



Trends and Patterns in Fatal Drug Overdoses Since the COVID-19 Pandemic

Colin Planalp, MPA
Senior Research Fellow,
University of Minnesota School of Public Health

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Presenter



Colin Planalp, MPA
Senior Research Fellow
SHADAC and Cannabis Research Center,
University of Minnesota School of Public Health

Data and methods

Data

- Drug overdose death rates from the U.S. National Vital Statistics System (NVSS), obtained through the Centers for Disease Control and Prevention's (CDC) Wide-ranging Online Data for Epidemiologic Research (WONDER) system
- Age-adjusted rates of death per 100,000 people (not age adjusted for age- and metropolitan status-stratified data)

Methods

- *t*-tests using provided standard errors to measure statistical significance in comparing rates over time and between sub-population estimates

Data labeling conventions

- Fentanyl: Synthetic opioids other than methadone (e.g., fentanyl and analogues, tramadol)
- Methamphetamine: Psychostimulants with abuse potential (e.g., methamphetamine, caffeine, MDMA)
- Prescription opioids: Natural and semi-synthetic opioids (e.g., morphine, oxycodone)
- Cocaine: Cocaine exclusively

Trends in the Opioid Crisis

Background on the U.S. Opioid Crisis


- Roots in the 1990s, with concerns about under-treated pain
- Fueled in early days by prescription opioid painkillers, including OxyContin
- Deaths from prescription painkillers declared an “epidemic” by the U.S. Centers for Disease Control and Prevention in 2011

Vital signs™
November 2011

Prescription Painkiller Overdoses in the US

15,000 
Nearly 15,000 people die every year of overdoses involving prescription painkillers.

1 in 20
In 2010, 1 in 20 people in the US (age 12 or older) reported using prescription painkillers for nonmedical reasons in the past year.

1 Month 
Enough prescription painkillers were prescribed in 2010 to medicate every American adult around-the-clock for a month.

Deaths from prescription painkillers* have reached epidemic levels in the past decade. The number of overdose deaths is now greater than those of deaths from heroin and cocaine combined. A big part of the problem is nonmedical use of prescription painkillers—using drugs without a prescription, or using drugs just for the “high” they cause. In 2010, about 12 million Americans (age 12 or older) reported nonmedical use of prescription painkillers in the past year.

Enough prescription painkillers were prescribed in 2010 to medicate every American adult around-the-clock for a month. Although most of these pills were prescribed for a medical purpose, many ended up in the hands of people who misused or abused them.


Improving the way prescription painkillers are prescribed can reduce the number of people who misuse, abuse or overdose from these powerful drugs, while making sure patients have access to safe, effective treatment.

* Prescription painkillers* refers to opioid or narcotic pain relievers, including drugs such as Vicodin (hydrocodone), OxyContin (oxycodone), Opana (oxycodone), and methadone.

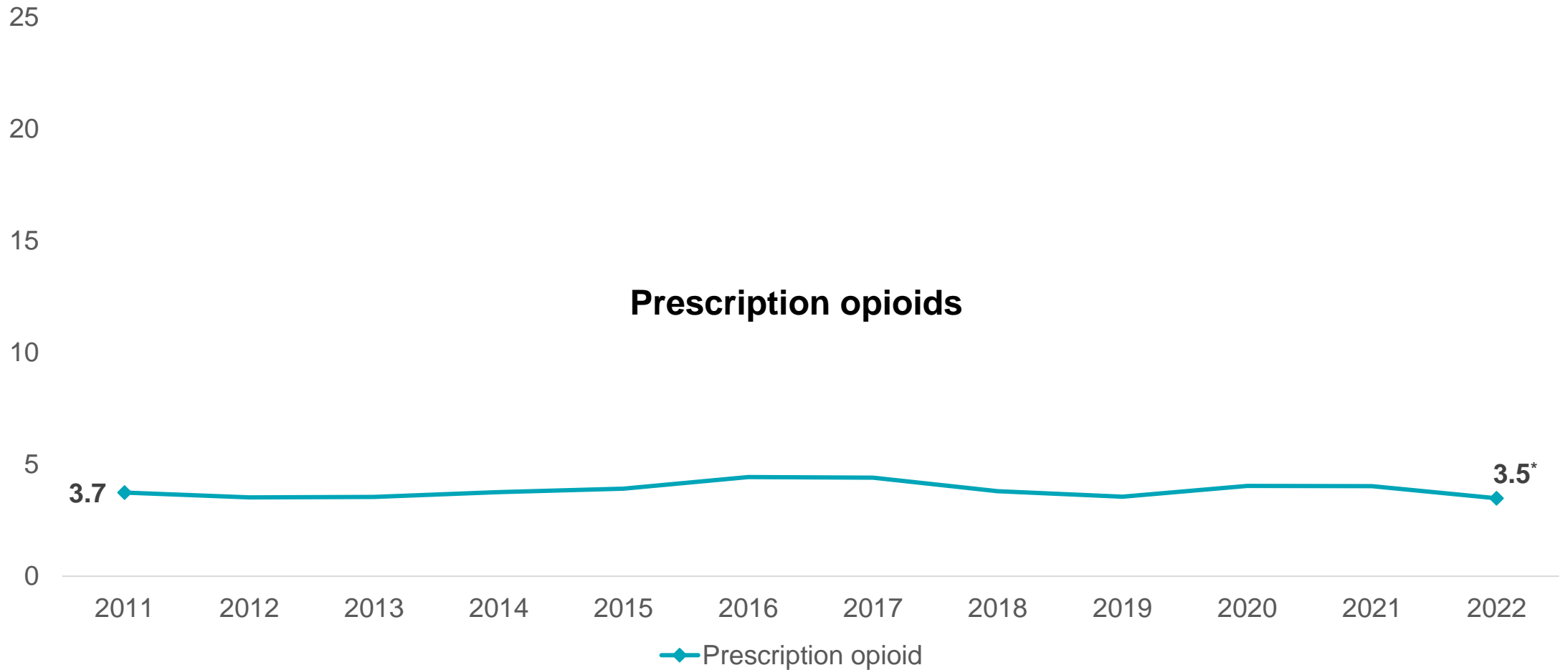
→ See page 4

Want to learn more? Visit <http://www.cdc.gov/vitalsigns>

National Center for Injury Prevention and Control
Division of Unintentional Injury Prevention

