



Rapid Growth in Medicaid Prescriptions and Spending to Treat Opioid Use Disorder and Opioid Overdose from 2010 to 2018

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Beginning in March 2020, as the COVID-19 pandemic began and stay at home orders took effect, increasing evidence from national, state, and local media suggests overdoses increased; fatal overdoses increased by 11 percent, and nonfatal overdoses increased by 19 percent (Alter and Yeager 2020). Even before this recent upturn, opioid-related death rates remained high through 2018 across much of the United States. Together, this evidence suggests treatment rates for opioid use disorder (OUD) and opioid overdose are inadequate. Because Medicaid covers many people in need of OUD-related treatment, we analyze Medicaid State Drug Utilization Data (SDUD) from 2010 to 2018 to track Medicaid prescriptions and net spending after accounting for federal rebates paid by manufactures to Medicaid programs for three types of medications: buprenorphine and naltrexone approved for treatment for OUD and naloxone for the reversing opioid overdose. We find that Medicaid spending and prescriptions on medications for treating OUD and opioid overdose increased dramatically between 2010 and 2018, based on data through the fourth quarter of 2018. We also find the following:

- Between 2010 and 2018, Medicaid-covered buprenorphine prescriptions increased 7-fold, from 0.94 million to 6.52 million; naltrexone prescriptions increased 8.5-fold, from 64,000 to 549,000; and naloxone prescriptions rose 70-fold, from 3,300 to 236,000. Medicaid-covered

medications related to OUD per enrollee also increased markedly. The number of OUD- and overdose-related prescriptions per Medicaid enrollee increased 4.8-fold.

- Between 2013 and 2018, prescriptions per 1,000 Medicaid enrollees rose from 45 to 125 for buprenorphine, from 3 to 11 for naltrexone, and from 0.1 to 5 for naloxone. Between 2013 and 2018, numbers of prescriptions overall and per enrollee were far greater in states that expanded Medicaid under the Affordable Care Act (ACA) than in states that did not. Over this period, overall buprenorphine prescriptions increased 4-fold for expansion states and 2-fold for nonexpansion states, overall naltrexone prescriptions increased 6.5-fold for expansion states and 2.6-fold for nonexpansion states, and overall naloxone prescriptions increased 52.6-fold for expansion states and 18.4-fold for nonexpansion states. Similarly, buprenorphine prescriptions per enrollee increased 2.8-fold in expansion states and 2-fold in nonexpansion states, naltrexone prescriptions per enrollee increased 4.5-fold in expansion states and 2.5-fold in nonexpansion states, and naloxone per enrollee increased 36.4-fold in expansion states and 17.5-fold in nonexpansion states.
- Between 2010 and 2018, buprenorphine accounted for the majority of spending across the three types of medications. However, that share declined from 94 percent between 2010 and 2014, to 84 percent in 2018. Naltrexone spending growth accounted for this shift, because the share of spending related to naloxone never exceeded 2 percent in any year.

Our analysis of increases in the volume of OUD- and overdose-related prescriptions in Medicaid in recent years suggests continued large-scale increases in access to treatment, especially in states that expanded Medicaid under the ACA (expansion states). This suggests Medicaid expansion states may have done more to close the gap in treatment need. Evidence, including the recent increase in overdose, indicate treatment services are falling short of need and that access and supply barriers, including reimbursement and attention to meeting needs in underserved populations of color, may need to be addressed to further reduce unmet treatment needs.

Introduction

Making effective treatment for opioid use disorder more widely available is essential to staunching the opioid epidemic. Access to these treatments is particularly important in Medicaid, which covers a large share of people with OUD (MACPAC 2017). Despite strong evidence supporting the effectiveness of medication for OUD, only about one-fifth of people with OUD receive treatment of any kind, according to survey data (Saloner and Kathikeyan 2015). Three medications used for treating OUD are approved by the US Food and Drug Administration (FDA) for the treatment of OUD: buprenorphine, methadone, and naltrexone. All have well-documented benefits.¹ For people with OUD, buprenorphine and methadone reduce cravings and other withdrawal symptoms.² Naltrexone stops activity of opioids and blocks the effects of both opioids and alcohol.³ Another FDA-approved drug, naloxone, is a life-saving medication that can reverse the effects of an opioid overdose (Boyer 2012). Access to these effective treatment medications for low-income people with OUD has been hampered by several factors. According to studies using national survey data, access to any OUD treatment—

effective or ineffective—has been limited by lack of insurance coverage (Wu et al. 2016), access to providers (Cummings et al. 2014), and the cost of treatment (Mojtabi et al. 2014).

Medicaid is a major provider of access to medications to treat OUD and opioid overdose. The analysis presented here is part of a larger project focusing on Medicaid coverage for (1) buprenorphine for OUD, including the combination buprenorphine/naloxone medication, where naloxone is added to buprenorphine to deter misuse;⁴ (2) naltrexone; and (3) naloxone.⁵ Across all Medicaid enrollees treated for OUD in 2017, 57.8 percent received medication treatment for OUD (Azar 2019), though that report did not indicate how many enrollees needed OUD treatment but did not receive any. As of October 2018, buprenorphine for OUD was covered in all state Medicaid programs, and several states have reduced coverage restrictions, through policies such as decreasing prior authorization requirements (Miller 2018a). However, many state Medicaid programs have prior authorization requirements for buprenorphine treatment or require frequent reauthorization or documentation of participation in counseling, and most apply dosage limits (e.g., between 16 and 32 mgs daily). Naltrexone is covered with at least limited coverage in all state Medicaid programs (e.g., the long-acting injectable naltrexone is nonpreferred in some states, which limits access), and many state Medicaid programs cover naltrexone without prior authorization (Miller 2018b). Most state Medicaid programs cover naloxone (Alabama, North Dakota, Oklahoma, South Dakota, and Utah do not appear to cover naloxone, and South Carolina covers it with restrictions), though most states cover one or more naloxone formulations without prior authorization (Miller 2018a).

Before Medicaid expansions related to the ACA, many low-income adults lacked access to affordable health insurance covering OUD treatment, and treatment rates for OUD did not increase in the years before the ACA (Saloner and Karthikeyan 2015). With the ACA, low-income adults with OUD in the District of Columbia and states that expanded Medicaid gained coverage, including some types of buprenorphine and naltrexone treatment in all expansion states (Grogan et al. 2016) and some naloxone treatment in some states (Seiler et al. 2014). And, coverage of *more types of* buprenorphine and naloxone treatment has been growing, generally in expansion states (Miller 2018b; SAMHSA 2018). In contrast, low-income uninsured adults in states that have not expanded Medicaid under the ACA are less likely to have gained coverage and access to affordable treatment for OUD and overdose. Prior research by Wen and colleagues (2017) finds that OUD treatment covered by Medicaid increased more in 2014 in states that expanded Medicaid under the ACA. Subsequent research by Maclean and Saloner (2017) shows a larger increase in Medicaid-reimbursed prescriptions and in Medicaid coverage for OUD treatment in expansion states relative to other states from 2010 to 2015, but no difference in the admissions to specialty treatment facilities.

