	Percent
	2014	805
2015	744	0.7
2016	609	0.8
Prescriptions Exceeding 3-Day supply	Number	Percent
	2014	82,391
2015	61,859	56.5
2016	40,104	54.7
Prescriptions Exceeding 7-Day supply	Number	Percent
	2014	4,852
2015	3,937	3.6
2016	2,275	3.1

Nearly three-fourths of dental-related opioid prescriptions were prescribed the day of a dental office visit (Table 2). Less than 5% of dental-related opioid prescriptions had no associated dental office or dental ED visits.

Table 2. Dental-Related Opioid Prescriptions Matched to Dental-related Office or Emergency Department Visits, 2014-2016

	Days Dental Opioid Prescribed	# of Opioid Prescriptions with Matching Visits	% of Prescriptions
Days Before Visit	7	13	
	6	15	
	5	52	
	4	461	
	3	1,639	
	2	6,244	
	1	11,792	
	On Visit Date	239,245	72.1
Days After Visit	1	20,353	
	2	7,548	
	3	4,531	
	4	1,311	
	5	392	
	6	40	
	7	17	
	Matched to Dental Office Visits	293,653	88.8
	No Match to Dental Office Visit	33,893	10.2
	Match to Dental Same-day ED Visits	19,119	5.8
	No Match to Any Dental-related visit	14,774	4.5
	Total	327,546	100

DISCUSSION

- While existing literature suggests that dentists' prescribing patterns contributed to the rise in misuse of opioids by patients, this research suggests that dentists in New York State had a low impact on increasing opioid use rates in the state's population.
- The majority of opioid prescriptions issued by dentists corresponded with dental office visits or dental-related ED visits, and nearly 80% were related to surgical procedures, both suggesting clinical justification for their issuance.
- Dentists prescribing patterns demonstrate general compliance with best practices in terms of limiting MMEs per prescription. Only a small percentage of dental-related prescriptions exceeded the daily 90 MME and the 7-day supply limitation.
- The evidence in this study suggests that dentists were altering opioid prescribing practices prior to changes in prescribing guidelines issued by the CDC, New York State, and professional organizations.

CONCLUSIONS

- The analysis suggests that dentists' opioid prescribing practices in New York State for Medicaid beneficiaries started to change leading up to the new guidelines issued in 2016.
- Further research is needed to assess how dentists' prescribing practices might have changed since then in response to the new guidelines.
- Dentist prescribing practices for patients with commercial insurance should be assessed to determine if opioid use and abuse differs in New York State based on socioeconomic status, insurance status, or other demographic characteristics as other research has indicated.

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