

State drug caps associated with fewer Medicaid-covered prescriptions for opioid use disorder, 2017-2022

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Abstract

The Medicaid program is the largest payer of opioid use disorder (OUD) treatment, including medications for OUD (MOUD). Because of budget neutrality requirements, some Medicaid programs use prescription drug caps to limit the monthly number of prescriptions an enrollee can fill. This study examined the association between Medicaid prescription drug caps and Medicaid-covered prescriptions for 2 forms of MOUD (buprenorphine and naltrexone) from 2017 to 2022 using fee-for-service and managed care data from Medicaid's State Drug Utilization Data. Ten states had monthly prescription drug caps, ranging from 3 to 6 prescriptions. Using multivariate linear regression, we estimated that enrollees in states with monthly drug caps filled 1489.3 fewer MOUD prescriptions per 100 000 enrollees. Further, compared with states with the smallest drug caps (3 drugs), enrollees in states with 4-, 5-, and 6-drug caps filled significantly more prescriptions per state-quarter (907.7, 562.6, and 438.9 more prescriptions, respectively). Our results were robust to sensitivity analyses. Monthly prescription drug caps were significantly associated with a reduction in Medicaid-covered MOUD prescriptions. Medicaid enrollees who need MOUD may be affected by indiscriminate prescription drug cap policies, potentially hindering ongoing efforts to mitigate the opioid crisis.

Lay summary

Medicaid is the largest payer of opioid use disorder (OUD) treatment in the United States, including medications to treat OUD (MOUD)—the gold standard for treatment. Some Medicaid programs cap the number of drugs an enrollee can fill each month though the effectiveness of such cost-saving strategies is unclear. We examined the association of these drug caps with the number of MOUD prescriptions filled by Medicaid enrollees between 2017 and 2022. We found that 10 states had drug caps in place, ranging from 3 to 6 drugs each month. Enrollees in states with a cap filled ~1450 fewer MOUD prescriptions (per 100 000 enrollees) after accounting for other state differences. Further, when compared with enrollees in states with the lowest cap (3 drugs), those in states with larger caps filled more MOUD prescriptions (between 438 and 907 more prescriptions). This study suggests that having drug caps in place may limit Medicaid enrollees' access to these safe and effective treatments, potentially hindering ongoing efforts to slow the opioid crisis.

Key words: Medicaid; opioid use disorder; substance use; prescription drugs; prior authorization; health policy.

Introduction

For nearly 3 decades, the opioid crisis has devastated communities across the United States.¹⁻³ Medications for opioid use disorder (MOUD)—buprenorphine, methadone, and naltrexone—are evidence-based treatments that reduce mortality and other harms, including hepatitis C, HIV, and other transmissible infections, associated with opioid use disorder (OUD).⁴⁻¹⁰ Despite their effectiveness, access to, uptake of, and retention in treatment with MOUD remain suboptimal. Recent evidence demonstrated that while the overall number of prescriptions for MOUD increased from 2010 to 2019, the number of people with OUD in need of treatment has outpaced MOUD prescriptions.¹¹ In 2022, approximately one-quarter of people with OUD received any treatment with only 30% of those receiving MOUD.¹²

State Medicaid programs play a critical role in providing access to treatment for OUD. Medicaid covers ~40% of Americans with OUD and pays for more than 40% of MOUD treatment.¹³ However, Medicaid programs face

budgetary constraints: They cannot run deficits but are required to meet federal floors for eligibility and covered benefits. Thus, many state Medicaid programs implement utilization management tools to address spending, including prior authorizations, copayments, and monthly drug caps.¹⁴

Monthly prescription drug caps—in use by states since the 1980s—limit the number of prescriptions Medicaid will cover per enrollee per month. Since their implementation, prescription drug caps have been associated with suboptimal outcomes, including trading off necessary medications.^{15,16} Such effects can be particularly acute for persons with complex health and social needs,¹⁷⁻²⁰ like people with OUD.¹⁷⁻²¹ Indeed, people with OUD are at an increased risk of chronic conditions such as diabetes, hypertension, and hypercholesterolemia,²² as well as severe mental health and co-occurring substance use disorders.^{23,24} Consequently, Medicaid enrollees with OUD may be acutely affected by monthly prescription drug caps. However, no prior studies have examined the relationship between monthly drug caps on Medicaid-covered prescriptions for MOUD.

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In this study, we examined the association of monthly prescription drug caps in Medicaid with the number of MOUD prescriptions from 2017 to 2022.

Data and methods

Study design

We used a retrospective, observational design to estimate the association between state Medicaid prescription drug caps and the number of MOUD prescriptions covered by Medicaid—both fee-for-service (FFS) and managed care (MMC)—between 2017 and 2022.

