

OPIOID-RELATED OVERDOSE DEATHS RATES IN THE U.S.

FROM 2005 TO 2021

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Introduction

- The United States is currently suffering an epidemic of rising opioid-related deaths. This alarming trend is especially worrisome for states in the census-defined South Region of the United States.
- Prescription opioids contributed to approximately 55% of 400,000 opioid-related overdose deaths between 1999 and 2017.¹
- The Drug Enforcement Agency (DEA) Diversion Control Division implemented the interim final rule for Electronic Prescribing of Controlled Substances (EPCS) on March 31, 2010.²

Objective

- To assess the average annual percent change and total percent change in opioid-related overdose deaths from 2005 to 2021 in the United States.

Methods

- Age-adjusted opioid-related death rates per 100,000 population were captured for 50 states and the District of Columbia from January 2005 to December 2021.
- Rates were collected each year from the Centers for Disease Control and Prevention (CDC) WONDER online database
- Analysis was used to determine differences in opioid-related deaths over time.
- Statistical comparisons were performed using one-sample T-tests and ANOVA.

References

1. Everson J, Cheng AK, Patrick SW, Dusetzina SB. Association of Electronic Prescribing of Controlled Substances With Opioid Prescribing Rates. *JAMA Netw Open*. 2020;3(12):e2027951. doi:10.1001/jamanetworkopen.2020.27951

2. *Electronic Prescriptions for Controlled Substances Clarification*. Department of Justice. 2011;76(202):64813-64814. Accessed March 1, 2023. <https://www.govinfo.gov/content/pkg/FR-2011-10-19/pdf/2011-26738.pdf>

3. Centers for Disease Control and Prevention, National Center for Health Statistics. National Vital Statistics System, Mortality 1999-2020 on CDC WONDER Online Database, released in 2021. Data are from the Multiple Cause of Death Files, 1999-2020, as compiled from data provided by the 57 vital statistics jurisdictions through the Vital Statistics Cooperative Program. Accessed March 1, 2023. <http://wonder.cdc.gov/mcd-icd10.html>

Results

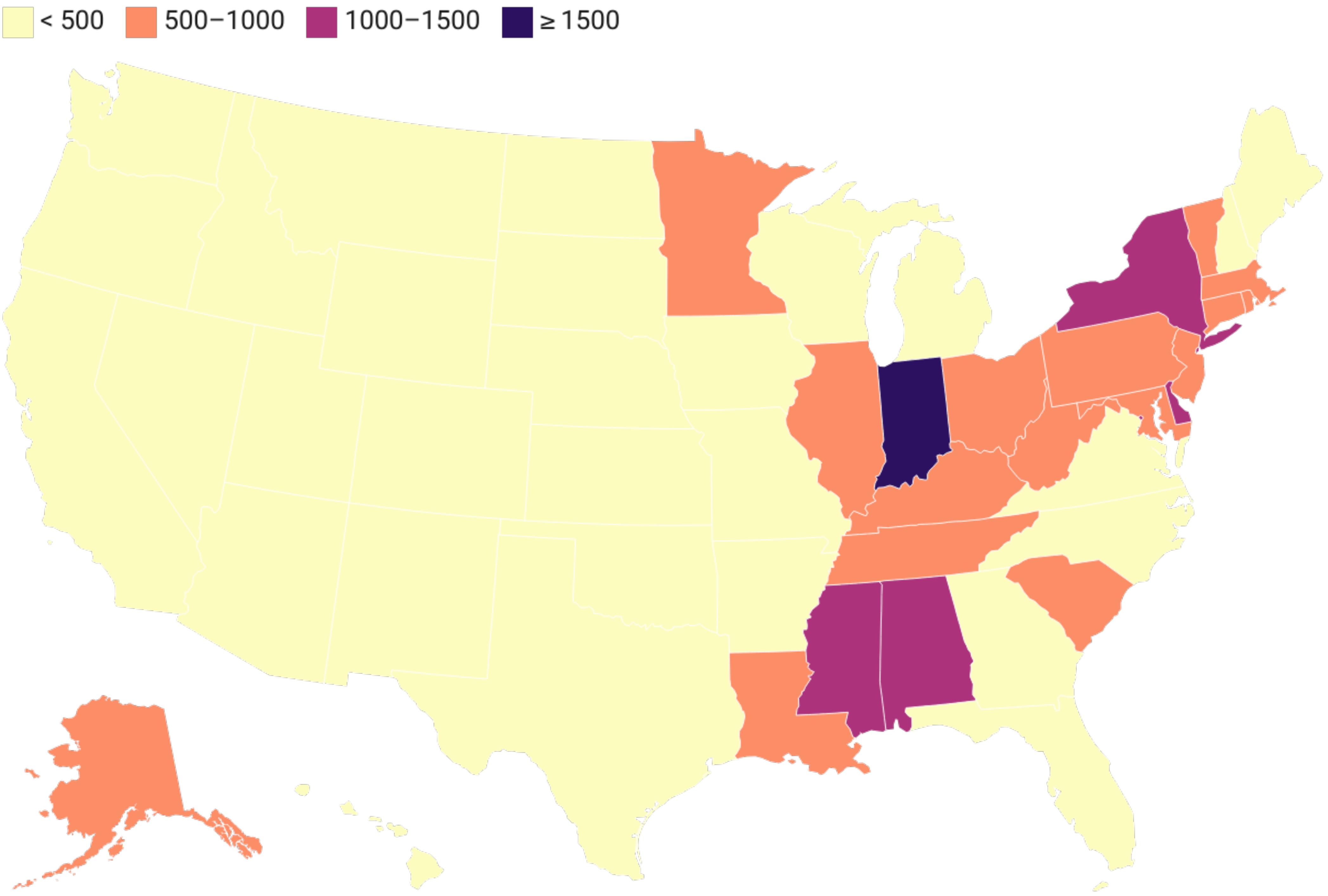


Figure 1. Total Percent Change Age Adjusted Death Rates per 100,000 Population from 2005-2021.

