



Opioid Use in Medicare Part D in Missouri

Key Takeaways

- ✓ Thirty-three percent of Medicare Part D beneficiaries in Missouri received a prescription opioid in 2018. This is higher than the national rate.
- ✓ Nearly 10,000 beneficiaries in Missouri received high amounts of opioids through Part D.
- ✓ About 1,400 of these Medicare beneficiaries are at serious risk of opioid misuse or overdose.
- ✓ The severity of the national crisis makes it imperative that States take effective steps to address the epidemic.
- ✓ OIG is committed to working with our Federal and State partners to fight the opioid crisis and protect beneficiaries.

The opioid crisis is a public health emergency.¹ There were 47,600 opioid-related overdose deaths in the United States in 2017.² As part of its efforts to address this crisis, the Office of Inspector General (OIG) has assessed opioid use in Medicare Part D nationwide and in specific areas, such as the Appalachian region. This data brief focuses on Missouri and provides Statewide data of opioid utilization in Medicare Part D. These data are particularly important for Missouri, as it is the only State that does not currently have a Statewide prescription drug monitoring program.³

Opioids include narcotics intended to manage pain from surgery, injury, or illness. They can create a euphoric effect, which makes them vulnerable to abuse and misuse (i.e., taking opioids in a way other than prescribed). Although opioids can be appropriate for some beneficiaries, OIG has had ongoing concerns related to the misuse, abuse, and diversion of these drugs. These concerns extend to opioids obtained under Medicare Part D, the optional prescription drug benefit for Medicare beneficiaries. In 2018, Part D covered 45.8 million beneficiaries.

In addition, opioid use carries a number of health risks. Side effects from using opioids may include respiratory depression, confusion, increased tolerance, and physical dependence.⁴ For seniors, long-term use of prescription opioids also increases the likelihood of falls and fractures.⁵

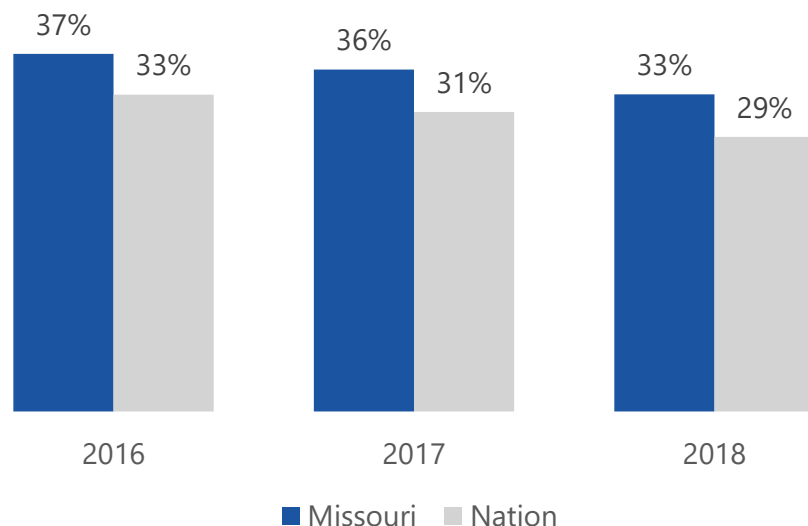
RESULTS

One-third of beneficiaries in Missouri received an opioid through Part D in 2018, which is higher than the national rate

One out of every three beneficiaries in Missouri (33 percent) received at least one prescription opioid through Medicare Part D in 2018. About 321,000 beneficiaries received opioids out of the approximately 973,000 who were enrolled in Medicare Part D in Missouri. The proportion of beneficiaries receiving opioids in Missouri was higher than in the Nation; nationwide, 29 percent of Part D beneficiaries received a prescription opioid.

The proportion of beneficiaries in Missouri who received an opioid through Medicare Part D decreased from 2016 and 2017; however, it was higher than the nationwide proportion each year. See Exhibit 1.

Exhibit 1: The proportion of beneficiaries in Missouri who received an opioid through Medicare Part D decreased from 2016 to 2018; however, Missouri's rate was higher than the Nation's each year.



