

Real-world dispensing of buprenorphine in California during prepandemic and pandemic periods

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Short Report

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Abstract

Buprenorphine, the primary take-home medication for individuals with moderate to severe opioid use disorder (OUD), faced potential disruptions during the COVID-19 pandemic. While previous studies have focused on short-term effects, our comprehensive analysis spans 33 months, leveraging California's prescription drug monitoring program (PDMP). Our findings reveal that the pandemic moderated the growth of prescriber numbers but had minimal impact on monthly patient volumes, prescriptions, or daily dosage.

Introduction

Opioid overdose has reached a national crisis level in the United States. In California, drug overdoses led to 10,000 deaths in the year ending in September 2021, denoting a 70% increase from 2019 ¹. The first-line drug, buprenorphine, has several pharmacokinetic features and advantages in primary care settings and is treated as take-home therapy ². About 40% of appointments made by buprenorphine patients were denied by prescribers (15). Clinicians reported the barriers as limited access to addiction experts and behavioral health services, unwillingness to prescribe, lack of trust in agonist treatment, reimbursement concerns, and inadequate institutional support (e.g., lack of support for providing MOUD and time constraints) (7, 15, 17–19). California invests heavily in the Medication Assisted Treatment Expansion project to provide better access to OUD treatment with buprenorphine. Regrettably, the literature indicates that the COVID-19 pandemic has introduced numerous challenges to accessing MOUD, particularly buprenorphine ^{3–7}. Most studies have focused on the immediate effects within a relatively short time frame after the outbreak. Our study leveraged 33 months of California's prescription drug monitoring program (PDMP) data from the Controlled Substance Utilization Review and Evaluation System (CURES) to address the research gap in real-world buprenorphine dispensing since the COVID-19 outbreak.

Methods

Our study employed CURES data spanning 2018 to 2021. CURES is a state-operated repository that aggregates information on Schedule II-V prescription drugs dispensed by outpatient pharmacies within California. Buprenorphine, classified as a controlled Schedule III drug, is encompassed within the CURES database. The Institutional Review Board at Chapman University granted an exemption to review the study due to the deidentified nature of the data. The "prepandemic period" was defined as the year from March 19, 2019, to March 18, 2020 (the commencement of the statewide stay-at-home order). The "pandemic period" of 21 months spanned from March 19, 2020, to December 18, 2021. Outcomes were measured monthly for both periods, including (1) the number of individuals filling buprenorphine prescriptions, (2) the number of buprenorphine prescription refills, (3) the number of prescribers, (4) mean days' supply per prescription, and (5) mean daily dosage among patients filling buprenorphine each month. Interrupted time series analysis was applied to examine the statistically meaningful impact of the COVID-19 pandemic on all outcomes. Data analysis was conducted using Stata SE, version 17 (StataCorp LLC), with a significance level set at 0.05.

Results

During the prepandemic year, 92,723 patients received 640,883 buprenorphine prescriptions. Over the 21 months following March 2020, an impressive 983,961 buprenorphine prescriptions were dispensed, benefiting 126,957 patients (Table 1). Prior to the pandemic, the monthly growth rate of active buprenorphine prescribers exhibited a significant increase of 53 persons/month ($p < 0.001$, Fig. 1), alongside a rise in mean daily dosage (0.017 mg/day, $p = 0.001$). Post March 2020, an immediate jump was observed in mean days of supply per refill, with a monthly rise of 1 day ($p < 0.001$). Despite the pandemic's impact on moderating the growth of active prescribers, there was no notable change in patient numbers or monthly prescription volumes (Fig. 1).

Discussion

Over the 21 months following California's statewide stay-at-home order in response to COVID-19, our findings failed to identify any measurable pandemic impact on monthly patient counts or prescription volumes. However, the pandemic did moderate the preexisting upward trajectory of prescriber numbers. A rapid increase in the number of days' supply per prescription was observed in March 2020, yet no changes occurred in daily dosage or days of supply over the extended period.

These insights from the most populous state contribute to understanding COVID-19's impact on buprenorphine access. Since the pandemic began, initiatives by the Drug Enforcement Administration (DEA) and Substance Abuse and Mental Health Services Administration (SAMHSA), such as telemedicine flexibilities, have aimed to maintain patient access to buprenorphine. Encouragingly, our analysis demonstrated stability in patient and prescription volumes during the pandemic. The lack of information in California's CURES database limits our ability to assess telehealth's influence on buprenorphine dispensing. Despite these limitations, our study stands as a pioneering effort highlighting the need for maintaining or adjusting policy strategies. The late 2022 Omnibus bill removed the federal requirement for practitioners to have a waiver for buprenorphine prescriptions in treating OUD. Future research could focus on evaluating this change's potential impact on buprenorphine prescribing practices.

Declarations

Author Contributions: Yun Wang had full access to all of the data in the study and took responsibility for the integrity of the data and the accuracy of the data analysis.

Concept and design: Yun Wang.

Acquisition, analysis, or interpretation of data: All authors.

Drafting of the manuscript: All authors.

Critical revision of the manuscript for important intellectual content: All authors.

Statistical analysis: Yun Wang, Richard Beuttler

Administrative, technical, or material support: Yun Wang

Supervision: Yun Wang

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Conflict of Interest: None.