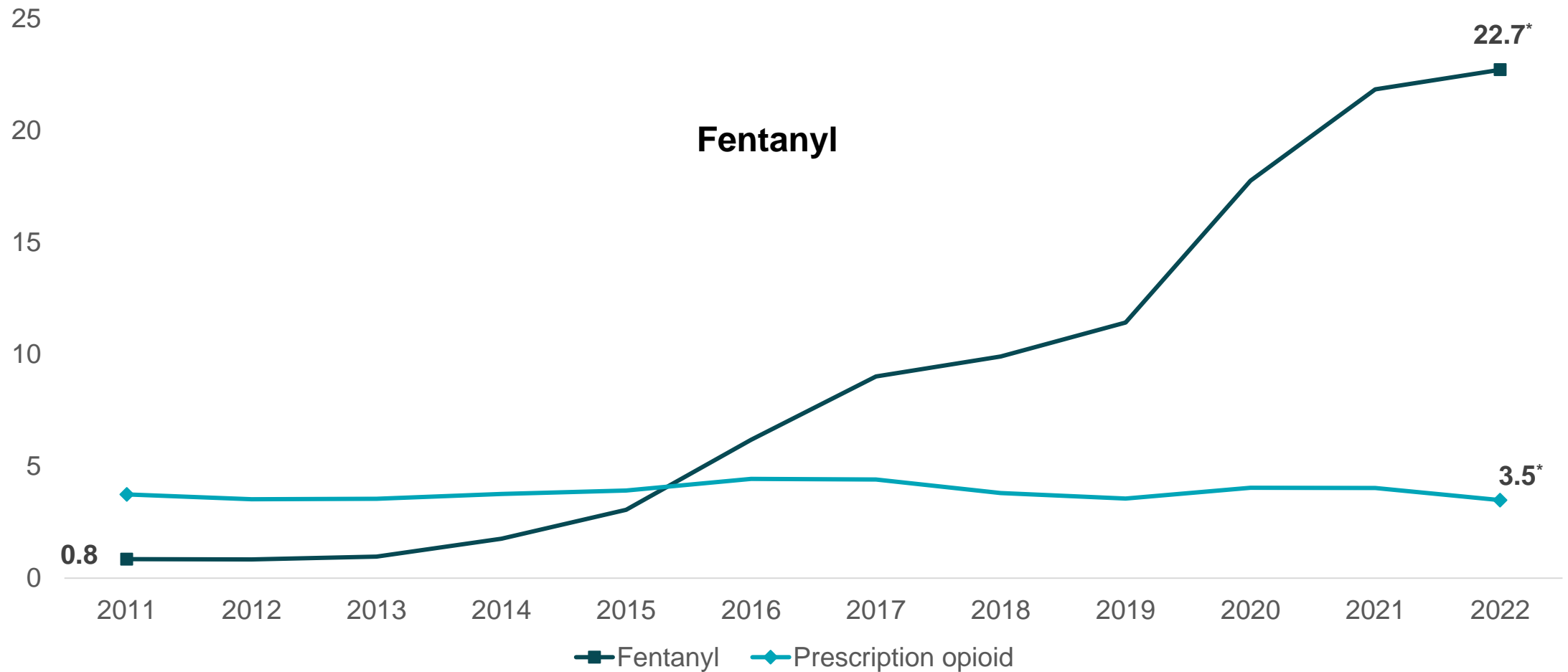


U.S. Overdose Death Rates since 2011: Prescription Opioids



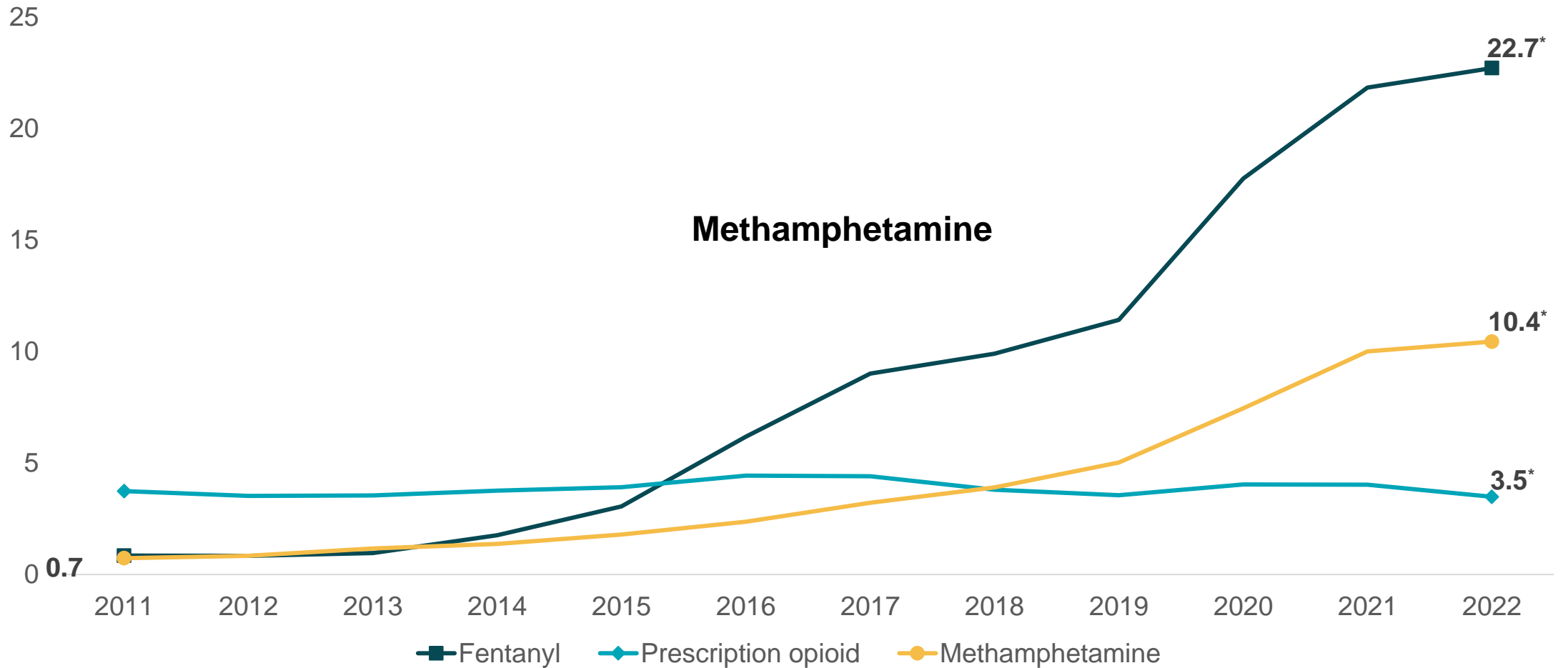
* Statistically significant change since 2011 at the 95% level.
Source: SHADAC analysis of NVSS data

U.S. Overdose Death Rates since 2011: Fentanyl



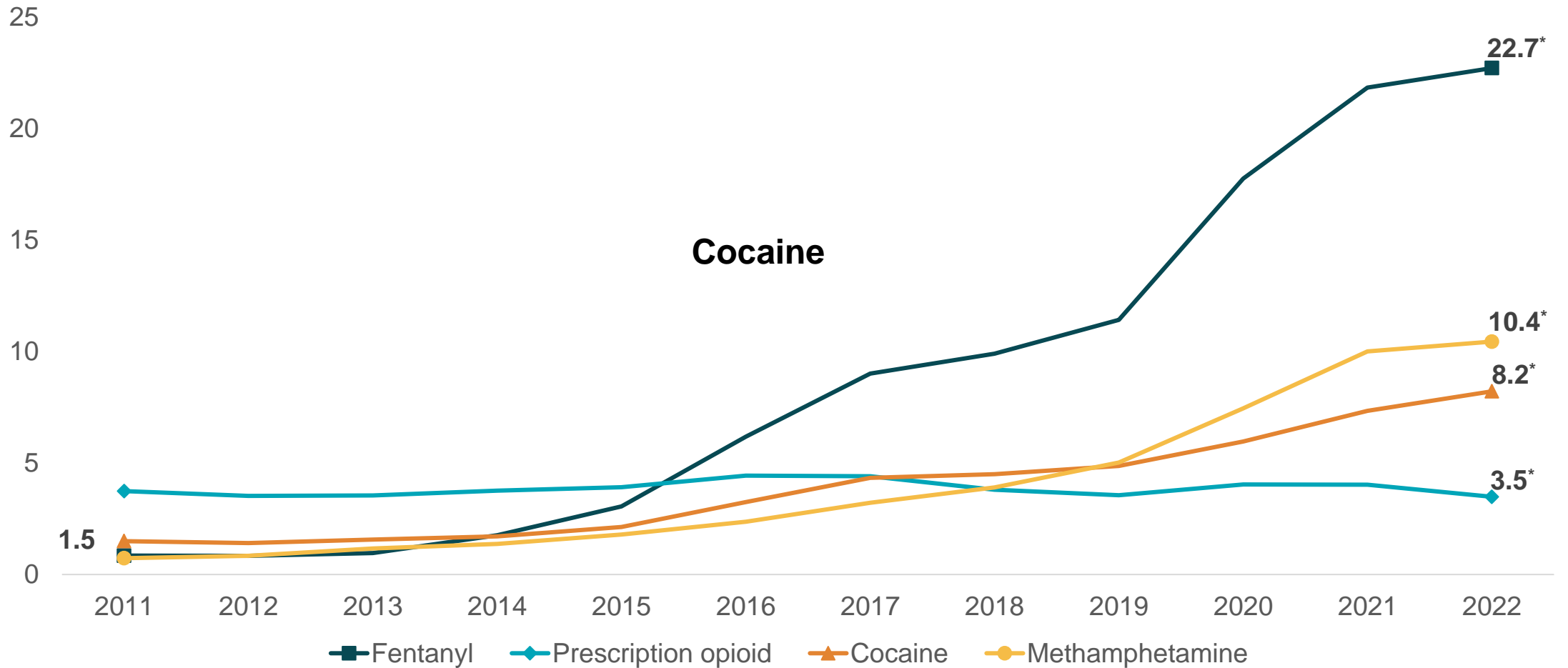
* Statistically significant change since 2011 at the 95% level.
Source: SHADAC analysis of NVSS data

U.S. Overdose Death Rates since 2011: Methamphetamine



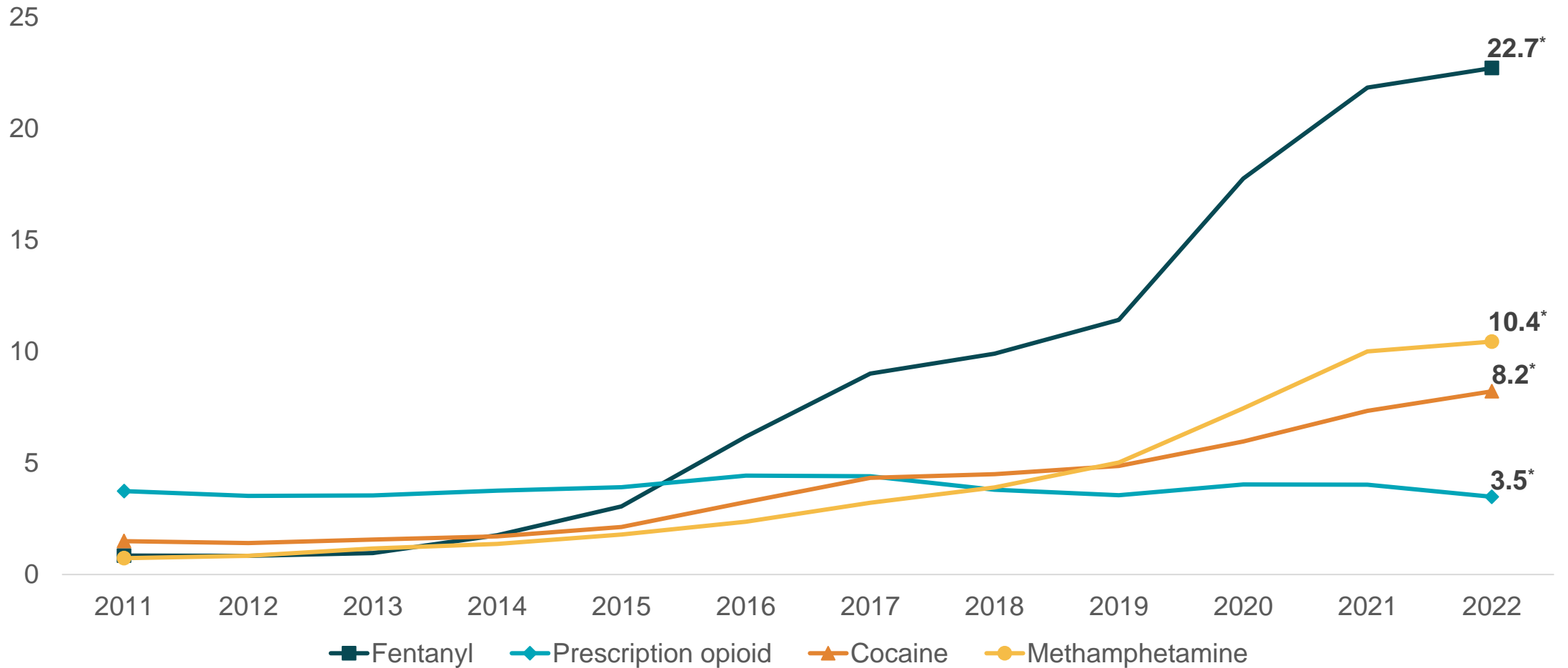
* Statistically significant change since 2011 at the 95% level.
Source: SHADAC analysis of NVSS data

U.S. Overdose Death Rates since 2011: Cocaine



* Statistically significant change since 2011 at the 95% level.
Source: SHADAC analysis of NVSS data

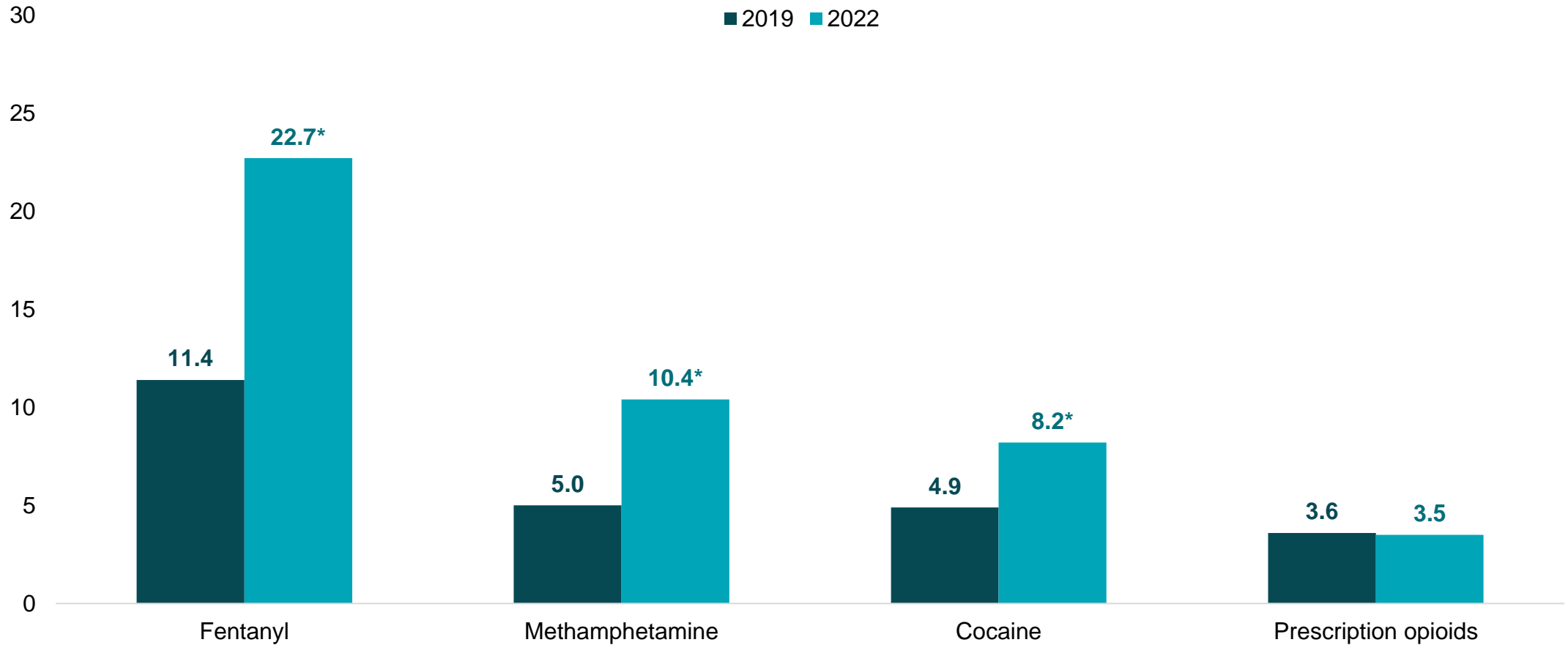
U.S. Overdose Death Rates since 2011: Overall