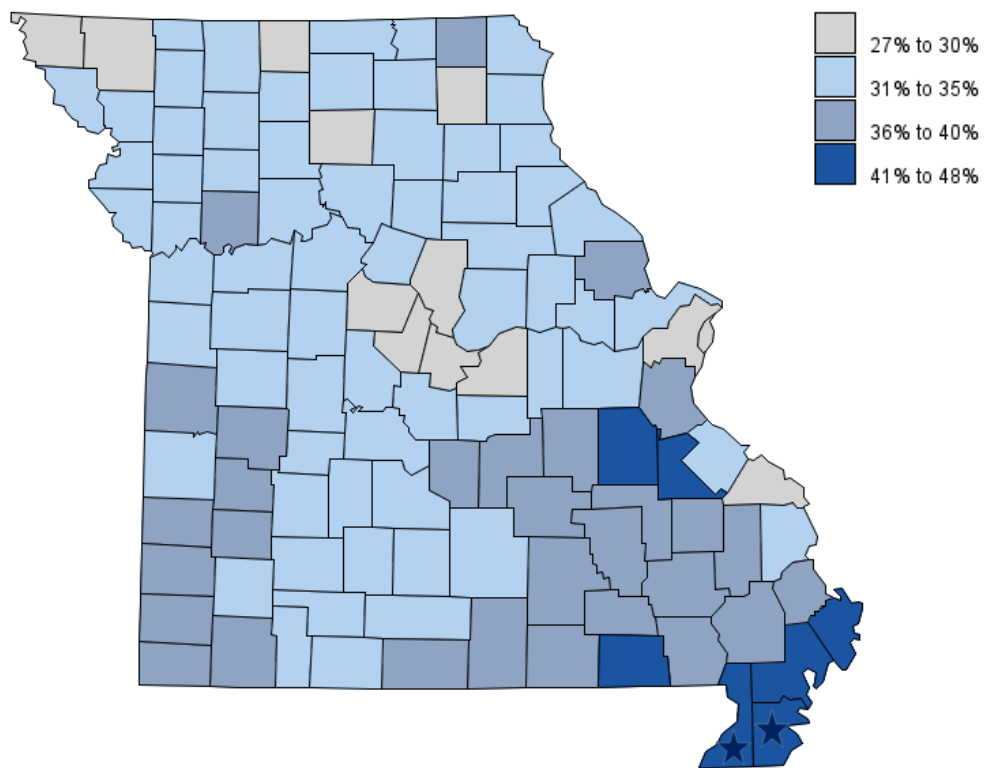
Source: OIG analysis of Part D data, 2019.

In addition, Missouri had a higher rate of opioid-related overdose deaths than did the Nation.⁶ Moreover, preliminary data for 2018 show that the number of drug overdose deaths in Missouri has increased, despite a decrease nationwide.⁷

In total, Part D paid for 1.8 million opioid prescriptions for Missouri beneficiaries in 2018, an average of 5.6 prescriptions per beneficiary receiving opioids.⁸ Part D paid a total of \$86 million for these opioids. Tramadol, hydrocodone-acetaminophen, and oxycodone-acetaminophen were the most commonly prescribed opioids for beneficiaries in Missouri in 2018.⁹

A number of counties stand out. Pemiscot and Dunklin—neighboring counties located in the southeastern corner of the State—had the highest proportions of beneficiaries receiving opioids, each with more than 45 percent of its Part D beneficiaries receiving at least one opioid. In each of five additional counties—Washington, Ripley, Mississippi, New Madrid, and St. Francois—41 percent or more of Part D beneficiaries received an opioid. Perry County had the lowest proportion of beneficiaries receiving at least one opioid, at 27 percent. See Exhibit 2 and Appendix A.

Exhibit 2: In seven counties in Missouri, 41 percent or more beneficiaries received at least one opioid through Medicare Part D in 2018.



Almost 10,000 beneficiaries in Missouri received high amounts of opioids through Part D

In 2018, a total of 9,981 beneficiaries in Missouri received high amounts of opioids through Medicare Part D; these beneficiaries did not have cancer and were not in hospice care.¹⁰

Each of the 9,981 beneficiaries received an average morphine equivalent dose (MED) of greater than 120 mg a day for at least 3 months in 2018 through Medicare Part D. MED is a measure that converts all the various types and strengths of opioids into one standard value. This measure is also called morphine milligram equivalent (MME). A daily MED of 120 mg is equivalent to taking 12 tablets a day of Vicodin 10 mg or 16 tablets a day of Percocet 5 mg. See Appendix B.