Data sources and measures

The primary outcome was the number of Medicaid-covered MOUD prescriptions for buprenorphine and naltrexone per 100 000 Medicaid beneficiaries at the state quarter-year level. Data on Medicaid-covered prescriptions were obtained from the Centers for Medicare and Medicaid Services (CMS) Medicaid State Drug Utilization Database, which contains all Medicaid-covered prescriptions by National Drug Codes (NDCs) in each state. Buprenorphine and naltrexone NDCs for MOUD were identified using previously published work;²⁵ buprenorphine formulations used to treat acute pain were omitted. Previous research has documented inconsistent reporting of methadone as MOUD in this dataset, so these medications were excluded from analyses.²⁵

To account for differences in the size of Medicaid programs (and thus natural differences in the number of prescriptions for MOUD), prescriptions were adjusted by state Medicaid enrollment using data obtained from CMS. To account for state differences in buprenorphine prescriber capacity, the number of DATA-waivered prescribers through 2019 was obtained from SAMHSA through a Freedom of Information Act request. We carried forward 2019 values through 2022. Recently published research demonstrates that while the number of prescribers increased over this period, the number of patients seen for MOUD remained the same, suggesting that increased supply did not result in increased capacity.²⁶⁻²⁸ We also gathered information on MOUD prior authorization requirements, which may also restrict enrollees' access to MOUD.²⁹⁻³² States that exempt MOUD from the cap were classified as cap states in our primary analysis since the presence of any cap may deter enrollees.³³

Information on state drug caps was collected from several governmental and non-governmental sources.^{14,34-36} These sources and methods were also used to identify the number of monthly prescriptions allowed under each state's cap and whether the cap differs by FFS or MMC. We excluded Kansas as its drug cap applies to only FFS enrollees, and nearly all Kansas Medicaid enrollees are in MMC and thus not subject to the cap.

Statistical analyses

We used ordinary least squares (OLS) regression to model the relationship between drug cap status and the number of MOUD prescriptions filled for buprenorphine, buprenorphine-naloxone, and naltrexone. All regressions were adjusted using an indicator for state Medicaid expansion status,³⁷⁻³⁹ the presence of prior authorization for MOUD prescriptions, and a state-level measure of the supply of buprenorphine-waivered providers. Standard errors were

clustered at the state level to account for the repeated measures design of our outcome data. Our regression specification is available in the [Supplemental material](#).

As a secondary analysis, we restricted to the subset of states with a monthly prescription drug cap and examined the association between the number of drugs permitted under the cap and Medicaid-covered MOUD prescriptions. States with prescription drug caps allow between 3 and 6 drugs each month. Two states (AR and MS) increased the size of their cap during our study period, which we allowed to vary over time in our secondary analysis.

Sensitivity and robustness analyses

We conducted our analyses using generalized estimating equations (GEE) with an unknown correlation structure to test the sensitivity of our results to the assumptions of OLS. To ensure that our results were not being driven by states that exempt MOUD under the cap, we excluded Tennessee in another sensitivity analyses. Additionally, caps may vary by whether the enrollee is covered by MMC or FFS. We conducted sensitivity analyses limiting to only Medicaid-covered prescriptions in MMC or FFS.

In states with Medicaid drug caps, enrollees may still access buprenorphine by paying cash or by receiving the medication through an opioid treatment program, which (like methadone) may not be accurately captured in our data. To test these mechanisms, we used data from the Drug Enforcement Agency's Automation of Reports and Consolidated Orders System (ARCOS)⁴⁰ to determine whether the total supply of buprenorphine distributed to states varied by cap status.

A 2-sided $P < 0.05$ was considered statistically significant. The institutional review board governing this study deems analyses using publicly available data exempt. All statistical analyses were performed using StataSE v18 (StataCorp, College Station).

Results

Ten states had a prescription drug cap implemented for the duration of the study period. There were no changes in the presence of a cap between 2017 and 2022, and states with prescription drug caps allowed between 3 and 6 prescriptions per month (AL [5 drugs allowed under cap], AR [6], CA [6], IL [4], LA [4], MS [6], OK [6], SC [4], TN [4], and TX [3]; see [Table A1](#)). Two states modified their cap sizes during our study period: MS increased its cap from 5 to 6 prescriptions in 2019, while AR raised its cap from 3 to 6 in 2022. Five states either had no MMC for prescription drugs or caps that did not vary by MMC status ([Table A1](#)).