* Statistically significant change since 2011 at the 95% level.
Source: SHADAC analysis of NVSS data

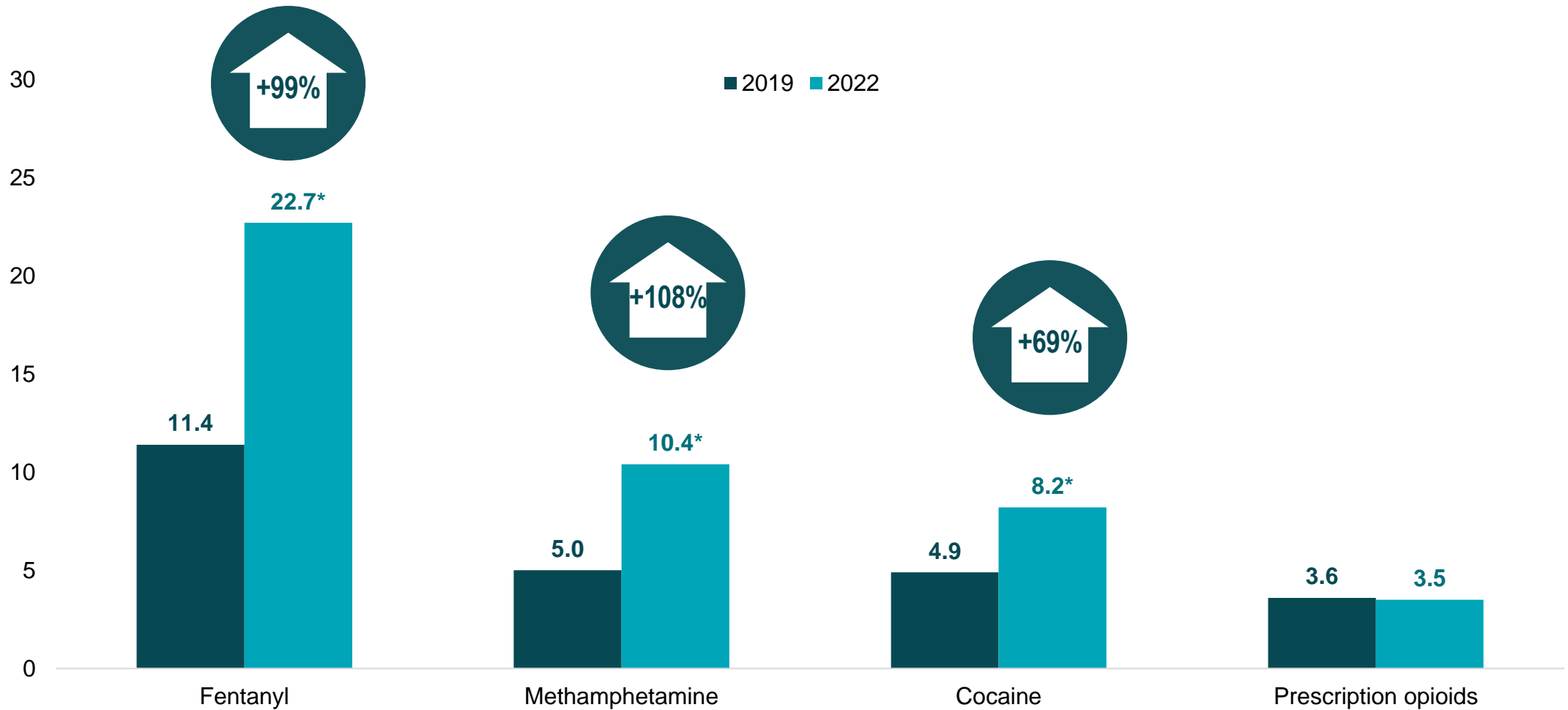
Opioid Crisis since the Pandemic

U.S. Drug Overdose Deaths by Type per 100,000 People, 2019-2022



* Statistically significant increase since 2019 at the 95% level.
Source: SHADAC analysis of NVSS data

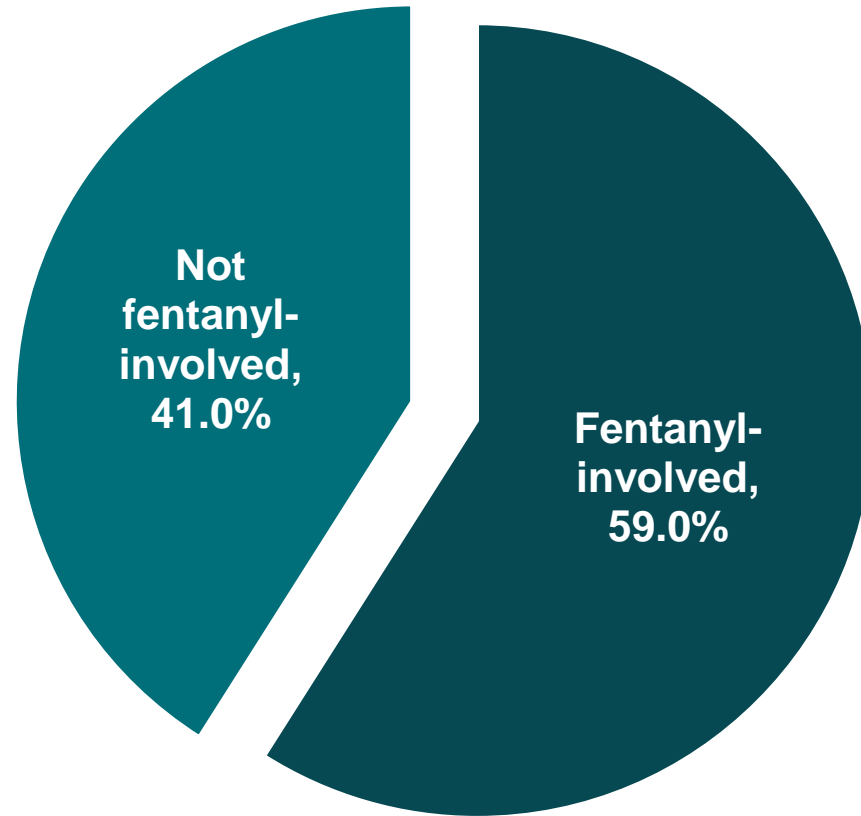
U.S. Drug Overdose Deaths by Type per 100,000 People, 2019-2022: Increases



* Statistically significant increase since 2019 at the 95% level.
Source: SHADAC analysis of NVSS data

Pernicious Influence of Fentanyl

Prescription Opioid Overdose Deaths, 2022



Source: SHADAC analysis of NVSS data

Pernicious Influence of Fentanyl

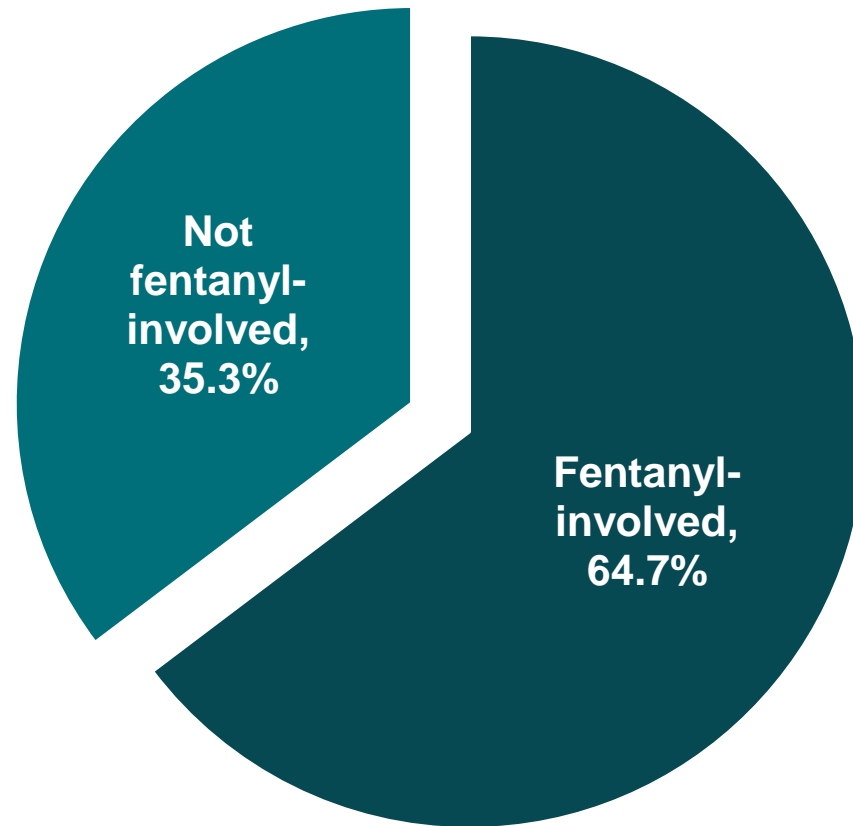
Prescription Opioid Overdose Deaths

	2019	2022	% change
Fentanyl-involved	1.6 deaths per 100,000 people	2.1 deaths per 100,000 people	+30%
Not fentanyl-involved	2.0 deaths per 100,000 people	1.4 deaths per 100,000 people	-27%
Total	3.6 deaths per 100,000 people	3.5 deaths per 100,000 people	-2%