Although beneficiaries may receive opioids for legitimate purposes, these amounts raise concern. The Centers for Disease Control and Prevention (CDC) recommends that prescribers use caution when ordering opioids at any dosage and that they avoid increasing dosages to the equivalent of 90 mg or more MED a day for chronic pain.¹¹

Opioids also carry health risks, including respiratory depression, constipation, drowsiness, and confusion.¹² Older adults may also be at an increased risk of injury, as research has shown that the risk of fracture may increase as drug dosage increases.¹³

The most commonly prescribed opioids for beneficiaries receiving high amounts were oxycodone-acetaminophen 10 mg and hydrocodone-acetaminophen 10 mg. Nearly 19 percent of all beneficiaries who received high amounts of opioids in Missouri had at least one prescription for oxycodone-acetaminophen 10 mg, while 16 percent had a prescription for hydrocodone-acetaminophen 10 mg. Thirteen percent of beneficiaries who received high amounts of opioids had at least one prescription for fentanyl patch 50 mcg/hr. Fentanyl and oxycodone are among the most common opioids involved in law enforcement cases.¹⁴

About 1,400 Medicare beneficiaries in Missouri are at serious risk of opioid misuse or overdose

Two groups of beneficiaries that are at serious risk of opioid misuse or overdose are (1) beneficiaries who receive extreme amounts of opioids and (2) beneficiaries who appear to be doctor shopping. Other Part D beneficiaries may also be at serious risk of opioid misuse or overdose but do not fall into either group.

In Missouri, 1,411 beneficiaries in Medicare Part D were in one of these two groups in 2018 and were therefore at serious risk. (This does not include beneficiaries who had cancer or were in hospice care.) Specifically, 1,182 beneficiaries received extreme amounts of opioids (i.e., an average daily MED greater than 240 mg for 12 months) and 240 beneficiaries appeared to be doctor shopping (i.e., received high amounts of opioids and had 4 or more prescribers and 4 or more pharmacies). Eleven

beneficiaries were in both groups. Most beneficiaries who received opioids in Missouri through Medicare Part D had just one prescriber and one pharmacy.

A beneficiary's receiving extreme amounts of opioids or receiving high amounts of opioids from multiple prescribers and pharmacies raises concern. It may signal that the beneficiary's care is not being monitored or coordinated properly or that the beneficiary's care needs to be reassessed.¹⁵ It may also indicate that the beneficiary is seeking medically unnecessary drugs, perhaps to use them recreationally or to divert them or that the beneficiary is addicted to opioids and at risk of overdose.

Furthermore, when a beneficiary receives high amounts of opioids from multiple prescribers and pharmacies, it may indicate that prescribers and pharmacies are not checking information about the beneficiary's opioid history, or that they do not have access to this information. All States but Missouri have Statewide prescription drug monitoring programs, which are databases that track prescriptions for controlled substances.¹⁶ Prescribers and pharmacies can check these databases before ordering or dispensing opioids to determine whether a beneficiary is already receiving opioids.

In Missouri, St. Louis County began operating a prescription drug monitoring program in 2017, and about half of Missouri's counties and some additional localities in the State participate in this program.¹⁷ Prescribers and pharmacies may check the St. Louis County database before ordering or dispensing opioids, but they are not required to do so. Further, the database contains information only about opioids dispensed in counties and localities that participate in the St. Louis program.

Most of the beneficiaries at serious risk in Missouri were under the age of 65. These individuals may have qualified for Medicare because they have disabilities or end-stage renal disease.¹⁸ Seventy-six percent of beneficiaries at serious risk were under 65 years old; 20 percent were between 65 and 75; and 3 percent were over 75.

Examples of Medicare Part D Beneficiaries in Missouri at Serious Risk of Opioid Misuse or Abuse

One beneficiary's average daily MED for the year was 2,017 mg—22 times the level of opioids that CDC recommends avoiding. The beneficiary received 50 opioid prescriptions during the year, which included prescriptions for morphine and methadone. All but one of these prescriptions were ordered by a single physician.

A beneficiary received a 13-month supply of oxycodone 80 mg, a 12-month supply of fentanyl 100 mcg/hr patches, and a 12-month supply of oxycodone-acetaminophen 7.5 mg/325 mg. Over the course of the year, the beneficiary received 37 opioid prescriptions, resulting in an average daily MED of 2,065 mg. All of these prescriptions were ordered by one physician.

Another beneficiary received 42 opioid prescriptions from 18 prescribers and filled these prescriptions at 9 pharmacies in 2018. In a single month, this beneficiary received eight opioid prescriptions from six different prescribers and filled them at three different pharmacies. These included prescriptions for oxycodone and hydrocodone-acetaminophen.

A fourth beneficiary received 47 opioid prescriptions from 14 prescribers and filled these prescriptions at 6 pharmacies during the year. All of these prescriptions were for oxycodone. In one instance, the beneficiary received prescriptions on 2 consecutive days for different strengths of oxycodone. Shortly after, the patient received a third prescription, for a 30-day supply of a high strength of oxycodone (80 mg extended-release). This prescription, which was ordered by dentist, increased the patient's daily MED to 375 mg.

