



Rapid Growth in Medicaid Spending and Prescriptions to Treat Opioid Use Disorder and Opioid Overdose from 2010 to 2017

Lisa Clemans-Cope, Marni Epstein, Victoria Lynch, and Emma Winiski

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Prescriptions and spending on Medicaid-covered medications for the treatment of opioid use disorder (OUD) and opioid overdose increased dramatically between 2010 and 2017, based on data through the fourth quarter of 2017. The largest increases occurred after 2014. Yet opioid-related death rates remain high, suggesting that treatment rates for OUD and opioid overdose remain low and are not meeting demand, even among Medicaid expansion states.

- Between 2010 and 2017, Medicaid spending on OUD treatment prescriptions for buprenorphine, naltrexone, and naloxone increased from \$190.0 million to \$887.6 million, after adjusting for average rebates drug manufacturers paid to states. On average, spending increased 25.1 percent nationally each year, with the fastest growth between 2014 and 2016.
- From 2010 to 2015, buprenorphine accounted for 94 percent or more of Medicaid spending on buprenorphine treatment for OUD, naltrexone, and naloxone. Spending on naltrexone grew after 2015 and reached 19 percent of Medicaid spending on these three medications by 2017.
- Between 2013—before the major coverage provisions of the Affordable Care Act were implemented—and 2017, Medicaid spending on prescriptions for the

treatment of OUD and overdose nearly tripled or more in states that expanded Medicaid by 2017, while spending in nonexpansion states nearly doubled.

- **Between 2013 and 2017, Medicaid-covered buprenorphine prescriptions nearly tripled from 1.79 million to 5.18 million, naltrexone prescriptions more than quadrupled from 99,000 to 444,000, and naloxone prescriptions rose nearly 25-fold from 5,000 to 125,000. Increases in all three prescriptions were far greater in states that had expanded their Medicaid programs before July 2016 than states that did not expand.**
- **Even as Medicaid enrollment increased substantially after 2013, largely because of program expansion in some states, *per capita* prescriptions and spending on Medicaid-covered medications related to OUD also increased markedly. Between 2013 and 2017, prescriptions per 1,000 Medicaid enrollees rose from 48 to 102 for buprenorphine, from 3 to 9 for naltrexone, and from 0.1 to 3 for naloxone.**
- **Between 2013 and 2017, increases in per capita prescriptions were far greater in Medicaid expansion states than in nonexpansion states. In addition, the highest levels of treatment prescriptions were in expansion states: more than 100 buprenorphine prescriptions per 1,000 Medicaid enrollees in 2017 compared with just over 30 prescriptions per 1,000 enrollees in nonexpansion states.**

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 disproportionately large share of people with OUD (MACPAC 2017). Despite the strong evidence supporting the effectiveness of medication-assisted treatment (MAT) for OUD, only about one-fifth of people with OUD receive treatment of any kind (Saloner and Karthikeyan 2015). Three medications used in MAT are approved by the 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 the 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, Zhu, and Swartz 2016) and the cost of treatment (Mojtabai et al. 2014). Using the same survey data, researchers have shown that uninsured people with OUD are less likely than those with insurance coverage to get OUD treatment (Wu, Zhu, and Swartz 2016). Before the Affordable Care Act (ACA), many low-income

adults lacked access to affordable health insurance that covered treatment for OUD, and treatment rates for OUD did not increase in the years before the ACA, even as OUD rates rose (Saloner and Karthikeyan 2015). With the ACA, low-income adults with OUD in the District of Columbia (DC) 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, Horton, and Malcarney 2014). And, coverage of more types of buprenorphine, naltrexone, and naloxone treatment has been growing generally in expansion states (Miller 2018; SAMHSA 2018). In contrast, low-income uninsured adults in the 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.

The analysis presented here focuses 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. As of October 2018, buprenorphine for OUD is covered in all state Medicaid programs, and several states have expanded access to buprenorphine, through policies such as decreasing prior authorization requirements (Miller 2018). However, many state Medicaid programs currently 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 non-preferred in some states, and that limits access), and many state Medicaid programs cover naltrexone without prior authorization (Miller 2018). Most state Medicaid programs cover naloxone (Alabama, North Dakota, South Dakota, Oklahoma, and Utah do not appear to cover naloxone, and South Carolina covers it with restrictions), although most states cover one or more naloxone formulations without prior authorization (Miller 2018).

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 and 2015, although no difference in the admissions to specialty treatment facilities. In a previous analysis of data from 2011 to 2016, we found that buprenorphine receipt and Medicaid spending increased after 2014, particularly in states that had expanded Medicaid by January 2014 (Clemans-Cope et al. 2017). In this brief, we analyze a longer study period, 2010 to 2017. We incorporate several methodological improvements; most important, we include estimated manufacturer rebate payments, which decrease effective Medicaid spending, and we add imputations for suppressed prescription counts based on analysis from claims data.

Methods

We use state Medicaid State Drug Utilization Data (Medicaid SDUD) files from 2010 to 2017 to assess spending and prescriptions for buprenorphine and naltrexone medications that are FDA approved for

BOX 1

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

Methadone is approved for treatment of opioid use disorder (OUD), with a large body of research demonstrating its effectiveness (Mattick et al. 2014). It can be used for both maintenance treatment and medically supervised withdrawal, sometimes referred to as “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 (OTP) 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). Methadone treatment is not included in this brief because of data limitations.

Buprenorphine is approved for treatment of OUD, with 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 from withdrawal symptoms, though weaker than a full opioid agonist such as 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 OTP, including medication and twice-weekly visits, costs about \$5,980 a year (NIDA 2018).

