



Analysis of Substance Use Disorder Treatment Admissions in the US by Sex and Race and Ethnicity Before and During the COVID-19 Pandemic

Jonathan H. Cantor, PhD; Christopher M. Whaley, PhD; Bradley D. Stein, MD, PhD; David Powell, PhD

Introduction

The COVID-19 pandemic has led to increases in the number of fatal drug overdoses¹ and self-reported substance use disorder (SUD).² Despite these increases, few studies have examined SUD treatment admissions during the pandemic, with studies focusing on state-specific estimates³ or inferring use through national mobility data.⁴ To more comprehensively examine the surge in drug overdose deaths, we quantified changes in national SUD treatment before (2017-2019) and during (2020) the COVID-19 pandemic.

Author affiliations and article information are listed at the end of this article.

Methods

We used 2017-2020 data from the Treatment Episode Data Set,⁵ which is client-level data for SUD treatment admissions from state agency data systems as reported by facilities that receive state funds or block grants. We quantified the number of SUD treatment admissions for each state and the District of Columbia, by race and ethnicity (as categorized in the Treatment Episode Data Set), and by sex per 10 000 population aged 12 years and older. We acquired population data from the Surveillance, Epidemiology, and End Results database. We mapped 2019-2020 changes in the number of treatment admissions by state and calculated changes in the number of SUD treatment admissions by race and ethnicity and sex between 2017 and 2020. Using a cross-sectional design, we collected anonymized, publicly available data on the number of state-level treatment admissions, and the study was deemed exempt by the RAND Human Subjects Protection Committee. This study followed the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) reporting guideline. Analyses were conducted using Stata, version 17 (StataCorp LLC).

Results

The largest state-level per 10 000 population decreases in treatment admissions were in New Mexico (60.8%), Hawaii (54.5%), District of Columbia (44.9%), Nevada (41.5%), and West Virginia (33.3%) (**Figure 1**). In contrast, treatment admissions increased in Rhode Island (7.9%), Louisiana (3.7%), and Mississippi (0.8%).

Before 2020, the number of treatment admissions per 10 000 remained relatively stable. However, in 2020, the number of treatment admissions decreased from 65.9 per 10 000 in 2019 to 50.4 per 10 000 in 2020, a relative reduction of 23.5% (**Figure 2A**). The decrease was larger for men (87.5 to 67.1 per 10 000) compared with women (45.1 to 34.5 per 10 000). All racial and ethnic groups experienced a decrease in treatment admissions, with the largest decrease observed for Native American individuals (144.5 to 82.8 per 10 000) followed by Black (85.5 to 63.3 per 10 000), Hispanic (54.7 to 41.1 per 10 000), White (54.2 to 42.5 per 10 000), and Asian (10.0 to 7.1 per 10 000) individuals (**Figure 2B**).

Discussion

We noted a 23.5% national decrease in treatment admissions and decreases in almost all states. These decreases are especially noteworthy given evidence of increases in SUD and overdose death rates during the same period. The largest decreases were found for Native American individuals. We identified larger decreases for Black individuals compared with White and Asian individuals. Native American individuals experienced the largest increases in drug overdose deaths during the pandemic, and Black individuals had higher overdose deaths than White individuals.¹

This study has limitations. First, it did not include Idaho, Oregon, Maryland, Vermont, and Washington. Second, we were not able to examine possible mechanisms for the differences in the size of the decreases. Future work is needed to examine possible reasons for the differences, including policy (eg, elective procedure bans and shelter-in-place policies) changes. Third, we did not

Figure 1. Percent Change in Number of Substance Use Disorder Treatment Admissions per 10 000 Between 2019 and 2020

