

e[PDMP]iology: Three Cases of Operationalizing PDMP data (and Epi Staff!) for Epidemiologic Research

Harold Rogers PDMP 2024 National Meeting
Tuesday, August 13, 2024

Chris Delcher, Ph.D.
Associate Professor and Director
Institute for Pharmaceutical Outcomes and Policy
College of Pharmacy, University of Kentucky



Today's Overview

- Buprenorphine prescribing trends in Washington State 2012-2022
- Stimulant dashboards in Kentucky, Washington State, and Texas
- Deeper dive: Geographic analysis of stimulant dispensing in Kentucky

Team Acknowledgements



Jordan Shannon, MPH
KASPER Epidemiologist
Kentucky Cabinet for Health
and Family Services



Fan Xiong, MPH
Senior Epidemiologist
Prescription Monitoring
Program (PMP)



Jillian Jetson, MPH
PMP Epidemiologist III
Prescription Monitoring Program
(PMP)



Prem Gautam, PhD, MPH
Epidemiologist III
Texas State Board of Pharmacy

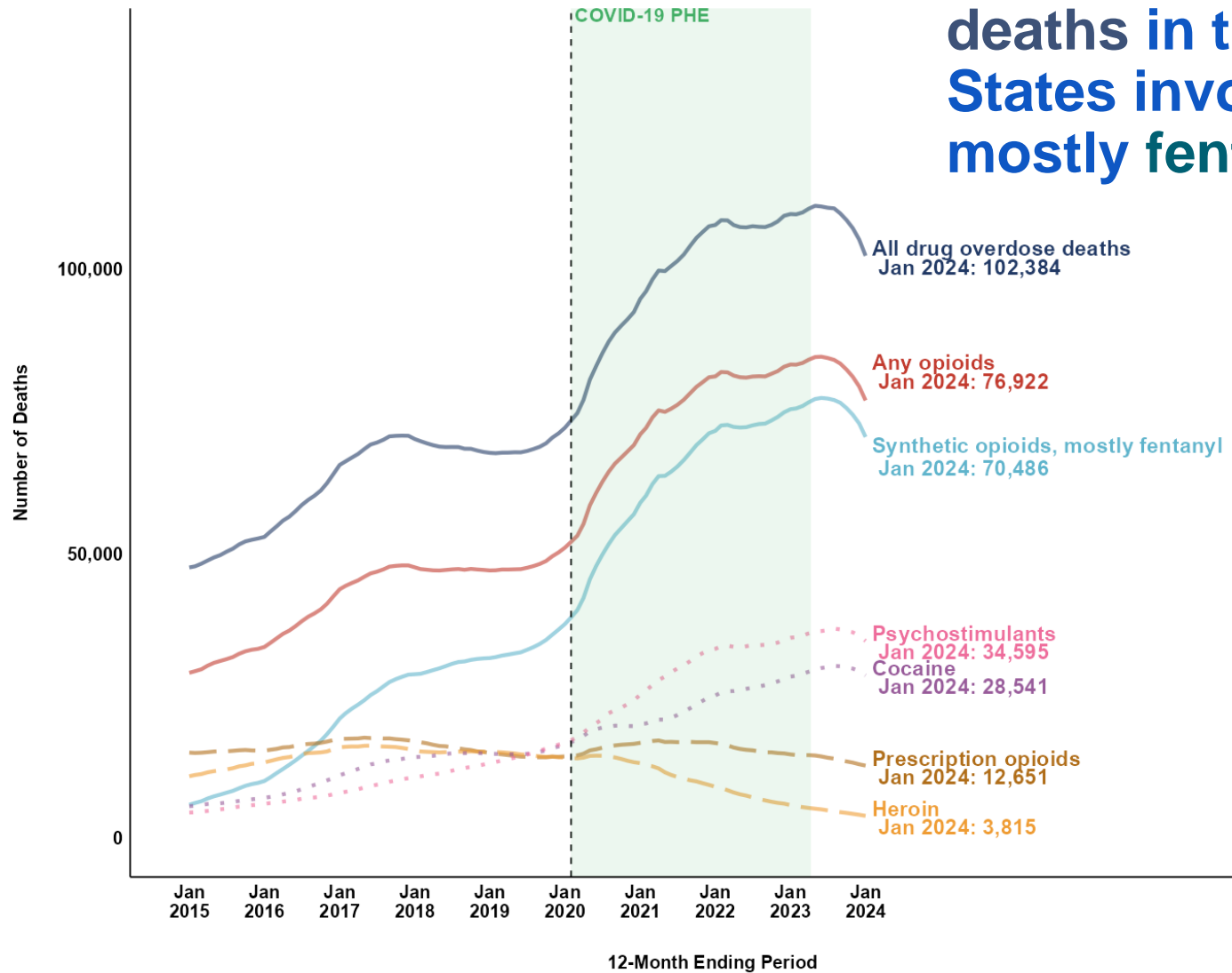


Eugene Shin, MS
Senior Data Analyst, Institute for
Pharmaceutical Outcomes & Policy
University of Kentucky, College of
Pharmacy

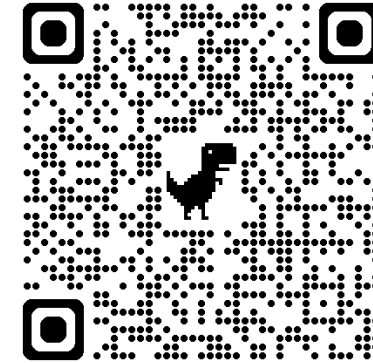
WeTEST is supported by Award #2020-R2-CX-0013, awarded by the National Institute of Justice, Office of Justice Programs, U.S. Department of Justice. The opinions, findings, and conclusions or recommendations expressed in this presentation are those of the authors and do not necessarily reflect those of the Department of Justice.

Buprenorphine prescribing trends in Washington State 2012-2022

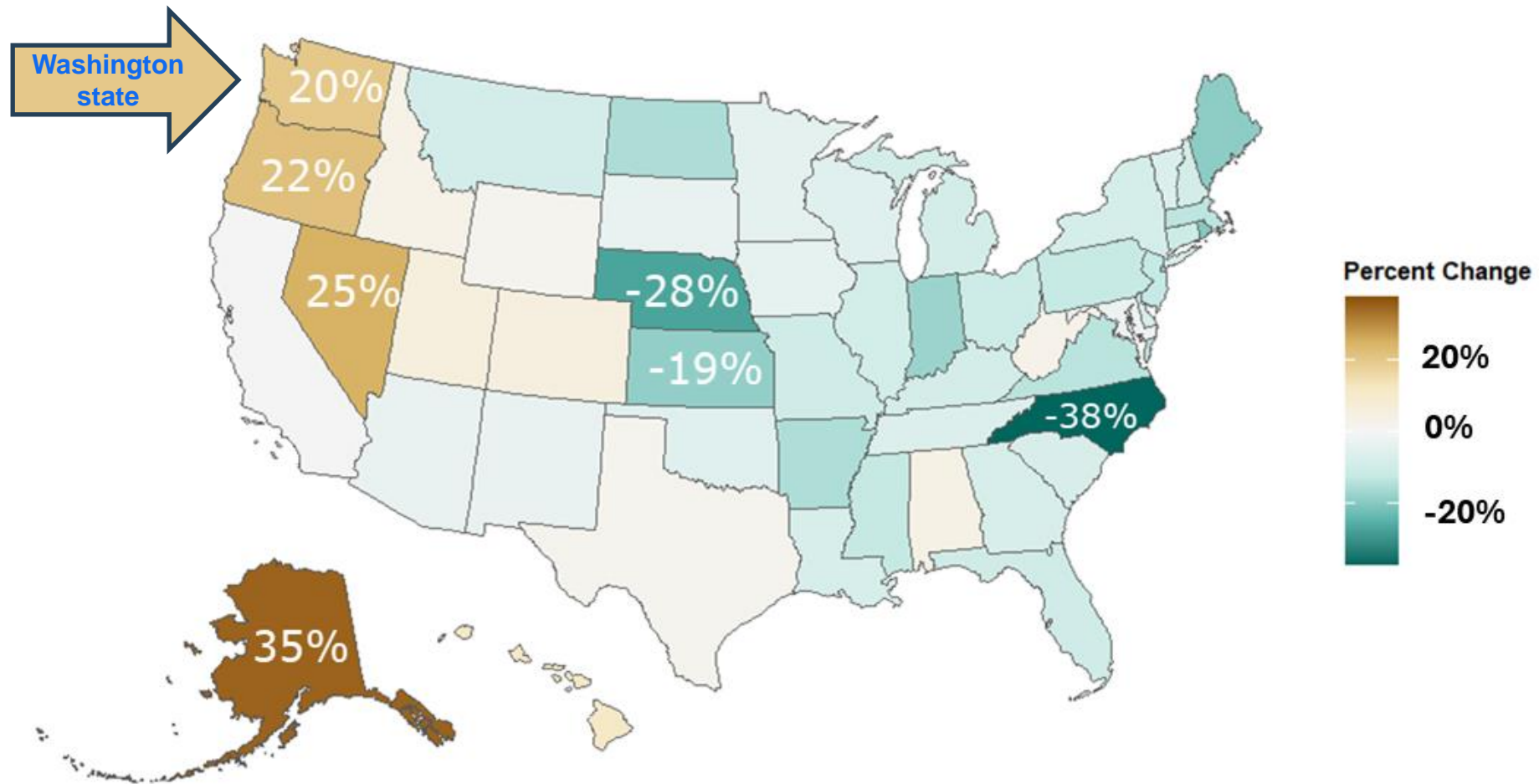
12 Month-ending Provisional Number of Drug Overdose Deaths, United States



3 out of 4 drug overdose deaths in the United States involved an **opioid**, mostly **fentanyl**.



Washington state: 4th highest **percent increase** in deaths involving a drug overdose from Jan 2023-Jan 2024.

