

# Opioid Prescriptions in Women: Is the Data Accurate?

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**How to cite this paper:** Khromchenko, K. and Baum, J.D. (2022) Opioid Prescriptions in Women: Is the Data Accurate? *Open Journal of Obstetrics and Gynecology*, 12, 934-940.

<https://doi.org/10.4236/ojog.2022.129078>

**Received:** August 3, 2022

**Accepted:** September 12, 2022

**Published:** September 15, 2022

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## Abstract

**Background:** In 2012, U.S. health care providers wrote more than 259 million opioid prescriptions, which is twice as many as in 1998. Approximately 1 in 10 women report the use of opioids for pain management during pregnancy. The Centers for Disease Control and Prevention (CDC) estimated that between 2008 and 2012, 39% of reproductive-aged women on Medicaid had filled a prescription for opioid medication each year, as did 28% of women with private insurance. The opioid epidemic extends to the state of New Jersey (NJ); however, limited data is available regarding opioid prescriptions among Medicaid and private insurance patients within the state. **Objective:** Evaluate opioid prescriptions filled in reproductive-aged women presenting in labor at a community teaching hospital in suburban New Jersey. **Methods:** We performed a retrospective cohort study using data obtained from patient records and the New Jersey Prescription Monitoring Program (NJMPMP) database. We enrolled 200 patients that were admitted in labor between May 2015 and May 2016. Data was collected from reproductive-aged women during the one year preceding labor admission. We compared our findings to national data reported by the CDC using Chi-square analysis. Maternal demographic data were extracted from patient records and included age, insurance status (private insurance, Medicaid, and no insurance), race, and ethnicity. The primary outcome was opioid prescriptions filled. **Results:** Of the 200 women admitted in labor, 129 had private insurance, 63 had Medicaid, and 8 had no insurance. We found that 5.4% (7/129) of patients with private insurance, 4.8% (3/63) of patients with Medicaid, and 12.5% (1/8) of patients with no insurance filled opioid prescriptions. Overall, 5.5% (11/200) of women filled opioid prescriptions during the study period. Opioid prescriptions confirmed via NJMPMP were significantly lower than rates reported by the CDC in Medicaid (4.8% vs. 41.4%, p-value < 0.001) and private insurance (5.4% vs. 29.1%, p-value < 0.001) patients, respectively. **Conclusion:** Rates of opioid prescriptions filled were lower among our suburban cohort of women in New

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Jersey than national rates reported by the CDC. We did not confirm that patients with Medicaid filled more prescriptions than patients with private insurance. These discrepancies raise the question of whether a federal prescription monitoring program would better capture data than state-wide programs. Further research is needed to ensure that prescription monitoring programs are actually capturing accurate data.

### Keywords

Centers for Disease Control and Prevention (CDC), Medicaid, New Jersey, New Jersey Prescription Monitoring Program (NJMPMP), Opioid(s), Prescription, Private Insurance, Reproductive

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## 1. Background

The opioid crisis continues to affect the U.S. population in record numbers. In 2012, U.S. health care providers wrote more than 259 million opioid prescriptions, which is twice as many as in 1998 [1]. Data suggest that almost half of heroin addictions began with opioid medications prescribed by healthcare professionals [2]. From 2010 to 2017, the number of women with opioid-related diagnoses documented at delivery had increased by 131%. According to self-reported data from 2019, almost 1 in 10 women reported using prescription opioids for pain management during pregnancy with 1 in 5 reporting misuse [3].

Additionally, in 2015, the CDC came out with a notable statistic, estimating that 39% of reproductive-aged women on Medicaid had filled a prescription for opioid medication each year, as did 28% of women with private insurance during 2008-2012 [4]. A particular disparity was observed in 2009, when opioid prescription claims were highest with 29.1% of privately insured women and 41.4% of Medicaid-enrolled women filling a prescription for an opioid [5]. One study found that between 2000 and 2007, about 1 in 5 Medicaid-enrolled pregnant women filled at least one prescription opioid at any time during pregnancy. Wide regional variation was observed ranging from about 10% in the Northeast to almost 40% in the South and Midwest [6].

In June of 2016, Chris Christie, former governor of New Jersey and chairman of the President's Commission on Combating Drug Addiction and the Opioid Crisis, declared that his state and the country were in a "state of emergency" [7]. To combat this, in 2017, the New Jersey Senate approved a bill that limits opioid prescribing to five days, which is the most stringent law in the U.S. [8]. Current data suggests that post-legislation, the rate of opioid dispensing diminished, leading to a reduction in opioids provided for patients as well as a reduction in opioid dose per new prescription in New Jersey [8] [9]. However, the effectiveness of such legislation in reducing *opioid use* is unclear [10].