Naltrexone is approved for treatment of OUD and alcohol use disorder. 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 OTP, including 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; NIDA 2017). Naloxone is currently available as an injectable formulation; an auto-injector formulation developed by Evzio[®] approved in April 2014; a nasal spray developed by Narcan[®] approved in 2015; and an injectable formulation used with a nasal spray atomizer, which create an intranasal route of administration that is not approved by the FDA.^c Prices for naloxone vary greatly: the generic costs \$20–\$40 per dose, Narcan costs approximately \$130–\$140 for a two-dose kit,^d and Evzio can cost much more.^e

^a“Buprenorphine,” SAMHSA (Substance Abuse and Mental Health Services Administration), accessed January 25, 2019, <https://www.samhsa.gov/medication-assisted-treatment/treatment/buprenorphine>.

^b“Naltrexone,” SAMHSA, accessed February 4, 2019, <https://www.samhsa.gov/medication-assisted-treatment/treatment/naltrexone>.

^cJoshua Lloyd, “The Clinical Use of Naloxone,” undated presentation, <https://www.fda.gov/downloads/Drugs/NewsEvents/UCM454748.pdf>.

^dAbigail 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/>.

^eLev 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/>.

the treatment of OUD, along with naloxone prescriptions approved for opioid overdose reversal. OUD-related and opioid overdose-related prescriptions were identified by linking the National Drug Code (NDC) numbers in Medicaid SDUD with drug information published by the FDA. Since methadone for OUD treatment may not be reported in the Medicaid SDUD we have not included it here; we will investigate this omission further and may include limited estimates related to methadone in future releases. Medicaid SDUD also does not include 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). For these two reasons, our estimates underreport Medicaid's coverage of OUD medication treatments.

We adjust the Medicaid SDUD spending data for the estimated amount rebated by drug manufacturers through the Medicaid Drug Rebate Program (CMS 2017);⁵ we reduce each state's spending by 13.0 percent for generic drugs and 23.1 percent for brand-name drugs to account for this rebate. The rebate estimates may be underestimated since they do not include rebates to Medicaid for price increases greater than inflation (The Pew Charitable Trusts 2018), supplemental drug rebate pools, or additional rebates for innovator drugs.⁶ Since Medicaid SDUD suppresses data for NDC state-quarters with fewer than 11 prescriptions, we applied an imputation to estimate the missing prescription count data, based on an analysis of one year (2014) of claims-level data from Medicaid Statistical Information Statistics.⁷

States and the District of Columbia (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):⁸

- “Early 2014 expansion states” are the 25 states and DC that expanded Medicaid through the ACA or a waiver on or before April 2014; some states had expanded Medicaid under the ACA in early 2014 or had expanded eligibility for adults before the ACA.
- “Late 2014–2016 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 1 for details.

We compute key estimates per 1,000 Medicaid enrollees age 12 and older in each state.⁹ To estimate enrollment populations from 2010 to 2016, we use counts of Medicaid enrollees age 12 and older based on data from the American Community Survey (Haley et al. 2018; Lynch et al. 2011). We use Medicaid enrollment growth factors for 2017 to increase the 2016 ACS enrollment counts and estimate 2017 state enrollment (Rudowitz, Hinton, and Antonisse 2018).

TABLE 1

States Classified by Medicaid Expansion Status

State	Expansion date	State	Expansion date
Early 2014 expansion states		Late 2014–2016 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.

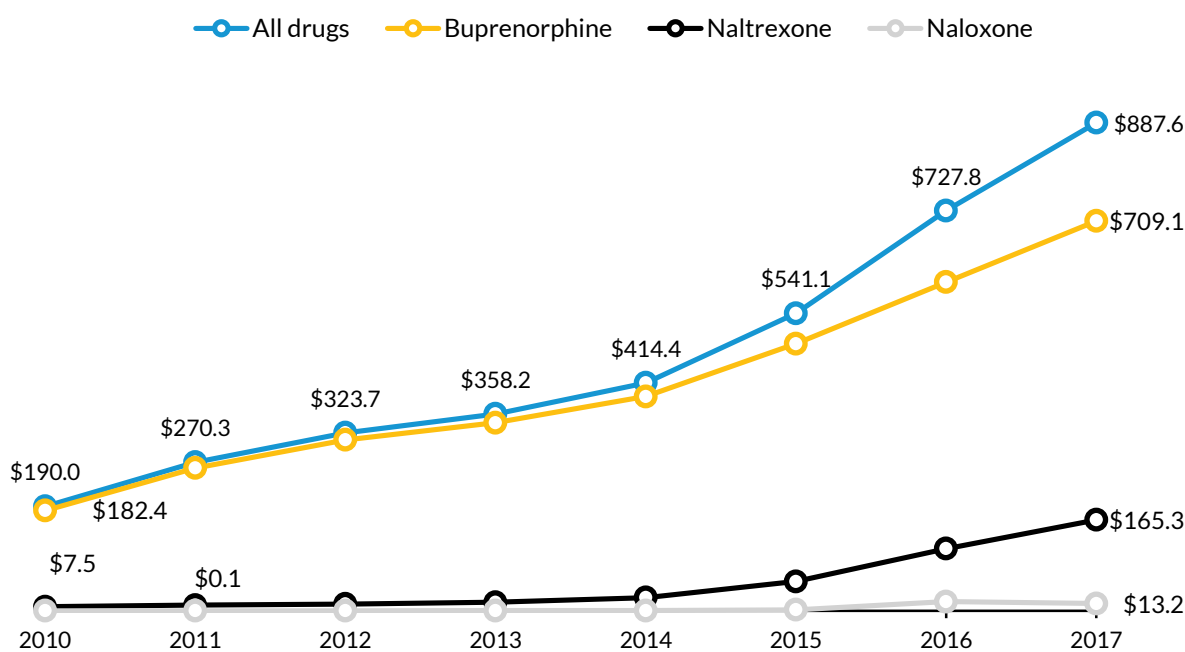
For much of the analysis, we focus on changes from 2013 to 2017, primarily to focus on pre- and post-Medicaid expansion comparisons. In addition, treatment in 2010 and, to a lesser extent 2011, may be understated in some states and DC, mainly because of underreporting of managed care data in these and earlier years. Medicaid managed care organization carve-ins were not required to submit quarterly data or rebates until March 23, 2010. Wen and colleagues 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; Washington, DC, which also used the carve-in approach, appeared to have incomplete managed care data reporting in the first three quarters of 2011 data (Wen, Hockenberry, and Pollack 2018). For a detailed description of methods, see the separate methodological appendix for this study.