Source: SHADAC analysis of NVSS data

Pernicious Influence of Fentanyl

Methamphetamine Overdose Deaths, 2022



Source: SHADAC analysis of NVSS data

Pernicious Influence of Fentanyl

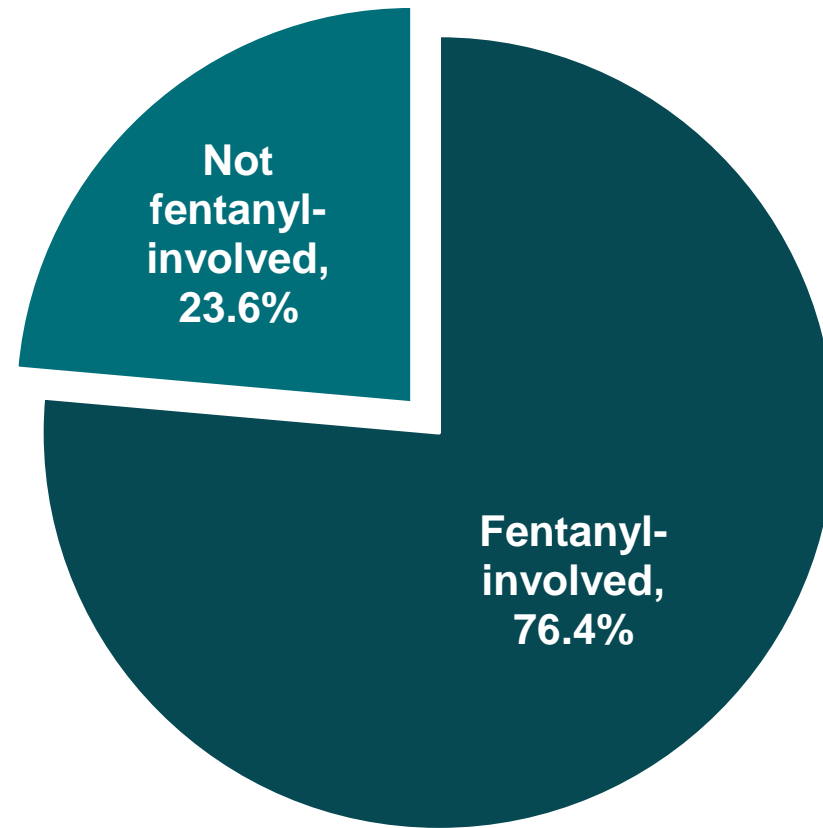
Methamphetamine Overdose Deaths

	2019	2022	% change
Fentanyl-involved	1.8 deaths per 100,000 people	6.8 deaths per 100,000 people	+276%
Not fentanyl-involved	3.2 deaths per 100,000 people	3.7 deaths per 100,000 people	+14%
Total	5.0 deaths per 100,000 people	10.4 deaths per 100,000 people	+108%

Source: SHADAC analysis of NVSS data

Pernicious Influence of Fentanyl

Cocaine Overdose Deaths, 2022



Source: SHADAC analysis of NVSS data

Pernicious Influence of Fentanyl

Cocaine Overdose Deaths

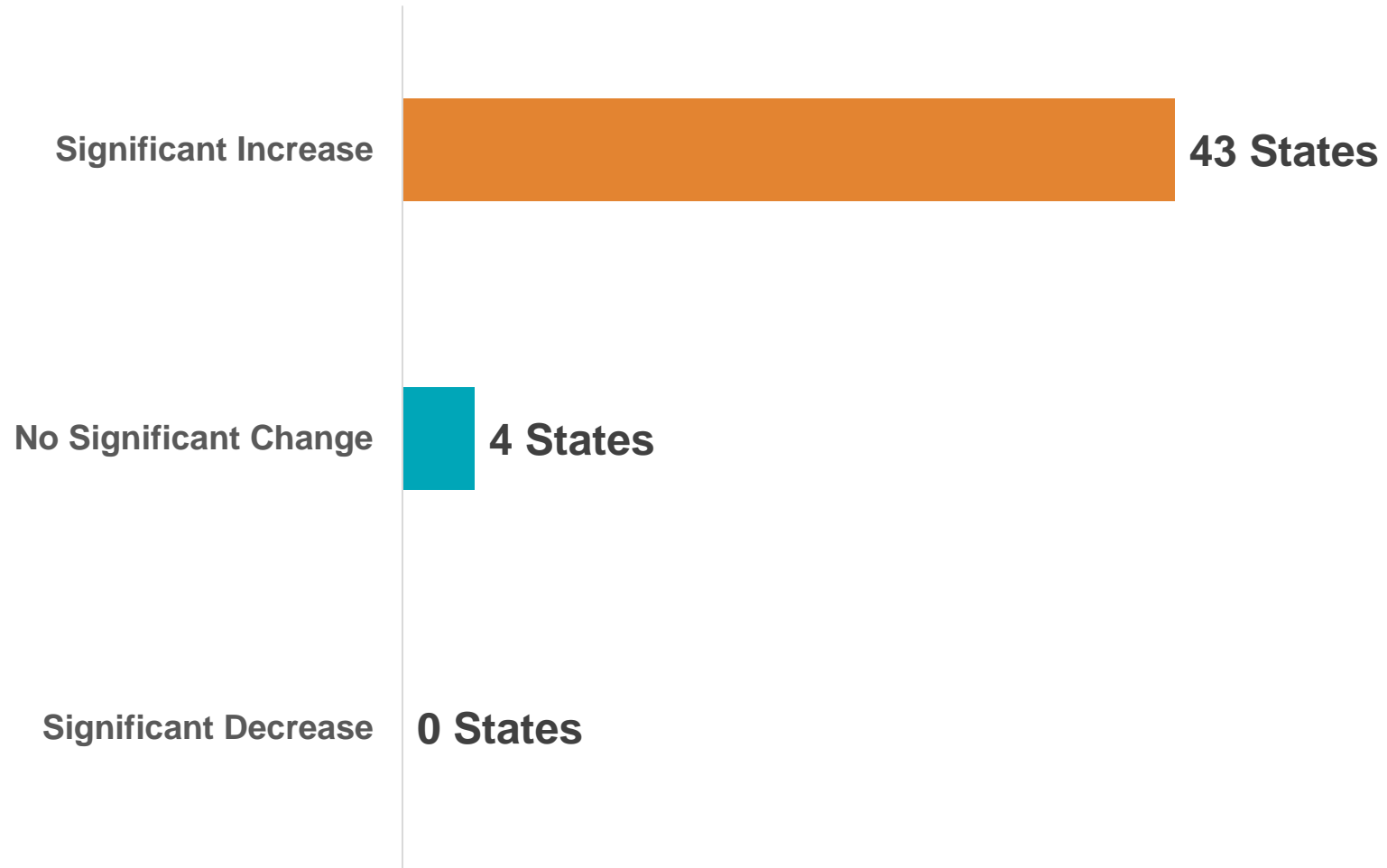
	2019	2022	% change
Fentanyl-involved	3.2 deaths per 100,000 people	6.3 deaths per 100,000 people	+98%
Not fentanyl-involved	1.7 deaths per 100,000 people	1.9 deaths per 100,000 people	+14%
Total	4.9 deaths per 100,000 people	8.2 deaths per 100,000 people	+69%

Source: SHADAC analysis of NVSS data

Opioid Crisis since the Pandemic

Across the States

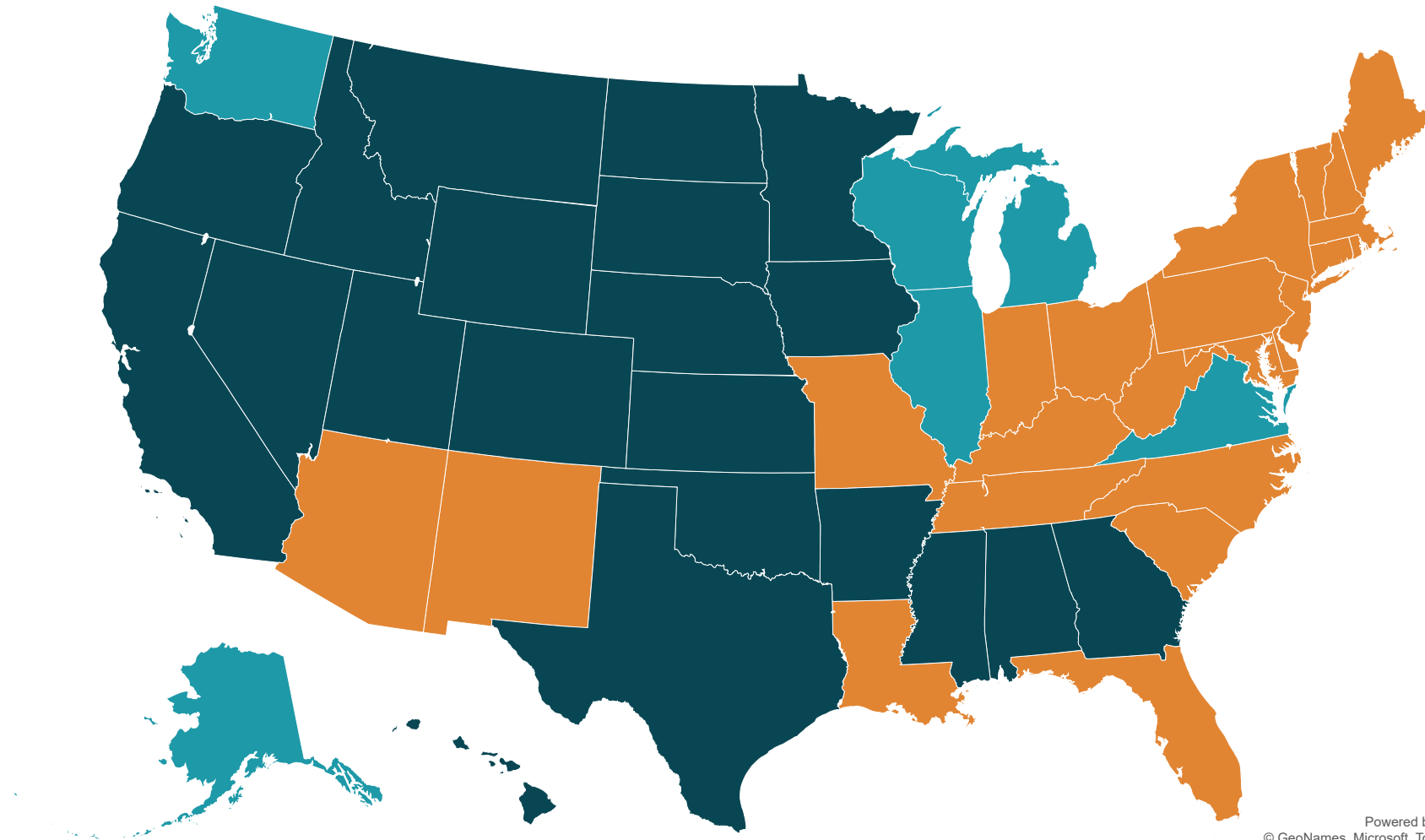
State Changes in Fentanyl Overdose Rates, 2019-2022



Fentanyl Overdose Rates per 100,000 people, 2022

Five Highest Rates		Five Lowest Rates	
West Virginia	67.0	South Dakota	4.6
Delaware	47.1	Hawaii	5.4
District of Columbia	46.4	Nebraska	5.5
Maine	44.7	Utah	6.7
Tennessee	42.2	Iowa	6.9