CONCLUSION

Opioid abuse and overdose deaths are at epidemic levels. In Missouri, 33 percent of Part D beneficiaries received a prescription opioid in 2018. Although this is a decrease from 2016 and 2017, the percentage of beneficiaries receiving opioids in Missouri remains higher than the percentage in the Nation as a whole. Furthermore, almost 10,000 Medicare beneficiaries in Missouri received high amounts of opioids in 2018 and about 1,400 of them were at serious risk of opioid misuse or overdose because they received extreme amounts of opioids or appeared to be doctor shopping.

Although opioids may be necessary for some patients, the extreme use of opioids and indications of doctor shopping described in this study raise concern. These patterns may indicate that opioids are being prescribed for medically unnecessary purposes and then diverted for resale or recreational use. It may also indicate that a beneficiary is receiving poorly coordinated care or that a beneficiary's care may need to be reassessed. In addition, it raises concern that prescribers and pharmacies are not checking patients' histories of opioid prescriptions, or that they lack access to this information.

The lack of available data is of particular concern in Missouri, as Missouri does not have a Statewide prescription drug monitoring program. St. Louis County operates a program in which about half of Missouri's counties and some additional locations participate. However, prescribers and pharmacists are not required to check the program's database to determine whether a patient is already receiving opioids before they order or dispense an opioid. Also, the St. Louis database does not include data from the many parts of the State that do not participate.

The severity of the national crisis makes it imperative that States, including Missouri, take effective steps to address the epidemic. In 2018, Missouri began limiting certain initial prescriptions of opioids.¹⁹ Starting in 2021, Missouri will require electronic prescribing of opioids, in most cases.²⁰ In addition, Missouri is coordinating with its partners to increase prevention, treatment, and recovery services.²¹

CMS has also implemented a number of new initiatives to address opioid overutilization in Part D.²² For instance, Part D sponsors may limit certain "at-risk" beneficiaries to selected pharmacies or prescribers for their opioid prescriptions.²³ Also, Part D sponsors are now expected to implement care coordination alerts at the point of sale when a beneficiary's total daily MED reaches or exceeds 90 mg. Further, for beneficiaries starting opioids, Part D sponsors are expected to limit initial opioid prescriptions to no more than 7 days for the treatment of acute pain.

OIG supports State and Federal efforts to combat the opioid crisis. Notably, OIG supports States' efforts to implement and enforce strong prescription drug monitoring programs that require prescribers and pharmacies to check a database before prescribing and dispensing opioids. Prescription drug monitoring programs can provide valuable information to prescribers and pharmacies about a patient's opioid prescription history.

OIG also remains committed to fighting the opioid crisis and protecting beneficiaries from prescription drug abuse and misuse. We will continue to work with State and Federal partners to follow up on beneficiaries and prescribers, as appropriate. In addition, OIG recently released an opioid analysis toolkit to assist our partners.²⁴ The toolkit provides detailed step-by-step instructions for using prescription drug data to identify patients who are at risk of opioid misuse or overdose. OIG also has reviews in progress regarding key opioid initiatives, including access to medication-assisted treatment for opioid use disorder and grants for prescription drug monitoring programs.²⁵

METHODOLOGY

We based this data brief on an analysis of prescription drug event (PDE) records for Part D drugs. This data brief includes prescriptions that beneficiaries in Missouri received through Part D. It does not include prescriptions paid for through other programs such as Medicaid; prescriptions paid for in cash; or illicitly purchased drugs. Part D sponsors submit a PDE record to CMS each time a drug is dispensed to a beneficiary enrolled in their plans. Each record contains information about the drug and beneficiary, as well as the identification numbers for the pharmacy and the prescriber.

To obtain descriptive information about the drugs, beneficiaries, and pharmacies, we matched PDE records to data from the First DataBank, the National Claims History File, Part C Encounter Data, CDC's Morphine Milligram Equivalent (MME) conversion file, and the National Plan and Provider Enumeration System (NPPES) database. First DataBank contains information about each drug, such as the drug name, strength of the drug, and therapeutic class (e.g., an opioid). The National Claims History File contains claims data—including diagnosis codes—from Medicare Parts A and B. Part C Encounter Data contain medical claims data—including diagnosis codes—for beneficiaries enrolled in Medicare Advantage plans. CDC's MME conversion file contains information about each opioid's drug morphine milligram equivalence.²⁶ The NPPES contains information about prescribers, such as names and addresses. For the purposes of this study, we use the term "prescription" to mean one PDE record.

