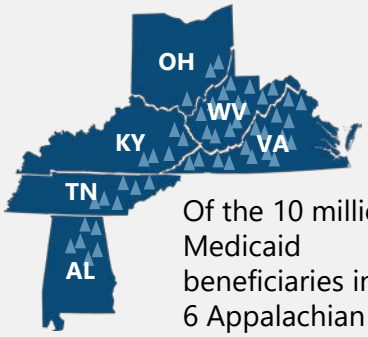
U.S. Department of Health and Human Services
Office of Inspector General
Data Snapshot
December 2020, OEI-05-19-00410

Opioids in Medicaid: Concerns About Opioid Use Among Beneficiaries in Six Appalachian States in 2018

Key Takeaways

Across 6 Appalachian States in 2018, nearly 6,000 beneficiaries received potentially harmful amounts of opioids. More than 450 of these beneficiaries were at serious risk of opioid misuse or overdose.



Of the 10 million Medicaid beneficiaries in 6 Appalachian States in 2018,

1,044,558 beneficiaries (about **1 in 10**) received **at least 1 prescription opioid**.

5,897 of these beneficiaries received **high amounts of opioids**.

463 of these beneficiaries are at **serious risk of opioid misuse or overdose**.

19 prescribers had **questionable opioid prescribing** practices.

Background

Opioid abuse and overdose deaths remain at crisis levels in the United States generally and the Appalachian region under review in this data snapshot. In 2018, an estimated 9.9 million Americans misused prescription opioids,[1] and nearly 47,000 Americans died from opioid overdoses.[2] In 2017, Appalachian counties had an opioid overdose death rate that was 72 percent higher than in non-Appalachian counties throughout the country.[3]

Opioids include narcotics intended to manage pain. They can create a euphoric effect, which makes them vulnerable to abuse and misuse (i.e., being taken in a way other than prescribed). Although opioids can be appropriate under certain circumstances, the Office of Inspector General (OIG) is concerned about the abuse and misuse of opioids and fraud associated with opioids, including drug diversion—the redirection of prescription drugs for an illegal purpose, such as recreational use or resale.

Multiple reports from across the six Appalachian States show dramatic increases in opioid-related overdoses and deaths since the start of the COVID-19 pandemic,[4] and challenges posed by the pandemic may be contributing to these increases. Some Medicaid programs have relaxed rules related to telehealth and opioid prescribing, suspending safeguards—like face-to-face visits with prescribers—that are intended to help ensure the safety of beneficiaries receiving prescription opioids. Additionally, shelter-in-place and social distancing orders intended to slow the pandemic's spread may have reduced access to in-person screenings for opioid misuse and addiction treatment facilities. These orders may also contribute to a sense of isolation that can trigger opioid misuse.

This data snapshot is part of a larger strategy by OIG to fight the opioid crisis and protect beneficiaries from prescription drug misuse and abuse. As part of this strategy, OIG is partnering with other law enforcement agencies and the Centers for Medicare & Medicaid Services (CMS) in the Appalachian Regional Prescription Opioid Strike Force, bringing together resources and expertise to fight the opioid crisis in six States. This data snapshot focuses on opioid use in 2018 in those six States: Alabama, Kentucky, Ohio, Tennessee, Virginia, and West Virginia. Other OIG work that is part of this strategy includes data briefs on opioid use in Medicare Part D both nationally[5] and in the Appalachian region[6] as well as in the Ohio Medicaid program;[7] factsheets that describe the oversight of opioid prescribing and monitoring of opioid use in five of the six Appalachian States included in this review;[8] and reviews of access to medication-assisted treatment for opioid use disorder.[9]

Results

1 in 10 Medicaid beneficiaries in 6 Appalachian States received a prescription opioid in 2018.

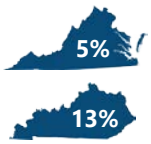
In 2018, just over 1 million beneficiaries in the 6 Appalachian States received at least 1 prescription opioid through Medicaid.

