



# Opioids in Ohio Medicaid: Review of Extreme Use and Prescribing

## Key Takeaways

- ✓ Nearly 5,000 beneficiaries received high amounts of opioids and did not have cancer or receive hospice care.
- ✓ Among those receiving high amounts, more than 700 beneficiaries are at serious risk of prescription opioid misuse or overdose; some received extreme amounts of opioids, while others appeared to be doctor shopping.
- ✓ Nearly 50 prescribers stood out by prescribing to more beneficiaries at serious risk than others who prescribed opioids to such beneficiaries.
- ✓ Ohio has taken a number of steps to address the opioid crisis and has reduced opioid use among its residents. Our results underscore the tenacity of the opioid crisis and the importance of Ohio's ongoing commitment to addressing it.

The opioid crisis has been declared a public health emergency.<sup>1</sup> In 2016, more than 42,000 opioid-related overdose deaths occurred in the United States—115 deaths per day.<sup>2</sup> Identifying patients who are at risk of overdose or abuse is key to addressing this national crisis.

Medicaid beneficiaries may be especially vulnerable to opioid misuse because they are more likely than nonbeneficiaries to have chronic conditions and comorbidities that require pain relief, especially those who qualify because of a disability. In 2016, Medicaid covered nearly 4 in 10 nonelderly adults with opioid addiction.<sup>3</sup>

Opioids include narcotics intended to manage pain from surgery, injury, or illness. They can create a euphoric effect, which makes beneficiaries vulnerable to opioid abuse and misuse (i.e., taking opioids in a way other than prescribed). Although opioids can be appropriate under certain circumstances, the Office of Inspector General (OIG) and others are concerned about fraud, abuse, and misuse of opioids obtained through Medicaid and the Children's Health Insurance Program (CHIP), including drug diversion—the redirection of prescription drugs for an illegal purpose, such as recreational use or resale.

In addition to the risk of abuse and misuse, opioids carry a number of health risks. Side effects from using opioids may include respiratory depression, confusion, tolerance to lower doses, and physical dependence.<sup>4,5</sup> Prescription opioid abuse can also lead to the use of illegal drugs such as heroin.<sup>6</sup> For these reasons, it is essential that Medicaid and CHIP beneficiaries receive only medically necessary opioids in the appropriate amounts.

Prescribers play a crucial role in ensuring that beneficiaries receive appropriate amounts of opioids. To help inform prescribers, the Centers for Disease Control and Prevention (CDC) published a guideline on prescribing opioids to patients with chronic pain.<sup>7</sup> The guideline recommends that prescribers use caution when ordering opioids at any dosage and avoid increasing to dosages that are equivalent to 90 mg or more of morphine a

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day for chronic pain.<sup>8</sup> In addition, because long-term opioid use often begins with the treatment of acute pain, the guideline recommends that prescribers order opioids for the lowest effective dose and duration. The Centers for Medicare & Medicaid Services (CMS) has also initiated projects to address opioid misuse and inappropriate prescribing, including providing educational materials for States and prescribers.<sup>9, 10, 11</sup>

States also play an important role in ensuring that beneficiaries receive appropriate amounts of opioids. Ohio has a number of collaborative efforts underway to help address its opioid crisis that involve local and State partners, including law enforcement personnel, public health officials, addiction and treatment specialists, health care providers, educators, and parents. Key initiatives include (1) educational initiatives designed to prevent drug use; (2) opioid prescribing guidelines and laws developed to address proper pain management practices; (3) prescription monitoring requirements via the State's prescription drug monitoring program (PDMP);<sup>12</sup> (4) a lock-in program that limits where certain beneficiaries can fill their prescriptions; (5) data analytics designed to identify fraudulent prescribers for administrative or legal actions; and (6) Ohio's "Pill Mill" law, which helps to close illegal pain clinics.<sup>13</sup> For more information about Ohio's opioid initiatives, see Appendix A.

This data brief is part of a larger OIG effort to fight the opioid crisis. OIG's previous work highlighted beneficiaries who were at serious risk of opioid misuse or overdose and opioid prescribers who stood out when compared to their peers in Medicare Part D.<sup>14</sup> Additionally, OIG is currently assessing multiple prevention and treatment efforts underway at State and national levels.<sup>15</sup> OIG also released a toolkit that provides detailed steps for using prescription drug data to analyze patients' opioid levels and identify patients who are at risk of opioid misuse or overdose.<sup>16</sup>

This data brief extends previous Medicare Part D work to Medicaid claims in Ohio to identify beneficiaries at serious risk of opioid misuse or overdose and prescribers who ordered opioids for these beneficiaries at higher rates than their peers. We selected Ohio to examine as the first State in a series of State Medicaid studies focusing on opioid use in the Medicaid program. Ohio is among the States most severely impacted by the opioid crisis, with nearly 3,500 overdose deaths in 2016.<sup>17, 18</sup>

# RESULTS

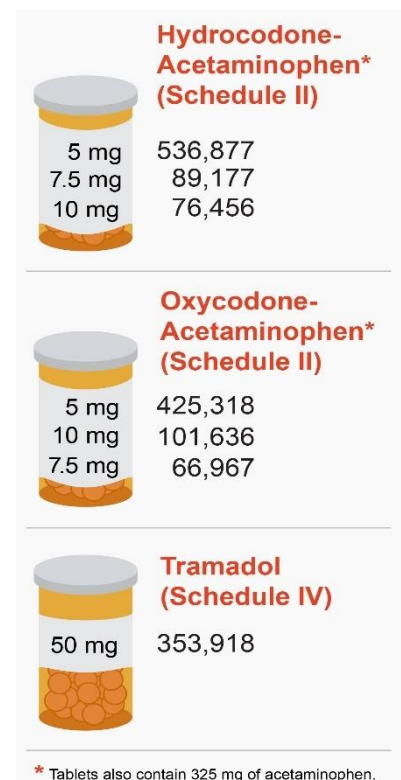
## One in six Ohio Medicaid beneficiaries received opioids between June 2016 and May 2017

Between June 2016 and May 2017, nearly one in six beneficiaries in Ohio received at least one opioid through Medicaid. Sixteen percent of beneficiaries—539,810 of the nearly 3.5 million enrolled in Ohio Medicaid—received opioids.<sup>19</sup> This figure represents all opioid use among Medicaid beneficiaries in Ohio, regardless of the reason the opioids were prescribed or the amount that was prescribed. It includes 21,146 beneficiaries who had cancer or were in hospice care during our study period. The number of beneficiaries receiving opioids and the amounts they received may be higher than reported in this data brief because this review analyzes only those opioids paid for by Ohio Medicaid. Medicaid beneficiaries may opt to purchase opioids outside of the Medicaid benefit by paying cash.

Notably, approximately 40,500 of the beneficiaries who received at least one opioid were children ages 18 and younger.<sup>20</sup> Of these, 385 had cancer or were in hospice care during our study period. Most of the remaining children who did not have cancer or were not in hospice care received just 1 opioid prescription, although just over 6,600 received 2 or more prescriptions. The opioid most commonly prescribed to children was hydrocodone-acetaminophen (brand name Vicodin). Research shows that even using prescription opioids for legitimate purposes before high school graduation is associated with increased risk of future opioid misuse.<sup>21</sup>

The majority of opioids prescribed to Ohio Medicaid beneficiaries (82 percent) were Schedule II or III controlled substances, meaning they have the highest potential for abuse among legally available drugs.<sup>22</sup> Schedule I drugs have the highest potential for abuse and Schedule V drugs have the lowest potential for abuse. The most commonly prescribed opioids were hydrocodone-acetaminophen (including the brand-name version, Vicodin), oxycodone-acetaminophen (including the brand-name version, Percocet), and tramadol.<sup>23</sup> See Exhibit 1 for the total

### Exhibit 1: Hydrocodone-acetaminophen, oxycodone-acetaminophen, and tramadol were the most commonly prescribed opioids.

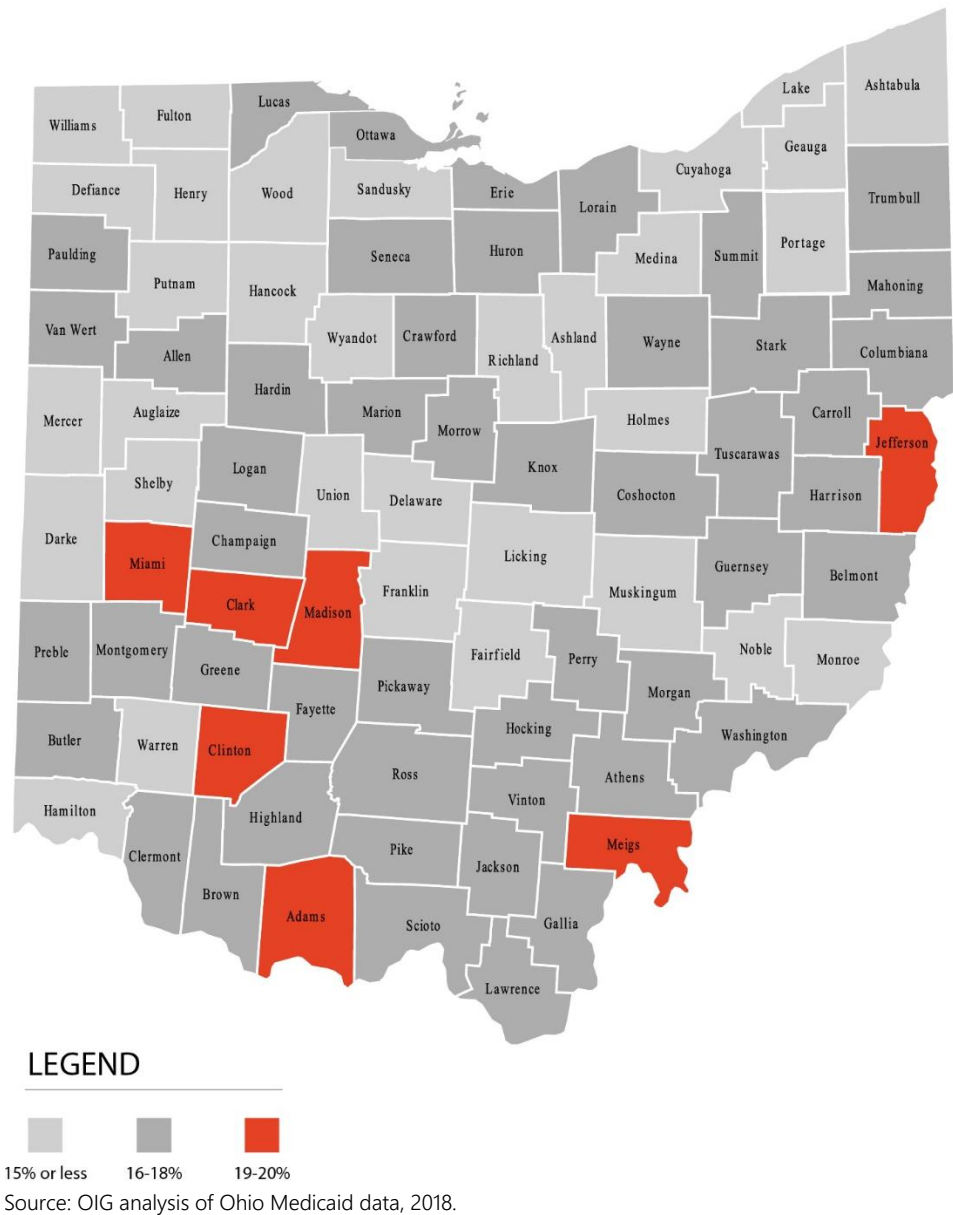


Source: OIG analysis of Ohio Medicaid data, 2018.