Findings

Spending (after adjusting for estimated rebates) on Medicaid-covered prescriptions for the treatment of opioid use disorder and overdose increased dramatically between 2010 and 2017, most notably after 2014 (figure 1).¹⁰ Rebate-adjusted Medicaid spending on prescriptions for OUD was an estimated 4.7 times greater in 2017 than in 2010, increasing from \$190.0 million to \$887.6 million. The average annual increase in spending between 2010 and 2017 was 25.1 percent. From 2010 to 2015, 94 percent or more of the spending related to Medicaid’s coverage of buprenorphine for OUD, naltrexone, and naloxone was on buprenorphine treatment. After 2015, spending on naltrexone grew quickly; by 2017, it represented 19 percent of spending on these three medications. Spending on buprenorphine for OUD (including buprenorphine/naloxone for OUD) grew close to fourfold from \$182 million to \$709 million over the eight years. Spending on the two other medications grew even faster: naltrexone spending increased more than 22-fold from \$7.5 million in 2010 to \$165.3 million in 2017, while naloxone spending increased more than 130-fold from just \$0.1 million (before the introduction of Evzio® in 2014 and Narcan® in 2016) to \$13.2 million.

FIGURE 1
Rebate-Adjusted Medicaid Spending on Buprenorphine, Naltrexone, and Naloxone Prescriptions for OUD from 2010 to 2017

In millions of dollars



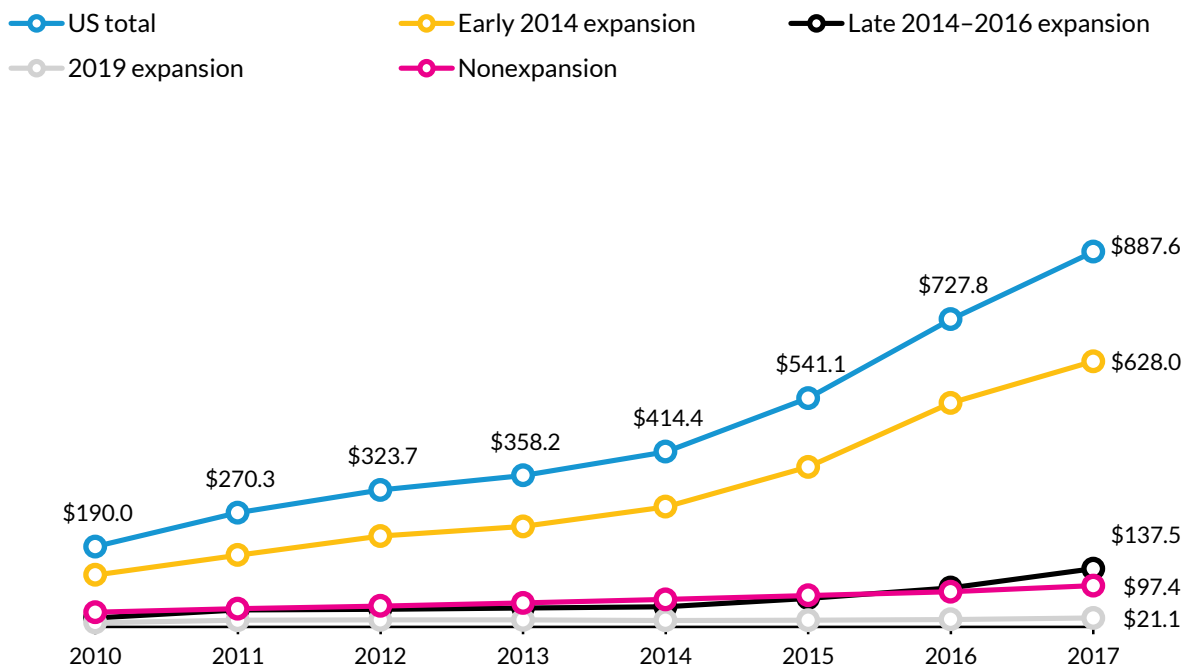
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Source: Urban Institute analysis of Medicaid State Drug Utilization Data from the Centers for Medicare & Medicaid Services.

Rebate-adjusted spending on Medicaid-covered prescriptions for the treatment of OUD and overdose increased most dramatically in states that expanded Medicaid between 2010 and 2016 (figure 2). In early-expansion states, spending increases were most substantial after 2015. Between 2013 (before the major coverage provisions of the ACA in the early-2014 expansion states were implemented) and 2017, Medicaid spending on prescriptions for the treatment of OUD and overdose nearly tripled from \$237 million to \$628 million in states that had expanded Medicaid by early 2014. In the states that expanded Medicaid between August 2014 and July 2016, Medicaid spending tripled from \$45 million in 2013 to \$138 million in 2017. Over the same period, spending on these prescriptions for the treatment of OUD and overdose increased by a factor of 1.7, from \$57 million to \$97 million, in states that did not expand Medicaid.