In previous analyses of data from 2011 to 2016, we found that buprenorphine prescriptions and spending in Medicaid increased after 2014, particularly in states that had expanded Medicaid by January 2014 (Clemans-Cope et al. 2017). A series of follow-up analyses showed

- robust increases in Medicaid’s prescribing of these medications into 2017 (Clemans-Cope, Epstein, et al. 2019),

- very high variation across state Medicaid programs in the prescribing of OUD-related medications (Clemans-Cope, Lynch, et al. 2019),
- very low prescribing of extended-release buprenorphine treatment formulations in Medicaid through 2018 (Clemans-Cope, Winiski, et al. 2020),
- and a lack of systematic differences in prescribing under Medicaid fee-for-service versus managed-care payment arrangements for OUD-related medications (Lynch et al. 2020).

In this brief, we examine Medicaid prescriptions and spending on OUD-related buprenorphine, naltrexone, and naloxone over a longer study period than in previous studies, 2010 to 2018. We assess levels and trends in aggregate and per enrollee, overall and by Medicaid expansion status. We also examine prices per prescription after adjusting for federal rebates. We incorporate several methodological improvements, including refined estimates of the federal manufacturer rebate payments, as outlined in a recent report (Clemans-Cope, Epstein, et al. 2020), which decreases estimates of net Medicaid spending. We also use unsuppressed Medicaid SDUD, allowing us to more accurately estimate the federal manufacturer rebate for National Drug Code (NDC) state-quarters with fewer than 11 counts.

Methods

We use Medicaid SDUD files from 2010 to 2018 to assess prescriptions for buprenorphine and naltrexone medications FDA approved for the treatment of OUD, along with naloxone prescriptions approved for opioid overdose reversal. OUD- and opioid overdose-related prescriptions were identified by linking the NDC numbers in Medicaid SDUD with drug information published by the FDA. Since methadone for OUD treatment is not reported in the Medicaid SDUD, we exclude it.

BOX 1

FDA-Approved Medication Treatments for Opioid Use Disorder and Opioid Overdose

Methadone, which is excluded from this analysis because it is missing from the main dataset used, is approved for treatment of OUD, and a large body of research demonstrates its effectiveness (Mattick et al. 2014). It can be used for both maintenance treatment and medically supervised withdrawal (sometimes called detoxification). A full opioid agonist, methadone reduces or eliminates the withdrawal symptoms associated with stopping opioid use. Treatment requires attendance at a federally certified methadone clinic and an opioid treatment program for daily treatment, with some patients qualifying for take-home doses. Treatment, including medication, daily visits, and integrated psychosocial and medical support services, costs about \$6,552 a year (NIDA 2018).

Buprenorphine is approved for treating OUD and has both proven efficacy and safety and the convenience of at-home treatment.^a Like methadone, buprenorphine can be used for both maintenance treatment and medically supervised withdrawal. Buprenorphine therapy and buprenorphine maintenance treatment reduce the symptoms of opioid withdrawal and craving and block or reduce the effect of other opioids.^a A partial opioid agonist, buprenorphine acts on a subset of brain receptors, providing relief from pain and withdrawal symptoms, though weaker than a full opioid agonist (e.g., methadone). Respiratory depression related to buprenorphine use plateaus at a moderate dose, which enhances

safety relative to methadone treatment (Bell et al. 2009). Buprenorphine treatment is available as a tablet or film, a monthly injection, or a six-month implant. Buprenorphine medications to treat OUD often include naloxone, which is added to deter potential misuse of buprenorphine by injection; injection of the buprenorphine/naloxone combination causes opioid withdrawal effects. Buprenorphine treatment provided in an opioid treatment program, including medication and twice-weekly visits, costs about \$5,980 a year (NIDA 2018).

Naltrexone is approved for treating opioid and alcohol use disorders. It binds to and blocks opioid receptors, thereby blocking the euphoric and sedative effects of opioids. Naltrexone has very limited potential for misuse or diversion, is not a controlled substance, and can be prescribed by any licensed prescriber without any special waiver or regulations. Naltrexone can be taken as a daily pill or a monthly extended-release injectable. Induction to naltrexone requires abstinence from opioids for 7 to 10 days beforehand to avoid precipitated withdrawal.^b The dropout rate before initiation of naltrexone is considerably higher than the dropout rate before initiation of buprenorphine; but, once a patient starts naltrexone, it appears to be as safe and effective as buprenorphine (Lee et al. 2018). Patients taking naltrexone may have lower tolerance to opioids, so a recurrence of opioid use could increase the risk of overdose.^b Naltrexone provided in an opioid treatment program, including the drug, drug administration, and related services, costs about \$14,112 a year (NIDA 2018).

Naloxone is approved for treatment of opioid overdoses and can be prescribed without additional waivers or regulatory requirements. Naloxone is available by prescription, including a standing order prescription. It is not a controlled substance because it is unlikely to cause harm if used improperly: naloxone has minimal clinical effects if administered to someone who has not been exposed to opioids (Lynn and Galinkin 2017).⁶ Naloxone is currently available as an injectable formulation; an auto-injector formulation, developed by Evzio and approved in April 2014; a nasal spray developed by Narcan, approved in 2015; and an injectable formulation used with a nasal spray atomizer, which creates an intranasal administration route, that is not approved by the FDA.^d Prices for naloxone vary greatly: generic naloxone costs \$20–\$40 per dose, Narcan costs approximately \$130–\$140 for a two-dose kit,^c and Evzio can cost much more.^e

^a “Buprenorphine,” Substance Abuse and Mental Health Services Administration (SAMHSA), accessed June 30, 2020, <https://www.samhsa.gov/medication-assisted-treatment/treatment/buprenorphine>.

^b “Naltrexone,” SAMHSA, accessed June 30, 2020, <https://www.samhsa.gov/medication-assisted-treatment/treatment/naltrexone>.

^c Abigail Abrams, “The Surgeon General Says More People Should Carry Naloxone, the Opioid Antidote. Here’s Where to Get It and How Much It Costs,” *Time*, April 5, 2018, <http://time.com/5229870/naloxone-surgeon-general-cost-where-buy/>.

^d Joshua Lloyd, “The Clinical Use of Naloxone,” US Food and Drug Administration, accessed July 14, 2020, <https://www.fda.gov/downloads/Drugs/NewsEvents/UCM454748.pdf>.

^e Lev Facher, “Kaleo, Maker of \$4,100 Overdose Antidote, to Offer Generic for \$178,” *STAT*, December 12, 2018, <https://www.statnews.com/2018/12/12/kaleo-evzio-overdose-antidote-generic/>.

Medicaid SDUD historically suppresses data for NDC state-quarters with fewer than 11 prescriptions. Though less than 1 percent of prescriptions are suppressed, these suppressions would affect our pricing and rebate calculations, because these computations require observations at the drug launch, when data are often suppressed. Our colleague, Alex Gertner of the University of North Carolina at Chapel Hill, generously shared unsuppressed data for these medications from the first quarter of 2011 to the second quarter of 2018, which he had obtained through a Freedom of Information Act request (Gertner 2019).⁷ We also obtained unsuppressed Medicaid SDUD for 2014 through 2018 by purchasing the data from the Centers for Medicare & Medicaid Services via a data use agreement. OUD-related prescriptions were identified by linking the NDCs in Medicaid SDUD with drug information published by the FDA. In addition, publicly available Medicaid SDUD downloaded in March 2020 contained data for all observations, including those with prescription counts under 11 that are usually suppressed.