number of prescriptions written for each commonly prescribed opioid.

The proportion of beneficiaries who received opioids during our study period varied across counties. Seven counties in Ohio—Adams, Clark, Clinton, Jefferson, Madison, Meigs, and Miami—had the highest proportions of Medicaid beneficiaries who received opioids. Adams County had the highest percentage of Medicaid beneficiaries who received opioids—20 percent. In the remaining six counties, 19 percent of the Medicaid population received opioids. See Exhibit 2 for additional details.

**Exhibit 2: Seven counties in Ohio had the highest proportions of Medicaid beneficiaries who received prescription opioids of any strength.**



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Nearly 91,000 Ohio Medicaid beneficiaries received opioids on a regular basis. These beneficiaries received opioids for three or more months during our study period. Opioids may have been necessary for many of these beneficiaries, but for others these opioids may have been inappropriately prescribed or used.

Ohio has implemented multiple initiatives to help ensure appropriate opioid use among its residents, including Medicaid beneficiaries, and reports that opioid prescribing has declined. Ohio's initiatives include education campaigns to prevent opioid abuse, requirements for prescribers and pharmacies to routinely check the State's PDMP when prescribing or dispensing opioids, and licensure of pain management clinics to reduce pill mills. Ohio also issued guidelines that recommend that providers reassess opioid prescriptions for beneficiaries who receive opioids for 12 or more weeks. Between 2012 and 2017, the total number of opioids dispensed in Ohio decreased by 28 percent.<sup>24</sup> See Appendix A for more details on Ohio's initiatives.

### **Nearly 5,000 Ohio Medicaid beneficiaries received high amounts of opioids**

Between June 2016 and May 2017, 4,754 Medicaid beneficiaries received high amounts of opioids. This did not include beneficiaries who had cancer or were in hospice care during our study period and does not include prescriptions used for medication-assisted treatment (MAT) of opioid use disorder.

Each of the 4,754 Medicaid beneficiaries received high amounts of opioids, meaning an average morphine equivalent dose (MED) of more than 120 mg daily for at least 3 months. MED is a measure that equates all the various opioids and strengths into one standard value. A daily MED of 120 mg is equivalent to taking 16 tablets a day of Percocet 5 mg. This dosage exceeds the amount that the manufacturer recommends.<sup>25</sup> It also exceeds Ohio and CDC guidelines, which recommend caution or avoidance of dosages beyond daily MEDs of 80 mg and 90 mg, respectively.<sup>26, 27</sup>

Beneficiaries who received high amounts of opioids were primarily between the ages of 45 and 64, and primarily female. Fewer than 10 beneficiaries between the ages of 11 and 17 received high amounts. For more information about beneficiaries who received high amounts, see Appendix B.

The most commonly prescribed opioid for beneficiaries with high amounts was oxycodone 30 mg, with one in four beneficiaries having at least one prescription for this drug. Oxycodone is among the prescription opioids most commonly involved in law enforcement cases.<sup>28</sup> See Exhibit 3 for the total number of prescriptions written for commonly prescribed opioids.

Although beneficiaries may receive opioids for legitimate purposes such as chronic pain management, these high amounts raise concern. Opioids carry health risks, including respiratory depression, constipation, drowsiness, and confusion. These beneficiaries may also be at an increased risk for prescription opioid misuse, which may lead to heroin use.<sup>29</sup>

Recognizing the risks of prolonged use of high amounts of opioids, Ohio has taken steps to reduce overutilization. According to Ohio, the number of patients receiving a daily MED of more than 80 mg decreased by nearly 11 percent after the State recommended staying below that threshold.<sup>30</sup> Also according to Ohio, prescribers checked its PDMP nearly 89 million times in 2017, which represents an increase from 24 million in 2016.<sup>31</sup> However, the fact that some Medicaid beneficiaries continued to receive high amounts of opioids despite these protections suggest that some prescribers may not always adhere to these policies.

**Exhibit 3: Oxycodone, oxycodone-acetaminophen, and methadone were the most commonly prescribed opioids to beneficiaries with high amounts.**



\* Tablets also contain 325 mg of acetaminophen.

Source: OIG analysis of Ohio Medicaid data, 2018.

Note: The methadone prescriptions included in this exhibit were not prescribed for use in MAT.

## More than 700 Ohio Medicaid beneficiaries are at serious risk of prescription opioid misuse or overdose

Ohio has taken numerous steps to address its opioid crisis, but two groups of beneficiaries that remain at serious risk of opioid misuse or overdose are the focus of this review: (1) beneficiaries who received extreme amounts of opioids and (2) beneficiaries who appeared to be “doctor shopping.” There may be other Medicaid beneficiaries who are also at serious risk of opioid misuse or overdose but do not meet these criteria.

In total, 708 beneficiaries were at serious risk of opioid misuse or overdose from June 2016 to May 2017.<sup>32</sup> Specifically, 481 beneficiaries received extreme amounts of opioids, and 231 beneficiaries appeared to be doctor shopping (i.e., received high amounts of opioids from multiple prescribers and pharmacies). Four beneficiaries were in both groups.

Beneficiaries who were at serious risk of opioid misuse or overdose were primarily between the ages of 45 and 64 and nearly evenly divided between male and female. For more information about beneficiaries who were at serious risk, see Appendix B.

Although beneficiaries at serious risk may have legitimate reasons for receiving opioids, their dosage and usage patterns raise concerns and warrant further scrutiny. These beneficiaries may be receiving poorly coordinated care. They also may be seeking medically unnecessary drugs to sell or use recreationally. Alternatively, these beneficiaries’ identification numbers may have been stolen or sold.

### Almost 500 beneficiaries received extreme amounts of opioids

In total, 481 beneficiaries received extreme amounts of opioids for our entire study period, putting them at serious risk of opioid misuse or overdose. Each of these beneficiaries had an average daily MED that exceeded 240 mg for the entire study period. This extreme amount is more than two and a half times the dose CDC recommends that chronic pain patients avoid. Research has shown that patients who receive an MED at such a level are at increased risk of overdose death.<sup>33</sup>

### Beneficiaries at serious risk of opioid misuse or overdose include:

1. Beneficiaries who received extreme amounts of opioids—i.e., an average daily MED greater than 240 mg for 12 months.
2. Beneficiaries who appeared to be doctor shopping—i.e., received a high amount 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.

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Twelve beneficiaries received even more extreme amounts of opioids. These beneficiaries each received an average daily MED greater than 900 mg for the entire study period.

### Examples of Beneficiaries Receiving Extreme Amounts of Opioids

A beneficiary received 59 prescriptions during the study period—all ordered from one internal medicine physician and filled at one pharmacy. In total, the beneficiary had an average daily MED of 1,147 mg, which is more than 12 times the level that CDC recommends avoiding.

Another beneficiary received 46 prescriptions from 3 prescribers and 1 pharmacy during our study period. This beneficiary's prescriptions included prescriptions for long-acting oxycodone and short-acting oxycodone. In total, the beneficiary had an average daily MED of 1,080 mg for the study period, which is 12 times the level that CDC recommends avoiding.

### About 230 beneficiaries appeared to be doctor shopping

A second group of beneficiaries—those who appeared to be doctor shopping (i.e., received high amounts of opioids from multiple prescribers and pharmacies)—are also at serious risk of opioid misuse or overdose.

Doctor shoppers are beneficiaries who seek prescriptions from multiple prescribers and multiple pharmacies. In total, 231 beneficiaries appeared to be doctor shopping. Each of these beneficiaries received a high amount of opioids—an average daily MED that exceeded 120 mg over at least 3 months—and had four or more prescribers *and* four or more pharmacies in our study period. It is uncommon for a beneficiary to have multiple prescribers or pharmacies. Most beneficiaries who received opioids in our study period had just one prescriber (59 percent) and one pharmacy (74 percent).<sup>34</sup>



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Notably, several beneficiaries had particularly high numbers of prescribers and pharmacies during our study period. Eleven beneficiaries had 15 or more prescribers or 10 or more pharmacies.

### Examples of Beneficiaries Who Appear To Be Doctor Shopping

A beneficiary received 41 opioid prescriptions from 16 prescribers and filled them at 8 pharmacies during our study period. This beneficiary received four opioids—oxycodone, hydrocodone, fentanyl, and tramadol. In total, the beneficiary had an average daily MED of 196 mg.

Another beneficiary received 22 opioid prescriptions from 15 prescribers and filled them at 10 pharmacies during our study period. This beneficiary traveled more than 70 miles for oxycodone prescriptions from three different prescribers. Six of this beneficiary's prescriptions were from a prescriber more than 145 miles away.