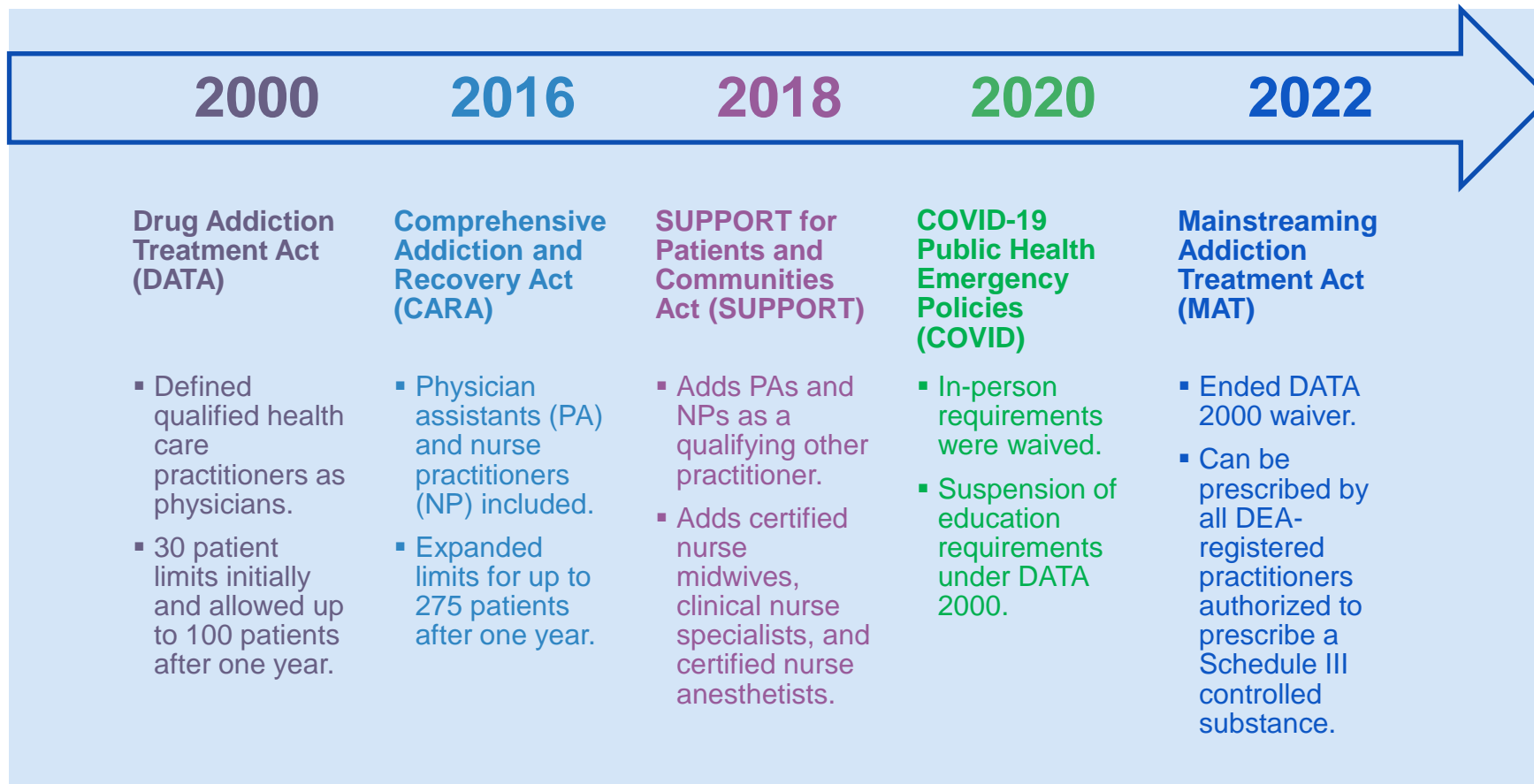


Data Source: National Center for Health Statistics. VSRR Provisional Drug Overdose Death Counts. Date accessed June 17, 2024.

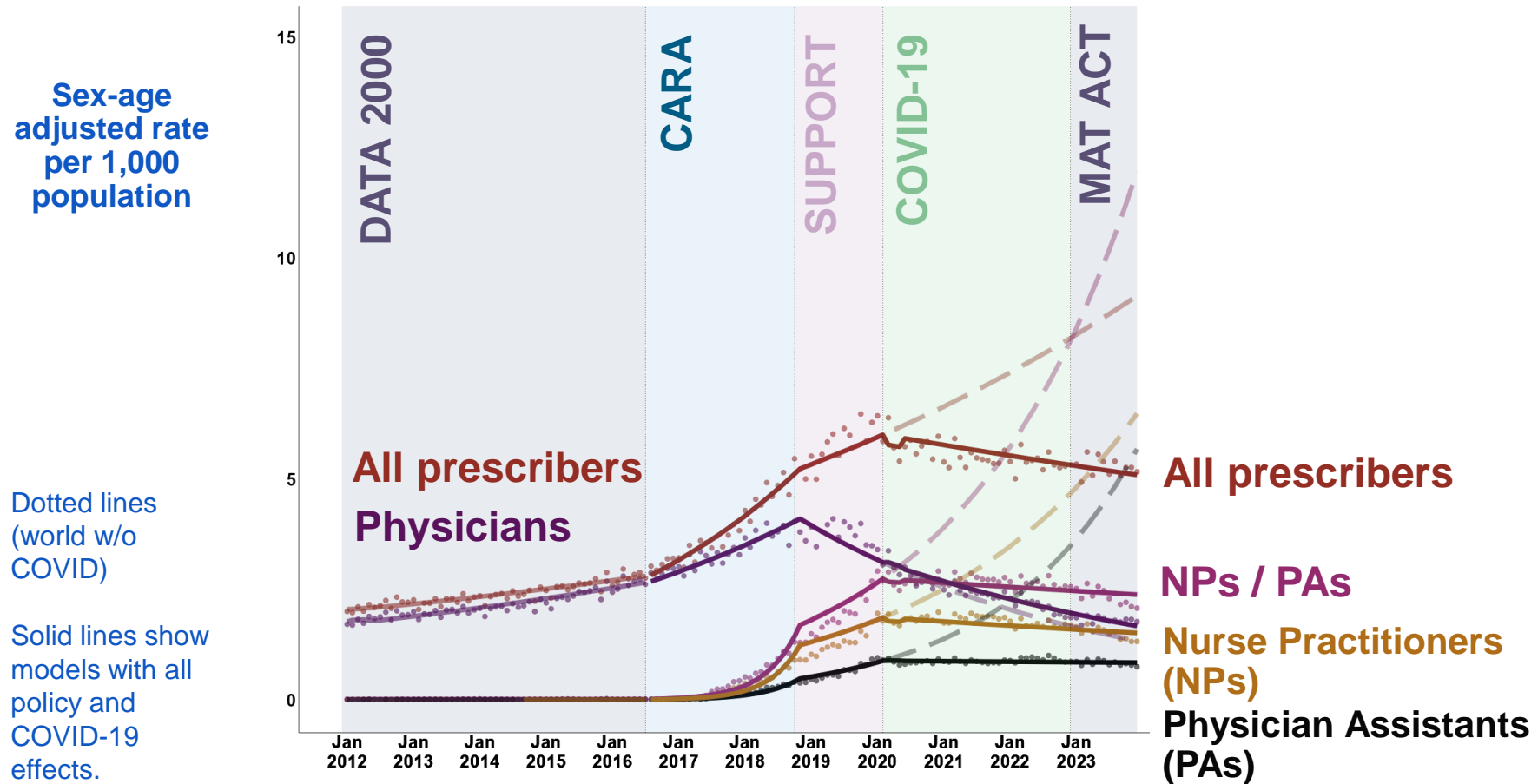
Treatment with medication includes buprenorphine, methadone, and naltrexone.

In 2021, only 1 in 5 of the 2.5 million U.S. adults living with opioid use disorder (OUD) received medication for OUD in the past year.

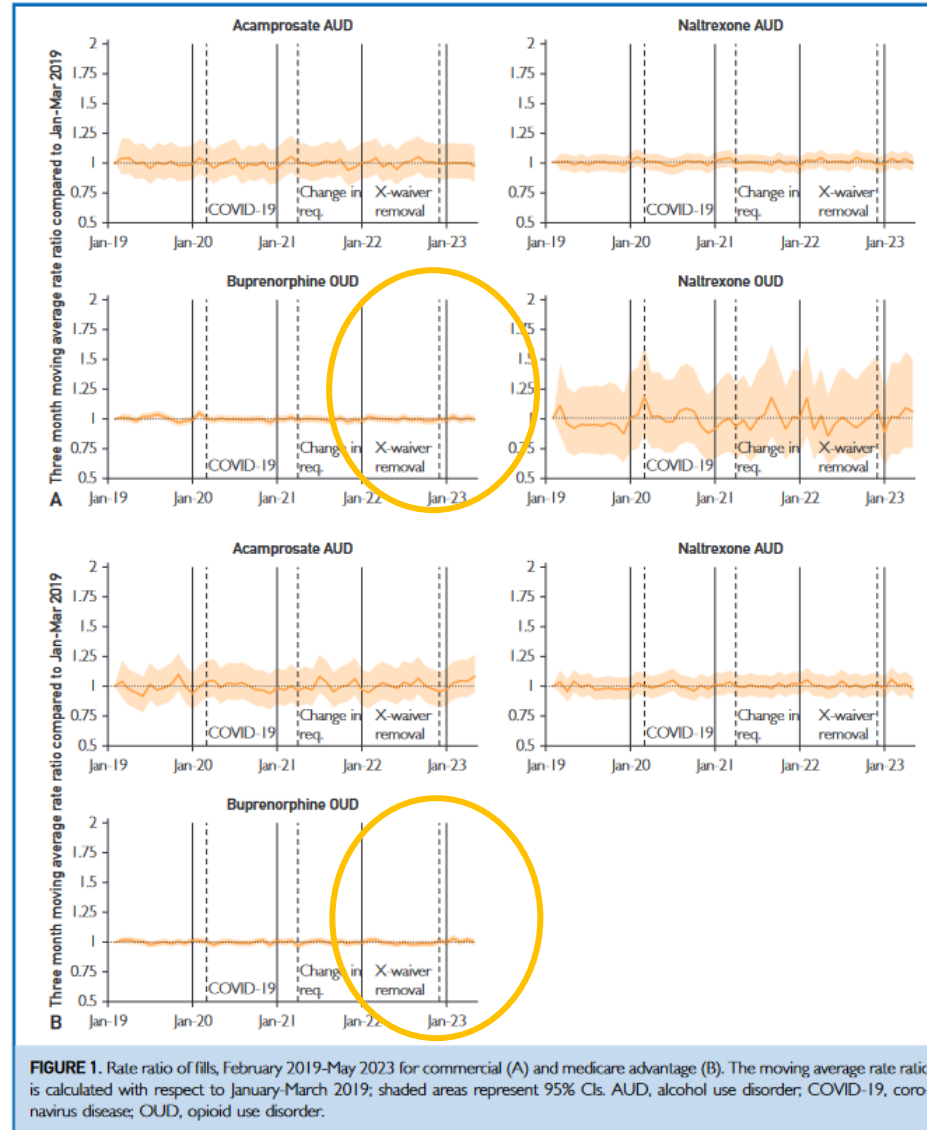
Buprenorphine Federal Policies - Highlights