We report Medicaid program spending and net Medicaid spending adjusted for estimated statutory federal rebates Medicaid receives from manufacturers, which include a basic rebate and an inflationary rebate. Our methodology of estimating the federally mandated **basic rebate** and the **inflationary rebate** in Medicaid programs for outpatient prescription drugs is developed from previous work by Sean Dickson, who used Medicaid SDUD and other sources to estimate the federal Medicaid rebates and cap (Dickson 2019). We describe the rebate adjustment methodology in a separate methodological document (Clemans-Cope, Epstein, et al. 2020).⁸

We compute key estimates per 1,000 Medicaid enrollees ages 12 and older in each state.⁹ To estimate enrollment populations from 2010 to 2018, we use counts of Medicaid enrollees ages 12 and older with full benefits based on multiple administrative and other data sources described previously (Lynch et al. 2019). Between 2010 and 2018, Medicaid enrollment among people ages 12 and older grew from 34.3 million to 52.2 million; the highest growth was in the early 2014 expansion states, where enrollment increased from 20.2 million to 34.7 million (table 1). Medicaid enrollment for those ages 12 and older in late 2014–16 expansion states grew from 3.0 million in 2010 to 4.6 million in 2018. In 2019 expansion states, enrollment remained flat at 0.8 million. In nonexpansion states, enrollment grew from 10.3 million in 2010 to 12.0 million in 2018.

TABLE 1

Medicaid Enrollees Ages 12 and Older, by State Expansion Status, 2010–18

Millions of people

| Year | US total | Early 2014 expansion | Late 2014–16 expansion | 2019 expansion | Nonexpansion |
|------|----------|----------------------|------------------------|----------------|--------------|
| 2010 | 34.3 | 20.2 | 3.0 | 0.8 | 10.3 |
| 2011 | 36.2 | 21.4 | 3.1 | 0.8 | 10.8 |
| 2012 | 37.8 | 22.5 | 3.2 | 0.8 | 11.2 |
| 2013 | 39.2 | 23.7 | 3.3 | 0.9 | 11.4 |
| 2014 | 48.4 | 32.8 | 3.2 | 0.7 | 11.7 |
| 2015 | 51.4 | 34.9 | 3.8 | 0.8 | 12.0 |
| 2016 | 52.2 | 35.2 | 4.1 | 0.8 | 12.1 |
| 2017 | 52.4 | 35.1 | 4.4 | 0.8 | 12.1 |
| 2018 | 52.2 | 34.7 | 4.6 | 0.8 | 12.0 |

Source: To estimate state Medicaid enrollment for this population from 2010 to 2016, we use estimates of Medicaid enrollees ages 12 and older from the American Community Survey; for methodology, see Haley and colleagues (2018) and Lynch and colleagues (2011). We use Medicaid enrollment growth factors for 2017 to trend enrollment forward (Rudowitz, Hinton, and Antonisse 2018).

Notes: State groups are described in table 2. See the separate methodology appendix for more detail.

We present estimates from 2010 to 2018. When discussing estimates by Medicaid expansion status, we focus on changes from 2013 to 2018, primarily to focus on pre- and post-Medicaid expansion comparisons. States and DC are categorized into four groups by the timing and status of their action on Medicaid expansion, which could be either through the ACA or by waiver (Sommers et al. 2013):¹⁰

- “Early 2014 expansion states” are the 25 states and DC that expanded Medicaid through the ACA or a waiver on or before April 1, 2014; some states had expanded Medicaid under the ACA in early 2014 or had expanded eligibility for adults before the ACA.
- “Late 2014–16 expansion states” are the 6 states that expanded Medicaid between April 2014 and August 2016.
- “2019 expansion states” are the 2 states that expanded Medicaid after December 2018.
- “Nonexpansion states” are the 17 states that had not enacted a Medicaid expansion by January 2019. See table 2 for details.

TABLE 2

State Medicaid Expansion Statuses

| State | Expansion date | State | Expansion date |
|------------------------------------|----------------|--------------------------------------|----------------|
| Early 2014 expansion states | | Late 2014–16 expansion states | |
| Arizona ^a | 1/1/2014 | Alaska | 9/1/2015 |
| Arkansas ^a | 1/1/2014 | Indiana ^a | 2/1/2015 |
| California | 7/1/2010 | Louisiana | 7/1/2016 |
| Colorado | 4/1/2012 | Montana ^a | 1/1/2016 |
| Connecticut | 4/1/2010 | New Hampshire ^a | 8/15/2014 |
| Delaware | 1/1/2014 | Pennsylvania | 1/1/2015 |
| District of Columbia | 7/1/2010 | 2019 expansion states | |
| Hawaii | 1/1/2014 | Maine | 1/10/2019 |
| Illinois | 1/1/2014 | Virginia | 1/1/2019 |
| Iowa ^a | 1/1/2014 | Nonexpansion states | |
| Kentucky ^a | 1/1/2014 | Alabama | |
| Maryland | 1/1/2014 | Florida | |
| Massachusetts | 1/1/2014 | Georgia | |
| Michigan ^a | 4/1/2014 | Idaho ^b | |
| Minnesota | 3/1/2010 | Kansas | |
| Nevada | 1/1/2014 | Mississippi | |
| New Jersey | 4/14/2011 | Missouri | |
| New Mexico | 1/1/2014 | Nebraska ^b | |
| New York | 1/1/2014 | North Carolina | |
| North Dakota | 1/1/2014 | Oklahoma | |
| Ohio | 1/1/2014 | South Carolina | |
| Oregon | 1/1/2014 | South Dakota | |
| Rhode Island | 1/1/2014 | Tennessee | |
| Vermont | 1/1/2014 | Texas | |
| Washington | 1/3/2011 | Utah ^b | |
| West Virginia | 1/1/2014 | Wisconsin ^c | |
| | | Wyoming | |

^a These states used Section 1115 waivers for Medicaid expansion.

^b These states approved Medicaid expansion via ballot initiatives but have yet to implement it.

^c Wisconsin did not expand Medicaid under the ACA but has Medicaid eligibility for adults with incomes up to the federal poverty level.