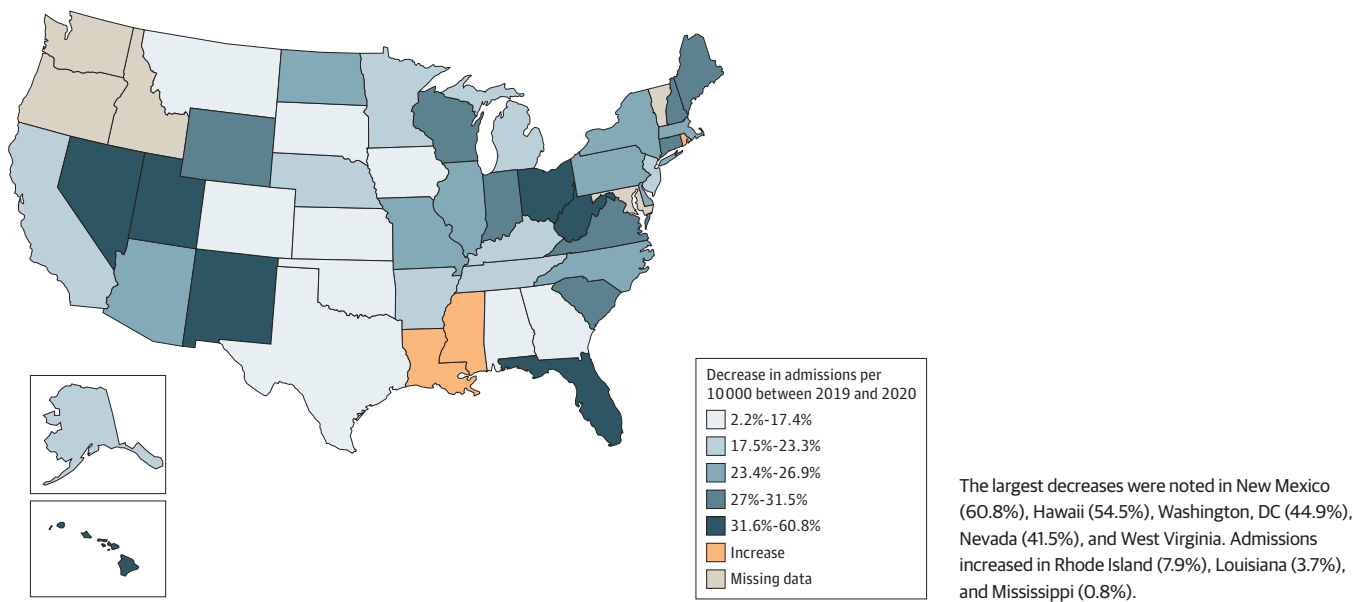
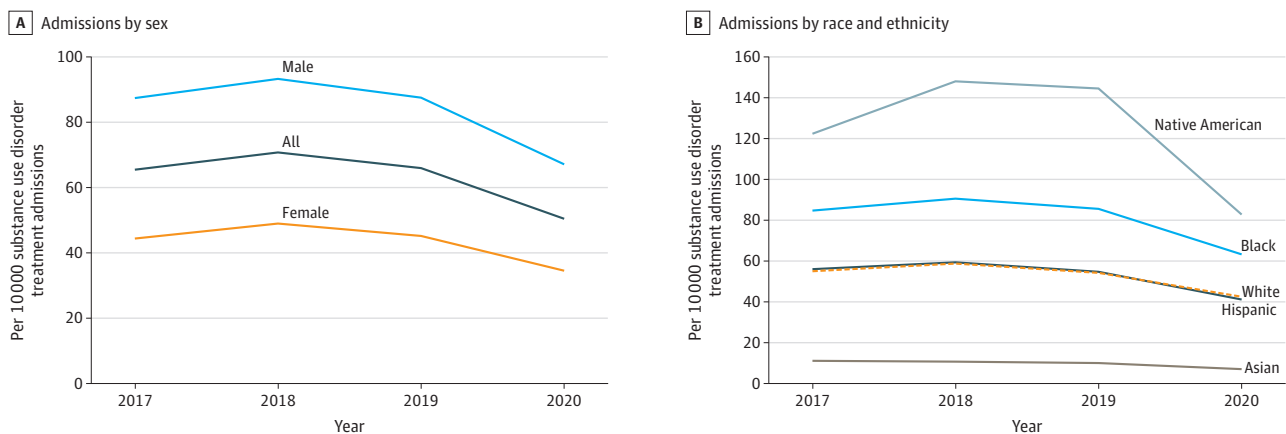


Figure 2. Trends in Treatment Admissions per 10 000 Population Between 2017 and 2020



Treatment admissions data by sex (A) and race and ethnicity (B) were obtained from the Treatment Episode Data Set between 2017 and 2020. The number of admissions was adjusted per 10 000 population from the Surveillance, Epidemiology, and End Results database.

examine the types of treatment provided.⁶ To our knowledge, this is the first national study to report decreases in the number of SUD treatment admissions during the COVID-19 pandemic and provides a possible reason for the increase in drug overdose deaths.