Ohio has taken steps to help identify and stop doctor shopping. For example, Ohio requires pharmacists to check a beneficiary's prescription history in the PDMP if they believe the beneficiary may be doctor shopping. Medicaid beneficiaries suspected of doctor shopping can be assigned to a lock-in program that requires them to fill all prescriptions at a preassigned pharmacy. According to Ohio, from 2012 to 2016, the number of patients who appeared to be doctor shopping fell by 78 percent.<sup>35</sup> Despite Ohio's efforts, some beneficiaries still appeared to be doctor shopping, suggesting that they may not have been identified by pharmacists or targeted for inclusion in Ohio's lock-in program.

### Nearly 50 prescribers stood out by ordering opioids for more beneficiaries at serious risk than their peers

In total, 1,646 prescribers ordered opioids for at least one beneficiary at serious risk of opioid misuse or overdose during our study period. A vast majority of these prescribers—81 percent—ordered opioids for just one beneficiary.

Forty-seven of the prescribers who ordered opioids for beneficiaries at serious risk of opioid misuse or overdose stand out as ordering opioids for more beneficiaries at serious risk than other prescribers in Ohio. More than one-third of these prescribers are located in just two counties in Ohio: Franklin and Cuyahoga, which include Columbus and Cleveland, respectively. Slightly more than half of these prescribers were physicians. For information about these prescribers' specialties, see Appendix C.

These 47 prescribers were outliers when compared to their peers who also ordered opioids for beneficiaries at serious risk. These 47 prescribers ordered opioids for the greatest number of beneficiaries at serious risk.

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Specifically, 26 prescribers ordered opioids for at least 5 beneficiaries who received extreme amounts, and 26 prescribers ordered opioids for at least 4 beneficiaries who appeared to be doctor shopping. These prescribers ordered opioids for an average of nine beneficiaries who received extreme amounts and six beneficiaries who appeared to be doctor shopping. Five prescribers ordered opioids for high numbers from both groups of beneficiaries at serious risk. In total, prescribers that stood out wrote 5,584 opioid prescriptions for beneficiaries at serious risk.

Although prescribers may order opioids for legitimate reasons, those who stand out compared to their peers raise concerns and warrant further scrutiny. These prescribers may be providing poorly coordinated care to Medicaid beneficiaries. They may also be ordering medically unnecessary drugs, which could be sold or used recreationally. Alternatively, the prescribers' identification may have been sold or stolen and used for illegal purposes.

Recognizing the role that prescribers play in ensuring that Ohio Medicaid beneficiaries do not receive dangerous amounts of opioids, Ohio has taken steps to reduce improper prescriptions. Ohio expects prescribers to follow its opioid prescription guidelines and to check its PDMP at the required intervals. To promote use of its PDMP, Ohio has worked to integrate the PDMP into electronic health record systems and pharmacy dispensing systems used across the State. The 47 prescribers associated with beneficiaries at serious risk that stand out compared to their peers may not have followed all of Ohio's guidelines and regulations.

Ohio has reported taking action against prescribers that do not appropriately prescribe opioids. From 2011 to 2017, the State Medical Board of Ohio took disciplinary actions against 273 prescribers for improper prescribing of prescription drugs, including opioids.<sup>36</sup> From 2015 to 2016, inappropriate opioid prescribing remained one of the top reasons the Board took action on a prescriber's license.<sup>37</sup>

### Nearly 30 prescribers each ordered opioids for numerous beneficiaries who received extreme amounts of opioids

There were 26 prescribers that stand out compared to their peers because they ordered opioids for more beneficiaries who received extreme amounts. These prescribers ordered opioids for 5 to 18 beneficiaries who received extreme amounts of opioids. These beneficiaries received an average daily MED of more than 240 mg for the entire study period and are at serious risk for opioid misuse or overdose. See Appendix D for further information about these prescribers.

Among these 26 prescribers, 5 stand out. These prescribers ordered opioids for 12 or more beneficiaries with extreme amounts. These prescribers include three nurse practitioners who specialize in family

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practice, one internal medicine physician who specializes in hematology and oncology, and one physician who specializes in psychiatry and neurology.

### Examples of Prescribers Who Prescribed to Beneficiaries With Extreme Amounts

A nurse practitioner ordered opioids for 18 beneficiaries who received extreme amounts during our study period. For one of these beneficiaries, the nurse practitioner ordered 26 prescriptions—all of which were 30 days' supply of either long-acting or short-acting oxycodone. This beneficiary had an average daily MED of 265 mg, nearly three times the level that CDC recommends avoiding. In total, this nurse practitioner ordered 260 prescriptions for beneficiaries who received extreme amounts of opioids.

A physician specializing in psychiatry and neurology ordered opioids for 12 beneficiaries who received extreme amounts during our study period. For one of these beneficiaries, the physician ordered 52 prescriptions, including 27 30-day prescriptions for oxycodone hydrochloride and 25 15-day prescriptions for tramadol hydrochloride. For another beneficiary, the physician ordered 39 prescriptions for oxycodone hydrochloride, tramadol hydrochloride, and fentanyl patches. In total, this physician ordered 352 prescriptions for beneficiaries who received extreme amounts of opioids.

### Nearly 30 prescribers each ordered opioids for several beneficiaries who appeared to be doctor shopping

There were 26 prescribers that stand out compared to their peers because they ordered opioids for more beneficiaries who appeared to be doctor shopping. These prescribers ordered opioids for 4 to 11 beneficiaries who appeared to be doctor shopping. These beneficiaries received high amounts of opioids *and* had four or more prescribers *and* four or more pharmacies. Like beneficiaries who receive extreme amounts, beneficiaries who appeared to be doctor shopping are at serious risk of opioid misuse or overdose. See Appendix D for further information about these prescribers.

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Among these 26 prescribers, two stand out. These prescribers ordered opioids for 10 or more beneficiaries who exhibited doctor-shopping behavior. These prescribers include a physician who specializes in interventional pain management and a physician assistant.

### Examples of Prescribers Who Prescribed to Beneficiaries Who Appeared To Be Doctor Shopping

A pain management physician ordered opioids for 11 beneficiaries who appeared to be doctor shopping. Nearly two-thirds of these prescriptions were for oxycodone. In total, this physician ordered 120 prescriptions for beneficiaries who appeared to be doctor shopping.

Additionally, this physician shared a beneficiary with a clinical nurse specialist who ordered opioids for a high number of beneficiaries who appeared to be doctor shopping. They ordered a combined 21 prescriptions for this beneficiary, including 5 oxycodone and oxymorphone prescriptions in just 1 month.

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# CONCLUSION

Ohio has taken multiple steps to address its opioid crisis and reports that its efforts have resulted in successes. For example, Ohio has developed opioid prescribing guidelines and requires that prescribers and pharmacists routinely check its PDMP. Ohio's prescription opioid overdose death rate has fallen in recent years.

However, despite these efforts, nearly 3,500 people died of opioid overdoses in Ohio in 2016, including 564 who died from prescription opioid overdoses. In addition, we found that some Medicaid beneficiaries and prescribers have opioid use or prescribing patterns that may warrant further scrutiny. We found that 708 Medicaid beneficiaries are at serious risk of opioid misuse or overdose, and we identified 47 prescribers associated with these beneficiaries who stood out compared to their peers.

We also identified children who may be at increased risk for future opioid misuse. Just over 40,000 children who did not have cancer and were not in hospice care received at least one opioid prescription during our study period. Although we found that very few children were receiving high amounts of opioids, any opioids for 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 increased risk of future opioid misuse.<sup>38</sup>

Our results suggest that some prescribers and pharmacies may not be following Ohio's opioid prescribing policies, potentially putting Medicaid beneficiaries at risk. For example, some prescribers may not be screening beneficiaries for substance abuse issues as frequently as suggested in Ohio's prescribing guidelines for patients with chronic pain, resulting in beneficiaries with undetected problems. Additionally, some prescribers and pharmacists may not be checking the PDMP as frequently as required, resulting in beneficiaries being able to obtain dangerously high amounts of opioids from several prescribers or pharmacies.

Our results also underscore both the tenacity of the opioid crisis and the importance of Ohio's ongoing commitment to addressing it. Ohio continues to explore new strategies to protect Ohio residents from opioid misuse. Subsequent to our study period, Ohio further strengthened its prescribing controls by limiting the length of acute care opioid prescriptions to 7 days for adults and 5 days for minors. Ohio has also mandated that by July 2018 Medicaid managed care beneficiaries who meet certain criteria be enrolled in its lock-in program. We encourage Ohio to continue to explore new strategies to address its opioid crisis and look for ways to improve existing strategies. For example, Ohio could consider providing targeted

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education to prescribers who prescribe opioids to children with the goal of reducing the number of children who receive any opioid prescriptions. Additionally, Ohio could further evaluate whether additional actions are needed for this vulnerable group.

OIG is also working to increase its efforts to fight the opioid crisis. We are working with our law enforcement partners and with the Ohio Department of Medicaid to follow up on identified prescribers. We are also working in new ways to conduct investigations and reviews that address the ongoing problems of opioid misuse. This includes working closely with the Ohio Medicaid Fraud Control Unit and the Department of Justice's new Opioid Fraud and Abuse Detection Units. In addition to enforcement, we continue to identify other approaches to support prevention and treatment efforts and to improve the effectiveness of the broader Department efforts. For example, we will conduct additional analyses of opioid use and payment for treatment in other State Medicaid programs.<sup>39</sup> We are also in the process of assessing oversight of strategies designed to address prescription opioid abuse, including State PDMP programs, as well as access to and oversight of opioid use disorder treatment, including buprenorphine.<sup>40</sup>

OIG is also committed to continuing to forge relationships with States and with private sector partners to address this crisis. OIG continues to support our State and private sector partners through the Healthcare Fraud Prevention Partnership and our shared commitment to reducing the harms of opioids.<sup>41</sup>

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# METHODOLOGY

We based this data brief on an analysis of Ohio’s Transformed Medicaid Statistical Information System (T-MSIS) prescription drug records. This data brief includes prescriptions that beneficiaries received through Medicaid. It does not include prescriptions paid through other programs or those paid in cash.<sup>42</sup> It also does not include prescriptions for medication-assisted treatment of opioid use disorders, such as buprenorphine, naltrexone, and methadone.<sup>43</sup> Pharmacists submit prescription drug records to the State, or a State’s Medicaid managed care organization, for every drug dispensed to a beneficiary enrolled in Medicaid. Medicaid managed care organizations submit records to the State. Each record contains information about the drug and the beneficiary as well as the identification numbers for the pharmacy and the prescriber.