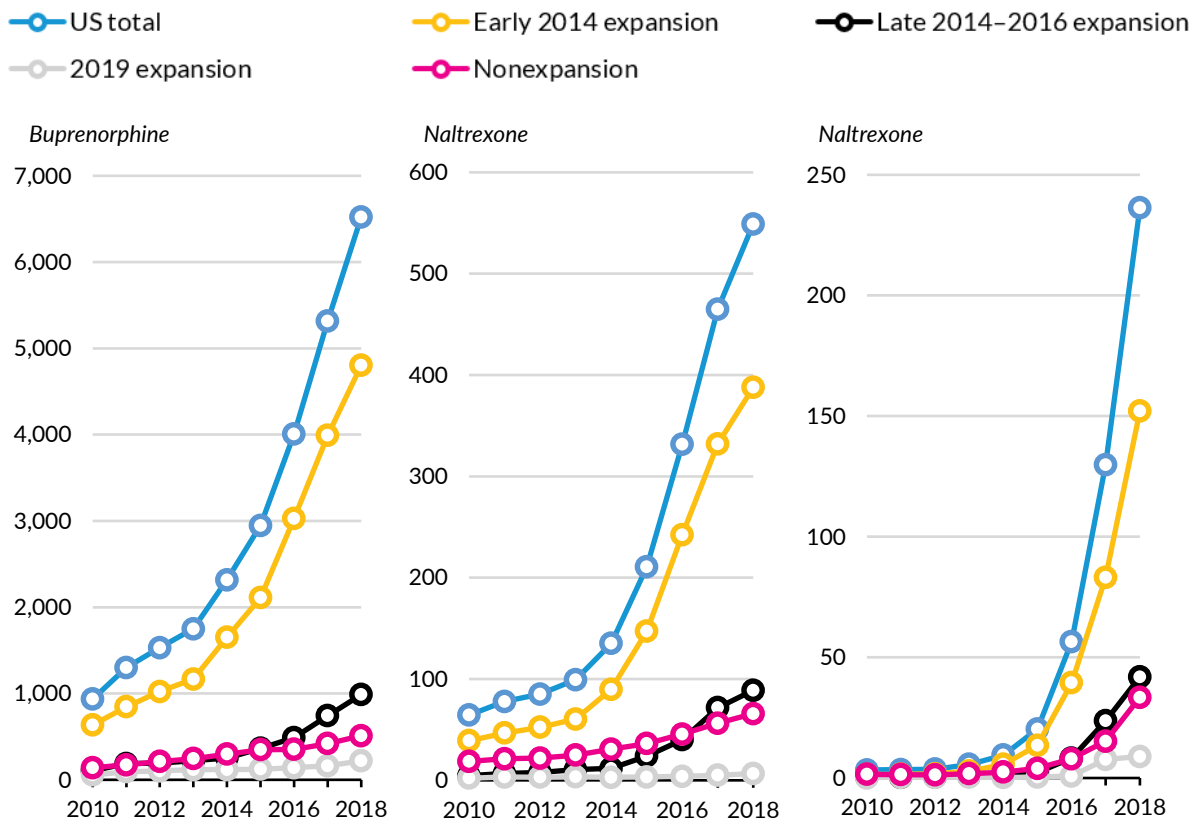
Findings

OUD-related prescriptions for buprenorphine, naltrexone, and naloxone increased markedly from 2010 to 2018, and they increased most substantially after 2014. From 2010 to 2018, Medicaid-covered buprenorphine prescriptions increased 7-fold, from 0.94 million to 6.52 million; naltrexone prescriptions increased 8.5-fold, from 64,000 to 549,000; and naloxone prescriptions rose 70-fold, from 3,300 to 236,000 (figure 1). Between 2013 and 2018, the number of nationwide Medicaid-funded buprenorphine prescriptions nearly quadrupled from 1.8 million to 6.5 million; the number of naltrexone prescriptions increased 4.5-fold, from 99,000 to 549,000; and the number of naloxone prescriptions rose more than 41-fold, from 6,000 to 236,000. Increases in all three prescriptions were far greater in early 2014 Medicaid expansion states than in states that did not expand their programs:

- In the early 2014 Medicaid expansion states, prescriptions rose from 1.2 million to 4.8 million for buprenorphine, from 60,000 to 388,000 for naltrexone, and from 6,000 to 236,000 for naloxone between 2013 and 2018.
- In the late 2014–16 Medicaid expansion states, prescriptions rose from 221,000 to 988,000 for buprenorphine, from 11,000 to 89,000 for naltrexone, and from 1,000 to 42,000 for naloxone between 2013 and 2018.
- In the nonexpansion states, prescriptions rose from 246,000 to 511,000 for buprenorphine, from 25,000 to 66,000 for naltrexone, and from 2,000 to 33,000 for naloxone between 2013 and 2018.

FIGURE 1

Number of Medicaid-Covered Prescriptions for Buprenorphine, Naltrexone, and Naloxone for OUD, by State Medicaid Expansion Status, 2010–18



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Source: Urban Institute analysis of Medicaid State Drug Utilization Data from the Centers for Medicare & Medicaid Services.

Note: OUD = opioid use disorder.

Though these findings show substantially larger recent increases in Medicaid-covered prescriptions for OUD and overdose in expansion states than nonexpansion states, the number of prescriptions alone does not show whether volume is growing relative to the number of Medicaid enrollees. To inform this question, we computed prescriptions per 1,000 enrollees.

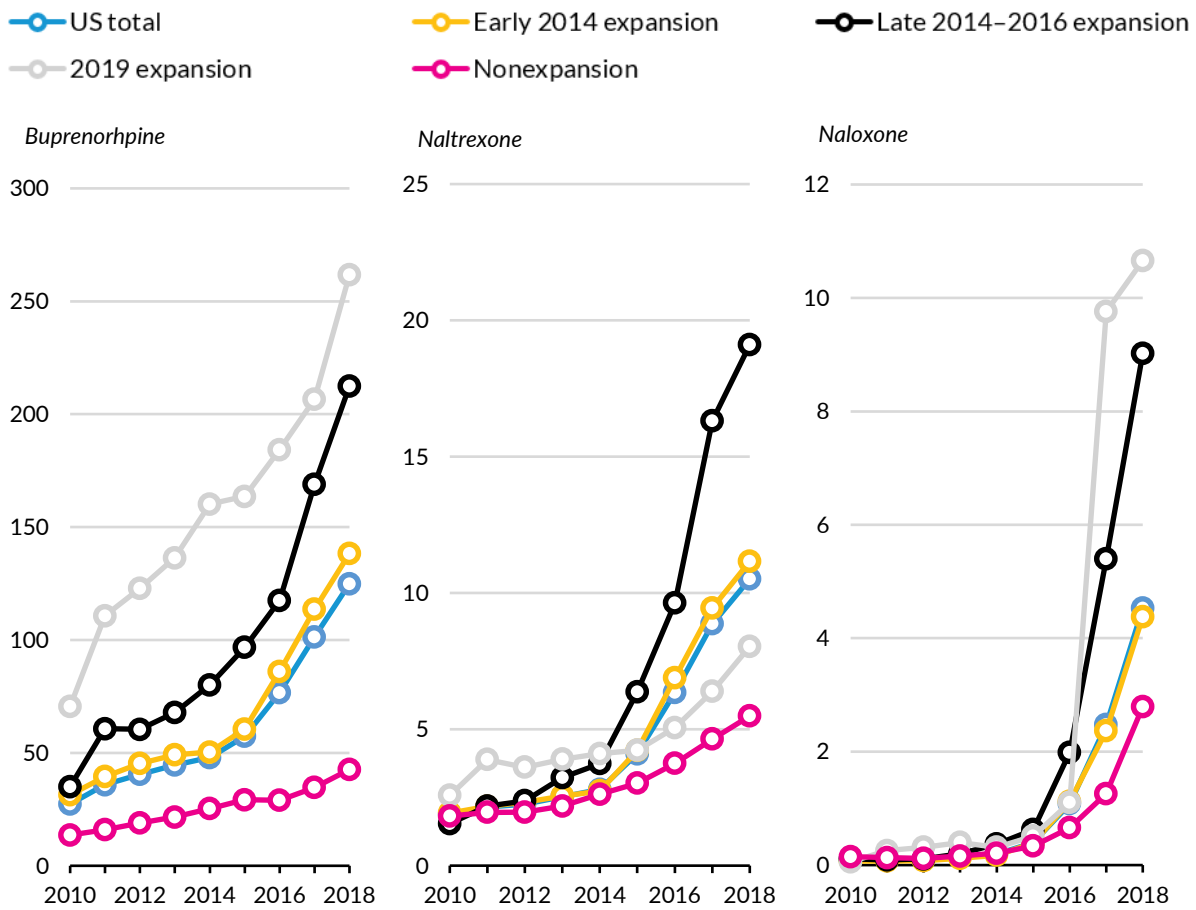
Because Medicaid enrollment increased dramatically after 2013, per enrollee prescriptions and net spending on Medicaid-covered medications related to OUD also increased markedly (figure 2). Increases in per enrollee prescriptions were far greater in expansion states than in nonexpansion states. This was particularly the case after 2014 for states that expanded their Medicaid programs between 2014 and 2016 (the first two expansion groups). The two states that expanded Medicaid in 2019, Virginia and Maine, saw sharp increases in buprenorphine and naloxone prescriptions after 2015. Both states implemented policies to increase substance use disorder treatment in Medicaid, specifically through expanded services and providers for buprenorphine treatment for OUD, through