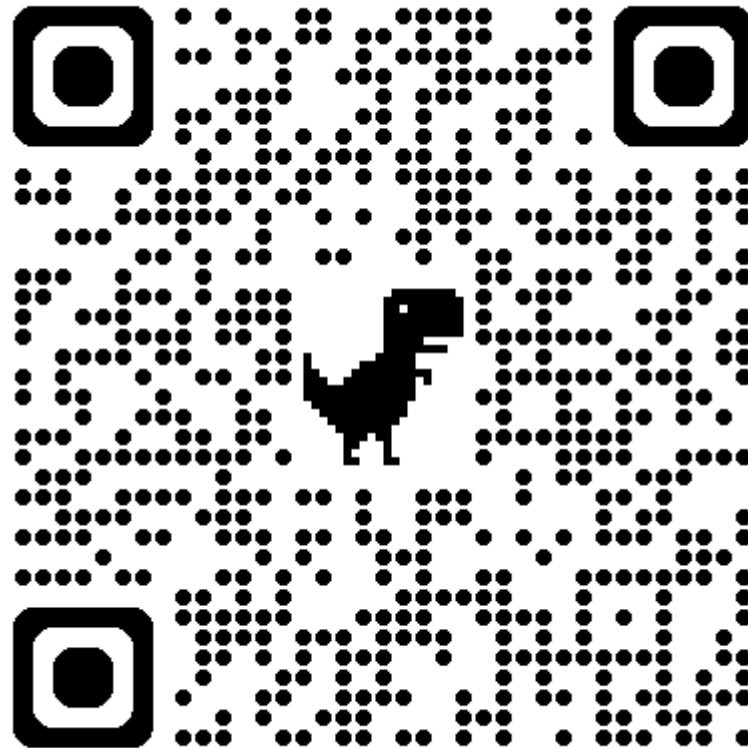
No significant increase for **all prescribers, physicians, NPs, or PAs** were observed after the passage of the MAT ACT.



What happened after X-waiver removal?



Savitz ST, Stevens MA, Nath B, D'Onofrio G, Melnick ER, Jeffery MM. Trends in the Prescribing of Buprenorphine for Opioid Use Disorder, 2019-2023. *Mayo Clinic Proceedings: Innovations, Quality & Outcomes.* 2024;8(3):308-320.

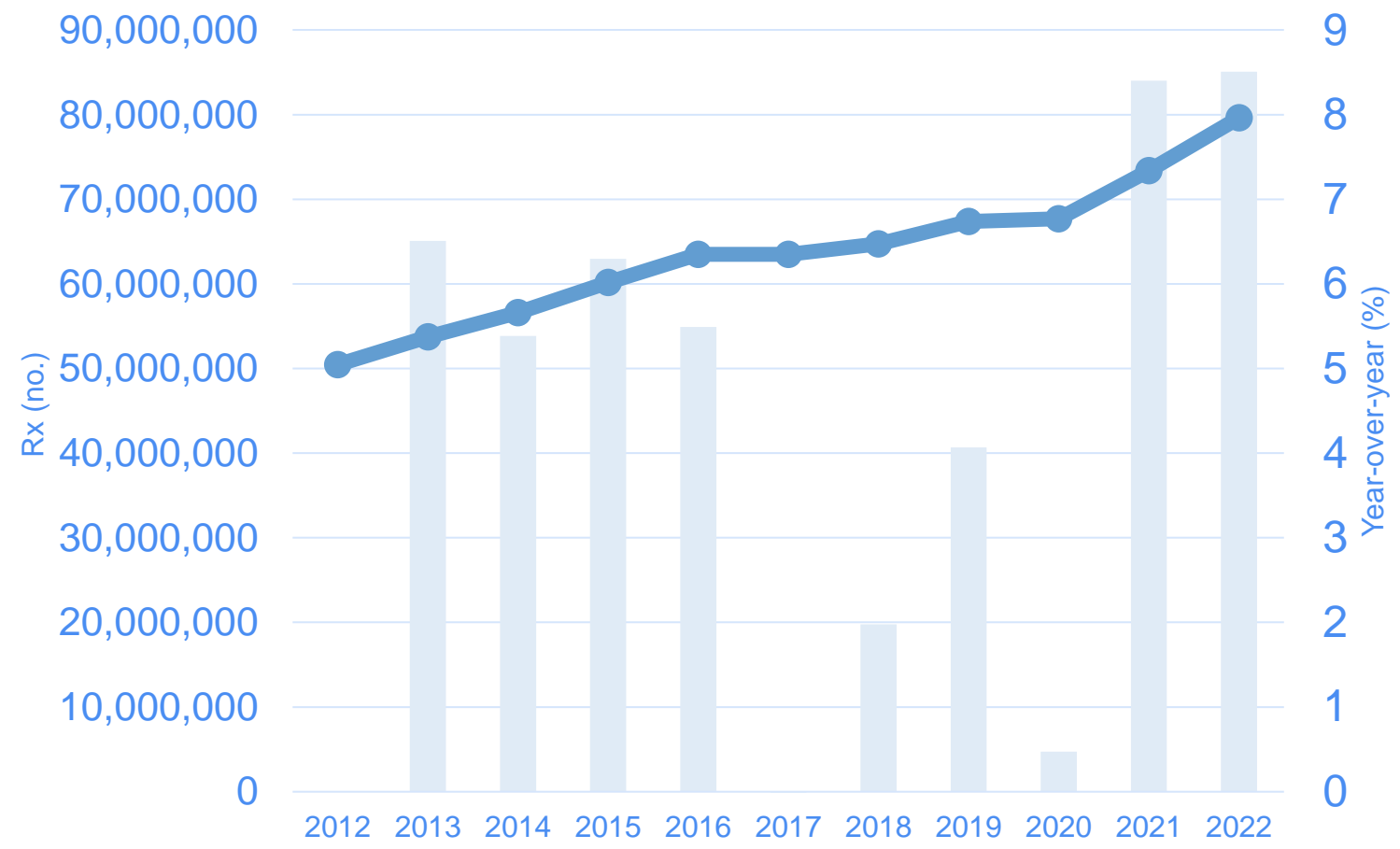


Xiong F, Jetson J, Park C, Delcher C. Federal Impacts on Buprenorphine Prescribing in Washington State, 2012 to 2022. *Am J Public Health*. Published online May 2, 2024:e1-e9.
doi:[10.2105/AJPH.2024.307649](https://doi.org/10.2105/AJPH.2024.307649)

Stimulant dispensing & dashboards in Kentucky, Washington State, and Texas

- Amphetamine and methylphenidate dispensing trends
- Epidemiologic view [person, place, & time]
- Collectively, represents data from 12.5% of the US population
- Poster at the Rx and Illicit Drug Summit (2024)

All Stimulant Dispensing in U.S.



Prescription Amphetamine Trends in Three US States

Jillian Jetson MPH¹, Eugene Shin MS², Prem Gautam PhD³, Jordan Shannon BPH⁴,
Lindsey Hammerslag PhD⁴, Chris Delcher PhD²

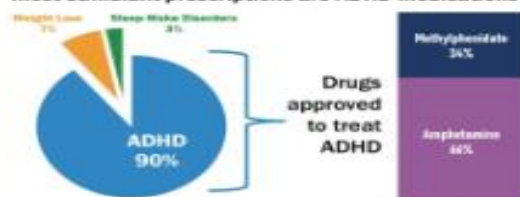
[1] Washington State Dept of Health [2] University of Kentucky, College of Pharmacy, Institute for Pharmaceutical Outcomes & Policy [3] Texas State Board of Pharmacy [4] Kentucky Cabinet for Health and Family Services [5] University of Kentucky, College of Medicine, Institute for Health Systems Research and Analysis



Background

- Prescription (Rx) stimulants are the only major class of drugs in the Washington Prescription Drug Monitoring Program (PMP) where the dispensation rate has increased over the past decade.
- Amphetamines (e.g., Adderall) and Methylphenidates (e.g., Ritalin) are primarily FDA-approved to treat Attention Deficit Hyperactive Disorder (ADHD). These drugs make up 90% of all Rx stimulants in Washington state over the past decade.
- Amphetamine is the most common Rx stimulant used to treat ADHD; driving recent increases in Washington.

Most stimulant prescriptions are ADHD medications



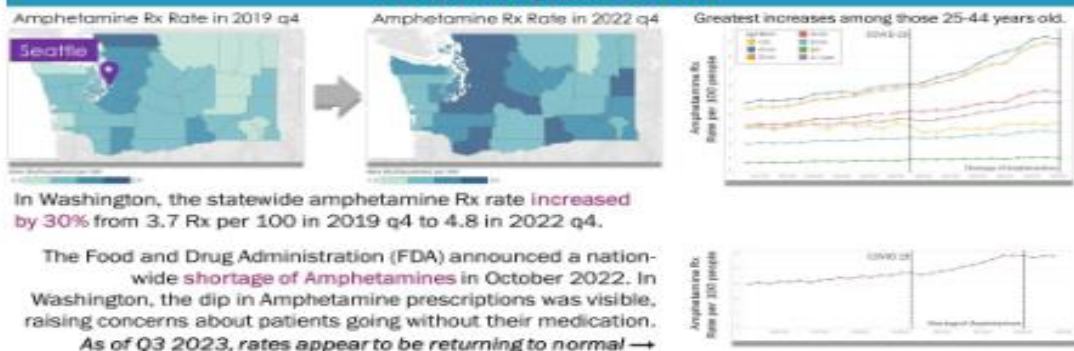
Data Source: 2012 – 2022 Washington PMP. A total of 17,840,780 stimulant dispensations were reported to the Washington PMP from January 2012 to December 2022.