We matched T-MSIS prescription records to CDC’s morphine milligram equivalent (MME) conversion file and other T-MSIS files to obtain descriptive information about drugs, prescribers, and beneficiaries. CDC’s MME conversion file contains information about each drug, such as the drug name, strength of the drug, therapeutic class (e.g., an opioid), and controlled substance schedule (e.g., Schedule II or III) as well as information about each opioid’s drug morphine milligram equivalence.<sup>44</sup> In addition to prescription records, T-MSIS includes provider, eligibility, and claims files. Provider and eligibility files contain information about prescribers and beneficiaries, such as their names, addresses, provider specialties, and eligibility categories (e.g., the various ways in which individuals can be eligible for Medicaid). Claims files contain data, including diagnosis codes, from inpatient hospital, long-term care, and other types of health care episodes. For the purposes of this study, we use the term “prescription” to mean one T-MSIS prescription record.

## Testing Quality of T-MSIS Data

T-MSIS is a new data source, and OIG has previously identified concerns about its quality. Before using Ohio’s T-MSIS data, we assessed the quality by reviewing whether required variables were populated, whether variables that were populated met format standards, and that a sample of data matched Ohio’s source data. On the basis of the results of our quality checking, we determined that Ohio’s T-MSIS data were of sufficient quality to use for our analysis. Our quality checking did not evaluate the accuracy of information submitted to Ohio by Medicaid providers and managed care plans.

T-MSIS files contained the claims data necessary for our analysis for most beneficiaries in our review. However, in some cases we identified missing elements in Ohio’s T-MSIS data. As a result, we had to remove a small

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number of claims for some beneficiaries that were missing information needed for one part of our analysis. Excluded claims did not change the outcome of our analysis for most beneficiaries. For some of the remaining beneficiaries, the excluded claims may have caused us to under-represent beneficiaries at serious risk or providers who stood out compared to their peers. Specifically, we excluded a portion of claims from our doctor-shopping analysis that were missing prescriber or dispenser identification. The excluded claims would not have changed our results in the vast majority of cases, but they could have caused us to report overly conservative numbers for up to 230 beneficiaries.

When possible, we addressed data quality concerns identified by our quality assessment. We assigned unique patient identifiers to Medicaid beneficiaries who had more than one Medicaid ID. We also used the T-MSIS provider file to identify prescribers' National Provider Identifiers in cases where they were missing from prescription claims.

### Analysis of Opioid Utilization

We identified T-MSIS prescription claims for opioids that beneficiaries received over the 12-month period of June 2016 to May 2017. We calculated the number of beneficiaries and total number of prescription claims for all opioids and for all Schedule II and III opioids. Using T-MSIS prescription drug records and T-MSIS eligibility files, we determined the proportion of Medicaid beneficiaries with claims for opioids in Ohio and in each of its counties. We then identified the most commonly prescribed opioids by calculating the total number of prescriptions for each active pharmaceutical ingredient (delineated by strength and form). Lastly, we counted the total number of days during the year that each beneficiary received opioids.

### Beneficiary Analysis

Next we determined the amount of opioids that each beneficiary received. To do this, we calculated each beneficiary's average daily MED.<sup>45</sup> 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., each T-MSIS prescription record).<sup>46</sup> To do this, we used the following equation:

$$\text{MED} = \frac{(\text{strength per unit}) \times (\text{quantity dispensed}) \times (\text{MME conversion factor})}{(\text{Days supply})}$$

We then summed each beneficiary's MED for each day of the year based on the dates of service and days' supply on each T-MSIS prescription record. We refer to this as the daily MED. We excluded from this analysis



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beneficiaries with a diagnosis of cancer or a hospice stay at any point during our study period.<sup>47</sup>

Next we determined the extent to which beneficiaries received high or extreme amounts of opioids or appeared to be doctor shopping. For each group of beneficiaries, we used the same definitions as previous OIG work.<sup>48</sup>

**High amounts of opioids.** To determine the extent to which beneficiaries received high amounts of opioids, we calculated each beneficiary's average daily MED over each 90-day period during our study period. We considered a beneficiary to have 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 (not necessarily consecutive). The MED of 120 mg exceeds the level CDC recommends that patients with chronic pain avoid, which is an MED of 90 mg.

**Extreme amounts of opioids.** To determine the extent to which beneficiaries received extreme amounts of opioids, we calculated each beneficiary's average daily MED over our entire study period. We considered a beneficiary who exceeded an average daily MED of 240 mg for our entire study period *and* had received opioids for 360 days or more to have received an extreme amount of opioids.

**Doctor shopping.** To determine the extent to which beneficiaries appeared to be doctor shopping, we calculated the total number of prescribers and pharmacies from which each beneficiary received opioids during our study period. 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 during our study period, and received opioids from four or more prescribers *and* four or more pharmacies.

**Demographics.** Lastly, we calculated frequencies for select demographic information including age, sex, and whether a beneficiary was ever eligible for Medicaid due to a disability in our study period. We did this for beneficiaries who received any opioids, received high or extreme amounts of opioids, and who appeared to be doctor shopping.

### Prescriber Analysis

For this analysis, we identified prescribers who ordered opioids for a high number of beneficiaries at serious risk: beneficiaries who received extreme amounts of opioids and beneficiaries who appeared to be doctor shopping. We considered these prescribers to stand out in comparison to their peers and warrant further scrutiny.

In total, 564 prescribers ordered opioids for beneficiaries who received extreme amounts, and 1,235 prescribers ordered opioids for beneficiaries who appeared to be doctor shopping. For each of these prescribers, we

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calculated the number of beneficiaries in each group for whom the prescriber ordered opioids. We then identified the prescribers who ordered opioids for the greatest number of beneficiaries in each group.<sup>49</sup> Prescribers who ordered opioids for five or more beneficiaries who received extreme amounts are considered outliers.<sup>50</sup> Prescribers who ordered opioids for four or more beneficiaries who appeared to be doctor shopping are considered outliers.<sup>51</sup> See Appendix D for how frequently prescribers ordered opioids for beneficiaries at serious risk.

### Limitations

We did not determine whether the high or extreme amounts of opioids that beneficiaries received were medically justified, as we did not conduct a medical record review.

Our review may underestimate opioid use for some beneficiaries. As previously stated, we removed some claims from a small number of beneficiaries that could have caused us to report overly conservative numbers for up to 230 beneficiaries. In addition, we did not report on opioids obtained outside of the Medicaid program, such as through private insurance or cash payments.

We did not compare our results to national trends because timely, nationwide information about opioid use in the Medicaid program is not available.<sup>52</sup>

### Standards

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

# APPENDIX A: OVERVIEW OF OHIO'S OPIOID INITIATIVES

Ohio has taken a number of steps to address its opioid crisis. In this appendix, we provide specific information about Ohio's opioid prescribing guidelines for prescribers and Ohio's requirements for when prescribers and pharmacists are required to check the State's PDMP. We also summarize many of Ohio's other efforts and provide links to Ohio resources for more detail.

## Opioid prescribing guidelines for providers

Emergency department and acute care facilities (released April 2012)	<p>Prescribers should consider:</p> <ul style="list-style-type: none"> <li>• not writing prescriptions of more than 3 days,</li> <li>• not prescribing long-acting opioids,</li> <li>• checking Ohio PDMP prior to prescribing, and</li> <li>• referring to primary care.</li> </ul>
Chronic, nonterminal pain (released October 2013)	<p>Prescribers must:*</p> <ul style="list-style-type: none"> <li>• check Ohio PDMP for every patient with a prescription for more than 12 weeks.</li> </ul> <p>Prescribers should consider:</p> <ul style="list-style-type: none"> <li>• "pressing pause" at prescribing 80 mg MED or more,</li> <li>• using caution when co-prescribing benzodiazepines,</li> <li>• checking Ohio PDMP for every patient with a prescription at 80 mg MED or more, and</li> <li>• reevaluating patient for pain, function, medication effectiveness, and screen for substance abuse at 12 weeks.</li> </ul>
Acute pain outside of emergency department (released January 2016)	<p>Prescribers must:*</p> <ul style="list-style-type: none"> <li>• check Ohio PDMP for prescriptions of 7 days or more (in most cases).</li> </ul> <p>Prescribers should consider:</p> <ul style="list-style-type: none"> <li>• using nonpharmacologic/nonopioid therapies,</li> <li>• limiting pills per prescription,</li> <li>• not prescribing long-acting opioids,</li> <li>• checking Ohio PDMP prior to prescribing, and</li> <li>• reevaluating patient at 2 weeks.</li> </ul>

Source: OIG review of Ohio's prescribing guidelines, 2018.

\*Note: Although included in Ohio's guideline documents, the prescriber requirements to check the PDMP became law in April 2015.

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## Ohio requirements for checking PDMP (effective January 2015)

Prescribers	Must check PDMP before initially prescribing or personally furnishing an opioid analgesic or benzodiazepine and follow up with periodic checks for any treatment continuing for more than 90 days.
Pharmacists	Must check PDMP for 1-year period when: <ul style="list-style-type: none"><li>• patient adds new or different controlled substance to their therapy,</li><li>• no PDMP reported reviewed during preceding 12 months,</li><li>• prescriber located outside usual pharmacy geographic area,</li><li>• pharmacist has reason to believe patient has received prescriptions for controlled substances from more than one prescriber in preceding 3 months (unless from a group practice), or</li><li>• patient exhibits signs of potential abuse or diversion.</li></ul>

Source: OIG review of Ohio's PDMP requirements, 2018.

### Ohio actions geared toward prevention

- Passed "Pill Mill" bill in 2011 requiring licensure of pain management clinics, authorized regulatory boards to establish standards for Ohio's PDMP, and restricted in-office dispensing of controlled substances (May 2011)
- Published the opioid prescribing guidelines described above
- Opioid prescriptions for acute pain limited to 7 days for adults and 5 days for minors (August 2017)
- State-wide youth drug-prevention initiative
- School districts required to provide education on opioid abuse
- Lock-in program for beneficiaries who demonstrate patterns of use beyond medical necessity

### Ohio actions geared toward detection

- The Ohio Medicaid Prescription Drug Program Integrity Group brings together representatives from multiple State agencies to analyze data to identify fraudulent Medicaid prescribers for potential administrative or legal actions.
- Ohio agencies are collaborating with the Department of Justice's Opioid Fraud and Abuse Detection Unit to identify fraudulent Medicaid prescribers for potential administrative or legal actions.