Virginia's Addiction and Recovery Treatment Services program and Maine's Opioid Health Homes program.¹¹ We find the following between 2013 and 2018:

- Across all states, prescriptions for buprenorphine per 1,000 Medicaid enrollees ages 12 and older nearly tripled, from 44.6 to 124.9. The highest counts in 2018 were among the 2019 expansion states (261.7 per 1,000 enrollees) and the late 2014–16 expansion states (212.4 per 1,000 enrollees).
- Prescriptions for naltrexone per 1,000 Medicaid enrollees ages 12 and older more than quadrupled, from fewer than 3 per 1,000 to 10.5 per 1,000, with the highest counts in 2018 among the late 2014–16 expansion states (19.1 per 1,000 enrollees) and the early 2014 expansion states (11.2 per 1,000 enrollees).
- Prescriptions for naloxone per 1,000 Medicaid enrollees ages 12 and older increased about 31-fold, from 0.1 per 1,000 to more than 4.5 per 1,000, with the highest counts in 2018 among the 2019 expansion states (10.7 per 1,000 enrollees) and the late 2014–16 expansion states (9.0 per 1,000 enrollees).

FIGURE 2

Number of Medicaid-Covered Prescriptions for Buprenorphine, Naltrexone, and Naloxone for OUD per 1,000 Medicaid Enrollees, by State Expansion Status, 2010–18



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Source: Urban Institute analysis of Medicaid State Drug Utilization Data from the Centers for Medicare & Medicaid Services.

Note: OUD = opioid use disorder.

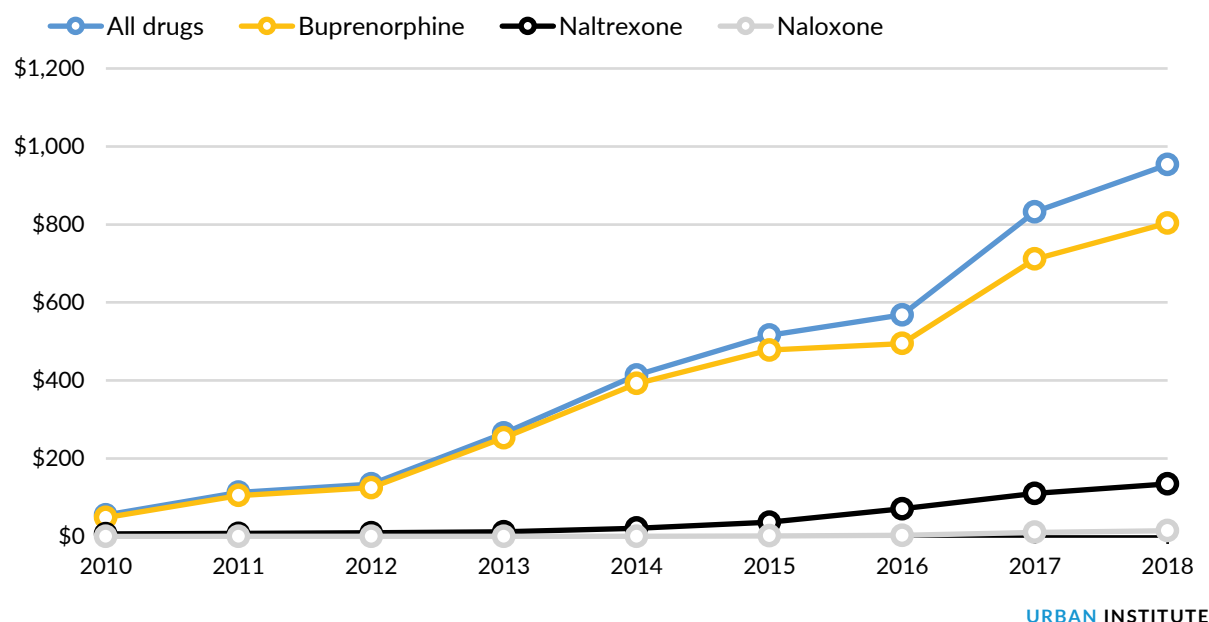
Rising numbers of prescriptions per 1,000 Medicaid enrollees suggest increased access to treatment, while rising spending on treatment may indicate higher prices and/or increased access to treatment. Rebate-adjusted spending on Medicaid-covered prescriptions for OUD and opioid overdose increased dramatically between 2010 and 2018 (figure 3).¹² Rebate-adjusted Medicaid spending on prescriptions for OUD was an estimated 17.3 times greater in 2018 than in 2010, increasing from \$55.1 million to \$953.2 million. The average annual increase in spending between 2010 and 2018 was 47 percent. From 2010 to 2014, 94 percent of spending related to Medicaid's coverage of buprenorphine for OUD, naltrexone, and naloxone was on buprenorphine treatment. After 2015, spending on naltrexone increased, and in 2018 it constituted 14 percent of spending on the three medications for OUD treatment, whereas the share of net spending on buprenorphine fell to 84 percent. Overall, spending on buprenorphine for OUD (including buprenorphine/naloxone for OUD) grew close to 17-fold, from \$48.3 million to \$803.6 million, over the nine years. Spending on

naltrexone increased faster over the period, more than 20-fold, from \$6.6 million in 2010 to \$134.8 million in 2018. Though naloxone spending increased more than 127-fold, from just \$0.1 million (before the introduction of Evzio in 2014 and Narcan in 2016) to \$14.8 million, overall spending on naloxone remained very low even in 2018.