This study triangulates broader trends in amphetamine dispensing in 3 US states, including Washington State, representing approximately 12.5% of the US population.

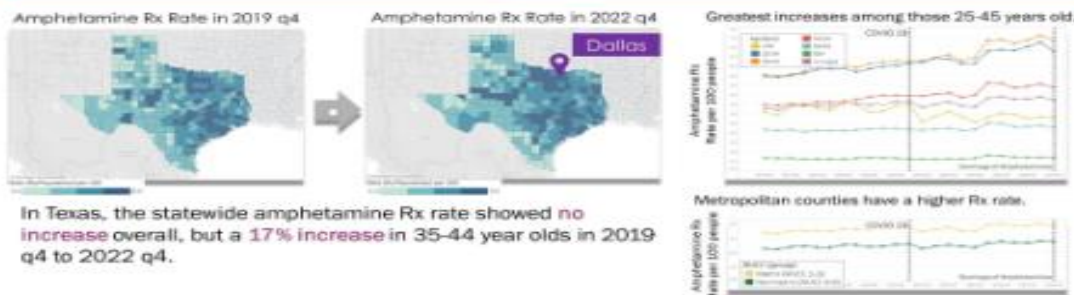
Data + Methods

- Prescription (drug) Monitoring Programs (PMPs or PDMPs) track all controlled substances (Schedule II - V) that pharmacies dispense to patients.
- County-level and statewide quarterly rates* of amphetamine Rx were calculated for Washington, Kentucky and Texas using PMP data spanning from Jan. 2019 to Dec. 2022.
- Trends in Rx amphetamine rates were examined by quarter, including the COVID-19 pandemic, age groups and county-level rurality

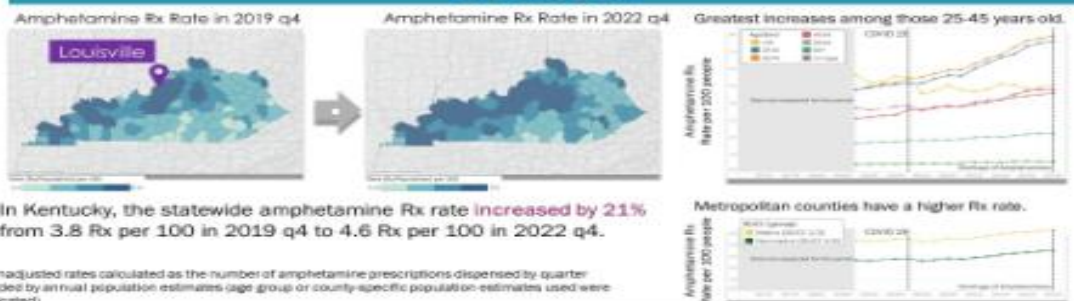
WASHINGTON STATE



TEXAS



KENTUCKY



* Unadjusted rates calculated as the number of amphetamine prescriptions dispensed by quarter divided by an rural population estimates (age group or county-specific population estimates used were indicated)

Results

- Rx amphetamines, typically indicated for ADHD, have been rising in all 3 states.
- This increase in prescribing accelerated after the COVID-19 emergency period, primarily among 25-to-44 year olds.
- Rx rates are rising in both rural and urban areas, though rates in the latter are consistently higher.
- Counties with high amphetamine Rx rates are geographically clustered in all 3 states
- Washington State data show that Rx amphetamines dropped in 2022, likely a result of the production shortage.

Limitations

- Differences in state laws regulating PMPs and public availability of PMP data make state-to-state comparisons difficult.
- PMPs do not collect medical diagnosis or reason for prescription thus we cannot assume that all prescriptions are for ADHD.

Conclusion

- Amphetamine prescribing trends have shared and unique profiles by state, an insight gained from multi-state PMP collaboration

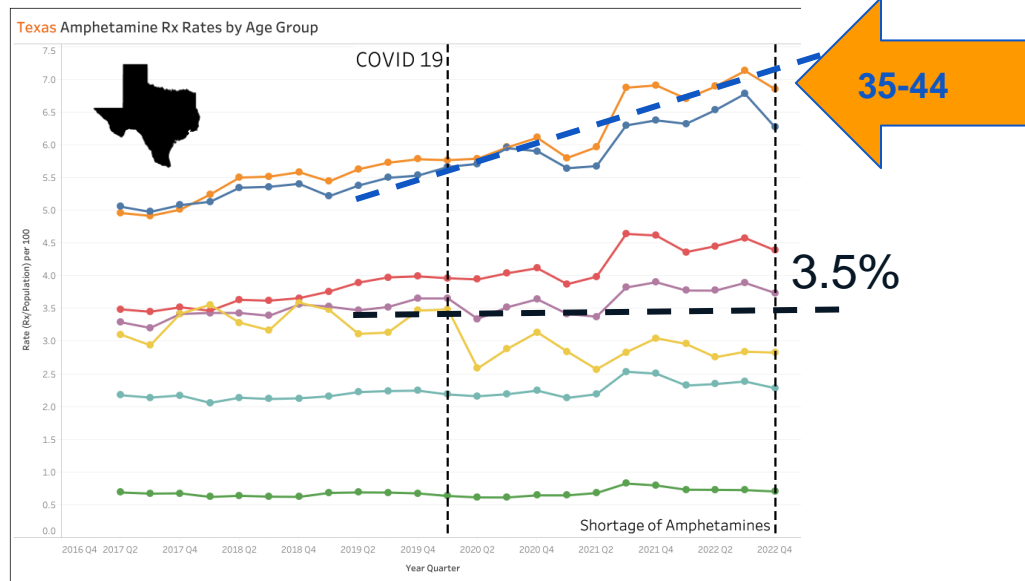
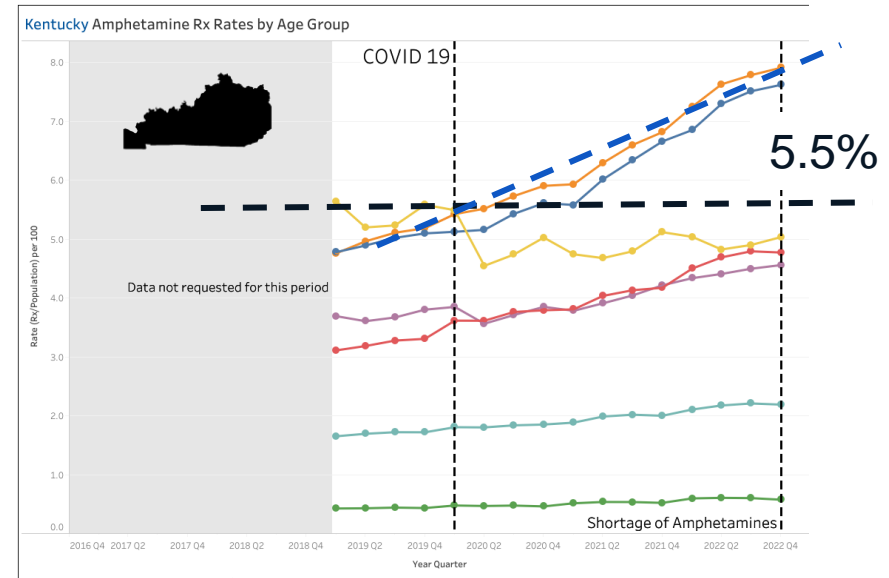
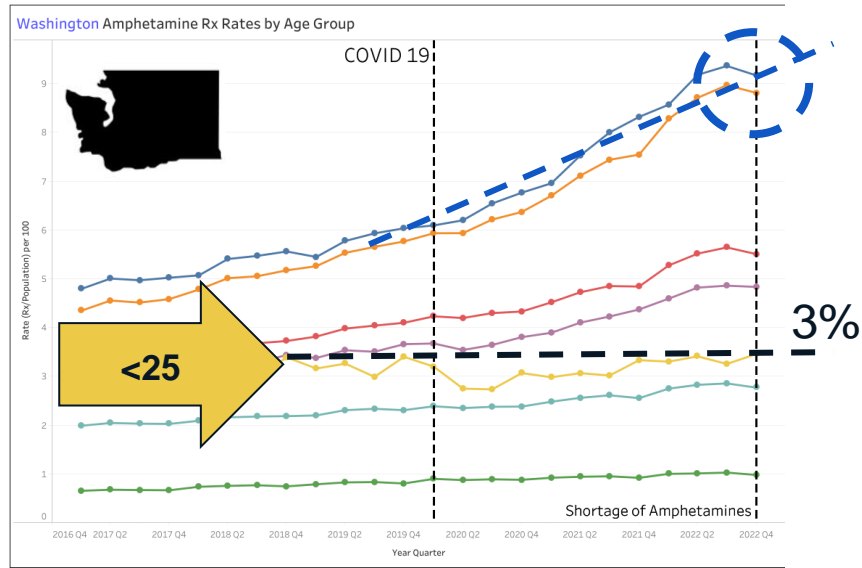
CONTACT

Jillian Jetson
jillian.jetson@doh.wa.gov



Dr. Delcher and Eugene Shin were supported by the National Institute on Drug Abuse (NIDA) through the National Institute of Health, Office of Science Programs, U.S. Department of Justice. The authors, findings, and conclusions do not necessarily represent the presentation or those of the authors and do not necessarily reflect those of the Department of Justice.