### Ohio actions geared toward enforcement

- The State of Ohio Board of Pharmacy trained local law enforcement partners on how to use its PDMP to assist with drug overdose investigations and linked data from its PDMP to overdose death data to help identify prescribers linked to overdose deaths (2015).
- Ohio's 2016-2018 Drug Interdiction, Disruption, and Reduction Plan provides the framework for greater collaboration between law enforcement and treatment providers.
- The Ohio State Highway Patrol seized more than 32,000 opioid pills and 165 pounds of heroin; State troopers made more than 16,000 illegal drug arrests (2017).

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## Ohio actions geared toward treatment

- MAT and alternative pain solutions (i.e., acupuncture) are now covered under Medicaid.
- Naloxone, an overdose antidote, is widely available, and the Ohio Department of Health encourages use for any suspected overdose.
- The State has funded an addiction treatment program that connects court-involved individuals to MAT.
- Court systems are using specialized approaches to direct people to treatment.
- Expanded treatment within State prisons and upon release is available.

## Additional Ohio actions

- Released a toolkit for communities to address opioid abuse

## Resources for more details about Ohio's actions related to combating the opioid crisis

- Combating the opiate crisis in Ohio:  
<http://mha.ohio.gov/Portals/0/assets/Initiatives/GCOAT/Combating-the-Opiate-Crisis.pdf>
- Timeline of initiatives: <http://fightingopiateabuse.ohio.gov/timeline/index.htm>
- Ohio's opioid prescribing guidelines:  
<http://mha.ohio.gov/Portals/0/assets/Initiatives/GCOAT/20160112-GCOAT-Prescribing-Guidelines-Summary.pdf>

# APPENDIX B: SELECT DEMOGRAPHIC DATA

## Exhibit B-1: Most beneficiaries who received opioids in Ohio Medicaid were adults.

	% of beneficiaries who received any opioid (N=539,810)	% of beneficiaries who received high amounts of opioids (N=4,754)	% of beneficiaries who received extreme amounts of opioids (N=481)	% of beneficiaries who appeared to be doctor shopping (N=231)
0-18	7.5%	0.1%	0%	0%
19-44	57.2%	33.2%	29.7%	54.6%
45-64	33.4%	63.2%	68.8%	44.2%
65+	1.9%	3.5%	1.5%	1.3%
Total	100%	100%	100%	100%

Source: OIG analysis of Ohio T-MSIS data, 2018.

## Exhibit B-2: Most beneficiaries who received opioids in Ohio Medicaid were female.

	Any opioid	High amounts	Extreme amounts	Doctor shopping
Female	63.8%	53.7%	51.4%	51.1%
Male	36.1%	46.1%	48.4%	48.9%
Unknown	0.1%	0.2%	0.2%	0%
Total	100%	100%	100%	100%

Source: OIG analysis of Ohio T-MSIS data, 2018.

## Exhibit B-3: Most beneficiaries who received opioids in Ohio Medicaid were eligible for reasons other than a disability.

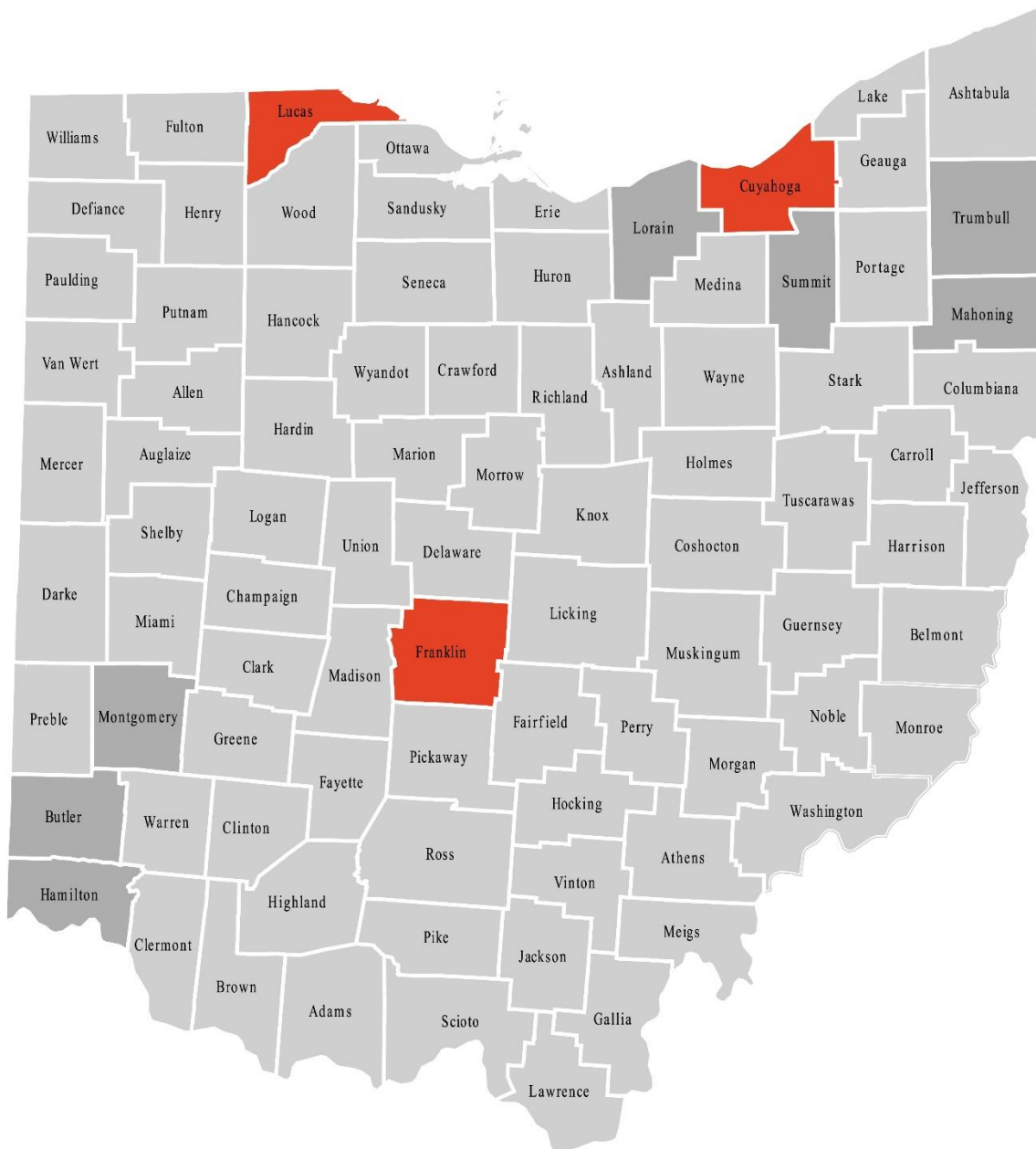
	Any opioid	High amounts	Extreme amounts	Doctor shopping
No disability*	83.8%	57.7%	52%	53.2%
Disability**	13.1%	40.2%	46.8%	45.5%
Unknown	3.1%	2.1%	1.2%	1.3%
Total	100%	100%	100%	100%

Source: OIG analysis of Ohio T-MSIS data, 2018.

\* Eligible for reasons other than disability.

\*\* Eligible due to a disability.

**Exhibit B-4: Cuyahoga, Franklin, and Lucas Counties had the largest numbers of beneficiaries with high amounts of opioids.**



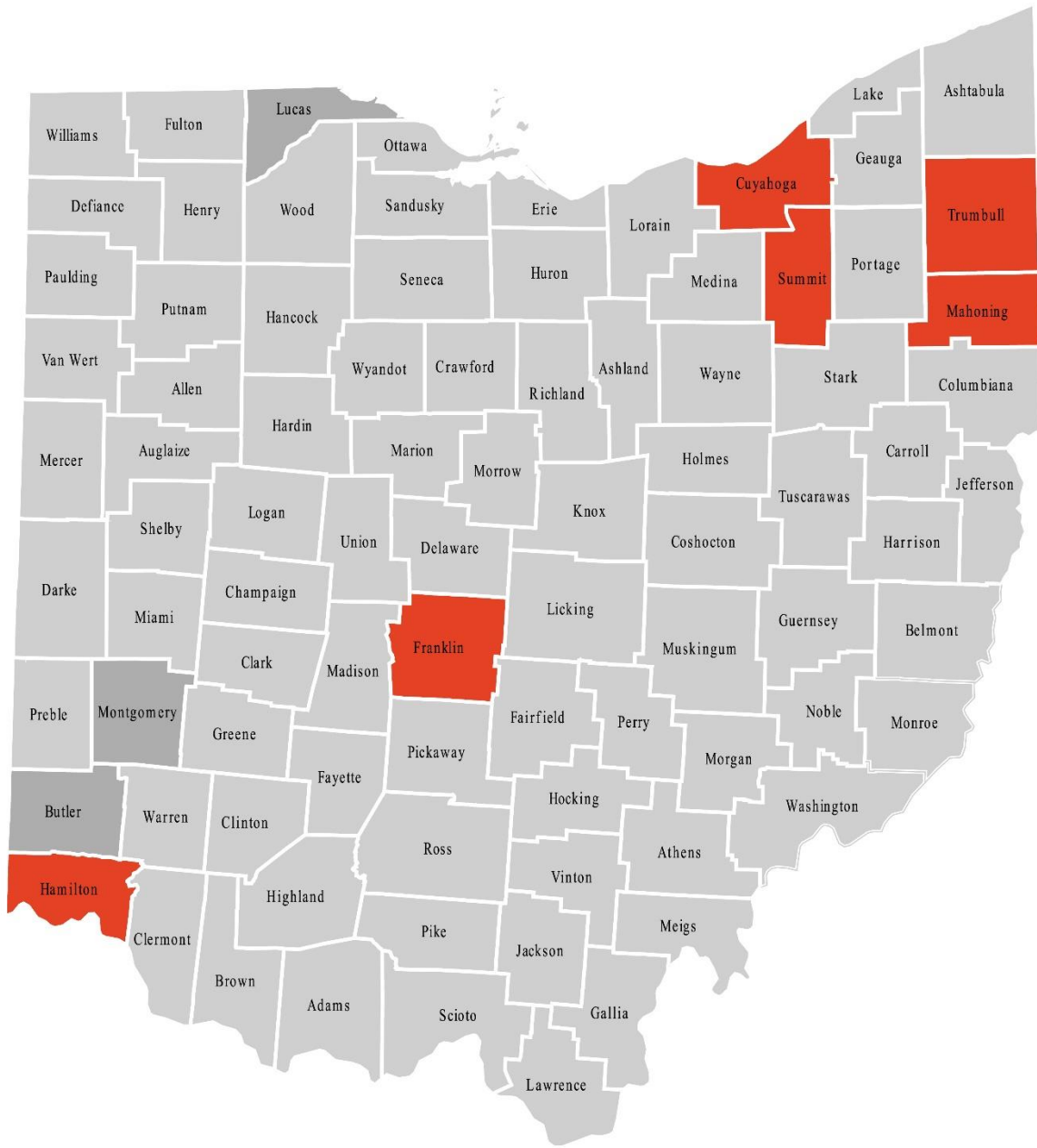
**LEGEND**



Source: OIG analysis of Ohio Medicaid data, 2018.