Analysis of Part D Opioid Utilization and Spending

We identified all PDE records for opioids that beneficiaries received in 2018.²⁷ We calculated the total number of Part D beneficiaries in Missouri who received opioids in 2018.²⁸ For these beneficiaries, we then calculated the total number of opioid prescriptions paid for by Part D in 2018 and the average number of opioid prescriptions per beneficiary receiving opioids. We also calculated the proportion of beneficiaries in the State who received opioids in 2018, and the proportion of beneficiaries in each county who received opioids in 2018.²⁹ We based this analysis on the PDE records and Medicare enrollment data. We compared these data to data from our previous data briefs, which calculated the proportion of beneficiaries who received opioids in each State and in the Nation as a whole in 2016, 2017, and 2018. We then calculated the most commonly prescribed opioids by calculating the total number of prescriptions for each drug name (delineated by strength and form).

Beneficiary Analysis

We determined the amount of opioids that each beneficiary in Missouri received in 2018. To do this, we calculated each beneficiary's average daily morphine equivalent dose (MED).³⁰ The MED converts opioids of different ingredients, strengths, and forms into equivalent milligrams of morphine. It allows us to sum dosages of different opioids to determine a beneficiary's daily opioid level.

To calculate each beneficiary's average daily MED, we first calculated the MED for each prescription (i.e., PDE record).³¹ To do this, we used the following equation:

$$MED = \frac{(Strength\ per\ unit) \times (Quantity\ dispensed) \times (MME\ conversion\ factor)}{(Days\ supply)}$$

Next, we summed each beneficiary's MED for each day of the year based on the dates of service and days supply on each PDE record. We refer to this as the daily MED. We excluded from this analysis beneficiaries with a diagnosis of cancer or a hospice stay at any point in 2018.³²

We analyzed the MED data using the same criteria that we used in our previous national analyses of Part D data from 2016, 2017, and 2018.³³ We began by determining the extent to which beneficiaries received high amounts of opioids. To do this, we calculated each beneficiary's average daily MED over each 90-day period in 2018. We determined that a beneficiary received high amounts of opioids if he or she exceeded an average daily MED of 120 mg for any 90-day period *and* had received opioids for 90 or more days in the year.

We then determined the extent to which beneficiaries received extreme amounts of opioids. We calculated each beneficiary's average daily MED over the entire year. We considered a beneficiary who exceeded an average daily MED of 240 mg for the entire year *and* had received opioids for 360 days or more to have received an extreme amount of opioids.

Next, we determined the extent to which beneficiaries appeared to be doctor shopping. To do this, we calculated the total number of prescribers and pharmacies from which each beneficiary received opioids in 2018. We considered beneficiaries to have appeared to be doctor shopping if they exceeded an average daily MED of 120 mg for any 90-day period; received opioids for 90 or more days in the year; and received opioids from four or more prescribers *and* four or more pharmacies.

Limitations

This analysis is based on Part D PDE records; it is not based on a review of medical records. The analysis does not include data on opioids that beneficiaries may have received from sources other than Part D, such as Medicaid.

Standards

We conducted this study in accordance with the *Quality Standards for Inspection and Evaluation* issued by the Council of the Inspectors General on Integrity and Efficiency.

APPENDIX A: BENEFICIARIES RECEIVING OPIOIDS THROUGH PART D, BY COUNTY

Exhibit A-1: In seven counties in Missouri, 41 percent or more beneficiaries received at least one opioid through Part D in 2018.