FIGURE 2
Rebate-Adjusted Medicaid Spending on All Prescriptions for OUD from 2010 to 2017, by State Medicaid Expansion Status

In millions of dollars



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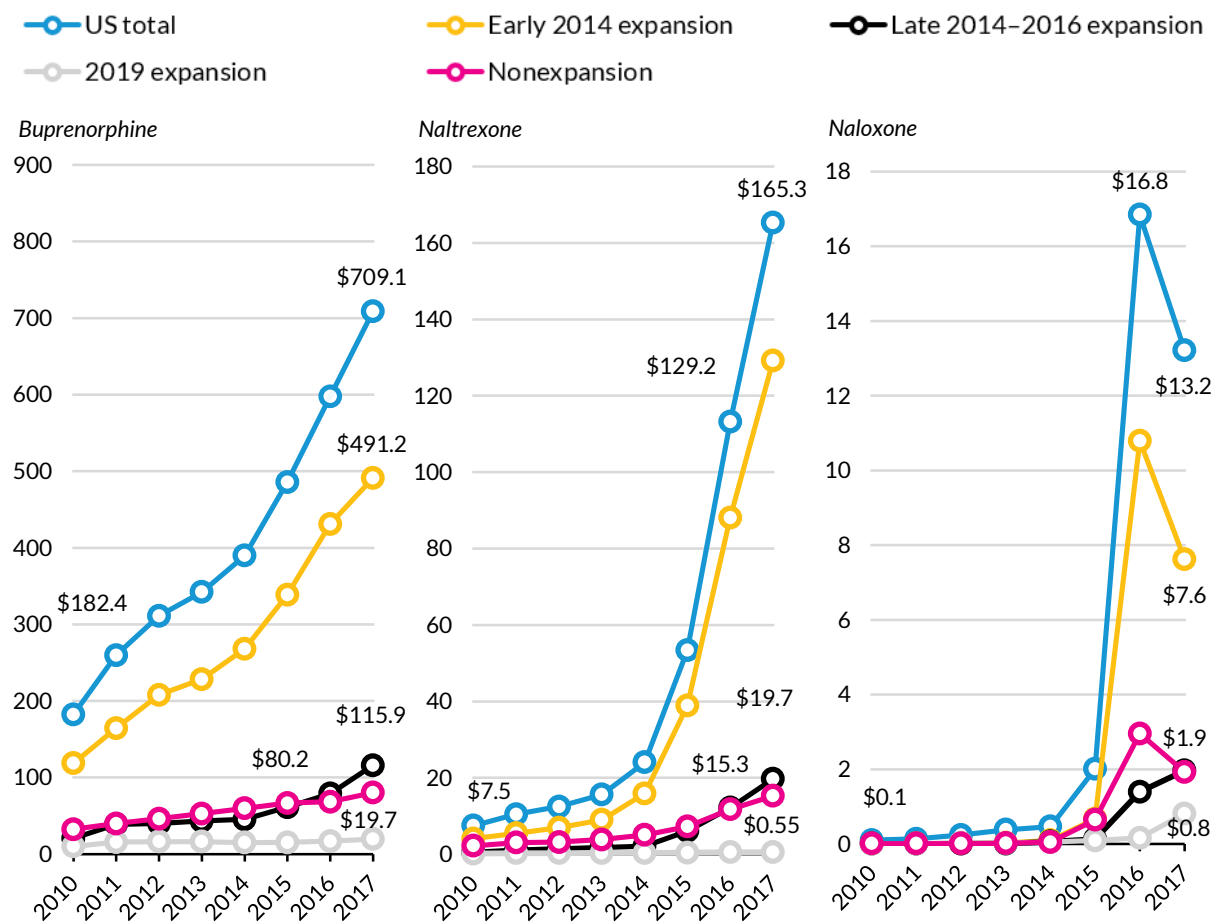
Source: Urban Institute analysis of Medicaid State Drug Utilization Data from the Centers for Medicare & Medicaid Services.

Rebate-adjusted spending on each of the three medication types—buprenorphine and naltrexone for the treatment of OUD and naloxone for overdose—increased dramatically between 2010 and 2017, particularly in states that had expanded Medicaid by July 2016 (figure 3). Medicaid-funded buprenorphine spending increased substantially after 2014. Between 2013 and 2017, spending on buprenorphine for OUD more than doubled from \$228 million to \$491 million. It nearly tripled, from

\$43 million to \$115 million, in states that had expanded Medicaid between late 2014 and 2016. Over the same period, spending on buprenorphine for OUD increased less than doubled from \$53 million to \$80 million in states that did not expand Medicaid. The patterns in spending growth between groups of states by expansion status were similar for naltrexone and naloxone, with earlier expanding states experiencing higher spending increases than other states, but the differences were even larger. The decreases in naloxone spending from 2016 to 2017 found nationally and across many states may be driven by either the removal of Evzio from state Medicaid plans due to pricing controversies or the manufacturer’s withdrawal from drug rebate programs (Miller 2018), either of which would remove spending data for this high-priced drug from the Medicaid SDUD dataset. We will investigate this issue in future research. Decreased naloxone spending is not associated with the number of naloxone prescriptions, which increased between 2016 and 2017 (figure 4).