Note: Franklin County had the most beneficiaries with high amounts of opioids—579 beneficiaries. Cuyahoga County had 313 beneficiaries with high amounts of opioids, and Lucas County had 315. Major cities are located in each of these counties: Columbus in Franklin County, Cleveland in Cuyahoga County, and Toledo in Lucas County.

**Exhibit B-5: Cuyahoga, Franklin, Hamilton, Mahoning, Summit, and Trumbull Counties had the largest numbers of beneficiaries with extreme amounts of opioids.**



**LEGEND**

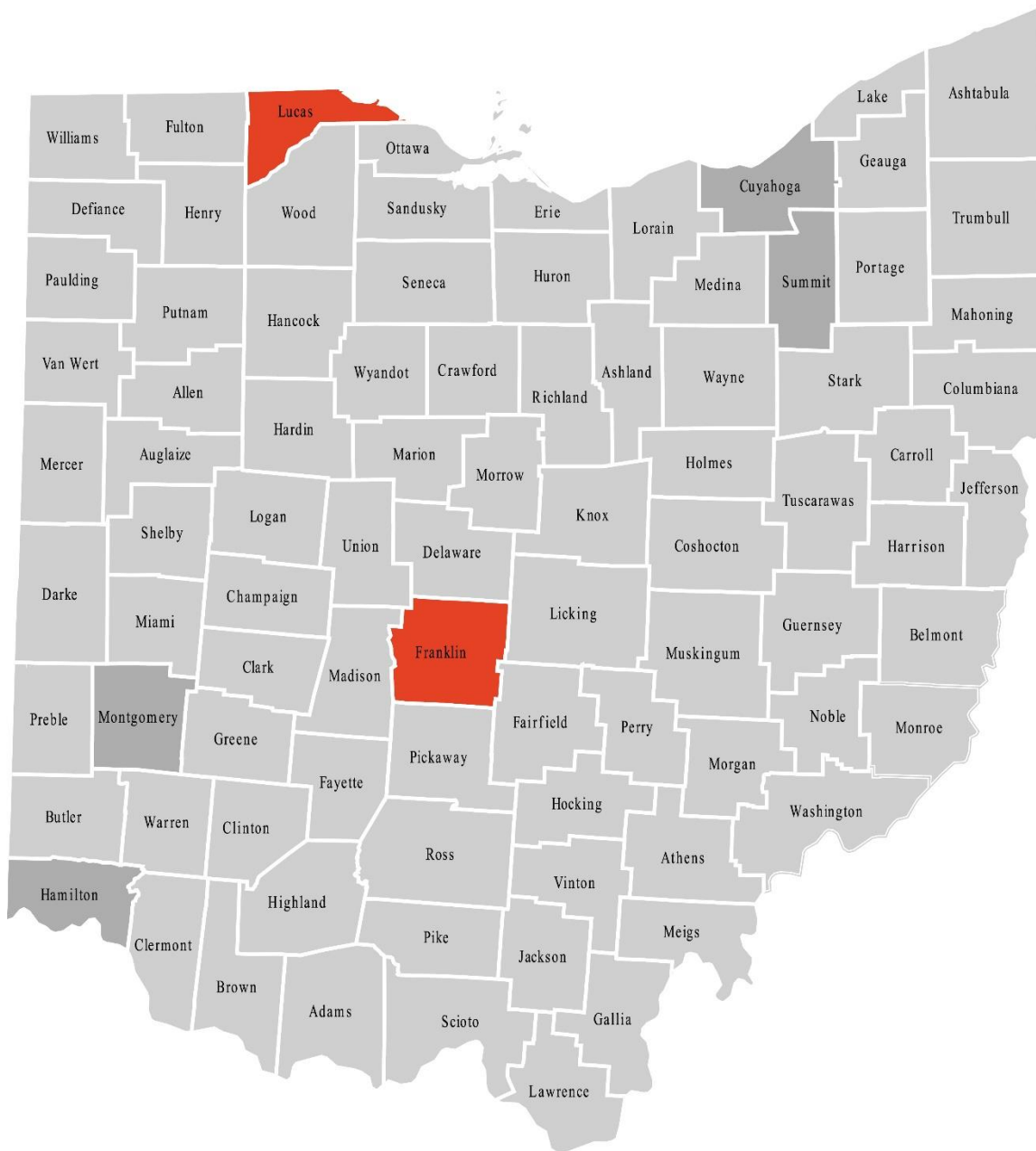


Source: OIG analysis of Ohio Medicaid data, 2018.

Note: Franklin County had the most beneficiaries with extreme amounts of opioids—56 beneficiaries. Cuyahoga County had 42 beneficiaries with extreme amounts of opioids, Mahoning County had 30, Summit County had 27, Trumbull County has 26, and Hamilton had 25. Major cities are located in most of these counties: Columbus in Franklin County, Cleveland in Cuyahoga County, Cincinnati in Hamilton County, Youngstown in Mahoning County, and Akron in Summit County.



**Exhibit B-6: Franklin and Lucas Counties had the largest numbers of beneficiaries who appeared to be doctor shopping.**



**LEGEND**



Source: OIG analysis of Ohio Medicaid data, 2018.

Note: Lucas County had the most beneficiaries who appeared to be doctor shopping—26 beneficiaries. Franklin County had 25 beneficiaries who appeared to be doctor shopping. Major cities are located in each of the counties highlighted above: Columbus in Franklin County and Toledo in Lucas County.

# APPENDIX C: PROVIDER SPECIALTIES

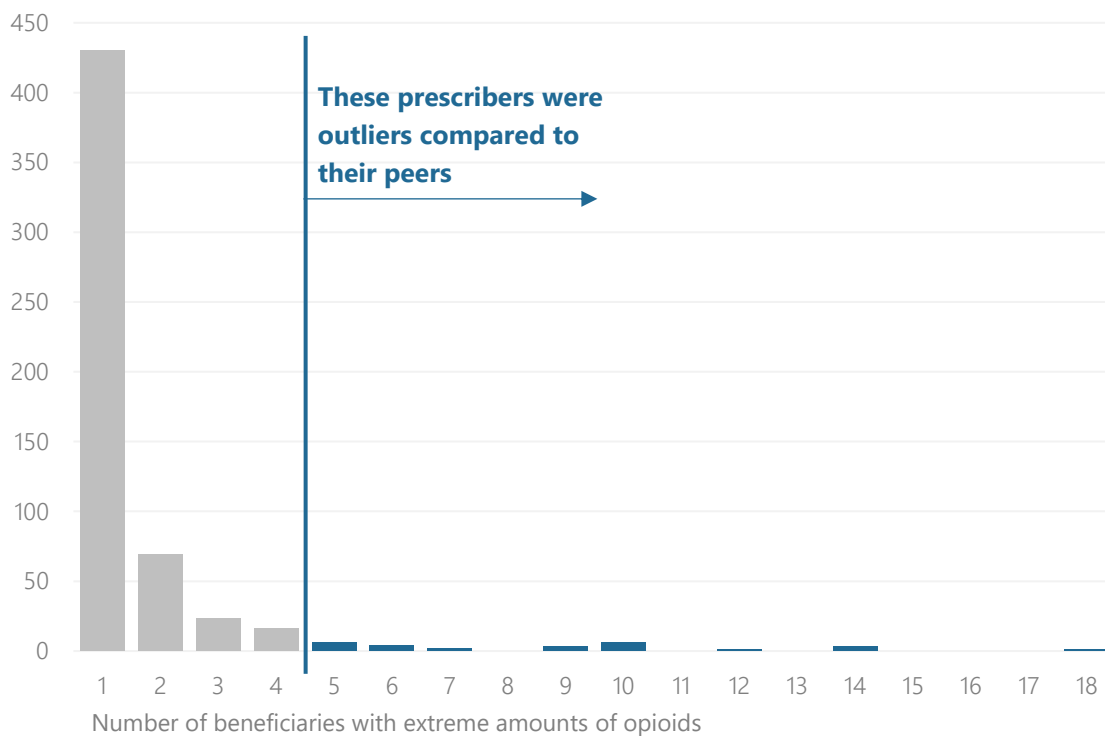
**Exhibit C-1: Physicians comprised more than half of the prescribers who ordered opioids for more beneficiaries than their peers.**

Classification	Number of providers	Percentage of providers
<b>Physician</b>	<b>24</b>	<b>51.1%</b>
Pain medicine	5	
Family medicine	3	
Internal medicine	2	
Internal medicine, hematology, and oncology	2	
Anesthesiology, pain medicine	1	
Family medicine, addiction medicine	1	
Family medicine, geriatric medicine	1	
Internal medicine, geriatric medicine	1	
Internal medicine, hematology	1	
Internal medicine, hospice and palliative medicine	1	
Internal medicine, medical oncology	1	
Pain medicine, interventional medicine	1	
Physical medicine and rehabilitation, pain medicine	1	
Psychiatry and neurology, neurology	1	
Psychiatry and neurology, pain medicine	1	
Specialist	1	
<b>Nurse practitioner</b>	<b>16</b>	<b>34%</b>
Family	7	
Adult health	5	
No specialty	4	
<b>Physician assistant</b>	<b>5</b>	<b>10.6%</b>
No specialty	4	
Medical	1	
<b>Certified clinical nurse specialist</b>	<b>2</b>	<b>4.3%</b>
Adult health	2	
<b>Total</b>	<b>47</b>	<b>100%</b>

Source: OIG analysis of Ohio T-MSIS data, 2018.