Pursuant to N.J.S.A. 45: 1 - 45 et. seq., the New Jersey Prescription Monitoring Program (NJMPMP) was instituted in 2011 by the Division of Consumer Affairs to

serve as a database of patients, pharmacies, and prescribers of controlled substances in order to decrease abuse and diversion of prescription drugs. Our goal was to examine opioid prescriptions filled in reproductive-aged women in a suburban New Jersey cohort using the NJPMP database and compare our results to those reported by the CDC.

## 2. Methods

A retrospective cohort study was performed and approved by the Hackensack Meridian Health Institutional Review Board. Patients included in the study were those admitted for labor in the third trimester of pregnancy at our university-affiliated community hospital between May 2015 and May 2016. We included 200 patients in our cohort. The primary outcome of the study was whether a prescription for opioids was filled during the one-year period prior to admission. The NJPMP was searched to determine if prescriptions for controlled substances were filled during the one-year period prior to admission. Additional data collected from patients' charts included age, gravidity, gestational age at the time of delivery, route of delivery, race and ethnicity, and insurance type. Multiple gestations, fetal demises, and fetal anomalies were all excluded. Patients in our cohort were divided based on insurance type (Medicaid, private insurance, or no insurance). The total number of prescriptions filled in each category was determined along with their respective ratios. Our findings were then compared with the CDC's national data from 2009 using Chi-Square Analysis [4] [5]. The following online Chi-Square Calculator was used:

<https://www.socscistatistics.com/tests/chisquare/>.

## 3. Results

We enrolled 200 non-consecutive patients admitted in labor between May 2015 and May 2016. Patient characteristics are summarized in **Table 1**. We found that 5.5% (11/200) of patients had filled prescriptions for opioids during pregnancy. Prescriptions were obtained from patients' health care providers for pain management and confirmed by the NJPMP. No adverse reactions were reported. Of those patients who filled opioid prescriptions, 63.6% (7/11) had no known history of drug use, addiction, or psychiatric disorders. Additionally, the average gravidity of the 11 patients was 4, and the average gestational age was 36.7 weeks. In regard to delivery route, 63.6% (7/11) of patients had a spontaneous vaginal delivery and 36.4% (4/11) of patients underwent cesarean deliveries (**Table 2**).

Out of the total patients in our sample, 3.5% (7/200) of patients with private insurance, 1.5% (3/200) of patients with Medicaid, and 0.5% (1/200) of patients with no insurance had prescriptions for opioids. The proportion of patients with private insurance who filled prescriptions was 5.4% (7/129) versus 4.8% (3/63) of patients with Medicaid (**Table 3**). Both of these values were significantly lower than the CDC findings (p-values < 0.001) (**Table 3**).

**Table 1.** Patient characteristics (n = 200).

<i>Characteristic</i>	<i>Mean</i>
Age (years)	30.2 (range 17 - 46)
Gravidity	3 (range 1 - 16)
Gestational Age (weeks)	38.8 (range 27.7 - 41.4)
<b>Insurance</b>	
Private	129 (64.5%)
Medicaid	63 (31.5%)
None	8 (4.0%)
<b>Race/Ethnicity</b>	
Caucasian	141 (70.5%)
African American	24 (12.0%)
Hispanic	15 (7.5%)
Asian	5 (2.5%)
Other	15 (7.5%)
<b>Delivery Route</b>	
Vaginal	132 (66.0%)
Operative Vaginal	10 (5.0%)
Cesarean	58 (29.0%)

**Table 2.** Characteristics of patients who filled opioid prescriptions (n = 11).

<i>Characteristic</i>	<i>Mean</i>
Age (years)	30.4 (range 21 - 42)
Gravidity	4 (range 2 - 11)
Gestational Age (weeks)	36.7 (range 33.1 - 40)
<b>Insurance</b>	
Private	7 (63.6%)
Medicaid	3 (27.3%)
None	1 (9.1%)
<b>Delivery Route</b>	
Vaginal	7 (63.6%)
Operative Vaginal	0 (0.0%)
Cesarean	4 (36.4%)

**Table 3.** Comparison of cohort in NJ to 2009 CDC data.

Prescription Filled	Cohort in NJ	CDC	p-value
Overall	n = 200	n = 5,777,707	
Yes	11 (5.5%)	1,749,261 (30.3%)	<0.001
No	189 (94.5%)	4,028,446 (69.7%)	
Private Insurance	n = 129	n = 5,225,282	
Yes	7 (5.4%)	1,520,557 (29.1%)	<0.001
No	122 (94.6%)	3,704,725 (70.9%)	
Medicaid	n = 63	n = 552,425	
Yes	3 (4.8%)	228,704 (41.4%)	<0.001
No	60 (95.2%)	323,721 (58.6%)	

#### 4. Discussion

We found that the overall rates of opioid prescriptions filled during the one year preceding labor admission at our community teaching hospital were lower than the national rates for women of reproductive age (**Table 3**). Our data also suggests that patients with private insurance may actually fill more prescriptions than patients with Medicaid. This is in contrast to CDC data, which suggests that patients with Medicaid fill more prescriptions than those with private insurance.