Amphetamines, age groups



- Age Band
- <25
 - 25-34
 - 35-44
 - 45-54
 - 55-64
 - 65+
 - All Ages

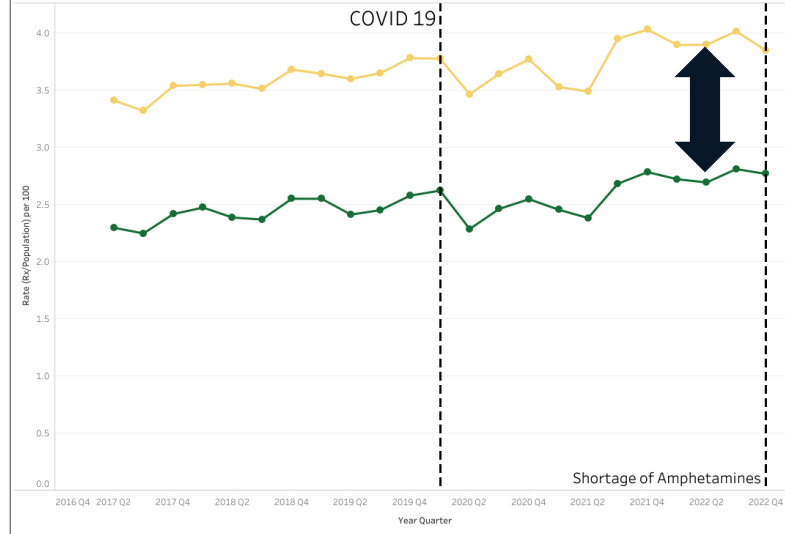
RUCC (group)

Metro (RUCC 1-3)

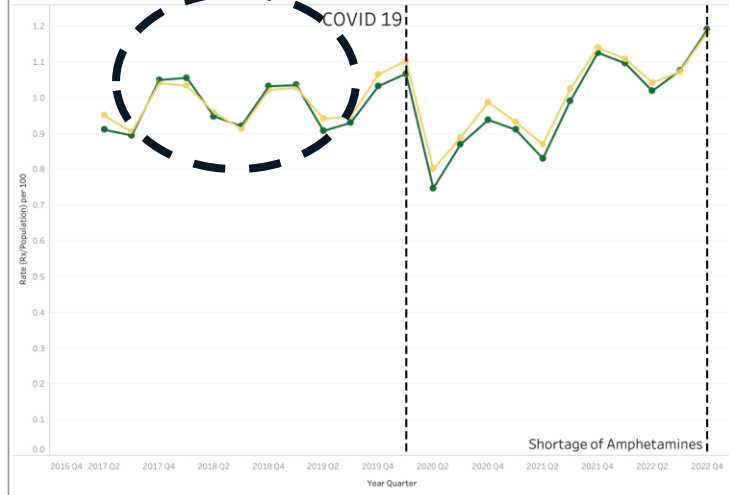
Nonmetro (RUCC 4-9)



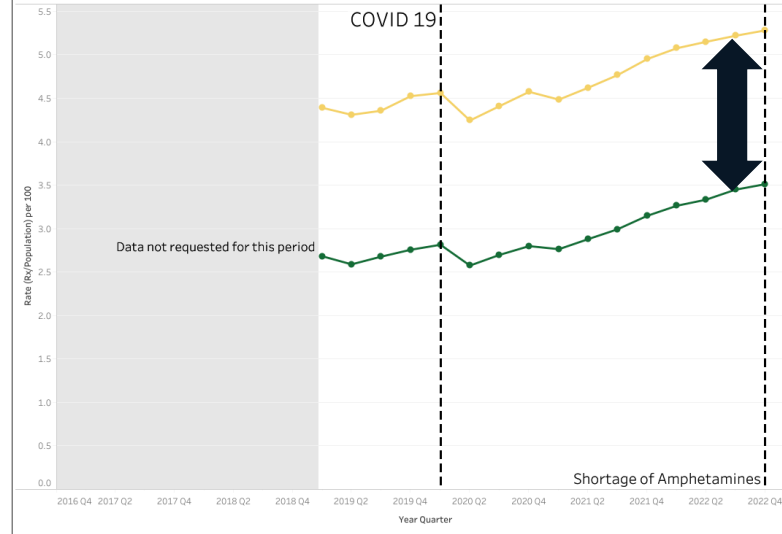
Texas Amphetamine Rx Rates by Rurality (2)



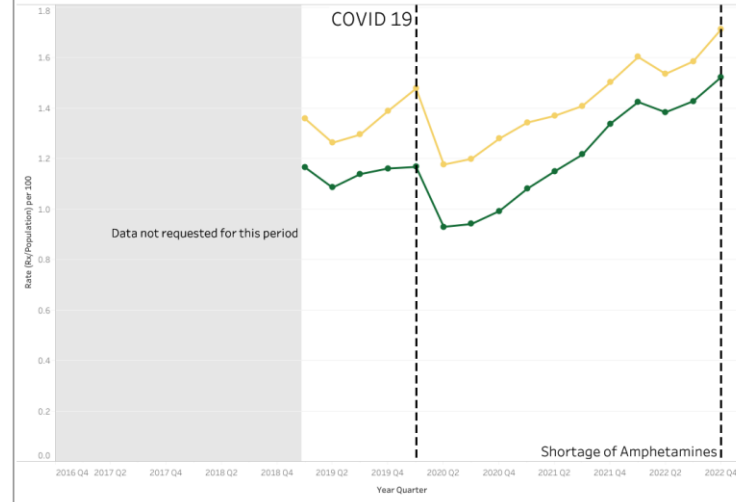
Texas Methylphenidate Rx Rates by Rurality (2)

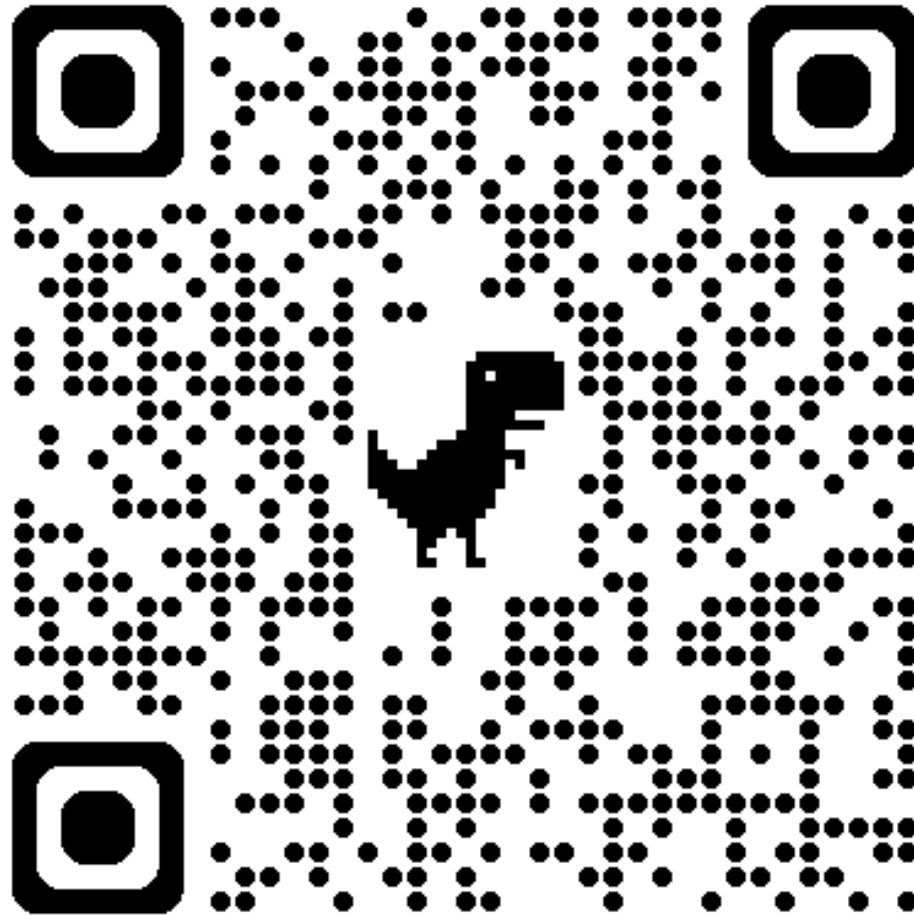


Kentucky Amphetamine Rx Rates by Rurality (2)



Kentucky Methylphenidate Rx Rates by Rurality (2)