- Most of these beneficiaries appeared to use opioids for a short period of time, likely to address an acute issue like recovering from surgery. Approximately 595,000 beneficiaries—nearly 60 percent of the beneficiaries who received opioids in 2018—received just 1 opioid prescription through Medicaid, almost always for a week's worth of medication or less. Another 146,000 beneficiaries—approximately 14 percent of beneficiaries who received opioids in 2018—received 2 opioid prescriptions through Medicaid during the year.
- Beneficiaries may have also received opioids for other legitimate purposes, including the management of certain conditions. For example, approximately 57,000 beneficiaries—about 5 percent of the beneficiaries who received at least one opioid prescription—had cancer or sickle cell disease or were in hospice care in 2018. The Centers for Disease Control and Prevention (CDC) excludes patients with these conditions from its opioid prescribing guidelines for chronic pain.[10]

Beneficiaries may have also received opioids outside of Medicaid.

- Because Medicaid beneficiaries may opt to purchase opioids outside of the Medicaid benefit by using other types of health insurance or by paying in cash, it is possible that more than 1 million Medicaid beneficiaries in these States received opioids or that the amounts these beneficiaries received may have been higher than those presented in this review. For example, Medicaid beneficiaries may also qualify for Medicare. In 2017, OIG found that **just over one in three Medicare beneficiaries** enrolled in Part D received at least one opioid prescription in five states in the Appalachian region.[11]

The proportion of Medicaid beneficiaries who received at least one prescription opioid varied across States, from 5 percent in **Virginia** to 13 percent in **Kentucky**. See Appendix B for details.



Nearly 12 percent of beneficiaries who received at least 1 prescription opioid through Medicaid—approximately 120,000 beneficiaries—were children ages 18 and younger.

Studies show that even legitimate opioid use in adolescents is associated with an **increased risk of future misuse of opioids**.[12]

- Of these instances, approximately 12,600 were particularly concerning. These children received more than one opioid prescription, did not have cancer or sickle cell disease, and were not in hospice care.

One child received 27 opioid prescriptions and had an average daily MED* of just over 200 mg for the entire year. In total, this child received nearly 2,300 tablets of morphine and oxycodone in 2018.

*See page 3 for the definition of MED.

The percentage of beneficiaries with at least one opioid prescription who were **children** varied considerably by State, from 7 percent in **Ohio** to 27 percent in **Alabama**. See Appendix B for details.

5,897 beneficiaries in the 6 Appalachian States received high amounts of opioids, exceeding levels that CDC encourages providers to avoid.

In 2018, a total of 5,897 beneficiaries in the 6 Appalachian States received high amounts of opioids through Medicaid.

- OIG considers beneficiaries to have received high amounts of opioids if their average morphine equivalent dose (MED—see textbox below) is greater than 120 mg a day for at least 3 months.
- These amounts of opioids are potentially dangerous and raise concerns regardless of the reasons why beneficiaries may receive them. Opioids carry health risks, including respiratory depression, constipation, drowsiness, and confusion.[13] These beneficiaries may be at an increased risk for prescription opioid misuse, which is associated with increased use of illegal opioid drugs such as heroin and in some cases may lead to death.[14] Further, the COVID-19 pandemic may amplify the risks posed by opioid use, as COVID-19 is a disease that attacks the lungs,[15] and respiratory disease is known to increase the risk of fatal overdose among people taking opioids.
- The CDC recommends that prescribers avoid increasing opioids to MEDs of greater than or equal to 90 mg a day or carefully justify the decision to increase to this level.[16]

Morphine Equivalent Dose (MED)

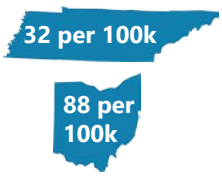
MED is a measure that converts all the various types and strengths of opioids into one standard value. A daily MED of 120 mg is equivalent to taking 16 tablets a day of Percocet 5 mg.

We excluded beneficiaries who had cancer or sickle cell disease (SCD) or were in hospice care in 2018 from all analyses on this page.

Nearly 20 percent of beneficiaries who received high amounts of opioids had at least one prescription for **fentanyl**, ranging from a low of 10 percent in Tennessee to a high of 30 percent in West Virginia. **Fentanyl is 80 to 100 times more powerful than morphine.** Fentanyl is among the most common types of opioids involved in law enforcement cases.[17]

One beneficiary had a daily average MED of more than 1,000 mg for 3 months, more than 11 times the amount that CDC recommends avoiding. Overall, this beneficiary received 33 prescriptions that covered nearly all of 2018. Nearly one-third of these prescriptions were for a total of 132 fentanyl extended-release patches.