Proportion of Beneficiaries in Each County in Missouri Who Received an Opioid Through Medicare Part D in 2018					
Pemiscot	48%	Taney	35%	Dallas	32%
Dunklin	46%	Douglas	35%	Miller	32%
Washington	42%	Henry	35%	Daviess	32%
Ripley	42%	Lawrence	35%	Polk	32%
Mississippi	41%	Lewis	35%	Holt	32%
New Madrid	41%	Benton	35%	Chariton	32%
St. Francois	41%	Wright	35%	DeKalb	32%
Butler	40%	Christian	35%	Jackson	32%
Stoddard	39%	Vernon	35%	Audrain	32%
Madison	39%	Greene	35%	Andrew	32%
Howell	39%	Pike	35%	Callaway	32%
Shannon	39%	Randolph	34%	Camden	32%
Scott	39%	Texas	34%	Caldwell	31%
McDonald	38%	Stone	34%	Adair	31%
Iron	38%	Maries	34%	Montgomery	31%
Bollinger	38%	Clinton	34%	St. Charles	31%
Barton	38%	Gasconade	34%	Monroe	31%
Bates	38%	Macon	34%	Pettis	31%
Oregon	37%	Buchanan	34%	Shelby	31%
Wayne	37%	Schuyler	34%	Carroll	31%
Carter	37%	Warren	34%	Howard	31%
Dent	37%	Worth	34%	Ste. Genevieve	31%
Reynolds	37%	Harrison	34%	Ralls	31%
Barry	37%	Putnam	34%	Platte	31%
Crawford	37%	Cass	34%	Atchison	30%
Scotland	37%	Lafayette	33%	Linn	30%
Cedar	37%	Franklin	33%	Moniteau	30%
Ray	37%	Gentry	33%	Mercer	29%
Newton	36%	Marion	33%	Nodaway	29%
Lincoln	36%	Cape Girardeau	33%	Cooper	29%
St. Clair	36%	Laclede	33%	Cole	29%
Pulaski	36%	Hickory	33%	St. Louis	29%
Ozark	36%	Saline	33%	Knox	29%
Jasper	36%	Grundy	33%	St. Louis City	29%
Phelps	36%	Johnson	33%	Osage	28%
Jefferson	36%	Livingston	33%	Boone	28%
Dade	36%	Morgan	33%	Perry	27%
Clark	35%	Sullivan	32%		
Webster	35%	Clay	32%		

Source: OIG analysis of Medicare Part D data, 2019.

APPENDIX B: BENEFICIARIES RECEIVING HIGH AMOUNTS OF OPIOIDS AND BENEFICIARIES AT SERIOUS RISK

Exhibit B-1: Almost 10,000 beneficiaries in Missouri received high amounts of opioids in 2018.

	Number of Beneficiaries in 2018
Beneficiaries who received high amounts of opioids	9,981

Source: OIG analyses of Medicare Part D data, 2019.

Exhibit B-2: About 1,400 beneficiaries in Missouri are at serious risk of opioid misuse or overdose in 2018.

	Number of Beneficiaries in 2018
Beneficiaries who received an extreme amount of opioids	1,182
Beneficiaries who appear to be doctor shopping	240
Total beneficiaries at serious risk	1,411*

Source: OIG analyses of Medicare Part D data, 2019.

* A total of 11 beneficiaries were in both groups in 2018.

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To obtain additional information concerning this report or to obtain copies, contact the Office of Public Affairs at Public.Affairs@oig.hhs.gov.

ENDNOTES

¹ Alex M. Azar II, Secretary of Health and Human Services, *Renewal of Determination that a Public Health Emergency Exists*, July 16, 2019.

² CDC, "Drug and Opioid-Involved Overdose Deaths—United States, 2013–2017," *Morbidity and Mortality Weekly Report* (MMWR) 67, nos. 51 and 52, January 4, 2019. Accessed at <https://www.cdc.gov/mmwr/volumes/67/wr/pdfs/mm675152e1-H.pdf> on July 18, 2019.

³ For more information about State prescription drug monitoring programs, see Prescription Drug Monitoring Program Training and Technical Assistance Center, Brandeis University, untitled webpage. Accessed at <http://www.pdmpassist.org/> on May 28, 2019.

⁴ Diane L. Chau, Vanessa Walker, Latha Pai, et al., "Opiates and Elderly: Use and Side Effects," *Clinical Interventions in Aging* 3, no. 2 (2008): 276. Accessed at <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2546472/> on July 18, 2019. Also see CDC, "CDC Guideline for Prescribing Opioids for Chronic Pain: United States, 2016," *MMWR* 65, no. 1, March 18, 2016. Accessed at <https://www.cdc.gov/mmwr/volumes/65/rr/pdfs/rr6501e1.pdf> on July 18, 2019.

⁵ Kathleen W. Saunders, Kate M. Dunn, Joseph O. Merrill, et al., "Relationship of Opioid Use and Dosage Levels to Fractures in Older Chronic Pain Patients," *Journal of General Internal Medicine* 25, no. 4 (2010): 310–315. Accessed at <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2842546/> on July 18, 2019.

⁶ In 2017, the age-adjusted opioid-related overdose death rate was 16.5 per 100,000 persons in Missouri and 14.6 per 100,000 persons in the Nation in 2018. See National Institute on Drug Abuse, *Missouri Opioid Summary*, March 2019. Accessed at <https://www.drugabuse.gov/node/pdf/21971/missouri-opioid-summary> on July 19, 2019.