FIGURE 3

Rebate-Adjusted Medicaid Spending on Buprenorphine, Naltrexone, and Naloxone Prescriptions for OUD, 2010–18

Millions of dollars



Source: Urban Institute analysis of Medicaid State Drug Utilization Data from the Centers for Medicare & Medicaid Services.

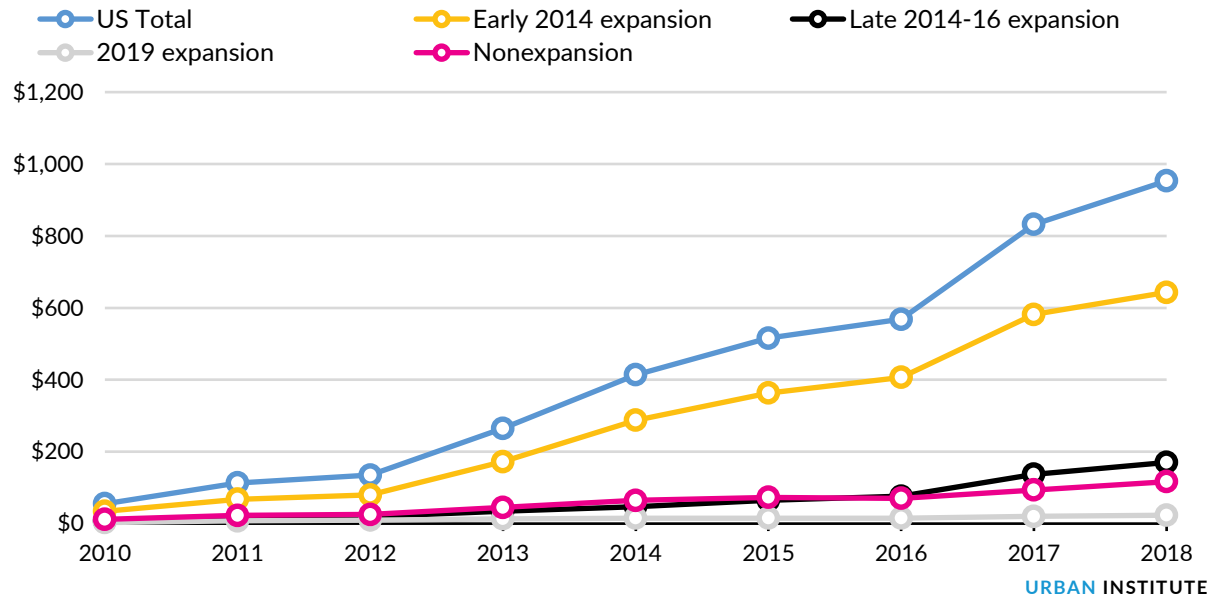
Notes: OUD = opioid use disorder. Rebate-adjusted Medicaid spending is adjusted for estimated statutory federal rebates Medicaid receives from manufacturers, which include basic and inflationary rebates (Clemans-Cope et al. 2020).

Mirroring the growth in prescriptions, rebate-adjusted spending on Medicaid-covered prescriptions for treating OUD and opioid overdose increased most dramatically in states that expanded Medicaid between 2010 and 2016 (figure 4). In early expansion states, spending increases were most substantial after 2016. Between 2013 (before implementation of the major coverage provisions of the ACA in the early 2014 expansion states) and 2018, Medicaid spending on prescriptions for the treatment of OUD and overdose nearly quadrupled, from \$172.3 million to \$643.2 million, in states that had expanded Medicaid by early 2014. In the late 2014–16 expansion states, Medicaid spending almost quintupled, from \$34.2 million in 2013 to \$170.1 million in 2018. Over the same period, spending on these prescriptions for treating OUD and overdose increased 2.6-fold, from \$45.2 million to \$116.5 million, in states that did not expand Medicaid.

FIGURE 4

**Rebate-Adjusted Medicaid Spending on All Prescriptions for OUD,
by State Medicaid Expansion Status, 2010–18**

Millions of dollars



Source: Urban Institute analysis of Medicaid State Drug Utilization Data from the Centers for Medicare & Medicaid Services.

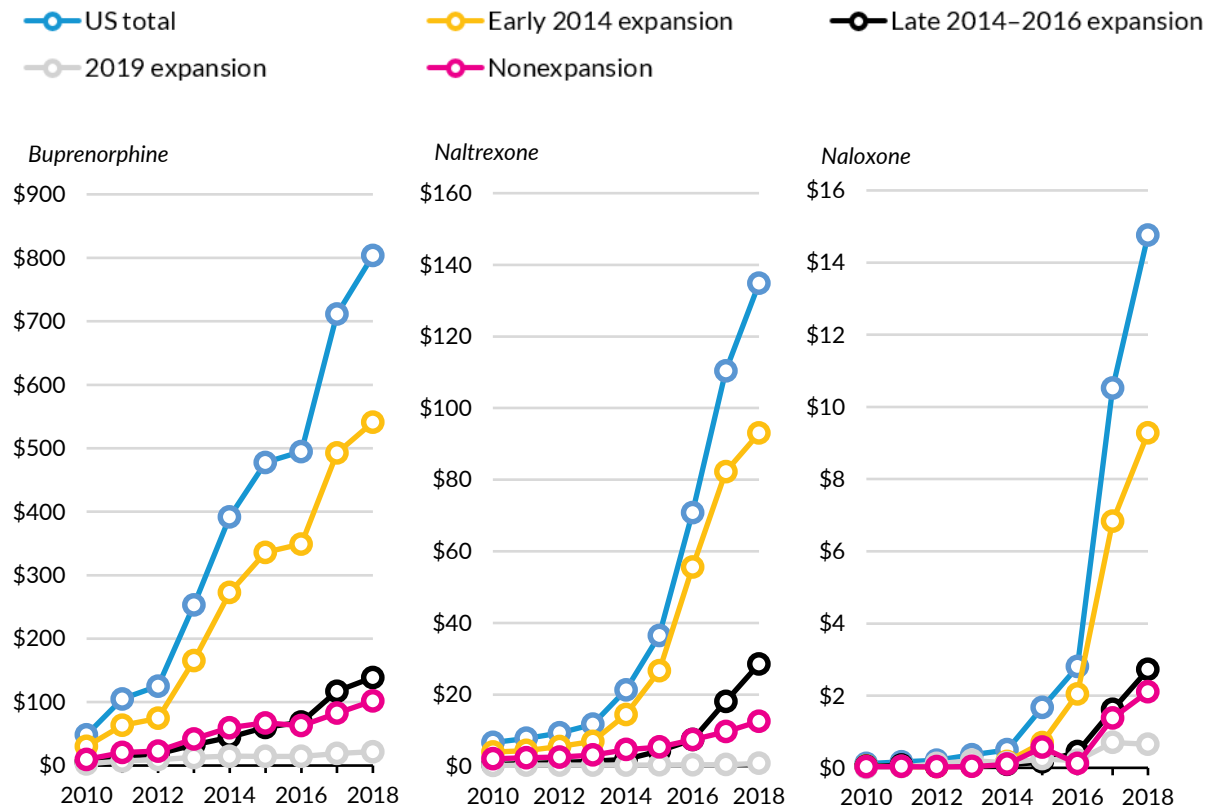
Notes: OUD = opioid use disorder. Rebate-adjusted Medicaid spending is adjusted for estimated statutory federal rebates Medicaid receives from manufacturers, which include basic and inflationary rebates (Clemans-Cope et al. 2020).