Across these 6 Appalachian States, nearly 60 of every 100,000 Medicaid beneficiaries received high amounts of opioids, ranging from 32 of 100,000 beneficiaries in **Tennessee** to 88 of 100,000 beneficiaries in **Ohio**. See Appendix B for details.



463 beneficiaries in the 6 Appalachian States were at serious risk of opioid misuse or overdose.

Of the beneficiaries who received high amounts of opioids, two groups stood out as being at serious risk of opioid misuse or overdose:

1. Beneficiaries who received **extreme amounts of opioids**—an average daily MED greater than 240 mg for 12 months. These beneficiaries were receiving more than two and a half times the amount that CDC recommends avoiding.

362 beneficiaries—approximately 78 percent of beneficiaries at serious risk—received extreme amounts of opioids in these States. Thirteen of these beneficiaries had a daily average MED greater than 720 mg for 12 months—more than three times our threshold for "extreme amounts."

One beneficiary received 14 prescriptions and had an average daily MED of 1151 mg, which is more than 12 times the level that CDC recommends avoiding.

2. Beneficiaries who appeared to be **doctor shopping**—i.e., they received high amounts of opioids (an average daily MED of greater than 120 mg for 3 months) and had four or more prescribers AND had four or more pharmacies. These beneficiaries may be trying to obtain higher amounts than any one prescriber or pharmacy would allow them.

104 beneficiaries—approximately 22 percent of beneficiaries at serious risk—appeared to be doctor shopping. These beneficiaries received opioid prescriptions from as many as 12 prescribers and filled them at as many as 10 pharmacies. In comparison, 71 percent of beneficiaries who received any opioid in 2018 had one prescriber, and 82 percent had one pharmacy.

One beneficiary received 34 prescriptions from 8 different prescribers and filled them at 5 pharmacies during our study period. Ten of the prescriptions were for fentanyl and were prescribed concurrently with oxycodone and methadone. The beneficiary had an average daily MED of 590 mg.

Three beneficiaries were in both of these groups.[18]

We excluded beneficiaries who had cancer or SCD or were in hospice care in 2018 from all analyses on this page.

Receiving extreme amounts of opioids or high amounts of opioids from multiple prescribers and pharmacies raises concern. It may signal that:

- a beneficiary's care is not being monitored or coordinated properly;
- a beneficiary's care needs to be reassessed;
- a beneficiary is seeking medically unnecessary drugs—perhaps to use them recreationally or divert them;
- a beneficiary is addicted to opioids and at risk of overdose;
- a beneficiary's Medicaid ID has been stolen and is being used by others to obtain opioids; or
- prescribers are not checking the beneficiary's opioid history before prescribing.

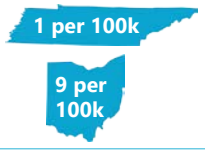
Some beneficiaries at serious risk of opioid misuse or overdose experience negative outcomes related to their opioid use.

In prior work, OIG found that of the Medicare Part D beneficiaries at serious risk of opioid misuse or overdose in 2017,

- about half were diagnosed with opioid use disorder or a related condition in the following year; and
- 11 percent experienced an overdose or other adverse event in the following year.[19]

Approximately 27 percent of beneficiaries at serious risk received **at least 1 fentanyl prescription** in 2018, including 16 beneficiaries who received at least 200 fentanyl extended-release patches, far more than a typical 1-year supply. These patches are typically worn for 3 days each.

Across these States, nearly 5 of every 100,000 Medicaid beneficiaries were at serious risk for opioid misuse or overdose, ranging from approximately 1 of every 100,000 beneficiaries in **Tennessee** to approximately 9 of every 100,000 beneficiaries in **Ohio**. See Appendix B for details.



19 prescribers had questionable prescribing practices.

These 19 prescribers stand out from their peers because they ordered opioids for the highest numbers of beneficiaries at serious risk.