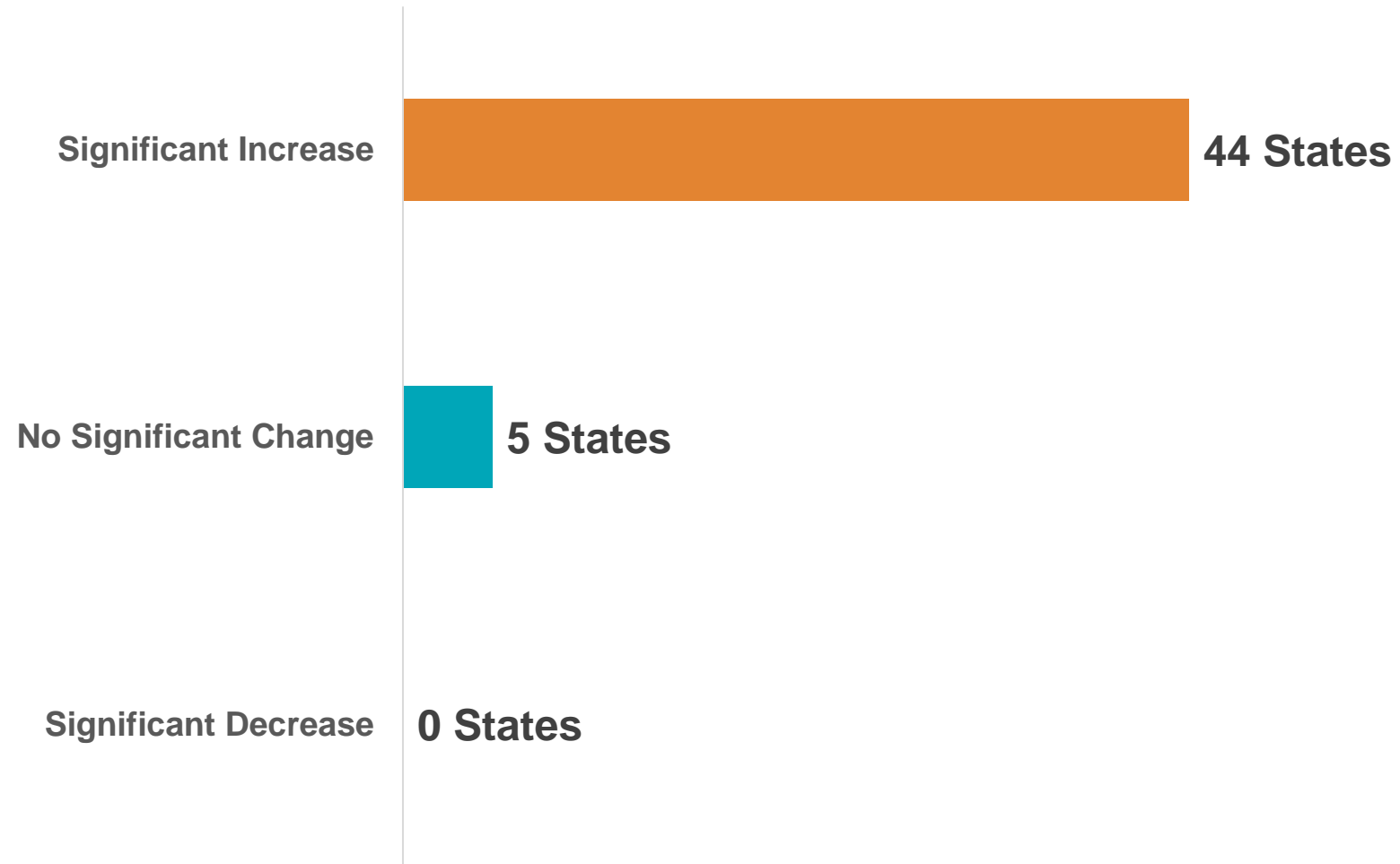
Fentanyl Overdose Rates vs U.S., 2022



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■ Significantly higher than U.S. ■ Not significantly different from U.S. ■ Significantly lower than U.S.

State Changes in Methamphetamine Overdose Rates, 2019-2022

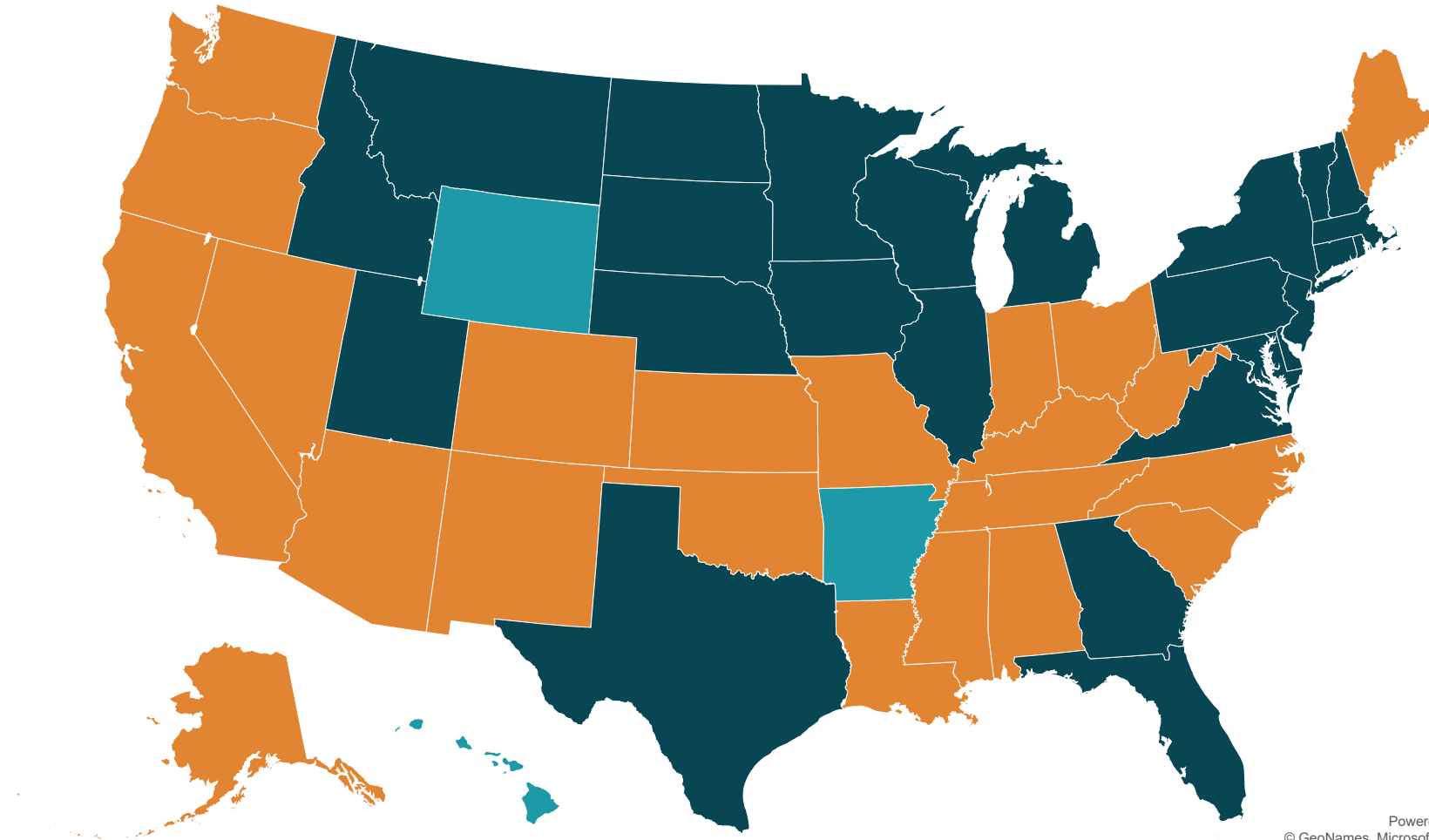


Methamphetamine Overdose Rates per 100,000 people, 2022

Five Highest Rates	
West Virginia	44.3
New Mexico	24.7
Kentucky	24.2
Tennessee	23.3
Alaska	19.6

Five Lowest Rates	
Connecticut	2.3
Maryland	2.4
Massachusetts	3.3
New York	3.5
Rhode Island	3.6

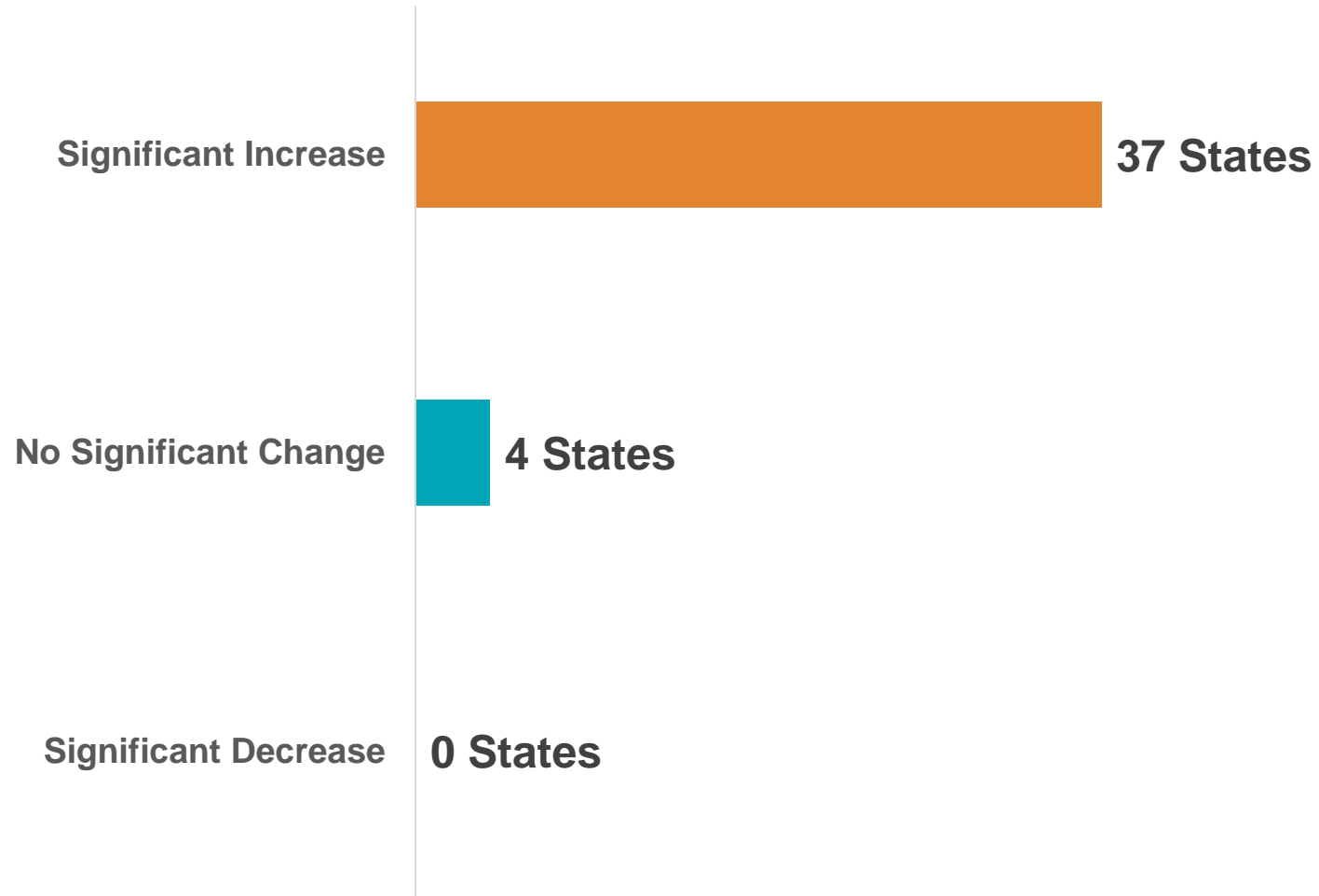
Methamphetamine Overdose Rates vs U.S., 2022