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References

1. California Department of Health Care Services. California response to the overdose crisis. (2022).
2. Bruneau, J., *et al.* Management of opioid use disorders: a national clinical practice guideline. *Cmaj* 190, E247-E257 (2018).
3. Huskamp, H.A., *et al.* Treatment of opioid use disorder among commercially insured patients in the context of the COVID-19 pandemic. *JAMA* 324, 2440–2442 (2020).
4. Nguyen, T.D., *et al.* Assessment of filled buprenorphine prescriptions for opioid use disorder during the coronavirus disease 2019 pandemic. *JAMA internal medicine* 181, 562–565 (2021).
5. Cantor, J., *et al.* Use of buprenorphine for those with employer-sponsored insurance during the initial phase of the COVID-19 pandemic. *Journal of Substance Abuse Treatment*, 108384 (2021).
6. Chalasani, R., *et al.* Buprenorphine Dispensing in Pennsylvania During the COVID-19 Pandemic, January to October 2020. *Journal of General Internal Medicine* 36, 3915–3917 (2021).
7. Cance, J.D. & Doyle, E. Changes in outpatient buprenorphine dispensing during the COVID-19 pandemic. *Jama* 324, 2442–2444 (2020).

Tables

Table 1
Descriptive characteristics of buprenorphine dispensing before the pandemic and during the pandemic.

	Before pandemic 03/19/2019- 03/18/2020	During pandemic 03/19/2020-12/18/2021
Total of refills	640,883	983,961
Average number of prescribers per month	3,916	4,227
Average number of patients per month	37,679	35,410
Prescriptions per month	53,407	46,855
Mean days of supply (day)	20.67	22.10
Mean daily dosage of each filling (mg)	14.14	14.35
Total number of patients	92,723	126,957
Total prescribers	8,166	11,590

Figures

Figure 1.A Number of prescribers

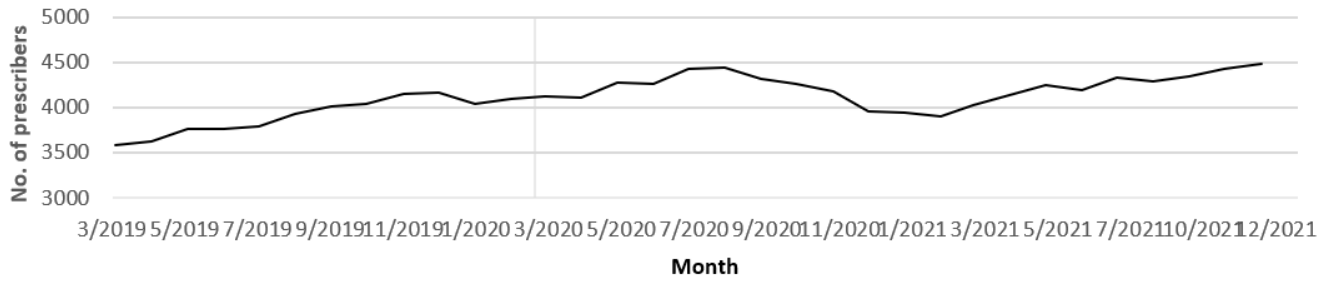


Figure 1.B Number of patients

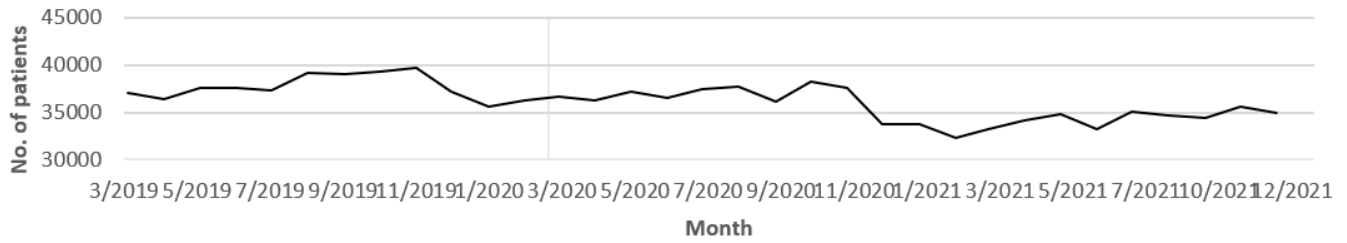


Figure 1.C Number of prescriptions

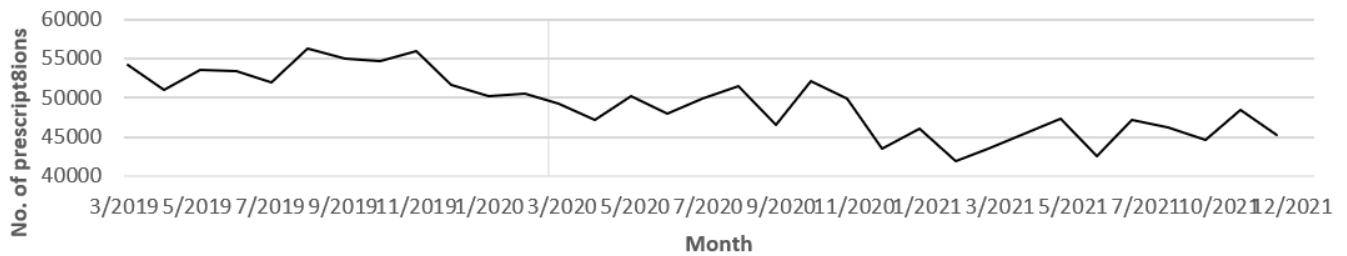


Figure 1

Monthly counts of patients, prescribers, and prescriptions from Mar 2019 to Dec 2021

The vertical line in the figures indicates the start of the COVID-19 pandemic.