In unadjusted analyses, states without a drug cap consistently had more MOUD prescriptions per 100 000 Medicaid beneficiaries compared with states with a drug cap over the study period ([Figure 1](#)). While the difference in the number of prescriptions between no-cap and cap states has narrowed over time (1669.1 vs 253.0 in 2017 and 4155.7 vs 1078.3 in 2022), beneficiaries in no-cap states filled nearly 4-fold more prescriptions per 100 000 enrollees by the end of the study period. We also found no difference in MOUD prescriptions per 100 000 Medicaid beneficiaries by MMC or FFS ([Table A2](#)).

In multivariate regression analyses, beneficiaries in states with monthly drug caps filled 1489.3 (95% CI, -2661.4, -317.3; $P = 0.014$) fewer buprenorphine and naltrexone prescriptions compared with states without monthly caps

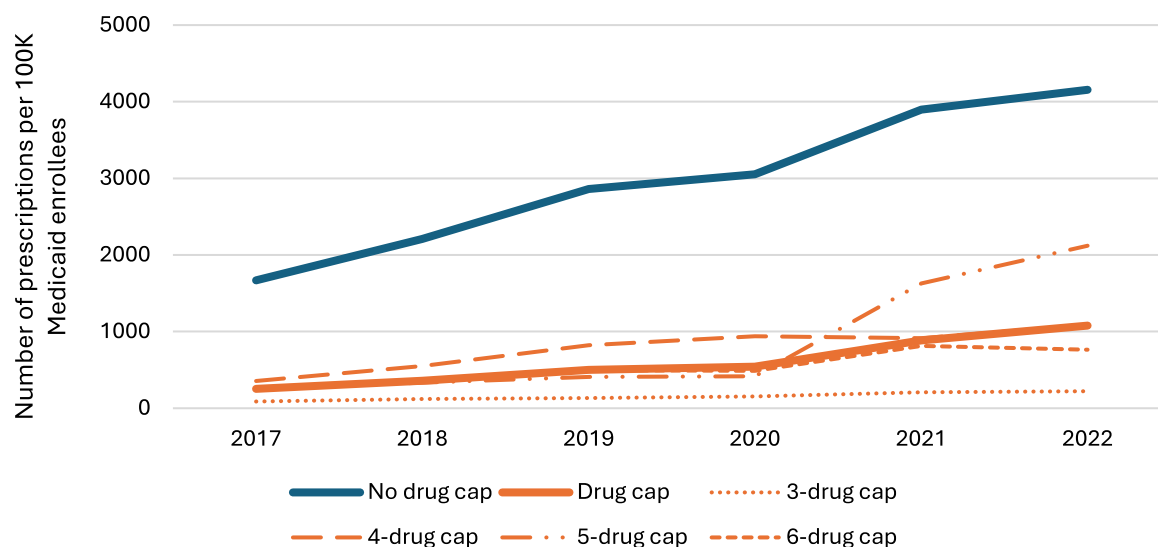


Figure 1. Prescriptions filled for medications for opioid use disorder per 100 K Medicaid enrollees by presence of Medicaid drug caps, 2017–2022. Source: Authors' analyses of Medicaid Drug Rebate data. Notes: Prescriptions include buprenorphine as MOUD and naltrexone. Butrans and Buprenex (commonly used for pain) were excluded. Medications were identified via NDCs. MOUD, Medications for opioid use disorder; NDCs, National Drug Codes.

Table 1. Association between a Medicaid monthly drug cap and the number of Medicaid-covered MOUD prescriptions.

	Estimate	95% CI	P-value
States with a cap vs no-cap			
Buprenorphine and naltrexone	−1489.3	−2661.4, −317.3	0.014
Buprenorphine only	−1341.4	−2467.8, −214.9	0.021
Naltrexone	−147.9	−214.1, −81.8	<0.001
States with a cap—buprenorphine and naltrexone			
3-drug cap	REF	REF	REF
4-drug cap	907.7	656.4, 1158.9	<0.001
5-drug cap	562.6	161.9, 963.2	0.011
6-drug cap	438.9	201.4, 676.4	0.002

Source: Authors' analysis of Medicaid drug rebate data from 2017 to 2022. Notes: Estimates from OLS regression with clustered SEs. Covariates included state Medicaid expansion status, the number of DATA-waivered buprenorphine prescribers, and whether a state's Medicaid program had a prior authorization for any form of buprenorphine. For the regression that estimated the association between the size of the cap and MOUD prescriptions, we restricted our sample to states that had a prescription drug cap implemented. In those regressions, states with a 3-drug cap are the reference group. Abbreviation: MOUD, Medications for opioid use disorder.

(Table 1). Estimates for buprenorphine were ~10% smaller (−1341.4; 95% CI, −2467.8, −214.9; $P=0.021$), consistent with buprenorphine as a proportion of all prescribed MOUD. Estimates for naltrexone only were also consistent with the proportion of MOUD prescriptions for naltrexone (−147.9; 95% CI, −214.1, −81.8; $P<0.001$) (Table 1).