FIGURE 3
Rebate-Adjusted Medicaid Spending on Buprenorphine, Naltrexone, and Naloxone Prescriptions for OUD from 2010 to 2017, by State Expansion Status

In millions of dollars



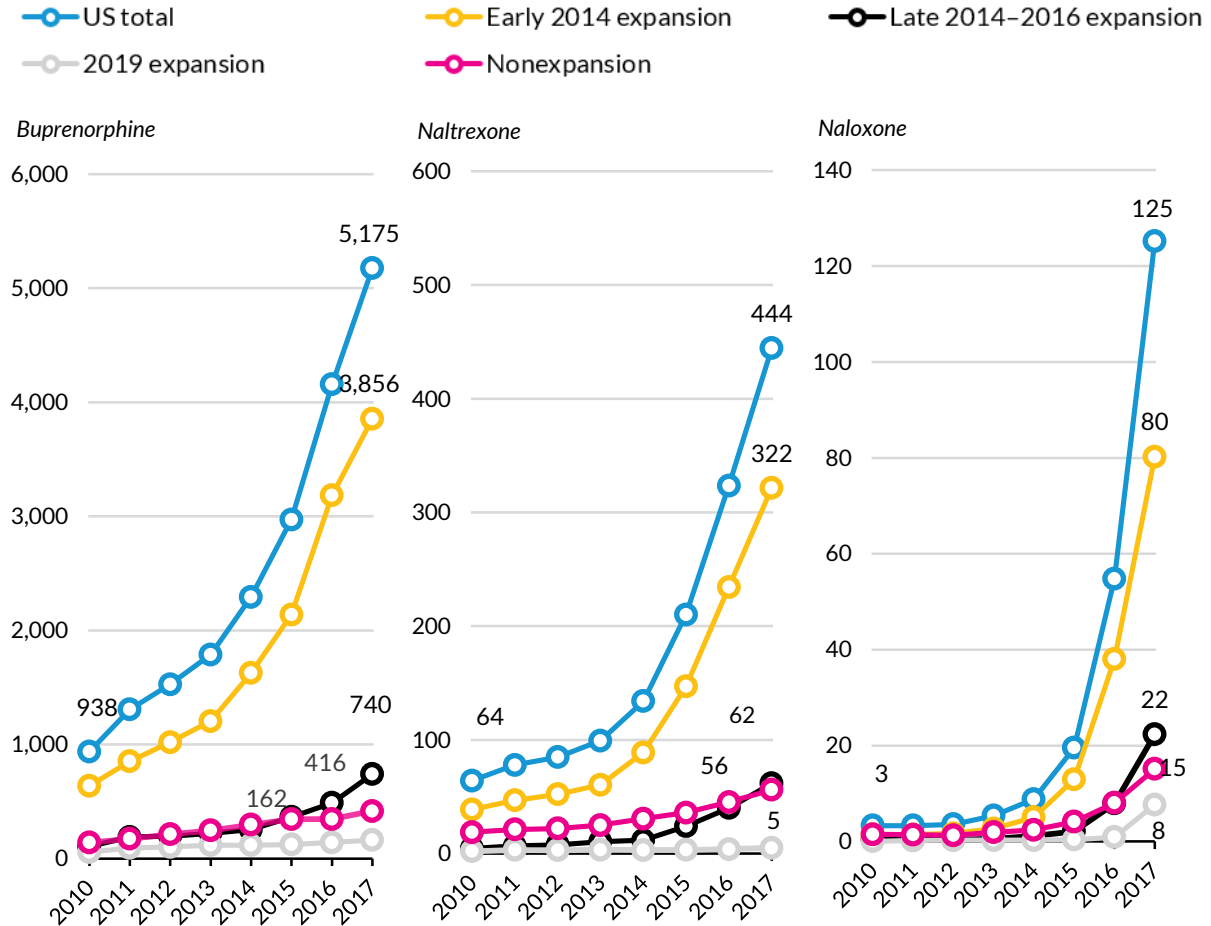
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Source: Urban Institute analysis of Medicaid State Drug Utilization Data from the Centers for Medicare & Medicaid Services.

FIGURE 4

Medicaid-Covered Prescriptions for Buprenorphine, Naltrexone, and Naloxone for OUD from 2010 to 2017, by State Expansion Status

Number of prescriptions in thousands



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

Rising spending on treatment may indicate higher prices or increased access to treatment, while rising numbers of prescriptions demonstrate increased access to treatment. In this case, mirroring the growth in spending, OUD-related prescriptions for buprenorphine, naltrexone, and naloxone increased markedly from 2010 to 2017 (figure 4). Medicaid-funded OUD-related prescriptions increased most substantially after 2014. Between 2013 and 2017, the number of nationwide Medicaid-funded buprenorphine prescriptions nearly tripled from 1.79 million to 5.18 million, the number of naltrexone prescriptions more than quadrupled from 99,000 to 444,000, and the number of naloxone prescriptions rose nearly 25-fold from 5,000 to 125,000. Increases in all three prescriptions were far greater in the states that had expanded Medicaid before July 2016 than in states that did not expand their programs;

in addition, the 2019 expansion states had larger increases in naloxone prescriptions than nonexpansion states.

- In the early 2014 Medicaid expansion states between 2013 and 2017, prescriptions rose from 1.21 million to 3.86 million for buprenorphine, from 60,000 to 322,000 for naltrexone, and from 3,000 to 80,000 for naloxone.
- In the late 2014–2016 Medicaid expansion states between 2013 and 2017, prescriptions rose from 221,000 to 740,000 for buprenorphine, from 10,000 to 62,000 for naltrexone, and from 1,000 to 22,000 for naloxone.
- In the nonexpansion states between 2013 and 2017, prescriptions rose from 246,000 to 416,000 for buprenorphine, from 25,000 to 56,000 for naltrexone, and from 2,000 to 15,000 for naloxone.