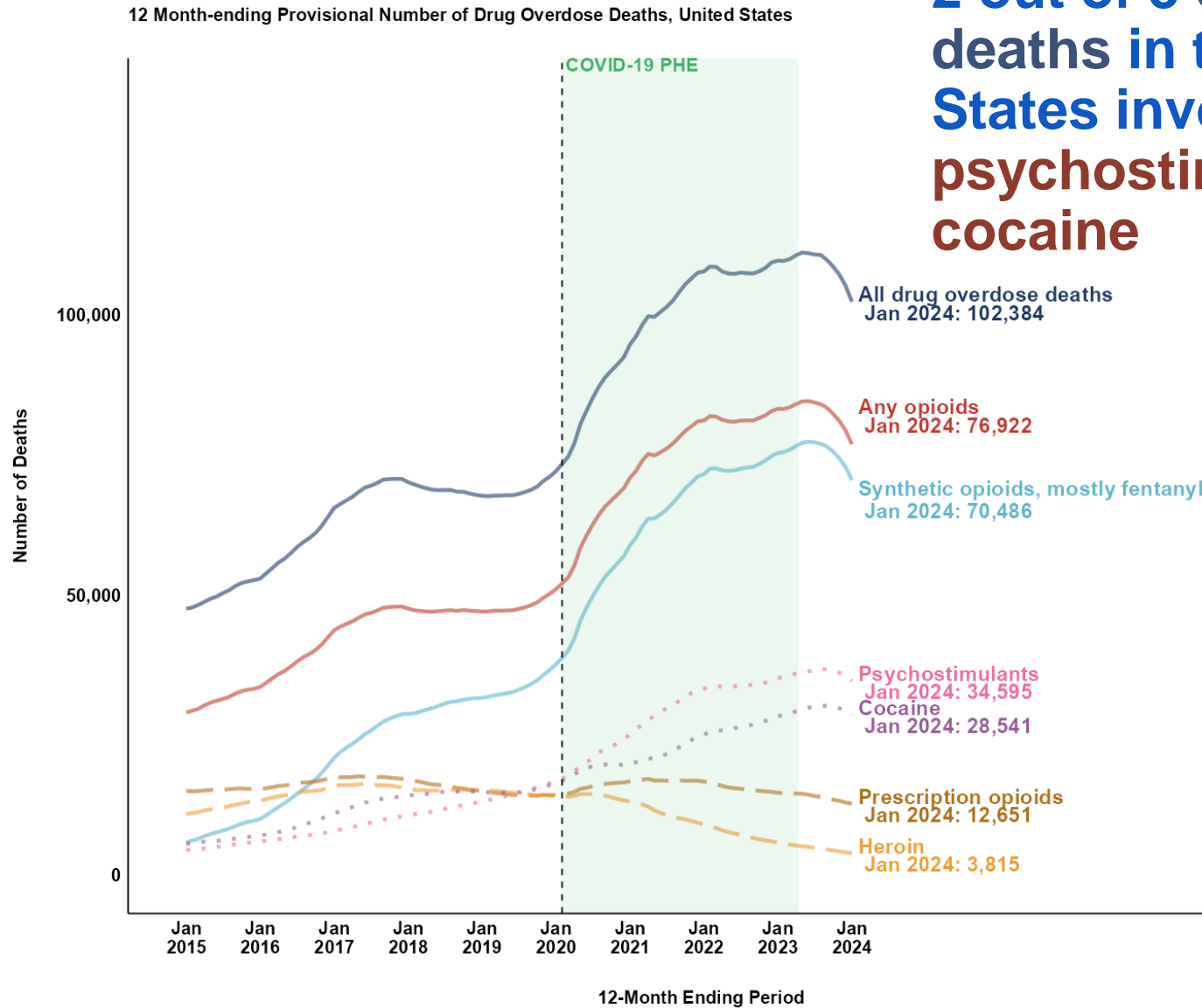




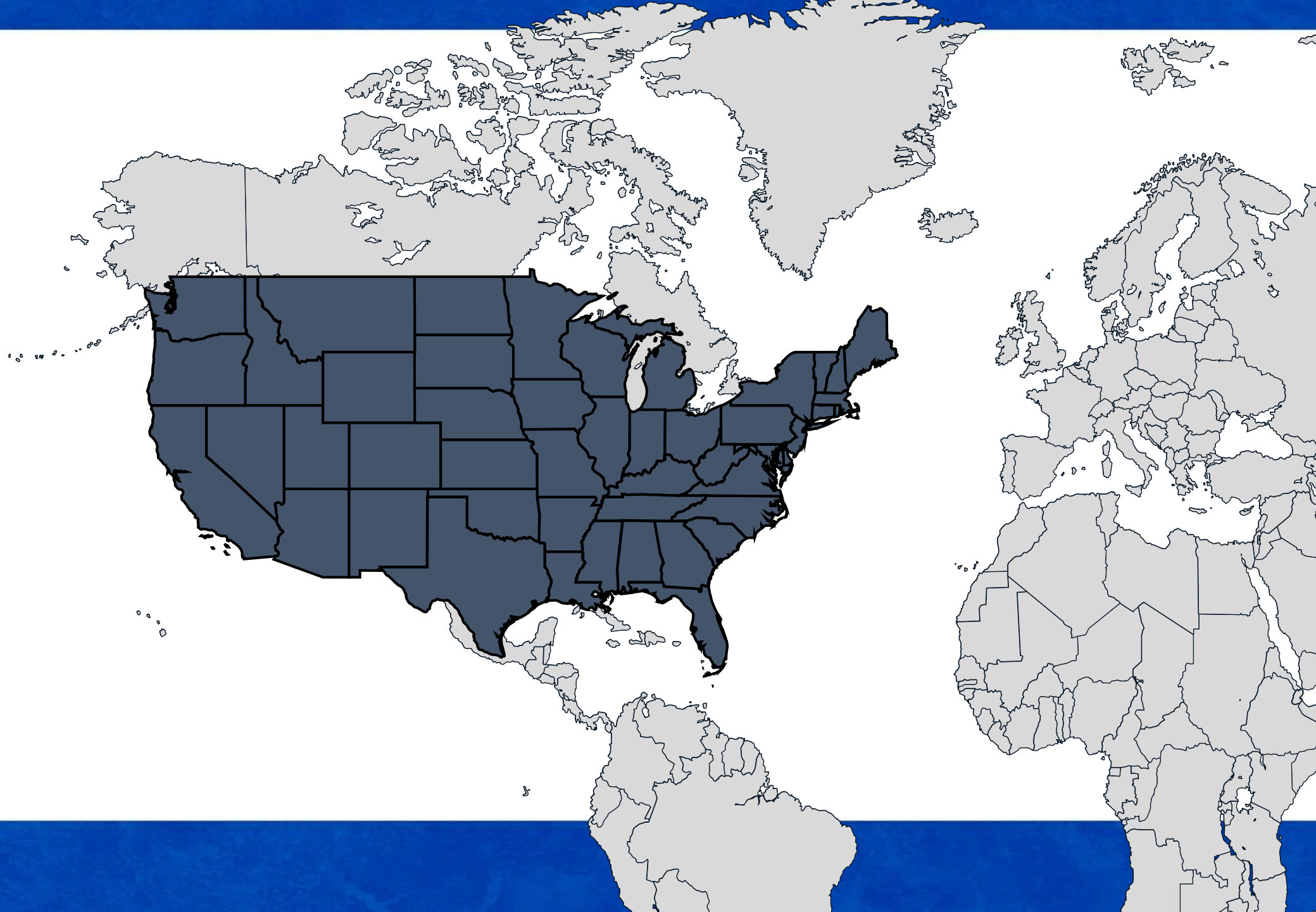
“Prescription Amphetamine Trends in 3 U.S. states”

Deeper dive: Geographic analysis of stimulant dispensing in Kentucky (prelim)

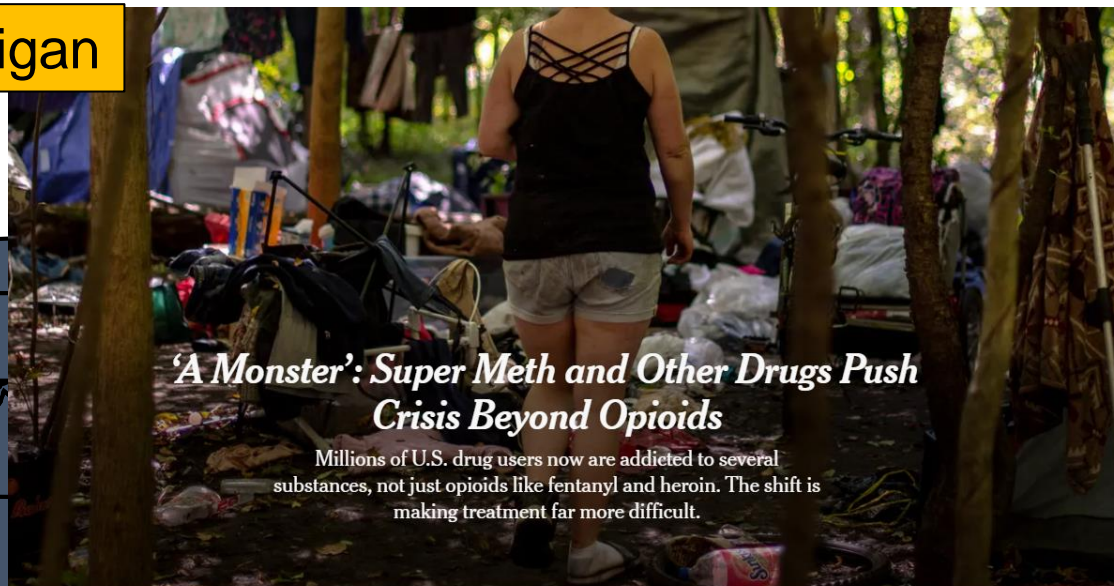
2 out of 3 drug overdose deaths in the United States involved an psychostimulants or cocaine



Data Source: National Center for Health Statistics. VSRR Provisional Drug Overdose Death Counts. Date accessed June 17, 2024. Available from <https://data.cdc.gov/d/xkb8-kh2a>.