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■ Significantly higher than U.S. ■ Not significantly different from U.S. ■ Significantly lower than U.S. ■ N/A

State Changes in Cocaine Overdose Rates, 2019-2022

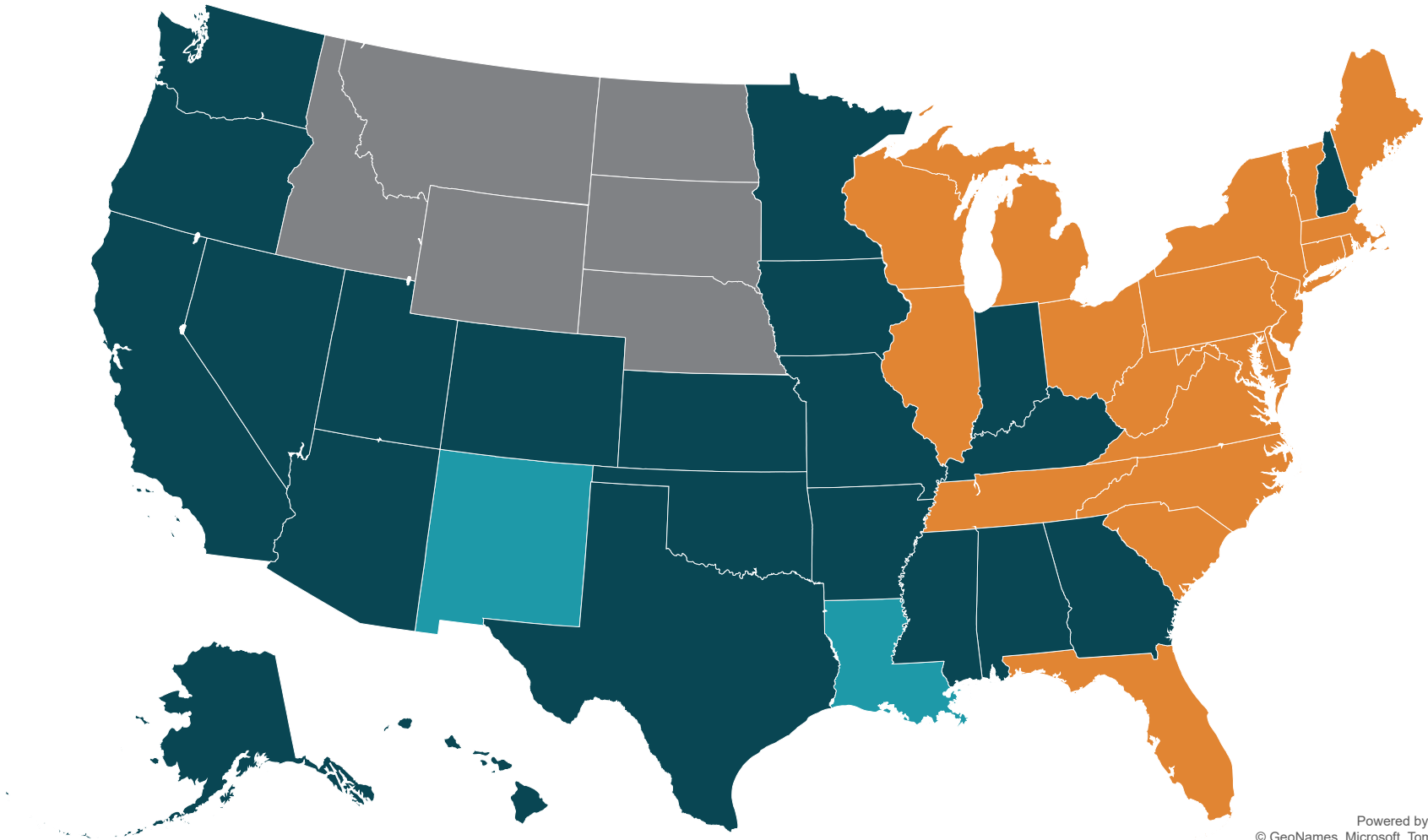


Cocaine Overdose Rates per 100,000 people, 2022

Five Highest Rates	
District of Columbia	32.0
Delaware	22.0
Rhode Island	18.2
Vermont	17.6
Massachusetts	17.4

Five Lowest Rates	
Utah	1.2
Iowa	1.5
Hawaii	2.1
Oregon	2.2
Arkansas	2.5

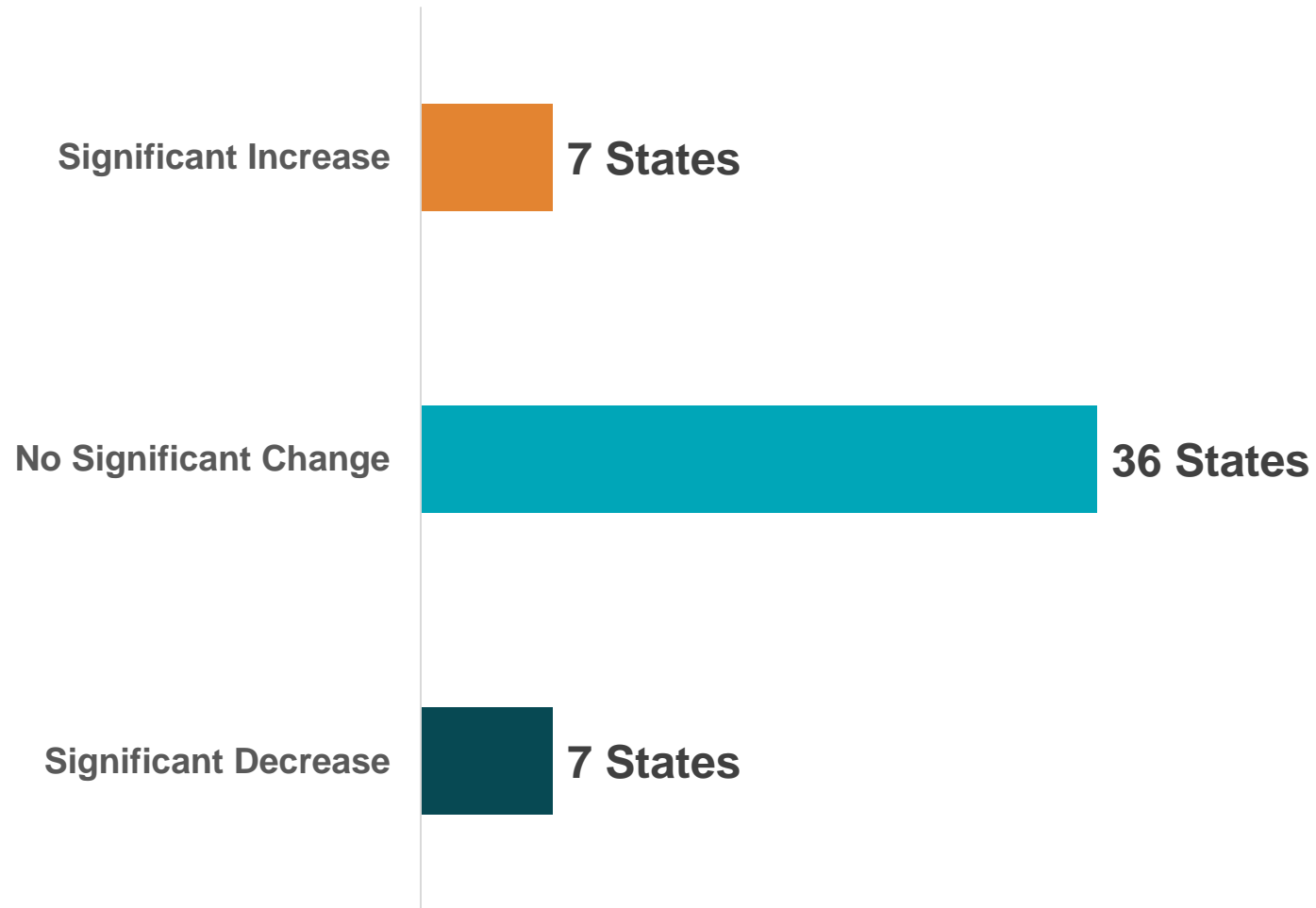
Cocaine Overdose Rates vs U.S., 2022



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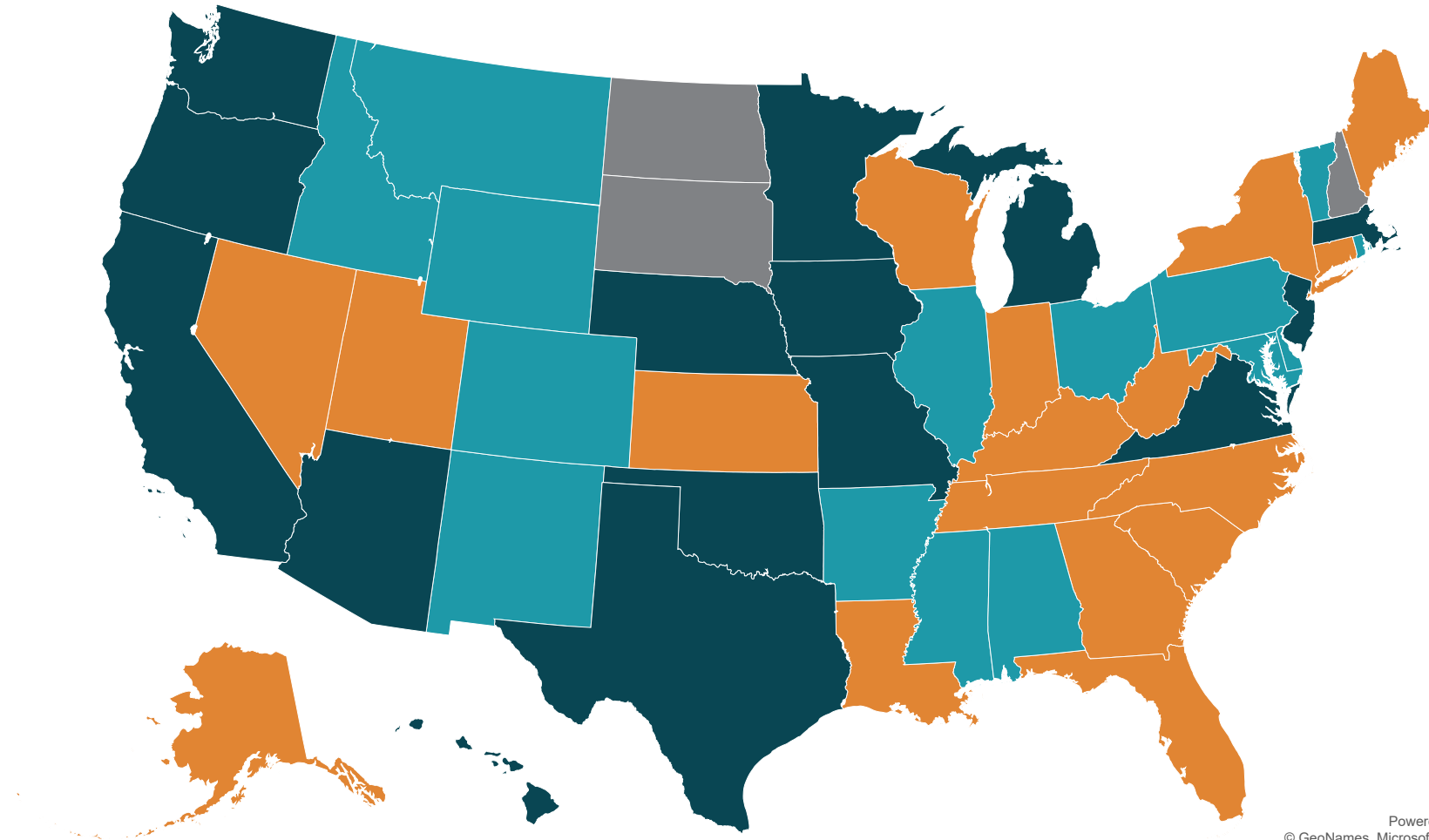
State Changes in Prescription Opioid Overdose Rates, 2019-2022