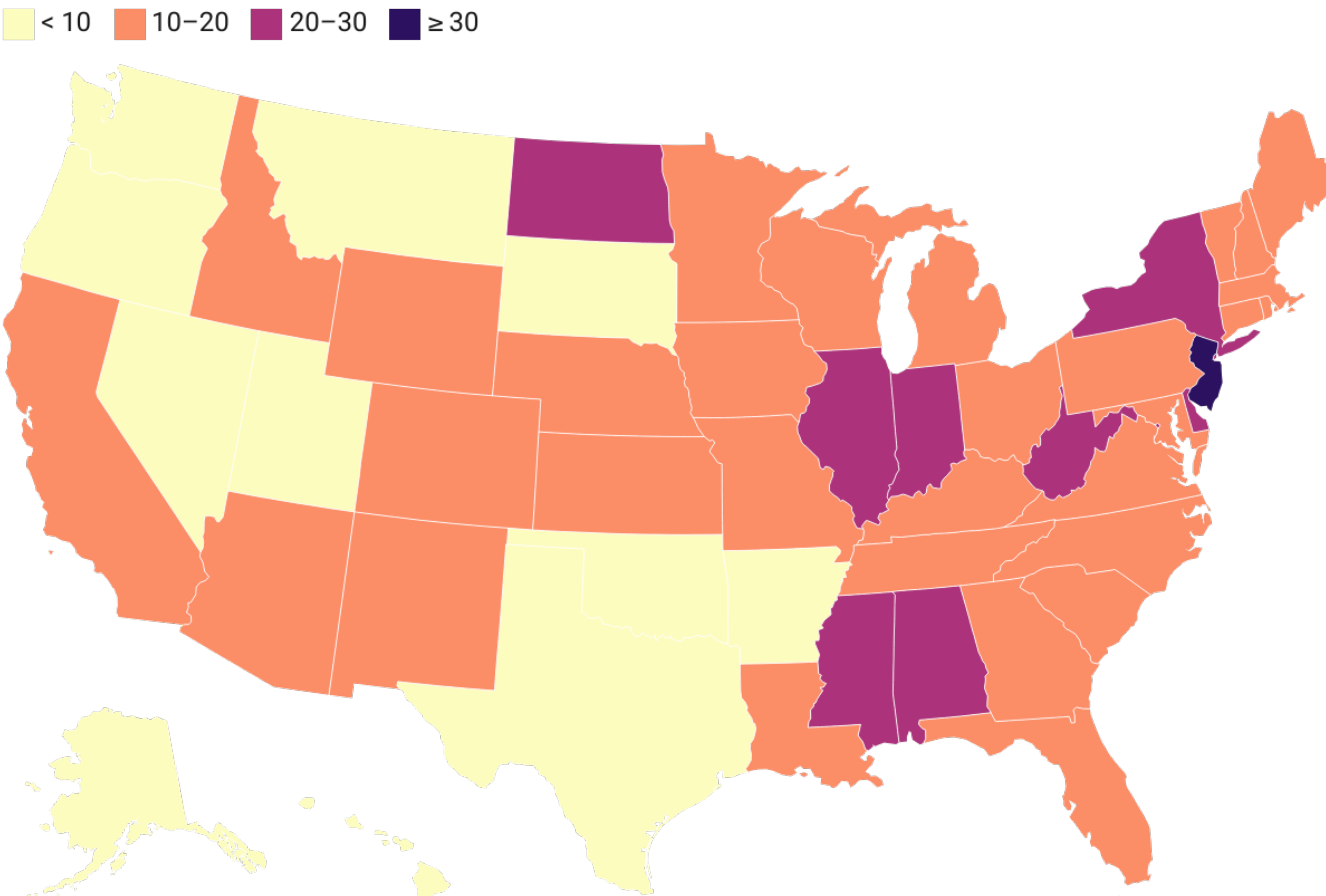


Figure 2. Average Yearly Percent Change Age Adjusted Death Rates per 100,000 Population from 2005-2021.

- From 2005 to 2021, there was a statistically significance in the total percent change in opioid-related overdose deaths (mean percent change 545.6; 95% CI, 431.6 to 659.7; $p < 0.001$) and statistical significance in the average yearly percent change (mean percent change 14.4; 95% CI, 12 to 16.7; $p < 0.001$) nationwide.
- Additionally, there was difference in total opioid-related death rates among the four census regions from 2005 to 2021 ($p = 0.007$), with the West region exhibiting the lowest total percent change ($\mu = 248.7$) and the Northeast region demonstrating the highest total percent change ($\mu = 711.5$).
- The average yearly percent change among the nine census-defined divisions was also statistically significant ($p < 0.001$), notably with the Pacific division recording the lowest annual percent change ($\mu = 8$) compared to the Middle Atlantic division ($\mu = 32.8$).

Discussion

- Opioid death rates increased in the United States and District of Columbia from 2005 to 2021.
- Questions posed in this research are whether the implication of EPCS has benefited the opioid crisis or contributed to more illicit opioid use across the country.
- Subsequent studies should delve into variations among the most affected states and identify factors and policies contributing to the escalation of opioid-related deaths.