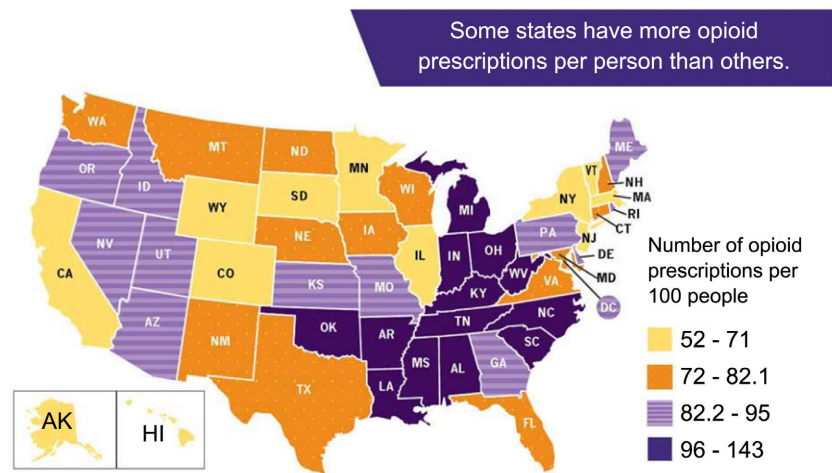
Overall, our local findings are inconsistent with national data reported by the CDC. Potential explanations include:

- 1) High rates of prescription medication among Medicaid-enrolled patients in other states skew CDC data.
- 2) We underestimated the number of opioid prescriptions filled.
- 3) CDC data overestimated the number of opioid prescriptions filled.
- 4) Our local population represents a lower-risk cohort of women.
- 5) The NJPMP did not capture all of the prescriptions filled due to medical tourism (travel to neighboring states by patients in order to fill their prescriptions).

Studies have shown that in the U.S., there is wide regional variation in the number of opioid prescriptions filled with higher rates in the South and Midwest compared to the Northeast [6]. CDC data from 2014 demonstrate these findings as well (**Figure 1**). It is likely that national rates of prescription use favor higher-risk states.

Additionally, because the CDC reported population-level data and our study focuses on a cohort sample, it is unlikely that the CDC overestimated the number of opioid prescriptions filled. However, our uncertainty supports the notion that a more reliable source of data collection is necessary and should be standardized.

According to the CDC, NJ has lower opioid prescriptions per 100 people than many other states (**Figure 1**), yet it ranks much higher in drug overdose-related



SOURCE: IMS, National Prescription Audit (NPA™), 2012.

**Figure 1.** Source: Opioid painkiller prescribing infographic. Centers for disease control and prevention. <https://www.cdc.gov/vitalsigns/opioid-prescribing/infographic.html>

deaths. In 2017, NJ's rate of drug overdose deaths was statistically higher than the U.S. rate of 21.7 per 100,000 standard population [11]. This discrepancy suggests that New Jersey is a high-use state and that the NJPMP does not reflect this. If state monitoring programs are not adequately capturing all prescriptions filled by patients, possibly due to medical tourism, this issue may be better addressed with a federal prescription monitoring program (FPMP).

Our study has some important limitations which may limit generalizability of our findings. Firstly, our patients were non-consecutive and, therefore, may be subject to sampling bias. In addition, we lack the ability to determine whether patients filled opioid prescriptions in other neighboring states (medical tourism). Future study with inclusion of prescription monitoring data from adjacent states or compilation of regional data could potentially alleviate these limitations.

Strengths of our study include sampling patients at a single institution located in a high-risk area. This decreases the likelihood of underreporting due to sampling of a cohort with lower opioid use. The lower rates of opioid prescriptions filled in our cohort suggest that the NJPMP may not be capturing accurate data.

## 5. Conclusion

Rates of opioid prescriptions filled were lower among our suburban cohort of women in New Jersey than the national rates reported by the CDC. We did not confirm that patients with Medicaid filled more prescriptions than patients with private insurance. These discrepancies raise the question of whether a state-wide monitoring program is under-reporting opioid prescriptions due to medical tourism in neighboring states. It is possible that a federal prescription monitoring program may perform better than state-wide programs operating individually. Given that opioid prescriptions, opioid-related diagnoses, and opioid use during pregnancy continue to rise, more research is needed to ensure that prescription monitoring programs are actually capturing accurate data.

## Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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