⁷ Data on opioid-related overdose deaths in Missouri for 2018 are not yet available. CDC, *Provisional Drug Overdose Death Counts, Figure 1b: Percent Change in 12 Month-ending County of Drug Overdose Deaths, by Jurisdiction*, July 2019. Accessed at <https://www.cdc.gov/nchs/nvss/vsrr/drug-overdose-data.htm#dashboard> on July 23, 2019.

⁸ This represents the total number of opioid prescriptions paid for under Part D, including those in the deductible stage of the benefit when some beneficiaries pay the full cost.

⁹ The five most commonly dispensed opioids were tramadol 50 mg, hydrocodone-acetaminophen 5-325 mg, hydrocodone-acetaminophen 10-325 mg, hydrocodone-acetaminophen 7.5-325 mg, and oxycodone-acetaminophen 10-325 mg.

¹⁰ In total, 3.1 percent of the beneficiaries who received an opioid in Missouri received a high amount of opioids. This is higher than the national rate, which was 2.6 percent.

¹¹ The CDC Guideline provides recommendations for prescribing opioids for chronic pain outside of cancer treatment, palliative care, and end-of-life care. It recommends that prescribers avoid increasing opioids to morphine equivalent dosages of greater than or equal to 90 mg a day or carefully justify the decision to increase to this level. Patients who are already taking high dosages of opioids should be offered the opportunity to re-evaluate their continued use of these dosages, and prescribers should offer to work with them to taper their opioids to safer dosages. This may be challenging because of physical or psychological dependence. CDC, "CDC Guideline for Prescribing Opioids for Chronic Pain: United States, 2016." *MMWR* 65, no. 1, March 18, 2016, pp. 1–49. Accessed at <https://www.cdc.gov/mmwr/volumes/65/rr/pdfs/rr6501e1.pdf> on May 28, 2019.

¹² Diane L. Chau, Vanessa Walker, Latha Pai, et al., "Opiates and Elderly: Use and Side Effects," *Clinical Interventions in Aging* 3, no. 2 (2008): 276. Accessed at <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2546472/> on July 18, 2019. Also see CDC, "CDC Guideline for Prescribing Opioids for Chronic Pain: United States, 2016," *MMWR* 65, no. 1, March 18, 2016. Accessed at <https://www.cdc.gov/mmwr/volumes/65/rr/pdfs/rr6501e1.pdf> on July 18, 2019.

¹³ CDC, “CDC Guideline for Prescribing Opioids for Chronic Pain: United States, 2016,” *MMWR* 65, no. 1, March 18, 2016, pp. 13, 44.

¹⁴ U.S. Drug Enforcement Administration, Diversion Control Division, National Forensic Laboratory Information System, *NFLIS-Drug 2018 Midyear Report*, 2019. Accessed at <https://www.nflis.deadiversion.usdoj.gov/DesktopModules/ReportDownloads/Reports/NFLISDrug2018MY.pdf> on July 22, 2019.

¹⁵ CDC recommends that clinicians evaluate opioid use at least every 3 months for patients with chronic pain. If the benefits of continued use do not outweigh the harm, clinicians should work with patients to taper the opioids to a lower dosage or to discontinue use. CDC, “CDC Guideline for Prescribing Opioids for Chronic Pain: United States, 2016,” details above in endnote 10.

¹⁶ Missouri is the only State that lacks a Statewide prescription drug monitoring program. Currently, St. Louis County, Missouri, operates a program. For more information about prescription drug monitoring programs, see Prescription Drug Monitoring Program Training and Technical Assistance Center, Brandeis University, untitled webpage. Accessed at <http://www.pdmpassist.org/> on May 28, 2019.

¹⁷ According to St. Louis County, a total of 72 jurisdictions—including 60 counties and 12 localities—participate in the program, which covers 84 percent of the population of Missouri. For more information, see *Saint Louis County Prescription Drug Monitoring Program*. Accessed at <https://www.stlouisco.com/PDMP> on July 18, 2019.

¹⁸ In addition to being available to people over the age of 65, Medicare is available to younger people with disabilities and those with end-stage renal disease. U.S. Department of Health and Human Services, *Who Is Eligible for Medicare?* Accessed at <https://www.hhs.gov/answers/medicare-and-medicaid/who-is-eligible-for-medicare/index.html> on July 18, 2019. Because of rounding, the percentages on page 4 do not sum to 100.

¹⁹ Mo. Rev. Stat. § 195.080. The prescriber may order more than a 7-day supply if, in the prescriber’s medical judgement, the quantity is needed. In these cases, the prescriber must note in the patient’s medical record the reason for the additional quantity and that a nonopioid was not appropriate.