While 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 keeping up with the need for treatment among Medicaid enrollees. To inform this question, we assessed trends in Medicaid enrollment for people ages 12 and older and use the enrollment data to compute prescriptions per 1,000 enrollees. Between 2010 and 2017, Medicaid enrollment among people ages 12 and older grew from 34.5 million to 51.0 million; the highest growth was in the early 2014 expansion states, where enrollment increased from 20.0 million to 32.0 million (table 2). Medicaid enrollment for those 12 and older in late 2014–2016 expansion states grew from 2.9 million in 2010 to 4.3 million in 2017. In 2019 expansion states enrollment remained flat at 0.8 million. In nonexpansion states enrollment grew from 10.8 million in 2010 to 13.7 million in 2017.

TABLE 2
Medicaid Enrollees Ages 12 and Older from 2010 to 2017 (Estimated) by State Expansion Status
In millions

Year	Total	Early 2014 expansion	Late 2014–2016 expansion	2019 expansion	Nonexpansion
2010	34.5	20.0	2.9	0.8	10.8
2011	36.2	21.0	3.0	0.8	11.3
2012	36.3	21.1	3.0	0.8	11.4
2013	37.5	21.7	3.0	0.8	11.9
2014	44.0	27.4	3.1	0.8	12.6
2015	48.2	30.6	3.8	0.8	13.1
2016	49.6	31.2	4.2	0.8	13.3
2017 (estimated)	51.0	32.0	4.3	0.8	13.7

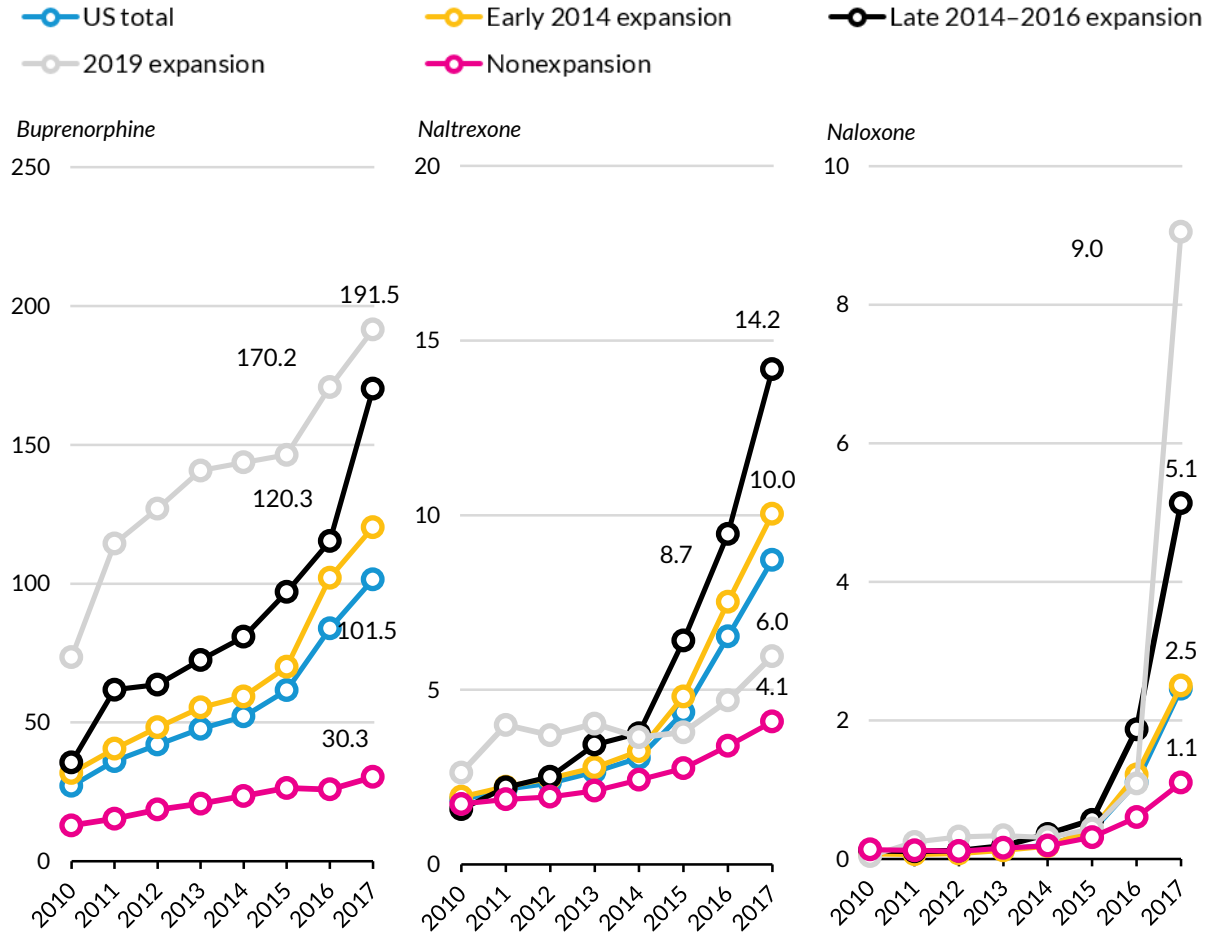
Source: To estimate state Medicaid enrollment for this population from 2010 to 2016, we use estimates of Medicaid enrollees ages 12 and older from the American Community Survey, for methodology see Haley et al. (2018) and Lynch et al. (2011). We use Medicaid enrollment growth factors for 2017 to trend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

Note: State groups are described in table 1. See the separate methodology appendix for more detail.

FIGURE 5

Medicaid-Covered Prescriptions for Buprenorphine, Naltrexone, and Naloxone for OUD per 1,000 Enrollees from 2010 to 2017, by State Expansion Status

Number of prescriptions per 1,000 Medicaid enrollees



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

Per capita trends in OUD-related prescriptions covered by Medicaid can account for enrollment growth. The number of those prescriptions per 1,000 Medicaid enrollees ages 12 and older increased markedly between 2010 and 2017 (figure 5). 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). Buprenorphine and naloxone prescriptions per 1,000 Medicaid enrollees were particularly high in the 2019 expansion group states, with steep increases after 2015.