ARTICLE INFORMATION

Accepted for Publication: July 26, 2022.

Published: September 22, 2022. doi:[10.1001/jamanetworkopen.2022.32795](https://doi.org/10.1001/jamanetworkopen.2022.32795)

Open Access: This is an open access article distributed under the terms of the [CC-BY License](#). © 2022 Cantor JH et al. *JAMA Network Open*.

Corresponding Author: Jonathan H. Cantor, PhD, Department of Healthcare Delivery, RAND Corporation, 1776 Main St, Santa Monica, CA 90401 (jcantor@rand.org).

Author Affiliations: Department of Healthcare Delivery, RAND Corporation, Santa Monica, California (Cantor, Powell); Department of Healthcare Delivery, RAND Corporation, San Francisco, California (Whaley); Department of Healthcare Delivery, RAND Corporation, Pittsburgh, Pennsylvania (Stein).

Author Contributions: Dr Cantor had full access to all the data in the study and takes responsibility for the integrity of the data and the accuracy of the data analysis.

Concept and design: Cantor, Whaley.

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

Drafting of the manuscript: Cantor.

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

Statistical analysis: Cantor, Whaley.

Obtained funding: Powell.

Administrative, technical, or material support: Whaley.

Supervision: Powell.

Conflict of Interest Disclosures: Dr Whaley reported receiving grants from the National Institute on Aging, the Robert Wood Johnson Foundation, and Arnold Ventures during the conduct of the study, personal fees for speaking and consulting from Doximity outside the submitted work. Dr Stein reported receiving grants from the National Institutes of Health during the conduct of the study and grants from the National Institutes of Health and the FORE Foundation outside the submitted work. Dr Powell reported receiving grants from the CDC and the National Institute on Drug Abuse outside the submitted work.

Funding/Support: Support was provided by the CDC (grant R01CE02999, Dr Powell), National Institute on Aging (grant K01AG061274, Dr Whaley), and the National Institute of Drug Abuse (grant 5R01DA045800-04, Dr Stein).

Role of the Funder/Sponsor: The funding organizations had no role in the design and conduct of the study; collection, management, analysis, and interpretation of the data; preparation, review, or approval of the manuscript; and decision to submit the manuscript for publication.

Additional Contributions: We thank Aaron Kofner, MA, MSc (RAND Corporation), for analytic support; there was no financial compensation.

REFERENCES

1. Friedman JR, Hansen H. Evaluation of increases in drug overdose mortality rates in the US by race and ethnicity before and during the COVID-19 pandemic. *JAMA Psychiatry*. 2022;79(4):379-381. doi:[10.1001/jamapsychiatry.2022.0004](https://doi.org/10.1001/jamapsychiatry.2022.0004)
2. Czeisler MÉ, Lane RI, Petrosky E, et al. Mental health, substance use, and suicidal ideation during the COVID-19 pandemic - United States, June 24-30, 2020. *MMWR Morb Mortal Wkly Rep*. 2020;69(32):1049-1057. doi:[10.15585/mmwr.mm6932a1](https://doi.org/10.15585/mmwr.mm6932a1)
3. Mark TL, Gibbons B, Barnosky A, Padwa H, Joshi V. Changes in admissions to specialty addiction treatment facilities in California during the COVID-19 pandemic. *JAMA Netw Open*. 2021;4(7):e2117029. doi:[10.1001/jamanetworkopen.2021.17029](https://doi.org/10.1001/jamanetworkopen.2021.17029)
4. Cantor J, Kravitz D, Sorbero M, et al. Trends in visits to substance use disorder treatment facilities in 2020. *J Subst Abuse Treat*. 2021;127:108462. doi:[10.1016/j.jsat.2021.108462](https://doi.org/10.1016/j.jsat.2021.108462)

5. Substance Abuse and Mental Health Services Administration. Quick Statistics. treatment episode data set. 2022. Accessed April 1, 2022. https://www.samhsa.gov/data/quick-statistics-results?qs_type=teds&state=United%20States&year=2020&type=Admissions&view=full
6. Andraka-Christou B, Bouskill K, Haffajee RL, et al. Common themes in early state policy responses to substance use disorder treatment during COVID-19. *Am J Drug Alcohol Abuse*. 2021;47(4):486-496. doi:[10.1080/00952990.2021.1903023](https://doi.org/10.1080/00952990.2021.1903023)