Compared with 3-drug cap states, we found a greater number of MOUD prescriptions filled in the 4-drug cap states (907.7; 95% CI, 656.4, 1159.0; $P<0.001$), 5-drug cap states (562.6; 95% CI, 161.9, 963.2; $P=0.011$), and 6-drug cap states (438.9; 95% CI, 201.4, 676.4; $P=0.002$) per state-quarter (Tables 1 and A3).

Full regression output for all models is available in the Supplemental material (Tables A4 and A5). Our results were

robust to the model used (OLS vs GEE; Table A6) and the exclusion of TN (Table A7). States with a Medicaid drug cap had 2.8 (95% CI, −0.1, 5.7; $P\text{-value}=0.06$) fewer grams of buprenorphine distributed per 100 000 Medicaid enrollees between 2017 and 2019 than states without a drug cap, providing evidence that other mechanisms are not making up for differences in Medicaid-covered buprenorphine supply by cap status.

Discussion

In this study of Medicaid-covered MOUD prescriptions from 2017 to 2022, enrollees in states with monthly drug caps filled ~1489 fewer prescriptions for buprenorphine and naltrexone per 100 000 beneficiaries compared with states without such caps. Additionally, enrollees in states with more restrictive caps (3 drugs per month) filled fewer MOUD prescriptions than enrollees in states with more generous caps states (4–6 drugs per month). Collectively, states with monthly drug caps filled 59 560 fewer MOUD prescriptions annually compared with those without monthly caps.

Our findings are consistent with nearly 40 years of evidence on the detrimental effects of monthly drug caps for Medicaid beneficiaries.^{17–20} These effects are likely most severely felt by enrollees with complex medical needs, including people with OUD. As with other care management tools, monthly caps likely operate as myopic cost-saving instruments that result in increased expenditures via poorer medication adherence or increased use of the emergency room and other costlier sites of care. These increased care expenditures often negate or eclipse the intended savings from prescriptions.^{17–19}

Given the longitudinal nature of prescription drug caps, rising drug costs, and the budgetary constraints of Medicaid programs, it is unlikely that states with existing caps will eliminate them moving forward. However, efforts could be made to reduce the potential harms from these caps. Many states allow exemptions for certain drug classes, such as antiepileptics, antineoplastics, antipsychotics, and antiretrovirals. Given

MOUD's importance for those with OUD, these medications could be considered for exemption from caps, potentially preventing enrollees from having to choose between MOUD and other essential medications.⁴¹

Additionally, states with the most restrictive prescription drug caps could increase the size of their cap. States with a higher number of drugs allowed under the monthly cap have more MOUD prescriptions filled compared with the 3-drug cap states. Indeed, in July 2019, MS raised its drug cap from 5 to 6 drugs,⁴² while AR raised its cap from 3 to 6 drugs in January 2022.⁴³ Future research should examine the implications of this change on the number and distribution of prescription drugs in these Medicaid programs.

Limitations

Our analysis is subject to limitations. Medicaid enrollees may seek other treatment avenues for access to buprenorphine. Buprenorphine received in outpatient treatment programs is likely not subject to a Medicaid cap and not captured in our data. Alternatively, patients may choose to pay cash or use another source of public funding, like a SAMHSA block grant, to obtain buprenorphine. However, our results using ARCOS data suggest that the states with caps have less buprenorphine distributed overall compared with states without caps.

Additionally, we cannot distinguish between naltrexone for alcohol use disorder vs OUD. However, in either clinical scenario, restricted access could harm enrollee and population health outcomes. Further, many Medicaid programs allow coverage for young adults up to age 21 years and exempt them from monthly drug caps. Buprenorphine is the only drug clinically indicated for those under 18 years old. Some states have differential caps for branded drugs vs generics drugs, which may be contributing to our results. However, these same medications are also likely covered differentially by prior authorization policies, which we account for in our model.

Finally, the long-standing nature of prescription drug caps precluded a pre-post analysis like a difference-in-differences or comparative interrupted time series.

Conclusion

In this study, we found that Medicaid enrollees in cap states filled fewer MOUD prescriptions than beneficiaries in no-cap states. Thus, drug caps may hinder the ability of Medicaid to make progress toward the collective goal of reducing harms associated with the opioid crisis. Future policy considerations include preventing the implementation of new prescription drug caps in Medicaid, increasing the size of Medicaid caps already implemented, and explicitly excluding MOUD from the cap.

Supplementary material

Supplementary material is available at *Health Affairs Scholar* online.

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Conflicts of interest

None reported.

Please see ICMJE form(s) for author conflicts of interest. These have been provided as [supplementary materials](#).

Notes

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