- Across all states between 2013 and 2017, prescriptions for buprenorphine per 1,000 Medicaid enrollees ages 12 and older more than doubled from 48 to 102. The highest counts in 2017 were among the 2019 expansion states (191 per 1,000 enrollees) and the late 2014–2016 expansion states (170 per 1,000 enrollees).
- Between 2013 and 2017, prescriptions for naltrexone per 1,000 Medicaid enrollees ages 12 and older tripled from less than 3 per 1,000 to 9 per 1,000, with the highest counts in 2017 among states that expanded in late 2014–2016 (14 per 1,000 enrollees) and the early 2014 expansion states (10 per 1,000 enrollees).
- Between 2013 and 2017, prescriptions for naloxone per 1,000 Medicaid enrollees ages 12 and older increased about 20-fold from 0.1 per 1,000 to more than 2 per 1,000, with the highest counts in 2017 among the 2019 expansion states (9 per 1,000 enrollees) and the late 2014–2016 expansion states (5 per 1,000 enrollees).

Discussion

This brief presents new spending and prescription data from Medicaid to give policymakers and the public a perspective on how states are leveraging Medicaid to address the opioid crisis. Our analysis of increases in the volume of OUD- and overdose-related prescriptions suggests a large-scale increase in access to treatment, especially in expansion states. In addition to increases in prescriptions, we show a nearly fivefold increase in rebate-adjusted Medicaid spending on prescriptions for OUD and opioid overdose, from \$190.0 million in 2010 to \$887.6 million in 2017. Between 2013 and 2017, Medicaid spending on prescriptions for the treatment of OUD and overdose increased more than 2.5-fold in states that had expanded Medicaid between late 2014 and 2016, while spending in nonexpansion states increased 1.7-fold. Increases in the number of OUD- and overdose-related prescriptions per Medicaid enrollee increased markedly over the period, and increases were far greater in expansion states than nonexpansion states.

Increases in Medicaid prescriptions and spending for these treatment medications may reflect a combination of factors, such as greater treatment needs among new enrollees, more enrollees seeking treatment, and greater treatment availability in the later years. Relatively modest increases in treatment across nonexpansion states raises the question of whether and how these states are paying for OUD treatment and overdose medications for low-income people.

While some of the increase in the Medicaid-covered buprenorphine and naltrexone prescriptions in expansion states may be for prescriptions that would have been paid in cash or covered by another insurance arrangement before Medicaid expansion, research using all-payer data shows no evidence of large-scale substitution from cash or other payers to Medicaid. A 2018 study examining how much of the increase in buprenorphine for OUD covered by Medicaid is accounted for by new patients initiating treatment as opposed to patients shifting from other payers (or cash payment) to Medicaid after expansion found little evidence of substitution (Saloner et al. 2018).¹¹ Another 2018 study aggregating across all payment types (including cash) showed a strong increase in “new treatment starts” of

buprenorphine and naltrexone for patients with OUD; monthly treatment starts almost doubled from 44,000 in December 2015 to 82,000 in December 2017 (Aitken and Kleinrock 2018). These studies suggest that the increase in Medicaid-covered buprenorphine and naltrexone prescriptions is not merely the result of substitution from other payers. The extent of substitution from other payers to Medicaid in the coverage of the overdose medication naloxone has not yet been examined.

Each of the three medications studied in this brief has been related to decreases in opioid-related deaths. For example, literature documents the association between increasing buprenorphine treatment for OUD and substantial reductions in mortality and overdose mortality in people with opioid use disorder (Larochelle et al. 2018; Schwartz et al. 2013; Sordo et al. 2017).¹² Yet opioid-related death rates remain high: opioid-related overdose mortality rose to almost 50,000 deaths in 2017 with only a slight decrease predicted for 2018.¹³ Rates of opioid-related overdose deaths in 2017 remain high in some Medicaid expansion states, such as West Virginia (833 deaths) and Ohio (4,293 deaths), suggesting that current treatment levels, even among expansion states, are not meeting demand.

Among the states that have not taken advantage of the Medicaid expansion are several with opioid-related death rates higher than the national average in 2017: North Carolina (1,953 deaths), Tennessee (1,269 deaths), Wisconsin (926 deaths), Missouri (952 deaths), Florida (3,245 deaths), South Carolina (749 deaths), and Utah (456 deaths).¹⁴ Expansion of Medicaid would increase access to treatment and overdose reversal drugs, a particularly important consideration for states that are among those hardest hit by the opioid epidemic.

For Medicaid, as for other payers, persistent capacity shortages limit access to effective OUD treatment (Jones et al. 2015). Other barriers to accessing treatment have not yet been addressed in many states, such as stigma related to opioid use disorder and treatment; regulations requiring extensive documentation (for example, related to provision of required counseling), refill limitations, and reauthorization rules that make it difficult for providers to prescribe; lack of effective screening and referral to treatment; and coverage limitations.

Over the next year and a half, we will continue to study the Medicaid SDUD to assess whether and how access to effective OUD and opioid overdose treatment is changing in Medicaid. We will also assess the impacts of expanded treatment through state Medicaid programs.