Kalamazoo, Michigan



e other drugs, studies show, especially meth, which is common in this encampment

Share full article



By Jan Hoffman Photographs by Hilary Swift

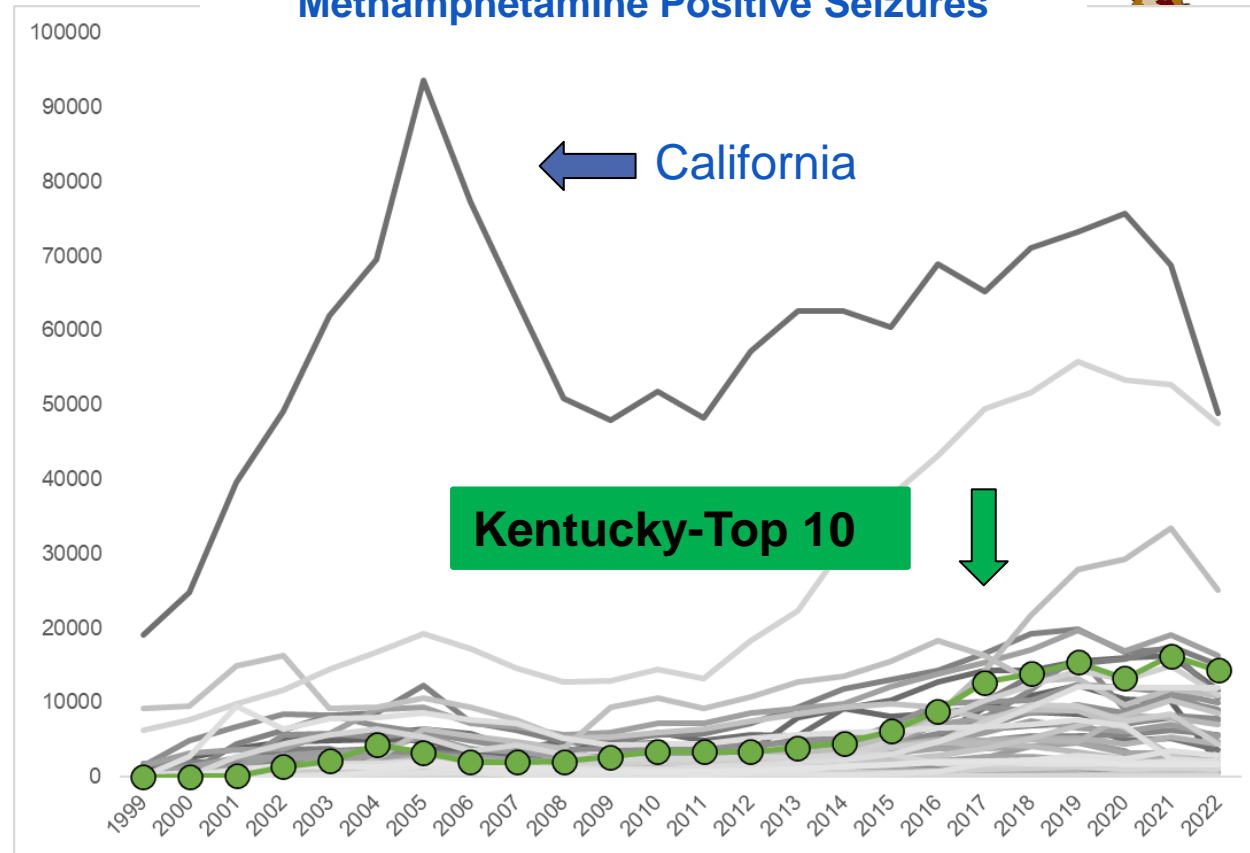
Jan Hoffman, who covers addiction, reported from encampments and treatment clinics in Western Michigan.

Nov. 13, 2023

November 13, 2023

PEER REVIEWED

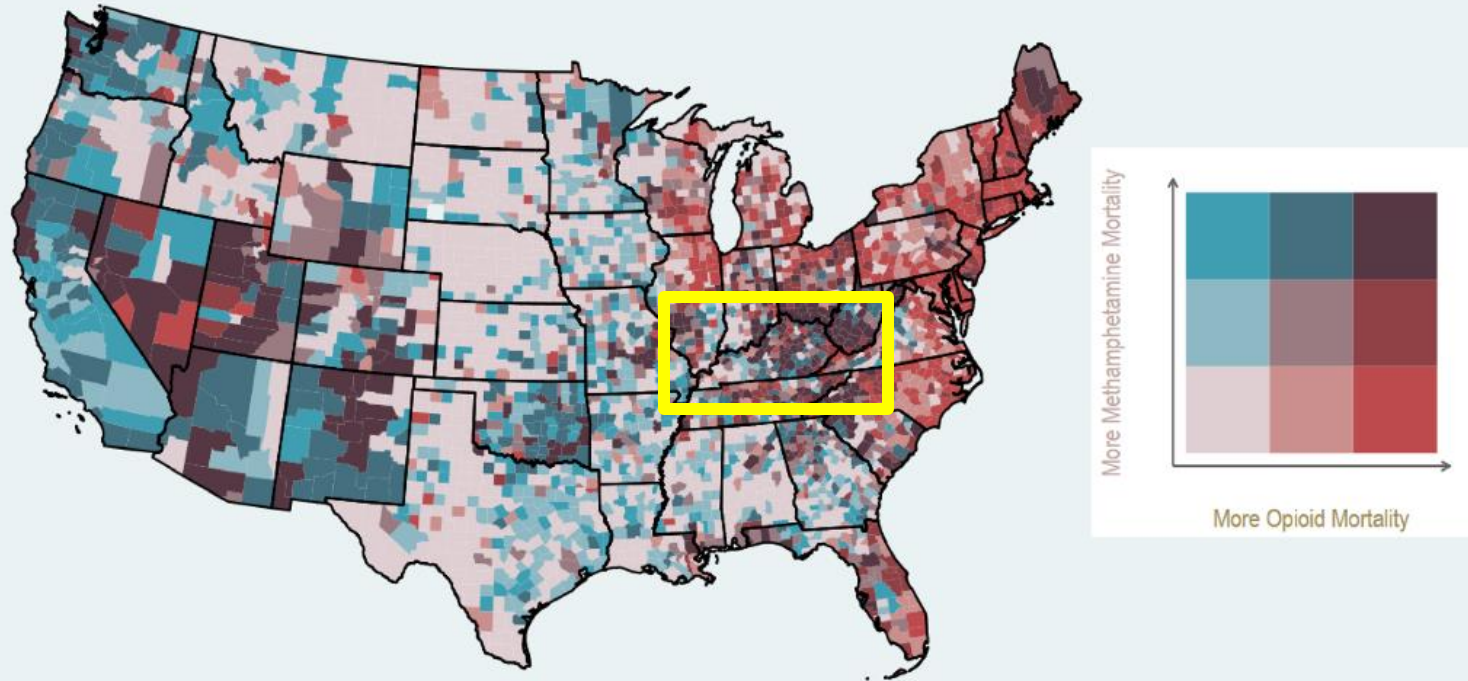
National Forensic Laboratory Submissions: Methamphetamine Positive Seizures



Spatiotemporal trends in smoothed overdose death rates (any opioid, synthetic opioids, and psychostimulants) in US counties (N = 3,107), 2012–2020. Mortality rates were calculated using US Drug Enforcement Administration, National Forensic Laboratory Information System Data Query System. Published 2023. Accessed May 16, 2023.

Distribution of Opioid and Methamphetamine Overdose Mortality by County

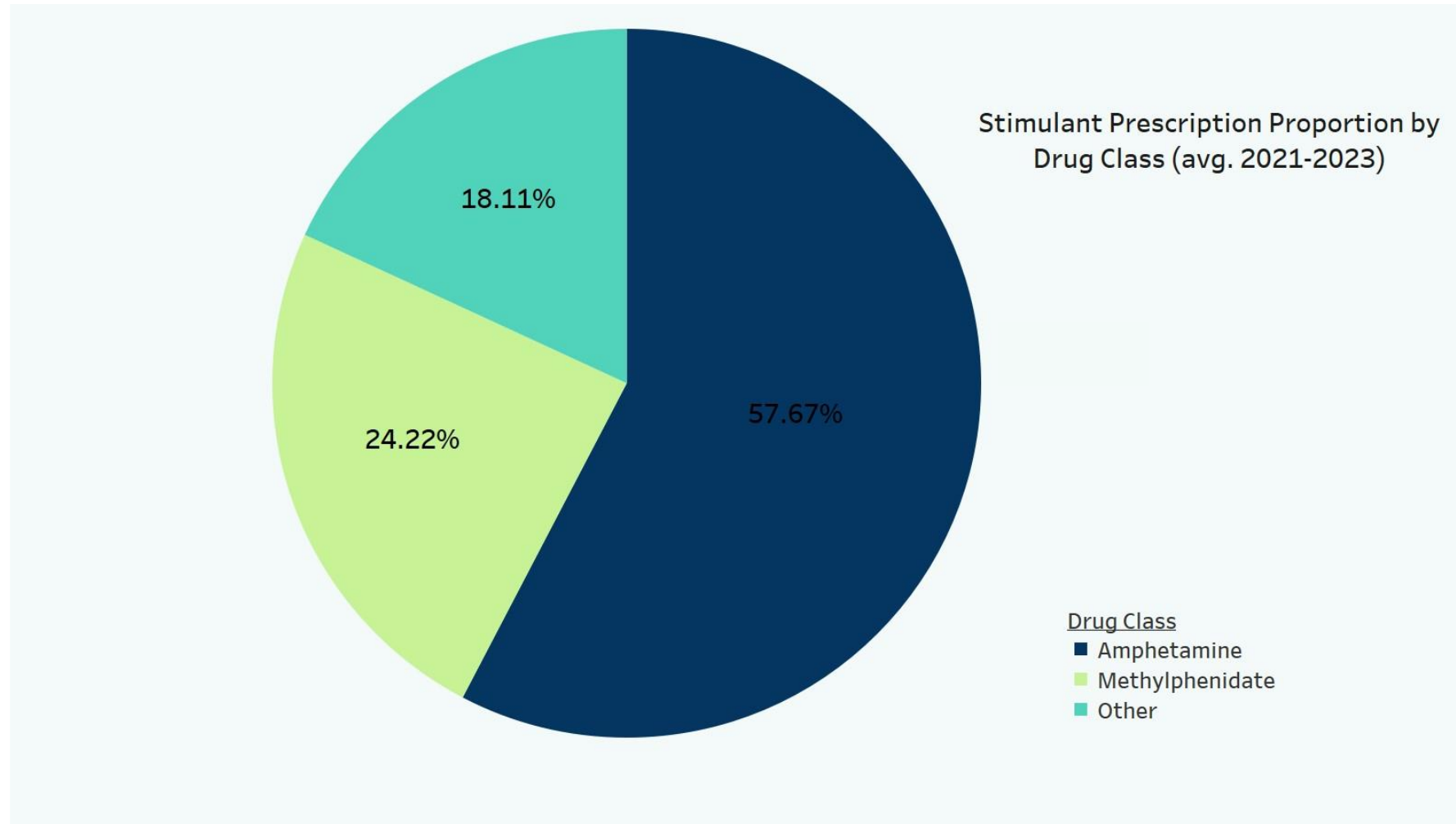
Colors defined by below median, 3rd quartile, highest quartile mortality by county



“The result highlights social vulnerabilities may be associated with greater psychostimulant overdose mortality even in counties with low opioid overdose mortality.”

Figure 1. County-level map of opioid and psychostimulant quartiles of overdose mortality between 2016 and 2018.