- These prescribers each ordered opioids for at least four beneficiaries at serious risk (i.e., beneficiaries who received extreme amounts or appeared to be doctor shopping) in 2018.
- These 19 prescribers represent only 2 percent of the 890 prescribers who ordered opioids for beneficiaries at serious risk in 2018, but they ordered opioids for 20 percent of beneficiaries at serious risk. Exhibit 1 shows the disproportionate impact these prescribers had on beneficiaries at serious risk.

Although these opioids may be necessary for some beneficiaries, prescribing to more beneficiaries at serious risk than one's peers raises concerns and warrants further scrutiny. Prescribing to more beneficiaries at serious risk than one's peers could indicate that:

(1) The prescriber is not appropriately coordinating care.

- These prescribers may not be checking State prescription drug monitoring databases, or these databases may not have current data necessary for appropriate care coordination.

(2) The prescriber is ordering medically unnecessary drugs, which could be diverted for resale or recreational use.

- These prescribers may be operating "pill mills." A pill mill is a doctor's office, clinic, or health care facility that routinely prescribes controlled substances—such as oxycodone—outside the scope of professional practice and without a legitimate medical purpose.
- These prescribers' identification may have been sold or stolen and may be being used for illegal purposes.

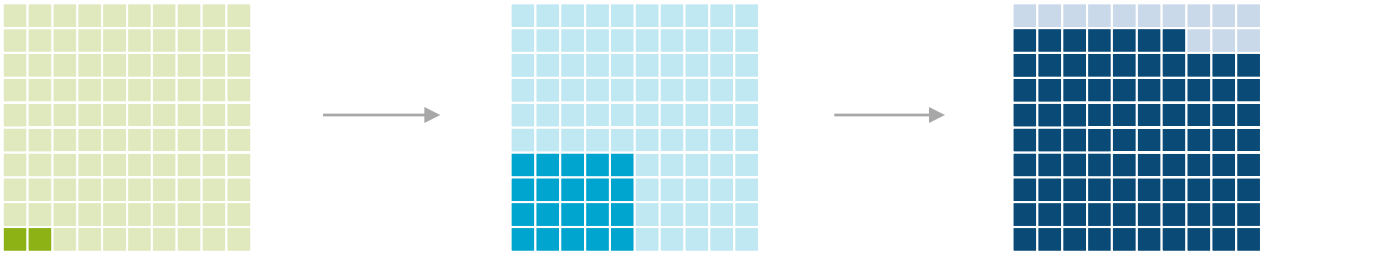
One nurse practitioner ordered opioids for nine beneficiaries who received extreme amounts of opioids during 2018 and three beneficiaries who appeared to be doctor shopping. The nurse practitioner ordered all, or nearly all, of the prescriptions for 6 of the 9 beneficiaries who received extreme amounts, including 28 prescriptions for a beneficiary who had an average MED of nearly 400 mg per day for the year.

Exhibit 1: The 19 prescribers with questionable prescribing practices had a disproportionate impact on some beneficiaries at serious risk.

Although these 19 prescribers made up just **2% of all 890 prescribers** who ordered opioids for beneficiaries at serious risk,

… they ordered opioids for 93 beneficiaries at serious risk, or **20% of the 463 beneficiaries** at serious risk,

… and ordered **87% of the 2,334 opioid prescriptions** those 93 beneficiaries received in 2018.



Nearly all of the prescribers with questionable prescribing practices in 2018 were located in **Ohio** and **Kentucky.** See Appendix B for details.

Why This Matters

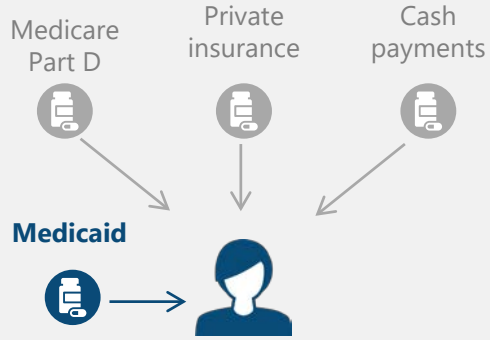
Medicaid beneficiaries across six Appalachian States are at risk for opioid misuse or overdose, and the COVID-19 pandemic may be putting more beneficiaries at risk.