Rebate-adjusted spending on each of the three medication types increased dramatically between 2010 and 2018. From 2013 to 2018, states that expanded Medicaid by July 2016 had absolute and percent increases in net spending on all three prescriptions far greater than states that did not expand (figure 5). Over this period, Medicaid-funded buprenorphine spending increased substantially in early 2014 Medicaid expansion states, increasing from \$165.4 million to \$541.0 million. In states that had expanded Medicaid between late 2014 and 2016, Medicaid-funded buprenorphine spending tripled, from \$32.7 million to \$139.9 million. Over the same period, such spending increased 2.4-fold, from \$42.1 million to \$101.9 million, in states that did not expand Medicaid. The patterns in spending growth by expansion status were similar for naltrexone and naloxone, with states that expanded Medicaid earlier experiencing higher spending increases than other states.

FIGURE 5

Rebate-Adjusted Medicaid Spending on Buprenorphine, Naltrexone, and Naloxone Prescriptions for OUD, by State Medicaid Expansion Status, 2010–18

Millions of dollars



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Source: Urban Institute analysis of Medicaid State Drug Utilization Data from the Centers for Medicare & Medicaid Services.

Note: OUD = opioid use disorder. Rebate-adjusted Medicaid spending is adjusted for estimated statutory federal rebates Medicaid receives from manufacturers, which include basic and inflationary rebates (Clemans-Cope et al. 2020).

To examine changes in Medicaid spending per prescription, we examine 2010 and 2018 per prescription expenditures before and after adjusting for estimated federal basic and inflationary rebates to Medicaid (table 3). We examined each type of medication and the product (i.e., NDC) with the most prescriptions in 2018 (i.e., Suboxone, Vivitrol, and Narcan). Accounting for the federal rebates gives a more accurate picture of net costs and the average per prescription costs for these drugs over time, as shown in our previous work (Clemans-Cope, Epstein, et al. 2020; Clemans-Cope, Winiski, et al. 2020). The rebates reduce estimated costs substantially for each of the medications studied. For example, in 2018, rebate-adjusted prices per prescription were \$125 for buprenorphine (compared with \$160 before adjusting for the federal rebates) and \$165 for Suboxone (compared with \$222 before adjusting for the federal rebates). Naltrexone was \$248 (compared with \$492 before adjusting for the federal rebates), and Vivitrol was \$589 (compared with \$1,206 before adjusting for the federal rebates). Naloxone per prescription cost \$63 (compared with \$116 before adjusting for the

federal rebates), and Narcan cost \$67 (compared with \$125 before adjusting for the federal rebates). Thus, the estimated federal rebates reduced Medicaid spending per prescription by about one-third or more.

TABLE 3

Number of Prescriptions in Medicaid and Medicaid Spending per Prescription before and after Estimated Federal Rebates for the Most Common Buprenorphine, Naltrexone, and Naloxone Products, 2010 and 2018

| Drug and product ^b | Number of Prescriptions in Medicaid ^a | | 2010 | | 2018 | |
|-------------------------------|--|------------------|------------------------|-----------------------|------------------------|-----------------------|
| | 2010 | 2018 | Before federal rebates | After federal rebates | Before federal rebates | After federal rebates |
| | | | | | | |
| Buprenorphine | 936,342 | 6,447,256 | \$252 | \$52 | \$160 | \$125 |
| Suboxone ^b | 24,839 | 3,025,841 | \$270 | \$203 | \$222 | \$165 |
| Naltrexone | 64,382 | 544,147 | \$142 | \$102 | \$492 | \$248 |
| Vivitrol | 4,665 | 214,574 | \$980 | \$508 | \$1,206 | \$589 |
| Naloxone | 3,353 | 234,678 | \$39 | \$35 | \$116 | \$63 |
| Narcan | — | 209,183 | — | — | \$125 | \$67 |

Source: Urban Institute analysis of Medicaid State Drug Utilization Data from the Centers for Medicare & Medicaid Services.

Notes: The US Food and Drug Administration approved Narcan in November 2015, and we therefore have no such data for 2013. Rebate-adjusted Medicaid spending is adjusted for estimated statutory federal rebates Medicaid receives from manufacturers, which include basic and inflationary rebates (Clemans-Cope et al. 2020).

^aBecause we compute per prescription spending, the number of prescriptions here excludes prescriptions with missing spending data.

^bThe products (i.e., National Drug Codes) shown had the most prescriptions in 2018: Suboxone (NDC 12496-1208), Vivitrol (NDC 65757-0300), and Narcan (NDC 69547-0353).

Discussion

This brief provides updated estimates of Medicaid spending and prescriptions for OUD and opioid overdose medications through 2018 to give policymakers and the public a perspective on how states are leveraging Medicaid to address the opioid crisis. Each of the three medications studied in this brief has been related to decreases in opioid-related deaths. That we find an increased volume of OUD- and overdose-related prescriptions suggests continued large-scale increases in access to treatment, especially in Medicaid expansion states. Between 2010 and 2018, the number of OUD- and overdose-related prescriptions covered in Medicaid increased seven-fold, and the number of prescriptions per Medicaid enrollee increased 4.8-fold.

Increases between 2013 and 2018 in both prescriptions and spending on these medications were greater in Medicaid expansion states than in nonexpansion states, suggesting that expansion states substantially leveraged Medicaid to address the crisis. Between 2013 and 2018, Medicaid spending on prescriptions for treating OUD and opioid overdose increased nearly 5-fold in states that had expanded Medicaid between late 2014 and 2016, while spending in nonexpansion states increased

2.5-fold. The lower growth in treatment in nonexpansion states may mean those states face greater barriers to prescribing, including provider availability. Stigma related to addiction and treatment may also limit prescribing of needed medications (Olsen and Sharfstein 2014). Additional research could examine whether and how nonexpansion states are paying for OUD treatment and overdose medications for people with low incomes—because payments outside Medicaid are generally ineligible for the large manufacturer’s rebates negotiated by Medicaid programs and the federal match in Medicaid. The higher growth in expansion states raises questions about which policies were most effective in helping to increase prescribing and what impact these policies had on disparities by race/ethnicity and geography.

Across Medicaid programs in nearly all states, many counties, and both expansion and nonexpansion states, persistent shortages of providers who offer effective OUD treatment medications limit treatment access for Medicaid enrollees and other people (Jones et al. 2015; Jones et al. 2018). Thus, research should investigate provider-related barriers, such as reimbursement and stigma. Understanding barriers to treatment access is a particularly urgent need for communities of color: recent findings show fewer treatment centers in counties with high percentages of Black residents and greater access to buprenorphine treatment in highly segregated white communities than in Black and Latinx communities (Acevedo et al. 2018; Goedel et al. 2020; Guerrero et al. 2013).¹³ Thus, improve treatment access and outcomes requires improving understanding of the *systemic factors* that drive racial/ethnic disparities and inequity in treatment rates, including poor care quality, culturally ineffective care, trauma and economic deprivation resulting from discriminatory practices, and underfunded and uncoordinated integration of health care and social services. Identifying and working with communities to address barriers to treatment expansion for specific populations in Medicaid could help address treatment shortfalls and support individual and community well-being.