Figure 3. Proportion of Stimulant Medications by Drug Class



Source: Recent Trends in Stimulant Prescribing in Kentucky, 2021-2023

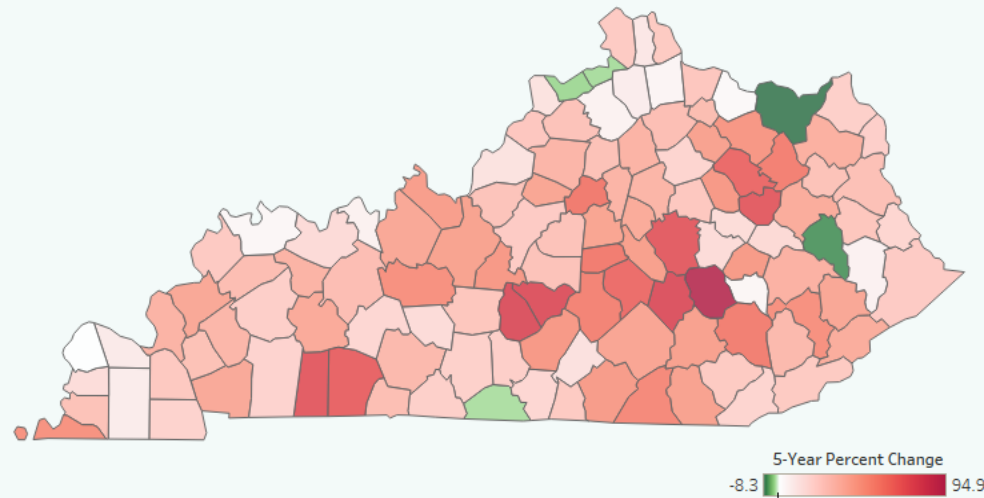


CABINET FOR HEALTH
AND FAMILY SERVICES

Geographic Trends in All-Schedule Stimulant Prescribing by Patient County of Residence

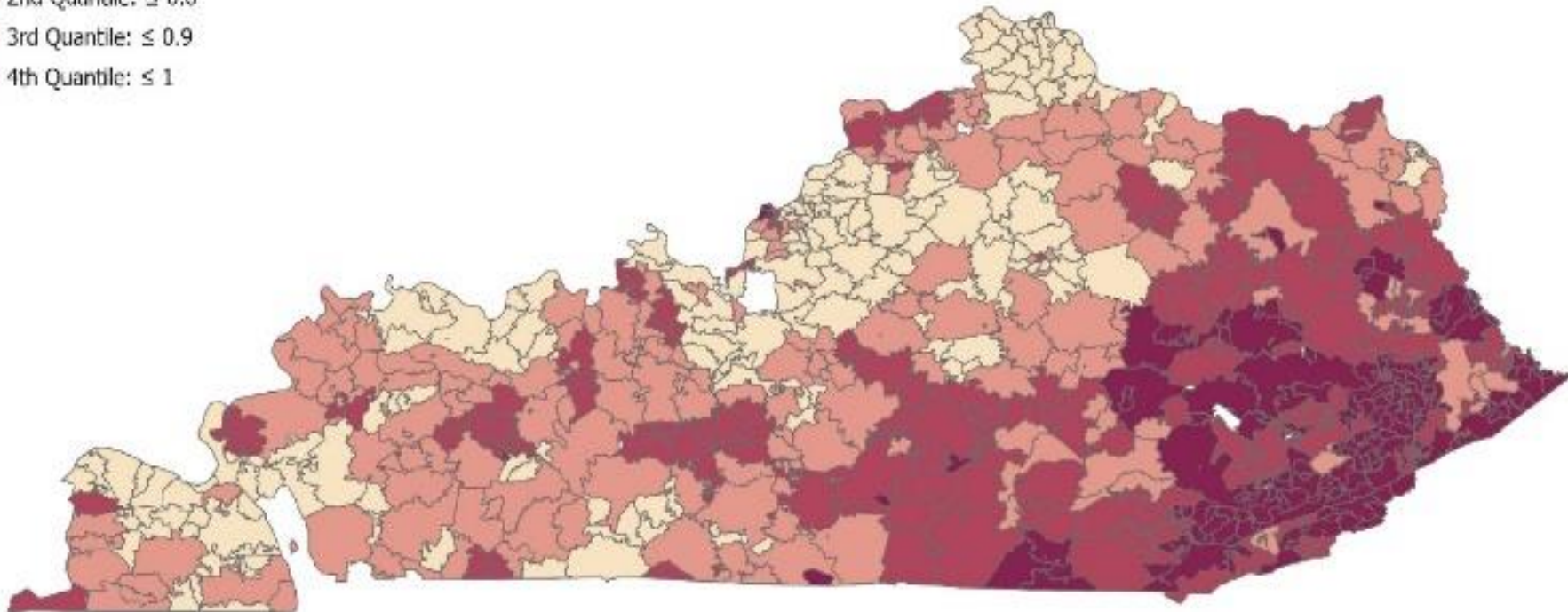
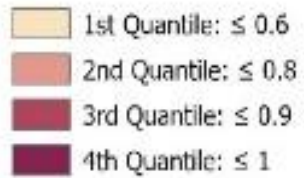
Source(s): Kentucky All Schedule Prescription Electronic Reporting (KASPER); U.S. Census Bureau

5-Year Percent Change in Prevalent Stimulant Prescriptions (2018-2023)



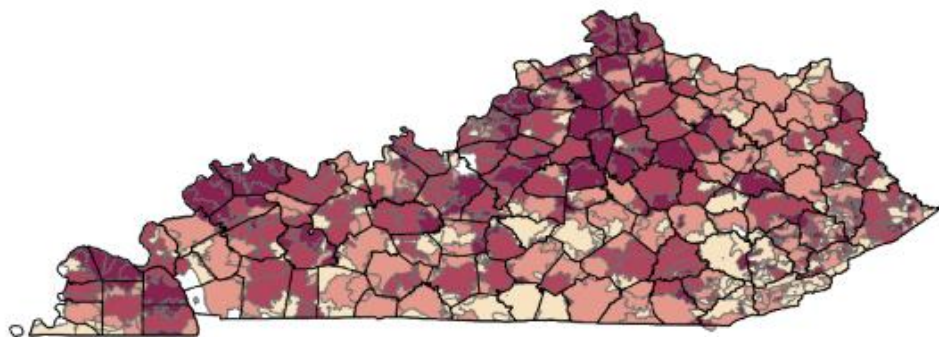
SVI scores at ZIP code level (higher score more socioeconomic vulnerable)

**Annualized Rates of Socioeconomic
Status per 100**

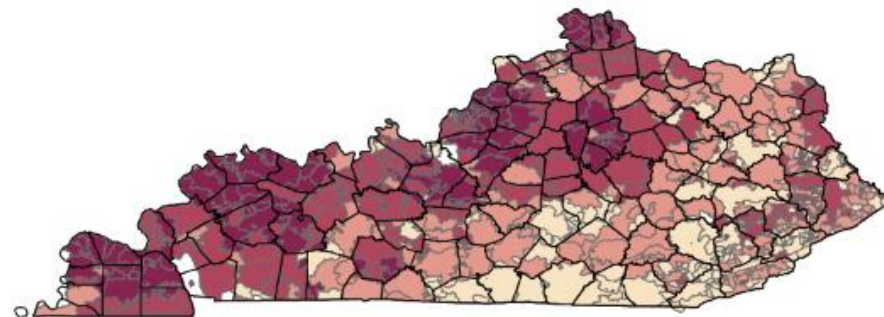


ZIP code level, 4 year mean

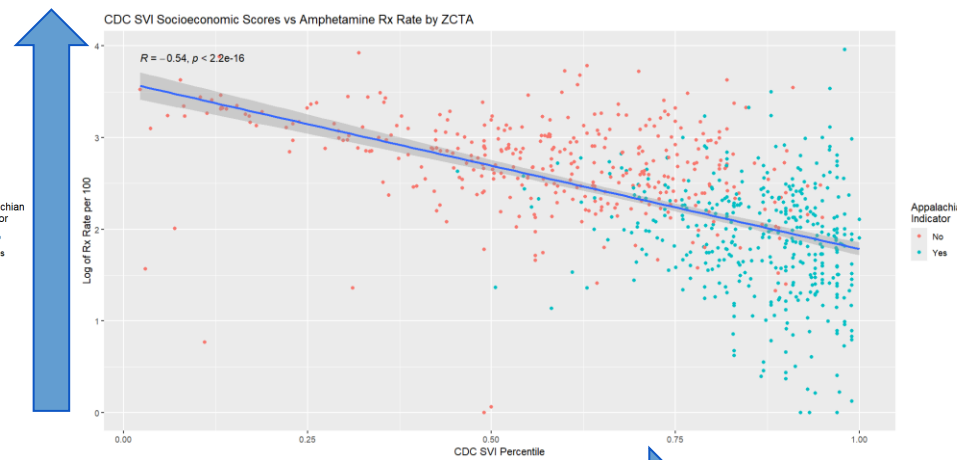
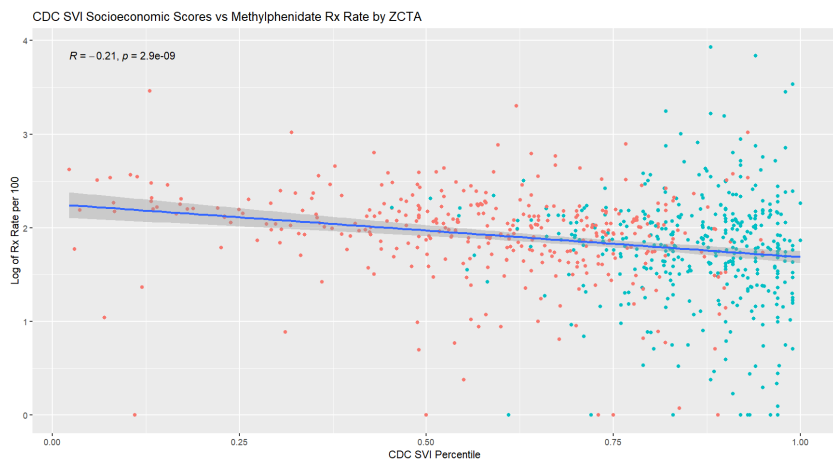
Methylphenidate Rx



Amphetamine Rx



Increased Rx



Increased vulnerability

Thank you!

chris.delcher@uky.edu