Several groups of Medicaid beneficiaries across the six Appalachian States—Alabama, Kentucky, Ohio, Tennessee, Virginia, and West Virginia—may be at risk for opioid misuse or overdose. Of the approximately 1 million beneficiaries who received at least one opioid prescription in 2018, 120,000 were children age 18 and younger. Any opioids prescribed to children are concerning because research shows that even opioids used for legitimate purposes before high school graduation—such as an opioid prescribed by a dentist after extracting a wisdom tooth—are associated with an increase in future opioid misuse. Further, nearly 6,000 beneficiaries across the 6 States received potentially harmful amounts of opioids that exceed the levels that CDC recommends prescribers avoid without careful justification. Of particular concern, 463 of these beneficiaries were at serious risk of opioid misuse or overdose because they received extreme amounts of opioids or appeared to be doctor shopping, and 19 prescribers in the region had questionable opioid prescribing practices. Previous OIG work has found that **beneficiaries at serious risk may experience serious outcomes related to their opioid use, including opioid use disorder or overdose.**

Beyond the beneficiaries identified in this data snapshot, **additional Medicaid beneficiaries may have been at risk for opioid misuse or overdose in 2018**. Specifically, additional beneficiaries may have received prescription opioids outside of Medicaid by using Medicare, private insurance, or cash payments. For example, a previous OIG study showed that in 2017, across 5 Appalachian states—Alabama, Kentucky, Ohio, Tennessee, and West Virginia—more than 1 in 3 Medicare Part D beneficiaries received opioid prescriptions, and almost 6,000 were at serious risk.[20] Additionally, some beneficiaries may have been using illegal opioids.

Beneficiaries may have received additional prescription opioids outside of Medicaid.

This data snapshot measures only opioids paid for through **Medicaid**.



Further, the COVID-19 pandemic may be putting Medicaid beneficiaries at greater risk of opioid misuse or overdose in 2020 and beyond. Multiple reports from across the six Appalachian States show **dramatic increases in opioid-related overdoses and deaths since the start of the COVID-19 pandemic**. Measures taken to address the COVID-19 pandemic may have contributed to these increases. Like the Medicare program, some State Medicaid programs have relaxed rules related to telehealth and the prescribing of opioids. These changes—which temporarily suspend some beneficiary safeguards, like the requirement for face-to-face visits with prescribers to receive opioid prescriptions—may have unintentionally increased the risk of doctor shopping and inappropriate opioid prescribing in 2020. Additionally, the shelter-in-place and social distancing orders implemented in many places to address the pandemic may have resulted in increased isolation, a potential trigger for opioid misuse. These policies may have also resulted in decreased access to medical interventions designed to help people struggling with opioid misuse, including in-person screenings for opioid misuse and treatment options for opioid use disorder. Finally, **individuals with opioid use disorder could be particularly hard hit by COVID-19** as COVID-19 attacks the lungs, and respiratory disease is known to increase the risk of fatal overdose among people taking opioids.

OIG's Ongoing Commitment to Fighting the Opioid Crisis

OIG continues its efforts to address the opioid crisis across the six Appalachian States and nationwide.

OIG is committed to ensuring that the prescribers and beneficiaries identified in this data snapshot receive the appropriate level of review and followup. OIG, along with its law enforcement partners, will review the prescribers with questionable prescribing patterns for possible investigation. OIG will also refer the beneficiaries at serious risk for opioid misuse or overdose to their respective State Medicaid agencies for review and possible followup to ensure that they are receiving appropriate care, including access to treatment options for opioid use disorder if necessary.

Additionally, OIG remains committed to working with our law enforcement partners to bring resources and expertise to these six States through the ARPO Strike Force. The mission of the Strike Force is to **prevent patient harm and identify and investigate health care fraud related to medically unnecessary prescribing and illegal distribution of opioids**, with a particular focus on medical professionals. Continued Strike Force operations remain an important tool for ensuring patient safety as opioid overdose deaths rise across the region during the COVID-19 pandemic.

In April 2019, the Strike Force participated in the largest-ever law enforcement operation regarding prescription opioids, which resulted in **charges against 53 medical professionals across the Appalachian region**.