# APPENDIX D: PRESCRIBERS ASSOCIATED WITH BENEFICIARIES AT SERIOUS RISK

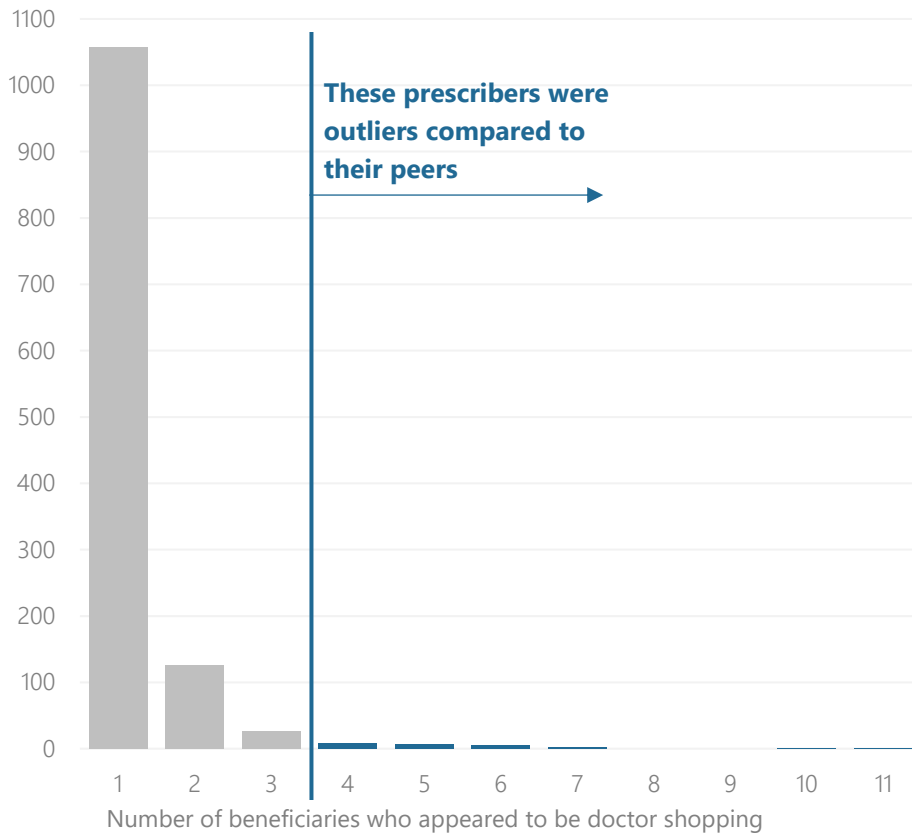
**Exhibit D-1: Of the prescribers who ordered opioids for beneficiaries with extreme amounts, most were associated with just one or two of these beneficiaries.**



Source: OIG analysis of Ohio T-MSIS data, 2018.

Note: Of the 35,102 prescribers who ordered opioids for Ohio Medicaid beneficiaries in our study period, 34,538 did not order opioids for any beneficiaries with extreme amounts.

**Exhibit D-2: Of the prescribers who ordered opioids for beneficiaries who appeared to be doctor shopping, most were associated with just one or two of these beneficiaries.**



Source: OIG analysis of Ohio T-MSIS data, 2018.

Note: Of the 35,102 prescribers who ordered opioids for Ohio Medicaid beneficiaries in our study period, 33,867 did not order opioids for any beneficiaries who appeared to be doctor shopping.

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# ENDNOTES

- <sup>1</sup> Eric D. Hargan, Acting Secretary, U.S. Department of Health and Human Services, “HHS Acting Secretary Declares Public Health Emergency to Address National Opioid Crisis,” press release, October 26, 2017. Accessed at <https://www.hhs.gov/about/news/2017/10/26/hhs-acting-secretary-declares-public-health-emergency-address-national-opioid-crisis.html> on April 13, 2018. Acting Secretary Hargan and Secretary Alex M. Azar II renewed the public health emergency in January 2018 and April 2018, respectively. See <https://www.phe.gov/emergency/news/healthactions/phe/Pages/opioid-24Jan2018.aspx> and <https://www.phe.gov/emergency/news/healthactions/phe/Pages/opioid-20Apr2018.aspx>.
- <sup>2</sup> CDC, *Data Brief 294: Drug Overdose Deaths in the United States, 1999–2016* and supplement tables. Accessed at <https://www.cdc.gov/nchs/data/databriefs/db294.pdf> and [https://www.cdc.gov/nchs/data/databriefs/db294\\_table.pdf#page=1](https://www.cdc.gov/nchs/data/databriefs/db294_table.pdf#page=1) on February 23, 2018.
- <sup>3</sup> Kaiser Family Foundation, *Medicaid’s Role in Addressing the Opioid Epidemic*. Accessed at <https://www.kff.org/infographic/medicaids-role-in-addressing-opioid-epidemic/> on March 26, 2018.
- <sup>4</sup> CDC, *Opioid Overdose: Prescription Opioids*. Accessed at <https://www.cdc.gov/drugoverdose/opioids/prescribed.html> on January 18, 2018.
- <sup>5</sup> CDC, CDC Guideline for Prescribing Opioids for Chronic Pain – United States, 2016, *MMWR Recomm Rep*, March 18, 2016, p. 13. Accessed at <https://www.cdc.gov/mmwr/volumes/65/rr/rr6501e1.htm> on January 11, 2018.
- <sup>6</sup> National Institutes of Health, *Prescription Opioids and Heroin*. Accessed at <https://www.drugabuse.gov/publications/research-reports/relationship-between-prescription-drug-heroin-abuse/prescription-opioid-use-risk-factor-heroin-use> on February 26, 2018.
- <sup>7</sup> CDC, CDC Guideline for Prescribing Opioids for Chronic Pain – United States, 2016, *MMWR Recomm Rep*, March 18, 2016, pp. 11-49. Accessed at <https://www.cdc.gov/mmwr/volumes/65/rr/rr6501e1.htm> on January 11, 2018.
- <sup>8</sup> The CDC guidelines recommend that prescribers avoid increasing opioids to morphine equivalent dosages of 90 mg a day or more and to justify carefully the decision to increase this level. *Ibid.*, p. 16.
- <sup>9</sup> CMS, *CMS Opioid Misuse Strategy 2016*. Accessed at <https://www.cms.gov/Outreach-and-Education/Outreach/Partnerships/Downloads/CMS-Opioid-Misuse-Strategy-2016.pdf> on January 11, 2018.
- <sup>10</sup> CMS, *CMCS Informational Bulletin: Best Practices for Addressing Prescription Opioid Overdoses, Misuse, and Addiction*, January 28, 2016. Accessed at <https://www.medicaid.gov/federal-policy-guidance/downloads/cib-02-02-16.pdf> on March 20, 2018.
- <sup>11</sup> CMS, *State Medicaid Director Letter #18-006: Leveraging Medicaid Technology to Address the Opioid Crisis*, June 11, 2018. Accessed at <https://www.medicaid.gov/federal-policy-guidance/downloads/smd18006.pdf> on July 3, 2018.
- <sup>12</sup> Department of Justice, Drug Enforcement Administration, *State Prescription Drug Monitoring Programs: Questions & Answers*, Question 1. A PDMP is a statewide electronic database that collects designated data on substances dispensed in the State. Accessed at [https://www.deadiversion.usdoj.gov/faq/rx\\_monitor.htm#1](https://www.deadiversion.usdoj.gov/faq/rx_monitor.htm#1) on February 9, 2018.
- <sup>13</sup> 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.
- <sup>14</sup> OIG, *Opioid Use in Medicare Part D Remains Concerning*, OEI-02-18-00220, June 2018; OIG, *Opioids in Medicare Part D: Concerns about Extreme Use and Questionable Prescribing*, OEI-02-17-00250, July 2017; OIG, *High Part D Spending on Opioids and Substantial Growth in Compounded Drugs Raise Concern*, OEI-02-16-00290, June 2016.
- <sup>15</sup> See the OIG Work Plan at <https://oig.hhs.gov/reports-and-publications/workplan/index.asp>.
- <sup>16</sup> 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.
- <sup>17</sup> Kaiser Family Foundation, *Opioid Overdose Deaths and Opioid Overdose Deaths as a Percent of All Drug Overdose Deaths, 2015*. Accessed at <https://www.kff.org/other/state-indicator/opioid-overdose-deaths/?currentTimeframe=0&sortModel=%7B%22colId%22:%22Opioid%20Overdose%20Deaths%22,%22sort%22:%22asc%22%7D> on April 18, 2018.