Prescription Opioid Overdose Rates per 100,000 people, 2022

Five Highest Rates		Five Lowest Rates	
West Virginia	8.7	Hawaii	1.6
Kentucky	7.3	Iowa & Nebraska	1.7
Tennessee & South Carolina	6.7	California & Texas	2.2
Alaska	6.5	Minnesota	2.4
Louisiana	6.2	Virginia	2.5

Prescription Opioid Overdose Rates vs U.S., 2021



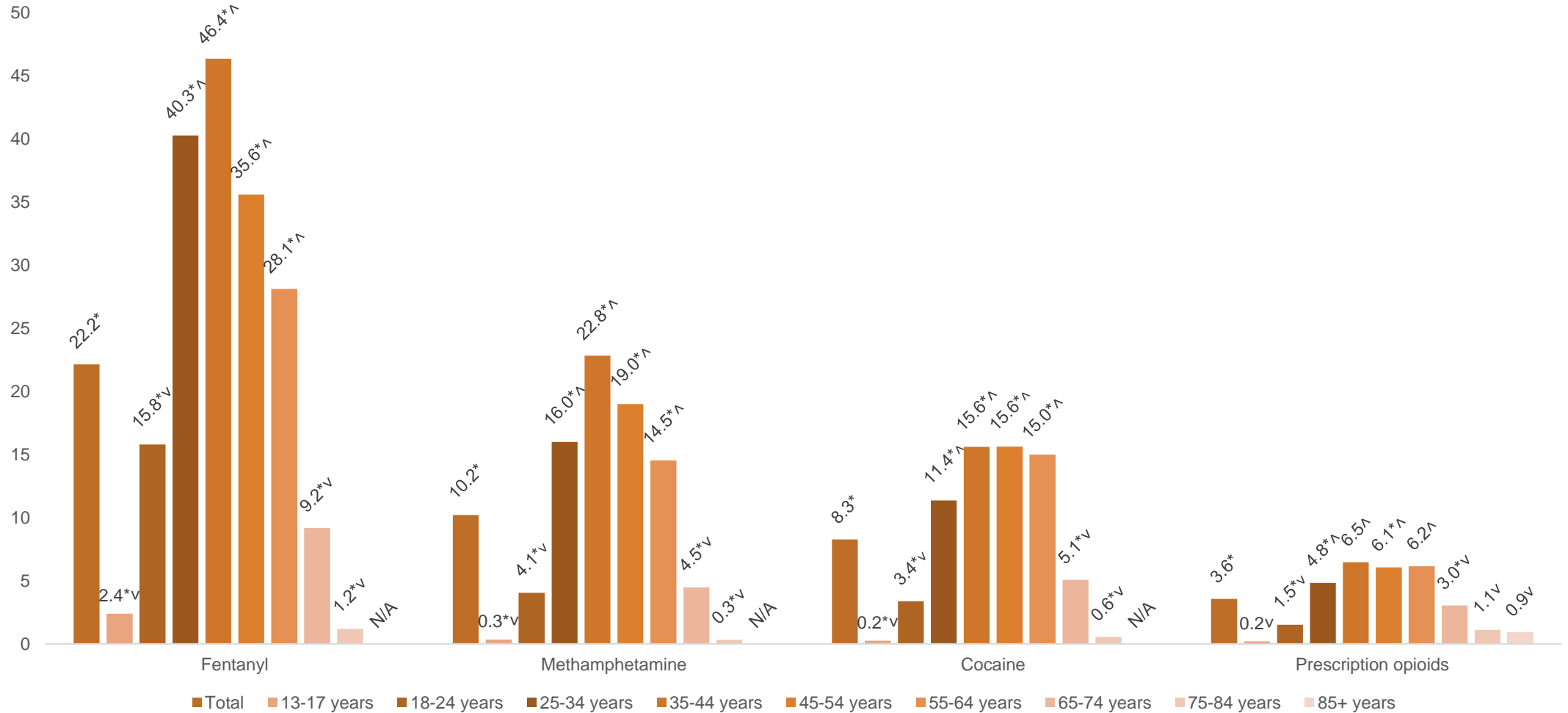
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Opioid Crisis since the Pandemic