Further, OIG is conducting evaluations and audits in 2020 and beyond on opioid use and access to treatment. Topics for these evaluations and audits include access to medication-assisted treatment for opioid use disorder; controls on programs for treating opioid use disorder; grants for prescription drug monitoring programs; and challenges in treating opioid use disorder during the COVID-19 pandemic.

OIG supports States' efforts nationwide to combat the opioid crisis.

States have taken numerous actions to address the opioid crisis, and OIG encourages States to continue these efforts and expand on them. For example, **OIG supports States' efforts to enforce strong prescription drug monitoring programs** that require prescribers and pharmacies to check the State database before prescribing and dispensing opioids. Further, we encourage States to provide greater access to data from prescription drug monitoring programs, including sharing these data with State Medicaid agencies. We also encourage States to analyze data to help identify patients who may be at risk and to promote appropriate opioid prescribing practices. To help States—as well as other public and private partners—analyze opioid prescribing data, OIG has published an opioid analysis toolkit.[21] This toolkit provides detailed, step-by-step instructions for using prescription drug data to identify patients who are at risk for opioid misuse or overdose. By working together and expanding our efforts, we can help curb the opioid crisis in our Nation.

Appendix A: Methodology

We based this review on an analysis of data from the Transformed Medicaid Statistical Information System (T-MSIS)—the national Medicaid claims database—for six States. Claims data contains information about prescription drugs, beneficiaries and providers. This review includes prescriptions that beneficiaries received through Medicaid. It does not include prescriptions paid for through other programs or those paid for in cash.

T-MSIS Data Quality

Because of ongoing concerns with the quality and completeness of T-MSIS data, we conducted a variety of quality assessments on each State's data. We reviewed whether required variables were **populated** and whether data were populated with valid values. For instance, National Provider Identifiers (NPIs) should be numeric and 10 digits long. Also, certain variables, like type of service, have specific lists of valid codes defined in the T-MSIS data dictionary.

On the basis of the results of our quality checking, we determined that data from all six States was of sufficient quality to use for our analysis. Our quality checking did not evaluate the accuracy of information submitted to the States by Medicaid providers and managed care plans.

Opioid Utilization Analysis

For this review, we implemented the same methodology as in previous OIG work on opioid use in Medicare Part D and Ohio Medicaid. For selected States in the Appalachian region, we determined the number of unique beneficiaries enrolled in Medicaid who received at least one opioid during 2018. We identified all drug claims for opioids with dates of service in 2018. To do this, we matched drug data to CDC's morphine milligram equivalent (MME) conversion table, which contains information about each drug's type and name.[22]

For all analyses in our review, we excluded prescriptions for opioids indicated for medication-assisted treatment. For example, we excluded methadone prescriptions when ordered for beneficiaries with diagnoses of opioid use disorder.

Beneficiary Analysis

We identified beneficiaries who received high amounts of opioids in 2018. We considered a beneficiary to have received high amounts if the beneficiary had an average daily MED of greater than 120 mg for 3 months. This amount exceeds the amount that CDC recommends prescribers avoid without careful justification.

To calculate each beneficiary's average daily MED, we first calculated the MED for each prescription. To do this, we used the following equation: MED =

$$\frac{\text{(strength per unit) x (quantity dispensed) x (MME conversion factor)}}{\text{(days supply)}}$$

Buprenorphine products, including suboxone, were dropped from our analysis at this point because they do not have a conversion factor in CDC's MME conversion table.

Next, we summed each beneficiary's MED for each day of the year based on the dates of service and days supply on each prescription. We refer to this as daily MED.

We analyzed the types of opioids prescribed to these beneficiaries to identify beneficiaries who received at least one prescription for fentanyl in 2018.

We then identified beneficiaries at serious risk of opioid misuse or overdose. We considered a beneficiary to be "at serious risk" if the beneficiary received extreme amounts of opioids or appeared to be doctor shopping. We used the same definitions as in previous OIG work to identify these two groups of beneficiaries.