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- <sup>18</sup> Ohio Department of Health, *2016 Ohio Drug Overdose Data: General Findings*. Accessed at <http://www.odh.ohio.gov/-/media/ODH/ASSETS/Files/health/injury-prevention/2016-Ohio-Drug-Overdose-Report-FINAL.pdf?la=en> on April 24, 2018.
- <sup>19</sup> OIG analysis of Ohio Medicaid data, June 2016-May 2017. This number includes beneficiaries covered by CHIP. This does not include prescriptions used for medication-assisted treatment of opioid use disorder.
- <sup>20</sup> In August 2017, subsequent to our study period, new rules went into effect limiting the amount of opiates that can be prescribed for acute pain. The rules limit prescriptions to 7 days for adults and 5 days for minors. Ohio's initial data suggest that these rules led to decreases in the average (1) days' supply for acute opioid prescriptions, (2) number of opioid doses per prescription, and (3) MED per acute opioid prescription. See State of Ohio Board of Pharmacy, *Ohio Automated Rx Reporting System Annual Report 2017*. Accessed at [https://www.ohiopmp.gov/documents/Annual%20Report%20\(2017\).pdf](https://www.ohiopmp.gov/documents/Annual%20Report%20(2017).pdf) on March 22, 2018.
- <sup>21</sup> Richard Miech, Lloyd Johnston, Patrick M. O'Malley, et al., "Prescription Opioids in Adolescence and Future Opioid Misuse," *Pediatrics*, Volume 136, Number 5, August 2015. Accessed at <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4834210/pdf/peds.2015-1364.pdf> on March 1, 2018.
- <sup>22</sup> Controlled substances are drugs regulated by the Controlled Substances Act, which established five schedules based on the medical use and the potential for abuse. Schedule I drugs, such as heroin, have no currently accepted medical use. Schedule II drugs, such as oxycodone, hydrocodone, and fentanyl, have a high potential for abuse and may lead to severe psychological or physical dependence. Schedule V drugs have the lowest potential for abuse among controlled substances. See 21 U.S.C. § 812.
- <sup>23</sup> Although tramadol is a Schedule IV drug, which means it has low potential for abuse and low risk of dependence, recent research raised concern about a link between tramadol and long-term use of opioids. The research found that initial treatment with tramadol increases the probability of long-term use. In addition, the Substance Abuse and Mental Health Services Administration reports that emergency department visits associated with tramadol increased 145 percent from 2005 to 2011. See CDC, "Characteristics of Initial Prescription Episodes and Likelihood of Long-term Opioid Use: United States, 2006-2015," *MMWR Morb Mortal Wkly Rep*, March 17, 2017, pp. 265-69. Accessed at <https://www.cdc.gov/mmwr/volumes/66/wr/mm6610a1.htm> on March 5, 2018.
- <sup>24</sup> State of Ohio Board of Pharmacy, *Ohio Automated Rx Reporting System Annual Report 2017*. Accessed at [https://www.ohiopmp.gov/documents/Annual%20Report%20\(2017\).pdf](https://www.ohiopmp.gov/documents/Annual%20Report%20(2017).pdf) on March 22, 2018.
- <sup>25</sup> According to the manufacturer labels, the maximum daily dose for Percocet 5 mg is 12 tablets. For more information about Percocet, see page 2 at [https://www.accessdata.fda.gov/drugsatfda\\_docs/label/2006/040330s015,040341s013,040434s003lbl.pdf](https://www.accessdata.fda.gov/drugsatfda_docs/label/2006/040330s015,040341s013,040434s003lbl.pdf).
- <sup>26</sup> Ohio Department of Mental Health and Addiction Services, *Ohio Guidelines for Prescribing Opioids for the Treatment of Chronic, Non-Terminal Pain*, October 2013. Accessed at <http://mha.ohio.gov/Portals/0/assets/Initiatives/GCOAT/Guidelines-Chronic-Pain.pdf> on March 23, 2018.
- <sup>27</sup> CDC, CDC Guideline for Prescribing Opioids for Chronic Pain – United States, 2016. *MMWR Recomm Rep*, March 18, 2016, p. 16. Accessed at <https://www.cdc.gov/mmwr/volumes/65/rr/rr6501e1.htm> on January 11, 2018.
- <sup>28</sup> U.S. Drug Enforcement Administration, Diversion Control Division, *National Forensic Laboratory Information System: Year 2015 Annual Report*, 2016. Accessed at [https://www.deadiversion.usdoj.gov/nflis/2015\\_annual\\_rpt.pdf](https://www.deadiversion.usdoj.gov/nflis/2015_annual_rpt.pdf) on January 11, 2018.
- <sup>29</sup> Christopher M. Jones, Joseph Logan, R. Matthew Gladden, et al., "Vital Signs: Demographic and Substance Use Trends Among Heroin Users—United States, 2002-2013," *MMWR Weekly Report*, Volume 64, Number 26, July 10, 2015, pp. 719-25. Accessed at [https://www.cdc.gov/mmwr/preview/mmwrhtml/mm6426a3.htm?s\\_cid=mm6426a3\\_w](https://www.cdc.gov/mmwr/preview/mmwrhtml/mm6426a3.htm?s_cid=mm6426a3_w) on March 8, 2018.
- <sup>30</sup> Governor's Cabinet Opiate Action Team, *Combating the Opiate Crisis in Ohio*, February 2018. Accessed at [http://mha.ohio.gov/Portals/0/assets/Initiatives/GCOAT/Combating-the-Opiate-Crisis\\_Feb2018.pdf](http://mha.ohio.gov/Portals/0/assets/Initiatives/GCOAT/Combating-the-Opiate-Crisis_Feb2018.pdf) on May 8, 2018.
- <sup>31</sup> State of Ohio Board of Pharmacy, *Ohio Automated RX Reporting System 2017 Annual Report*. Accessed at [https://www.ohiopmp.gov/documents/Annual%20Report%20\(2017\).pdf](https://www.ohiopmp.gov/documents/Annual%20Report%20(2017).pdf) on April 6, 2018.
- <sup>32</sup> This does not include beneficiaries who had cancer or were in hospice care. This also excludes all methadone prescriptions that may have been used to treat opioid use disorder.

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<sup>33</sup> CDC, CDC Guideline for Prescribing Opioids for Chronic Pain – United States, 2016, *MMWR Recomm Rep*, March 18, 2016, p. 10. Accessed at <https://www.cdc.gov/mmwr/volumes/65/rr/rr6501e1.htm> on January 11, 2018.

<sup>34</sup> This analysis does not include beneficiaries who had cancer or hospice care. For this analysis, “one pharmacy” refers to just one pharmacy location—we considered multiple locations of the same retail pharmacy to be multiple pharmacies.

<sup>35</sup> Ohio defines “doctor shopping” as an individual receiving a prescription for a controlled substance from five or more prescribers at five or more pharmacies in one calendar month. See State of Ohio Board of Pharmacy, *Ohio Automated Rx Reporting System Annual Report 2017*, p. 9. Accessed at [https://www.ohiopmp.gov/documents/Annual%20Report%20\(2017\).pdf](https://www.ohiopmp.gov/documents/Annual%20Report%20(2017).pdf) on March 22, 2018.

<sup>36</sup> Governor’s Cabinet Opiate Action Team, *Combating the Opiate Crisis in Ohio*, February 2018. Accessed at [http://mha.ohio.gov/Portals/0/assets/Initiatives/GCOAT/Combating-the-Opiate-Crisis\\_Feb2018.pdf](http://mha.ohio.gov/Portals/0/assets/Initiatives/GCOAT/Combating-the-Opiate-Crisis_Feb2018.pdf) on May 8, 2018.

<sup>37</sup> Ibid.

<sup>38</sup> Richard Miech, Lloyd Johnston, Patrick M. O’Malley, et al., “Prescription Opioids in Adolescence and Future Opioid Misuse,” *Pediatrics*, Volume 136, Number 5, August 2015. Accessed at <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4834210/pdf/peds.2015-1364.pdf> on March 1, 2018.

<sup>39</sup> See the OIG *Work Plan* at <https://oig.hhs.gov/reports-and-publications/workplan/index.asp>.

<sup>40</sup> Ibid.

<sup>41</sup> Healthcare Fraud Prevention Partnership, *Health Payer Strategies to Reduce the Harms of Opioids*, January 2017. Accessed at <https://downloads.cms.gov/files/hfpp/hfpp-opioid-white-paper.pdf> on March 29, 2018.

<sup>42</sup> Approximately 7,010 beneficiaries (1.3 percent) who received any opioid were dually eligible for Medicare Part D at some point during our study period. Each of these beneficiaries had at least one opioid claim that was paid, in part or in full, by Medicaid. Of the beneficiaries who received high amounts of opioids, 119 were dually eligible. Two beneficiaries who received extreme amounts of opioids were dually eligible, as were six beneficiaries who appeared to be doctor shopping.

<sup>43</sup> We identified methadone that may have been used to treat opioid use disorder by excluding all methadone claims for beneficiaries who had a diagnosed opioid use disorder or who received treatment from a methadone clinic or other addiction treatment clinics at any point during our study period. We included methadone claims for beneficiaries who did not meet these criteria, as methadone may also be used to treat pain.

<sup>44</sup> These files contain MME conversion factors for each National Drug Code. MED and MME are interchangeable terms. In 2017, CDC stopped including an MME conversion factor for buprenorphine products because those products are not expected to be associated with overdose risk in the same way as other opioids. See CDC, SAS Merging Program. Accessed at <https://www.cdc.gov/drugoverdose/data-files/SAScodetouseMMEconvsfileSept2017.sas> on April 10, 2018.

<sup>45</sup> 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](https://www.cdc.gov/drugoverdose/pdf/calculating_total_daily_dose-a.pdf) on March 5, 2018.

<sup>46</sup> We included prescription drug records with days of use between June 2016 and May 2017. We excluded records for injection, intravenous, and intrathecal opioids from this analysis.

<sup>47</sup> We identified beneficiaries with a cancer diagnosis or hospice stay using the T-MSIS claims files. In total, we identified 21,146 beneficiaries with cancer or hospice who received at least one opioid.

<sup>48</sup> OIG, *Opioids Use in Medicare Part D Remains Concerning*, OEI-02-18-00220, June 2018; OIG, *Opioids in Medicare Part D: Concerns about Extreme Use and Questionable Prescribing*, OEI-02-17-00250, July 2017.

<sup>49</sup> Each of these prescribers is an extreme outlier in terms of the number of beneficiaries to whom they prescribed opioids in one of the groups at serious risk. These prescribers were more than three standard deviations above the mean and in the top 1.5 percent. Our thresholds differ from those used in similar OIG work because the number and distribution of beneficiaries at serious risk across prescribers varies across Federal programs and geographic locations.

<sup>50</sup> Outlier prescribers ordered opioids for 5 to 18 beneficiaries who received extreme amounts.

<sup>51</sup> Outlier prescribers ordered opioids for 4 to 11 beneficiaries who appeared to be doctor shopping.



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<sup>52</sup> OIG, *Status Update: T-MSIS Data Not Yet Available for Overseeing Medicaid*, OEI-05-15-00050, June 2017; OIG, *Early Outcomes Show Limited Progress for the Transformed Medicaid Statistical Information System*, OEI-05-12-00610, September 2013.