Limitations

Our study has several limitations. First, our analysis excludes methadone, an important and long-standing effective treatment for OUD. Methadone treatment for OUD may not be reported consistently in the Medicaid SUD data, an issue that we will assess in future analyses. Second, states may have underreported data in 2010 as they improved reporting of prescriptions in Medicaid managed care plans, and states may have been inconsistent in reporting of the Medicaid SDUD. Third, we cannot distinguish prescriptions written for Medicaid enrollees newly gaining coverage under the expansion from those written for existing enrollees. Fourth, the per enrollee estimates might not reflect treatment relative to need, since prevalence of the need for OUD treatment varies across states, as does access to

methadone for OUD, which can substitute for buprenorphine OUD 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, while many people with OUD need more intensive treatment and services, recovery support, as well as treatment for comorbidities common among people with OUD, such as mental health problems, hepatitis C, and HIV/AIDS. 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),” SAMHSA (Substance Abuse and Mental Health Services Administration), accessed February 7, 2019, <https://www.samhsa.gov/medication-assisted-treatment>.
- ³ “Naltrexone,” SAMHSA, accessed February 4, 2019, <https://www.samhsa.gov/medication-assisted-treatment/treatment/naltrexone>.
- ⁴ “Buprenorphine,” SAMHSA, accessed January 25, 2019, <https://www.samhsa.gov/medication-assisted-treatment/treatment/buprenorphine>.
- ⁵ “Payment for Covered Outpatient Drugs,” Section 1927 of the Social Security Act, 42 U.S.C. § 1396r-8 § (2009).
- ⁶ “State Prescription Drug Resources: Medicaid Pharmacy Supplemental Rebate Agreements (SRA),” Centers for Medicare & Medicaid Services (CMS), accessed February 4, 2019, <https://www.medicare.gov/medicaid/prescription-drugs/state-prescription-drug-resources/index.html>; and “Medicaid Drug Rebate Program,” CMS, last updated November 13, 2018, <https://www.medicare.gov/medicaid/prescription-drugs/medicaid-drug-rebate-program/index.html>.
- ⁷ Spending data for these suppressed prescriptions were not imputed due to the lack of information on which to base the estimates.
- ⁸ See also “Status of State Action on the Medicaid Expansion Decision: Timeframe: as of January 23, 2019,” Kaiser Family Foundation, accessed February 6, 2019, <https://www.kff.org/health-reform/state-indicator/state-activity-around-expanding-medicare-under-the-affordable-care-act/>; and Lynn A. Blewett, “Medicaid ‘Early Opt-In’ States,” SHADAC (State Health Access Data Assistance Center), October 9, 2015, <https://www.shadac.org/news/medicaid-%E2%80%9CEarly-opt-in%E2%80%9D-states>.
- ⁹ We focus on people ages 12 and older because national data indicate that OUD rates are not zero among adolescents age 12 to 17, although 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 in 2017, an estimated 0.4 percent of adolescents ages 12 to 17 had an OUD in the past year, which represents about 103,000 adolescents.
- ¹⁰ We assess on nominal spending rather than real spending because an inflation adjustor for prescription drugs that covers the time frame is not available, and applying an inflation adjustor raises the concern about attributing quality increases to price increases.
- ¹¹ An additional study of the volume of buprenorphine prescriptions for both pain management and OUD also suggests increased total volume over time. It showed that, aggregating the volume of prescriptions across all payers, buprenorphine prescriptions have increased every year from 2012 to 2016, from 8.2 million prescriptions in 2012 to 12.5 million in 2016 (IMS Institute for Healthcare Informatics 2016). In addition, a study

of health spending by large employer plans and enrollees showed increasing spending on opioid addiction and overdose treatment (including for medications) from 2006 to 2016 (Cox, Rae, and Sawyer 2018).

- ¹² Two recent studies in England also found reduced mortality among those with opioid use disorder after opioid agonist treatment, which includes buprenorphine or methadone treatment (Marsden et al. 2017; Pierce et al. 2016).
- ¹³ F. Ahmad, L. Rossen, M. Spencer, M. Warner, and P. Sutton, "Vital Statistics Rapid Release: Provisional Drug Overdose Death Counts," National Center for Health Statistics, accessed October 24, 2018, <https://www.cdc.gov/nchs/nvss/vsrr/drug-overdose-data.htm>.
- ¹⁴ Author's calculations based on Centers for Disease Control and Prevention, National Center for Health Statistics. Multiple Cause of Death, 1999-2017 on CDC WONDER Online Database, released December, 2018. Data are from the Multiple Cause of Death Files, 1999-2017, as compiled from data provided by the 57 vital statistics jurisdictions through the Vital Statistics Cooperative Program. Accessed January 10, 2019, <http://wonder.cdc.gov/mcd-icd10.html>.

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About the Authors

Lisa Clemans-Cope is a principal research associate and health economist in the Health Policy Center at the Urban Institute. Her areas of expertise include substance use disorder treatment, health spending, access to and use of health care, private insurance, Medicaid and CHIP programs, dual eligibles, health reform legislation and regulation, and health-related survey and administrative data. She has led qualitative and quantitative research projects examining the impacts of policies aimed at improving diagnosis and treatment of people with substance use disorders. Clemans-Cope holds a BA in economics from Princeton University and a doctorate in health economics from the Johns Hopkins Bloomberg School of Public Health.

Marni Epstein is a research assistant in the Health Policy Center. Her current works focuses on treatment of substance use disorder under Medicaid and quantitative analysis of Medicaid administrative claims data. She received a BA from Johns Hopkins University.

Victoria Lynch is a senior research associate Victoria Lynch is a research associate in the Health Policy Center. She is a survey methodologist with in-depth understanding of public policy on Medicaid, the Children's Health Insurance Program, and other health insurance, as well as extensive experience with Medicaid administrative claims data. She received her MS in survey methodology from the Joint Program in Survey Methodology, run by the University of Maryland, University of Michigan, and Westat.

Emma Winiski is a research assistant in the Health Policy Center. Her current works focuses on treatment of substance use disorder under Medicaid and analysis of survey data. She received a BS from Furman University.

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