²⁰ Mo. Rev. Stat. § 195.550. Prescribers will be required to prescribe Schedule 2, 3 and 4 controlled substances electronically, with some exceptions. For example, prescribers may issue a paper prescription when a patient specifically requests one.

²¹ These efforts were goals of Missouri’s Opioid State Targeted Response, for which it received a grant from the Substance Abuse and Mental Health Services Administration. For more information, see *Opioid Crisis Response*. Accessed at <https://dmh.mo.gov/OpioidCrisisResponse.htm> on July 22, 2019.

²² CMS, *Announcement of Calendar Year (CY) 2019 Medicare Advantage Capitation Rates and Medicare Advantage and Part D Payment Policies and Final Call Letter*, April 2018. Accessed at <https://www.cms.gov/Medicare/Health-Plans/MedicareAdvgtgSpecRateStats/Downloads/Announcement2019.pdf> on July 26, 2019.

²³ Under the Comprehensive Addiction and Recovery Act of 2016, the Secretary of Health and Human Services has the authority to develop the guidelines under which beneficiaries are determined to be “at risk” as well as which drugs are considered frequently abused. See P.L. No. 114-198 § 704 (July 22, 2016). Accessed at <https://www.congress.gov/114/plaws/publ198/PLAW-114publ198.pdf> on July 26, 2019. For the 2019 plan year, at-risk beneficiaries are, at minimum, defined as those who are considered high risk in the Overutilization Monitoring System, and most opioids and benzodiazepines are designated as frequently abused drugs. See 83 Fed. Reg. 16452 (April 16, 2018). Accessed at <https://www.gpo.gov/fdsys/pkg/FR-2018-04-16/pdf/2018-07179.pdf> on July 26, 2019.

²⁴ For more information on the toolkit, see OIG, *Toolkit: Using Data Analysis To Calculate Opioid Levels and Identify Patients At Risk of Misuse or Overdose*, OEI-02-17-00560, June 2018.

²⁵ For example, OIG is releasing a series of factsheets on States' oversight of opioid prescribing and monitoring of opioid use. See OIG, *States' Oversight of Opioid Prescribing and Monitoring of Opioid Use*. Accessed at <https://oig.hhs.gov/oas/opioid-oversight-map/oversight.asp> on May 28, 2019. OIG is also assessing access to certain MAT drugs; see OIG, *Access to Buprenorphine-Waivered Providers for Treatment of Opioid Use Disorder*, OEI-12-17-00240, forthcoming. For more information about other planned opioid-related OIG work, see OIG, *Work Plan, 2019* at <https://oig.hhs.gov/reports-and-publications/workplan/index.asp>. Also see OIG, *Overview of Ongoing and Completed Opioid Related OIG Studies—As of September 2019* at <https://oig.hhs.gov/reports-and-publications/featured-topics/opioids/OIG-Opioid-Related-Studies-Breakdown.pdf>.

²⁶ These files contain MME conversion factors for each National Drug Code. MED and MME are interchangeable terms.

²⁷ To identify PDE records for opioids, we matched the National Drug Codes on the PDE records with two files: First DataBank and CDC's MME conversion file.

²⁸ We used the beneficiary's address on the PDE record to identify the State.

²⁹ For beneficiaries who resided in more than one county during the year, we included the beneficiary in the analysis for each of those counties.

³⁰ For more information on calculating opioid dosage, see CDC, *Calculating Total Daily Dose of Opioids for Safer Dosage*. Accessed at https://www.cdc.gov/drugoverdose/pdf/calculating_total_daily_dose-a.pdf on July 18, 2019.

³¹ To ensure that we included all the opioids received by each beneficiary in 2018, we included opioids dispensed in 2017 with days of use in 2018. Note that we did not include PDE records for injection, intravenous, or intrathecal opioids because CDC does not publish MME conversion factors for these opioids. We also did not include opioids indicated for medication-assisted treatment.

³² We identified beneficiaries with a cancer diagnosis or hospice stay using CMS's National Claims History File and Part C Encounter data.

³³ OIG, *Opioid Use Decreased in Medicare Part D, While Medication-Assisted Treatment Increased*, OEI-02-19-00390, July 2019. OIG, *Opioids in Medicare Part D: Concerns About Extreme Use and Questionable Prescribing*, OEI-02-17-00250, July 2017. OIG, *Opioid Use in Medicare Part D Remains Concerning*, OEI-02-18-00220.