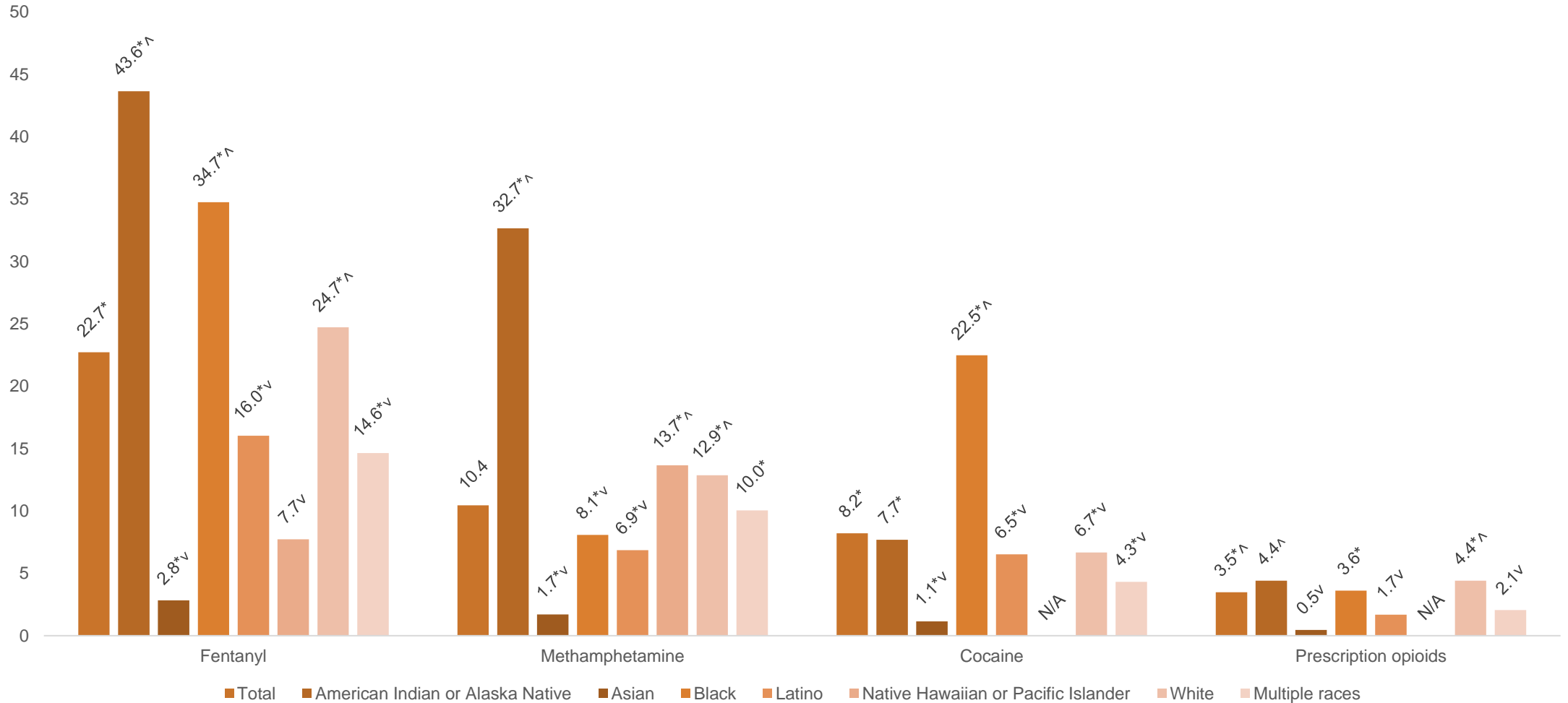
By Demographic Sub-populations

U.S. Drug Overdose Deaths per 100,000 people by Age, 2022



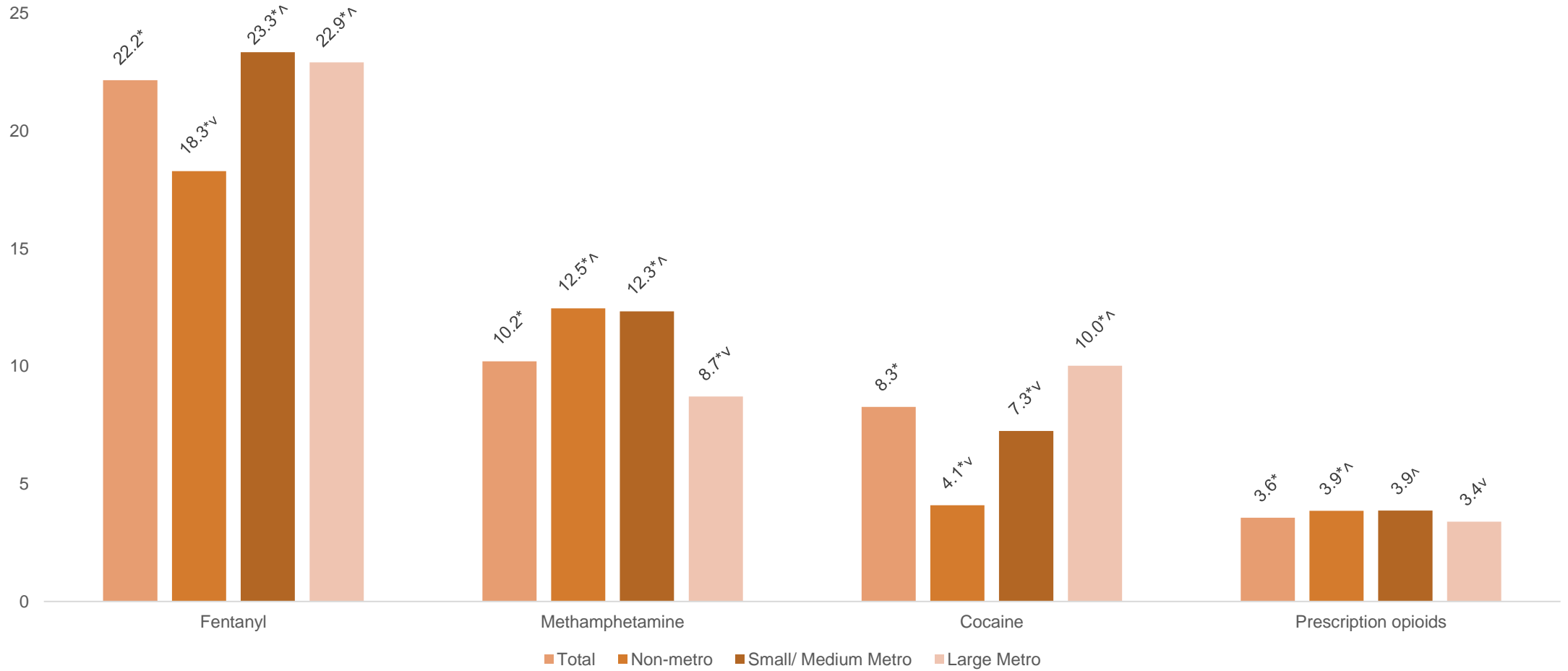
* Statistically significant increase since 2019 at the 95% level.
 ^ Significantly higher than the total population rate at the 95% level.
 v Significantly lower than the total population rate at the 95% level.
 Source: SHADAC analysis of NVSS data

U.S. Drug Overdose Deaths per 100,000 people by Race/ethnicity, 2022



* Statistically significant increase since 2019 at the 95% level.
 ^ Significantly higher than the total population rate at the 95% level.
 v Significantly lower than the total population rate at the 95% level.
 Source: SHADAC analysis of NVSS data

U.S. Drug Overdose Deaths per 100,000 people by Urbanization, 2022

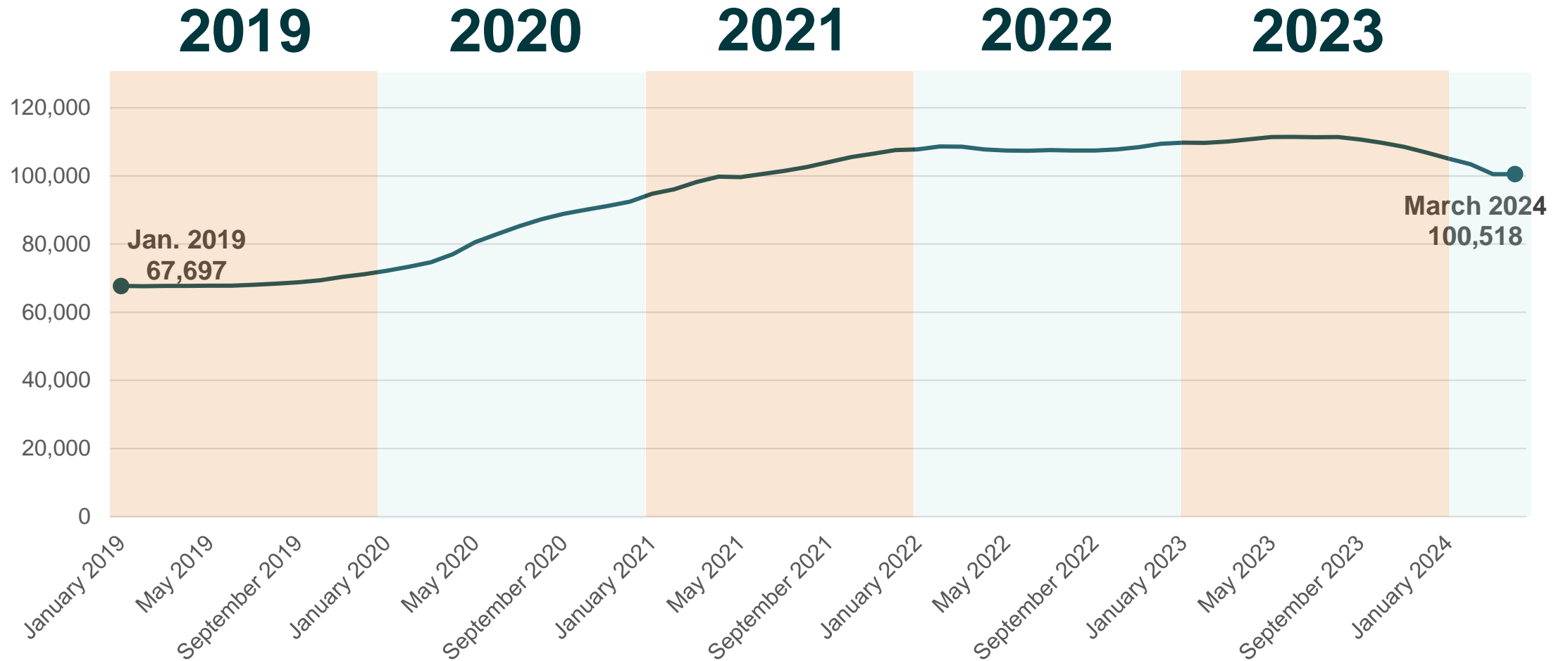


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 ^ Significantly higher than the total population rate at the 95% level.
 v Significantly lower than the total population rate at the 95% level.
 Source: SHADAC analysis of NVSS data

More recently

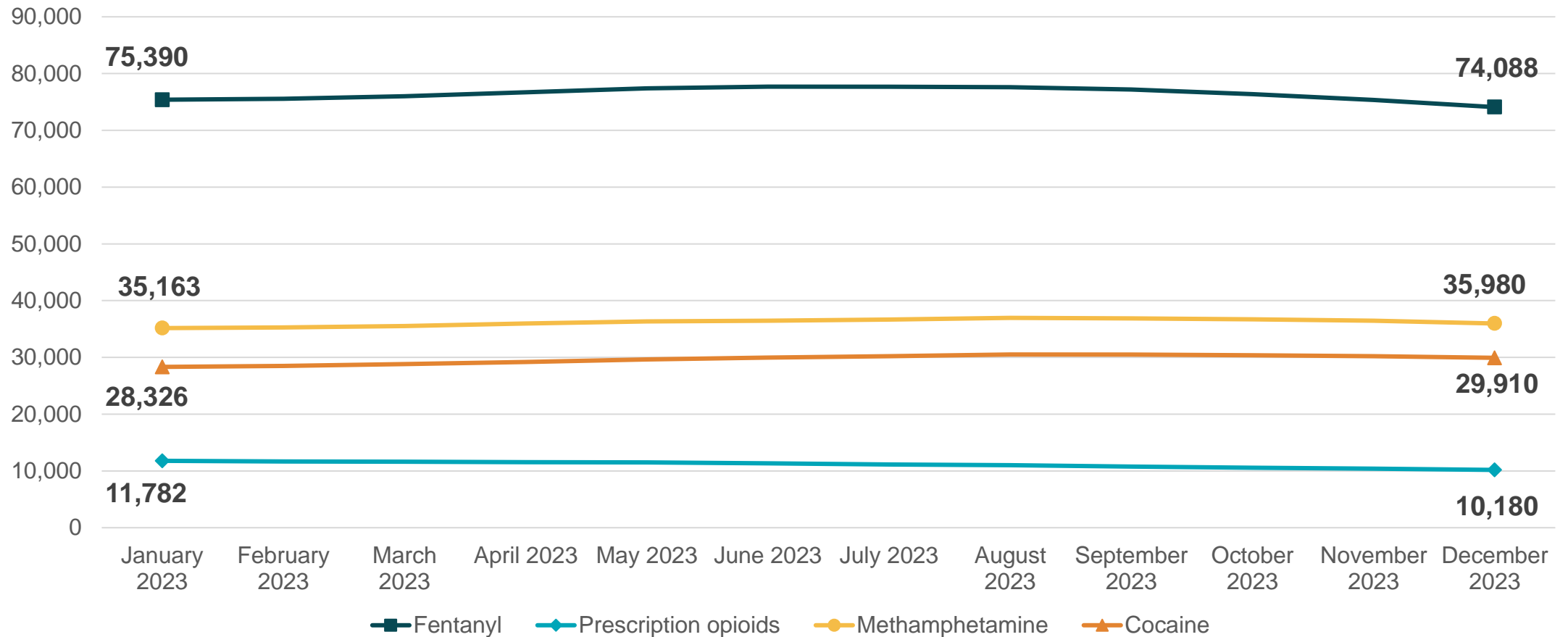
Provisional Overdose Deaths Data

U.S. Provisional Drug Overdose Deaths, 12-month Rolling Counts



Source: CDC Provisional Drug Overdose Death Counts

U.S. Provisional Drug Overdose Deaths, 12-month Rolling Counts, 2023



Source: CDC Provisional Drug Overdose Death Counts

Conclusions

Fentanyl was a major driver of growth in fatal overdoses during the pandemic

- The fatal fentanyl overdose rate increased roughly doubled in just three years

During the COVID-19 pandemic, cocaine and methamphetamine overdose death rates increased rapidly — influenced by ties with fentanyl

- The rate of fatal cocaine overdoses that also involved fentanyl roughly doubled in just three years
- The rate of fatal methamphetamine overdoses that also involved fentanyl nearly quadrupled in just three years

Changes in overdose crisis dynamics worsened for some demographic subgroups, and it spread to previously insulated subgroups

- Growing rates of fentanyl-involved cocaine and methamphetamine overdose deaths have disproportionately harmed the U.S. Black population and American Indian and Alaska Native population
- Fentanyl overdose deaths quadrupled among adolescents (age 13-17), making them a cause of death on par with cancer (2.4 vs. 2.5 deaths per 100,000 people)

Other considerations

Vital statistics data are critically important to monitoring the overdose crisis, but they hamstring us due to fundamental flaws

The CDC takes a *long* time to publish data

- 2022 finalized data weren't released until April 2024

The drug categories, based on ICD-10 codes, are too blunt of measurement instruments (e.g., “other synthetic opioids,” “psychostimulants with abuse potential”)

- The [CDC has published on more-granular data](#) but hasn't released the data publicly for other researchers.

No codes at all for some emerging threats, such as xylazine

- Hampers our ability to conduct surveillance in a dynamic and continually evolving environment

Thank you

Colin Planalp, MPA
Senior Research Fellow
cplanalp@umn.edu

State Health Access Data Assistance Center (SHADAC)
University of Minnesota School of Public Health
www.SHADAC.org