- We considered a beneficiary to have received an extreme amount of opioids if the beneficiary exceeded an average daily MED of 240 mg for the entire year and at least 360 days of opioid use within the year.
- We considered a beneficiary to have appeared to be doctor shopping if the beneficiary exceeded an average daily MED of greater than 120 mg MED for 3 months and received opioids from four or more prescribers and four or more pharmacies. To identify these beneficiaries, we calculated the total number of prescribers and pharmacies from which each beneficiary received opioids in 2018. We identified prescribers and pharmacies on the basis of their NPI numbers.

We identified the States in which beneficiaries who received any opioids, beneficiaries who received high amounts of opioids, and beneficiaries who were at serious risk were located. We excluded beneficiaries from this analysis who did not have an address in T-MSIS or who had a potentially erroneous address, or who lived in two or more States in the Appalachian region during 2018.

We summarized characteristics of beneficiaries at serious risk, including age and gender.

Beneficiaries with a diagnosis of cancer or sickle cell disease or who were in hospice care in 2018 were excluded from our analyses identifying beneficiaries with high amounts of opioids and beneficiaries at serious risk of opioid misuse or overdose.

Prescriber Analysis

We identified prescribers with questionable opioid prescribing practices for beneficiaries at serious risk. We first identified all prescribers who ordered opioids for at least one beneficiary at serious risk in 2018. We then identified prescribers who ordered opioids for a high number of these beneficiaries. We identified the States in which these providers were located and the specialties of these providers.

Limitations

This analysis is based on Medicaid claims data; 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 Medicaid, such as Medicare Part D.

We did not compare our results to national trends because timely, nationwide information about opioid use in the Medicaid program is not available.[23]

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 B: Results by State

	Alabama	Kentucky	Ohio	Tennessee	Virginia	West Virginia
Total Medicaid **beneficiaries**	**1.0M**	**1.6M**	**3.3M**	**1.8M**	**1.4M**	**632,000**
Beneficiaries who received **at least one prescription** opioid	**101,135** (10%)	**206,342** (13%)	**399,847** (12%)	**158,227** (9%)	**77,321** (5%)	**71,136** (11%)
Children who received **at least one prescription** opioid	**26,868** (27%)	**18,215** (9%)	**27,039** (7%)	**23,043** (15%)	**14,825** (19%)	**6,540** (9%)
Beneficiaries who received **high amounts**	**377** (38 per 100k)	**924** (57 per 100k)	**2,923** (88 per 100k)	**570** (32 per 100k)	**626** (43 per 100k)	**402** (64 per 100K)
Beneficiaries with **high amounts** who had at least one **fentanyl prescription**	**106** (28%)	**182** (20%)	**531** (18%)	**58** (10%)	**145** (23%)	**119** (30%)
Beneficiaries at **serious risk**	**27** (3 per 100k)	**67** (4 per 100k)	**302** (9 per 100k)	**21** (1 per 100k)	**29** (2 per 100k)	**12** (2 per 100k)
Prescribers with **questionable prescribing patterns**	-	**5**	**13**	-	**1**	-

Source: OIG analysis of T-MSIS data, 2020. Rows may not always sum to regional totals because we excluded beneficiaries with missing or potentially erroneous addresses and beneficiaries who lived in multiple States in 2018.

Appendix C: Demographic Data

Exhibit C-1: Most beneficiaries who received high or extreme amounts of opioids and who appeared to be doctor shopping were ages **45–64**.

	Any opioids	High amounts	Extreme amounts	Doctor shopping
0–18	11%	<1%	0%	0%
19–44	52%	25%	24%	32%
45–64	33%	**69%**	**72%**	**63%**
65 and older	3%	6%	4%	6%

Exhibit C-2: Most beneficiaries who received any opioid, received high or extreme amounts, or appeared to be doctor shopping were **female**.

	Any opioids	High amounts	Extreme amounts	Doctor shopping
Female	**67%**	**57%**	**55%**	**56%**
Male	33%	43%	45%	44%
Unknown	<1%	<1%	0%	0%

Source: OIG analysis of T-MSIS data, 2020. Rows may not always sum to 100% because of rounding.

Endnotes

[1] SAMHSA, *2018 National Survey on Drug Use and Health: Detailed Tables, Table 1.77A.* Accessed on July 27, 2020, at https://www.samhsa.gov/data/report/2018-nsduh-detailed-tables.

[2] CDC, *Data Brief 356. Drug Overdose Deaths in the United States, 1999–2018*, January 2020.

