

# Opioid Prescriptions among Reproductive-Aged Women in Mississippi, 2012-2017



**Background:** Between 2008 and 2012 in the United States, an estimated 27.7% of reproductive-aged women with private insurance and 39.4% of reproductive-aged women with Medicaid filled an opioid prescription.<sup>1</sup> Given their correlation with serious maternal and infant health problems, opioids prescribed during women's reproductive years pose a public health concern and warrant state-level surveillance.

**Data:** Prescription Drug Monitoring Program (PDMP) data contain information on prescription drugs and patient demographics and present a unique opportunity to study opioid prescription patterns and trends among women of reproductive age (15-44 years). Using PDMP data, we performed trend analyses and determined the number, dose, and duration of opioid prescriptions dispensed to reproductive-aged women in Mississippi. The study was restricted to opioids used as analgesics (pain relievers). We excluded opioids indicated for addiction treatment (e.g., buprenorphine) and opioid-based cough suppressants. The analysis included Mississippi residents only.

**Overall Distribution:** Between 2012 and 2017, physicians prescribed more opioids to women than to men (Figure 1). During 2017, for example, 59.1% (1,836,956) of all opioid prescriptions in Mississippi were dispensed to women.

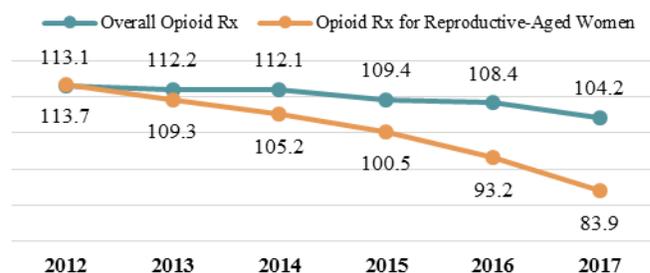
During the same year, women of childbearing age filled 16.0% (496,643) of all opioid prescriptions in the state. Of all the opioid prescriptions dispensed to women of reproductive age, women aged 35 to 44 filled slightly over half (50.7%) of all scripts. By contrast, women aged 25 to 34 filled slightly over one third (34.3%) and women aged 15 to 24 years filled 15.0%.

**Figure 1. Opioid Prescriptions by Age and Gender in MS: Percent Distribution, 2012 and 2017**



**Trends:** During 2012, there were more opioid prescriptions than there were people in the state. Since 2012 there has been, however, a steady downtrend in the overall opioid prescription rate in Mississippi. At the beginning of the study period, reproductive-aged women and the general population had similar opioid prescription rates. Compared to the general population, however, reproductive-aged women experienced a greater decline in opioid prescription. Opioid prescription rates declined by 7.9% for the general population, but by 26.2% for reproductive-aged women—from 113.7 opioid prescriptions in 2012 to 83.9 opioid prescriptions per 100 reproductive-aged women in 2017. In absolute numbers, reproductive-aged women filled 188,375 fewer opioid prescriptions in 2017 compared to 2012. The greatest decrease in opioid prescription occurred among women younger than 34 years of age (Table 1, Page 2).

**Figure 2. Opioid Prescriptions: Overall and Reproductive-Aged Women in MS, 2012-2017 (Rates per 100 Persons)**

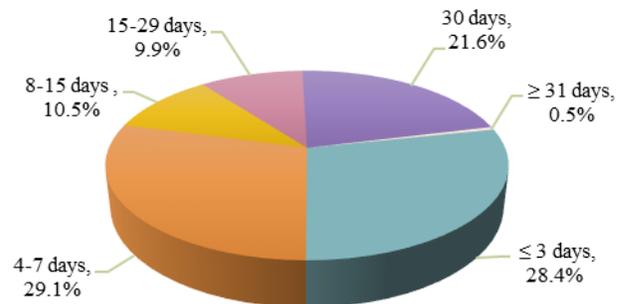


**Table 1. Prescription Opioids Dispensed to Reproductive-Aged Women in MS, 2012-2017: Numbers, Rate (per 100), Dose, and Duration**

Prescription Opioids	2012	2013	2014	2015	2016	2017	Change 2012-2017	Average Annual Change
Prescriptions (Rx)	685,018	657,439	632,740	602,493	555,054	496,643	-27.5%	-6.2%
<b>Rate by Age Group</b>								
15-24 years	53.2	50.5	47.9	45.2	41.2	36.5	-31.4%	-7.3%
25-34 years	130.5	123.2	117.1	109.6	99.2	85.5	-34.5%	-8.1%
35-44 years	164.9	161.1	157.4	152.4	144.2	134.0	-18.7%	-4.1%
<b>Dosage (MME)</b>								
Total MME	291,045,772	279,130,873	271,726,473	263,205,154	237,997,082	212,473,833	-27.0%	-6.1%
Mean MME/ Rx	424.9	424.6	429.4	436.8	428.8	427.8	0.7%	0.1%
Mean MME/Day/Rx	36.4	38.3	37.5	37.5	36.9	36.6	0.5%	0.1%
<b>Days' supply</b>								
Total days' supply	7,918,375	7,669,034	7,370,772	7,149,652	6,616,647	5,936,889	-25.0%	-5.6%
Mean days' supply	11.6	11.7	11.6	11.9	11.9	12.0	3.4%	0.7%
<b>Top Opioids</b>								
Hydrocodone	463,501	440,719	404,820	355,202	321,261	277,374	-40.2%	-9.8%
Tramadol	83,735	80,664	84,200	87,965	78,943	71,202	-15.0%	-3.2%
Oxycodone	77,973	78,367	85,462	96,429	95,098	92,824	19.0%	3.5%

**Dose and Duration:** To evaluate the strength of opioid prescriptions, we implemented morphine milligram equivalents (MME), a measure that converts opioids of various strengths into a standard value. The duration of treatment was assessed by the days of supply recorded for each prescription. From 2012 to 2017, total MME for opioid prescriptions and their total days of supply declined by 27.0% and 25.0%, respectively (Table 1). Between 2012 and 2017, the average daily dosage (MME) per prescription remained stable (annual percent change = 0.1%).

The analysis of treatment duration revealed that one fifth of all opioid prescriptions dispensed to reproductive-aged women were for 30 days and nearly 60% were for up to 7 days (Figure 3). During the study period, the most commonly prescribed opioids were hydrocodone, tramadol, and oxycodone. There was a significant decline in prescriptions for hydrocodone (by 40.2%) and tramadol (by 15.0%). At the same time, the number of prescriptions for oxycodone, an opioid 1.5 times more potent than morphine, increased by 19.0%.

**Figure 3. Opioid Prescriptions Dispensed to Reproductive-Aged Women in MS by Days of Supply: Combined Data, 2012-2017**

**Conclusions:** Compared to men, studies have shown that women are more likely to experience pain. In addition, they are more likely to be prescribed pain medications and to use these medications in higher doses and for longer periods of time than men.<sup>2</sup> Our study, however, uncovered a considerable decline in the overall number, dose, and duration of opioid prescriptions filled by reproductive-aged women. This downtrend in opioid prescription is an encouraging and welcome trend. Declining opioid prescription rates will decrease the risk for adverse obstetric and neonatal outcomes, including neonatal abstinence syndrome. Physicians are still, however, prescribing far too many opioids to reproductive-aged women. An additional concern was the steady uptrend in the number of oxycodone prescriptions. More efforts by physicians and public health structures are needed to stop the opioid epidemic. Such measures include the use of non-opioid pharmacological or non-pharmacological treatments for pain-related illnesses and education about the significant health risks associated with opioid use during reproductive age.

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**References:**

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