Limitations

Our study has several limitations. First, our analysis excludes methadone, an important and long-standing effective treatment for OUD. We found that methadone treatment for OUD is not reported in the Medicaid SDUD, because methadone for OUD is dispensed at clinics and not prescribed for filling at a pharmacy, and the providers who dispense methadone are not included in these data. (However, methadone prescribed to treat pain is included in the SDUD). Second, states may have underreported prescription data in 2010, particularly as they improved reporting of prescriptions in Medicaid managed-care plans to the Medicaid SDUD.¹⁴ Third, Medicaid SDUD exclude prescriptions written by prescribers at some safety net providers who participate in the 340B medication rebate program, such as federally funded clinics (MACPAC 2018; Murrin 2016). Thus, these estimates exclude Medicaid prescriptions and spending that are part of the 340B medication rebate program. Fourth, per enrollee estimates might not reflect treatment relative to need, because need for OUD treatment varies across states, as does access to methadone for OUD, which can substitute for buprenorphine OUD or naltrexone treatment. And per capita estimates are derived from aggregate data, not individual-level data, and thus are a rough measure of prescriptions per individual. Fifth, this

analysis considers medication treatments only, and many people with OUD need more intensive treatment and services; recovery support; treatment for comorbidities common among people with OUD, such as mental health problems, hepatitis C, and HIV/AIDS; and social supports. See the separate methodology appendix for a more detailed description of the limitations.

Notes

- ¹ Outcomes of buprenorphine treatment for OUD include decreased mortality (Degenhardt et al. 2009; Schwartz et al. 2013; Sordo et al. 2017); reduced morbidity (Romelsjö et al. 2010), including reduced HIV and hepatitis C infection (Lawrinson et al. 2008; Tsui et al. 2014); increased retention in OUD treatment (Mattick et al. 2014); decreased relapse events, including hospitalizations and emergency department visits related to overdose (Clark et al. 2011); and reduced involvement with the justice system (Dunlop et al. 2017). Methadone treatment for OUD is also highly effective, and naltrexone is effective, particularly with highly motivated patients (Schuckit 2016). Naloxone has been shown to be highly effective and safe at reducing opioid overdose mortality (Wermeling 2015).
- ² “Medication-Assisted Treatment (MAT),” Substance Abuse and Mental Health Services Administration, accessed June 30, 2020, <https://www.samhsa.gov/medication-assisted-treatment>.
- ³ “Naltrexone,” Substance Abuse and Mental Health Services Administration, accessed June 30, 2020, <https://www.samhsa.gov/medication-assisted-treatment/treatment/naltrexone>.
- ⁴ “Buprenorphine,” Substance Abuse and Mental Health Services Administration, accessed June 30, 2020, <https://www.samhsa.gov/medication-assisted-treatment/treatment/buprenorphine>.
- ⁵ “Tracking Medicaid-Covered Prescriptions to Treat Opioid Use Disorder,” Urban Institute, last updated April 23, 2020, <https://www.urban.org/policy-centers/health-policy-center/projects/tracking-medicare-covered-prescriptions-treat-opioid-use-disorder>.
- ⁶ “Costs of Substance Abuse,” National Institute on Drug Abuse, accessed June 29, 2020, <https://www.drugabuse.gov/drug-topics/trends-statistics/costs-substance-abuse>.
- ⁷ For suppressed data that have a corresponding entry in the unsuppressed file with more than 11 prescriptions, we calculate the spending per prescription amount, impute the number of prescriptions, and then calculate total and Medicaid spending based on the imputed number of prescriptions.
- ⁸ In addition to the mandated federal rebates, supplemental state rebates are negotiated by nearly all state Medicaid programs or multistate coalitions (MACPAC 2019); however, because of a lack of data describing these supplemental rebates, they are not estimated in this analysis.
- ⁹ We focus on people ages 12 and older because national data indicate OUD rates are not zero among adolescents ages 12 to 17, though rates are higher for older age groups (and presumably lower for younger age groups). Data from the National Survey on Drug Use and Health show that an estimated 0.4 percent of adolescents ages 12 to 17 had an OUD in the past year in 2017, representing about 103,000 adolescents.
- ¹⁰ See also “Status of State Action on the Medicaid Expansion Decision,” Henry J. Kaiser Family Foundation, accessed June 30, 2020, <https://www.kff.org/health-reform/state-indicator/state-activity-around-expanding-medicare-under-the-affordable-care-act/>; Lynn A. Blewett, “Medicaid ‘Early Opt-In’ States,” State Health Access Data Assistance Center (blog), February 5, 2013, <https://www.shadac.org/news/medicaid-%E2%80%9CEarly-opt-in%E2%80%9D-states>.
- ¹¹ For more information about Virginia’s Addiction and Recovery Treatment Services program, see “Addiction and Recovery Treatment Services (ARTS) Reimbursement Structure,” Virginia Department of Medical Assistance Services, last updated June 16, 2020, [http://www.dmas.virginia.gov/files/links/310/ARTS%20Reimbursement%20Structure%20\(09.18.2019\).pdf](http://www.dmas.virginia.gov/files/links/310/ARTS%20Reimbursement%20Structure%20(09.18.2019).pdf). For more information about Maine’s Opioid Health Homes program, see Stefanie Nadeau (Director, MaineCare Services, Maine Department of Health and Human Services), letter to Senator Eric L. Brakey, Representative Patricia Hymanson, and members of the Joint Standing Committee on Health and Human Services re: the

Opioid Health Home Progress Report, February 6, 2018, <https://www.mainemed.com/sites/default/files/content/OHH%20Report%20Jan%202017.pdf>; “MaineCare Opioid Health Home Organizations,” Maine Department of Health and Human Services, accessed June 29, 2020, <https://www.maine.gov/dhhs/oms/vbp/documents/OHH-Provider%20List-3-12-19.pdf>.

- ¹² We assess nominal spending rather than real spending because no inflation adjustor for prescription drugs covering this time frame is available, and applying an inflation adjustor raises the concern about attributing quality increases to price increases.
- ¹³ Another recent paper found that pregnant Black women with OUD in a Medicaid expansion state receive virtually no buprenorphine treatment, whereas about 36 percent of white and 21 percent of Latinx pregnant women with OUD receive such treatment (Schiff et al. 2020).
- ¹⁴ Treatment in 2010 and, to a lesser extent, 2011 may be understated in some states and DC, mainly because of underreported managed-care data in these and earlier years. Medicaid managed-care organization carve-ins were not required to submit quarterly data or rebates until March 23, 2010. Wen, Hockenberry, and Pollack (2018) determined that by the end of the second quarter of 2011, the 21 states using a carve-in approach to prescriptions in managed care had collected the required data and performed data verification checks; DC, which also used the carve-in approach, appeared to have incomplete managed-care data reporting in the first three quarters of 2011. For a detailed description of methods, see the separate methodological appendix for this study.

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