[3] National Association of Counties (NACo) and Appalachian Regional Commission (ARC), *Opioids in Appalachia: The Role of Counties in Reversing a Regional Epidemic*, May 2019. Accessed on July 27, 2020 at https://www.naco.org/sites/default/files/documents/Opioids-Full.pdf.

[4] American Medical Association, *Issue brief: Reports of increases in opioid related overdose and other concerns during COVID pandemic*, July 2020 (updated December 9, 2020). Accessed on December 9, 2020, at https://www.ama-assn.org/system/files/2020-12/issue-brief-increases-in-opioid-related-overdose.pdf.

[5] OIG, *Questionable Billing and Geographic Hotspots Point to Potential Fraud and Abuse in Medicare Part D,* OEI-02-15-00190, June 2015; OIG, *High Part D Spending on Opioids and Substantial Growth in Compounded Drugs Raise Concerns,* OEI-02-16-00290, June 2016; 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, June 2018; OIG, *Opioid Use Decreased in Medicare Part D, While Medication-Assisted Treatment Increased,* OEI-02-19-00390, July 2019.

[6] OIG, *Concerns About Opioid Use in Medicare Part D in the Appalachian Region,* OEI-02-18-00224, April 2019.

[7] OIG, *Opioids in Ohio Medicaid: Review of Extreme Use and Prescribing*, OEI-05-18-00010, July 2018.

[8] OIG, *FACTSHEET: Alabama's Oversight of Opioid Prescribing and Monitoring of Opioid Use*, A-04-19-00125, November 2019. OIG, *FACTSHEET: Kentucky's Oversight of Opioid Prescribing and Monitoring of Opioid Use*, A-04-19-02022, March 2020. OIG, *FACTSHEET: Ohio's Oversight of Opioid Prescribing and Monitoring of Opioid Use,* A-05-19-00036, July 2020. OIG, *FACTSHEET: Tennessee's Oversight of Opioid Prescribing and Monitoring of Opioid Use*, A-04-18-00124, February 2019. OIG*, FACTSHEET: West Virginia's Oversight of Opioid Prescribing and Monitoring of Opioid Use*, A-03-18-03302, March 2019.

[9] OIG, *Geographic Disparities Affect Access to Buprenorphine Services for Opioid Use Disorder*, OEI-12-17-00240, January 2020; OIG, *States' Use of Grant Funding for a Targeted Response to the Opioid Crisis*, OEI-BL-18-00460, March 2020.

[10] CDC, "CDC Guideline for Prescribing Opioids for Chronic Pain—United States, 2016," *MMWR Recomm Rep*, March 18, 2016, p. 16. Accessed on July 27, 2020, at https://www.cdc.gov/mmwr/volumes/65/rr/rr6501e1.htm. These guidelines specifically exclude patients undergoing active cancer treatment, palliative care, or end-of-life care (e.g., hospice care) due to the unique therapeutic goals, ethical considerations, opportunities for medical supervision, and balance of risks and benefits with opioid therapy in such care. Further, due to the challenges of managing the painful complications of sickle cell disease, these guidelines defer to the NIH National Heart, Lung, and Blood Institute's guidance on how to use opioids to manage patients with this condition. This Institute allows for the use of opioids to treat pain associated with sickle cell disease. See National Heart, Lung, and Blood Institute. *Evidence-based Management of Sickle Cell Disease. Expert Panel Report*, 2014. Accessed on September 9, 2020, at https://www.nhlbi.nih.gov/sites/default/files/media/docs/sickle-cell-disease-report%20020816_0.pdf.

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[18] Other beneficiaries may also be at serious risk of opioid misuse or overdose but do not fall into either group. For example, a beneficiary who had an average daily MED of 235 mg for 345 days would not meet our definition of "serious risk."

[19] OIG, *Medicare Part D Beneficiaries at Serious Risk of Opioid Misuse or Overdose: A Closer Look,* OEI-02-19-00130, May 2020.

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[21] OIG, *Analysis Toolkit: Using Data Analysis to Calculate Opioid Levels and Identify Patients At Risk of Misuse or Overdose*, OEI-02-17-00560, June 2018.

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

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