Trends, Analysis & Threats

Overdose Response Strategy Webinar Series

Funded by the Office of National Drug Control Policy and the Centers for Disease Control and Prevention

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Agenda

Opening Remarks

Christopher Jakim, HIDTA Deputy National Coordinator, Overdose Response Strategy

National Overdose Data Highlight

Steve Barnes, Technical Advisor, Overdose Response Strategy

Speaker Briefings

- **Levi Bolin**, Associate Director, Clinical Affairs, Millennium Health
- **Dr. Nabarun Dasgupta**, Senior Scientist, University of North Carolina

Q&A and Closing Remarks

Accessing ORS TAT Materials

We’re excited to announce that starting this month, all follow-up and recorded materials for our ORS TAT Webinars will be housed within the ‘Resources’ tab of the ORS website.

Please visit our website for all relevant information and follow-up materials.

https://orsprogram.org/tat-webinars/

***We will still be sending follow-up emails to our mailing list and will include the materials link to our website within that communication.**

Overdose Response Strategy

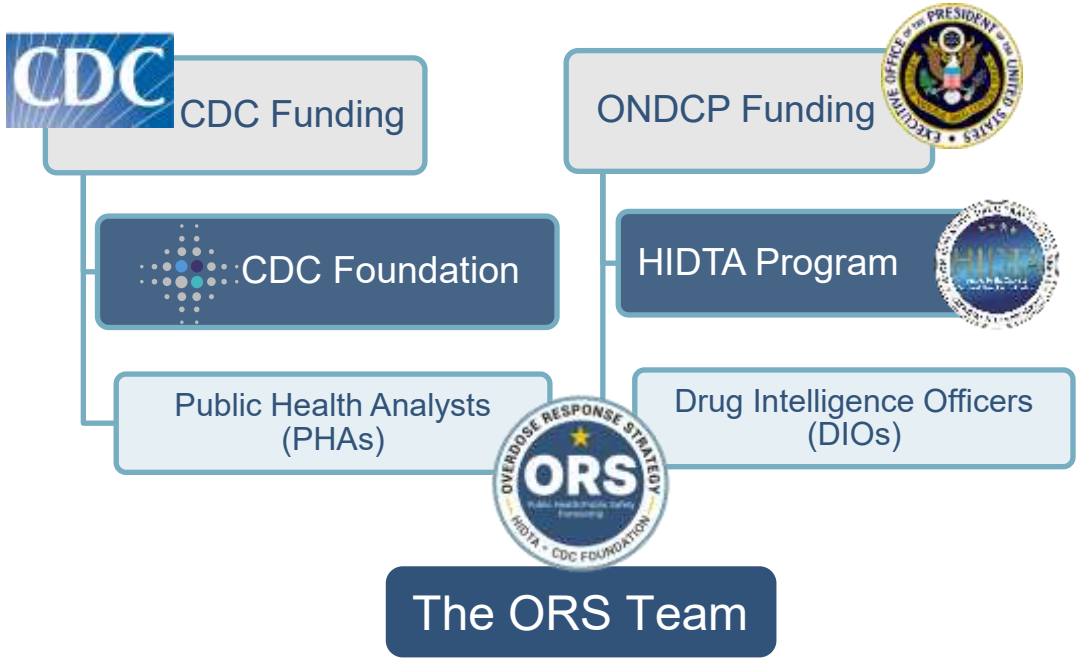
The ORS is a nationally coordinated, cross-sector collaboration between public health and public safety.

The mission of the ORS is to **help communities reduce fatal and non-fatal drug overdoses** by connecting public health and public safety agencies, sharing information and supporting evidence-based interventions.

Connect

1. Go to www.orsprogram.org

2. Visit **"ORS Interactive Teams Map"** for team contact info



The ORS is implemented by 61 teams of DIOs and PHAs covering all 50 states, D.C., Puerto Rico, and the U.S. Virgin Islands.

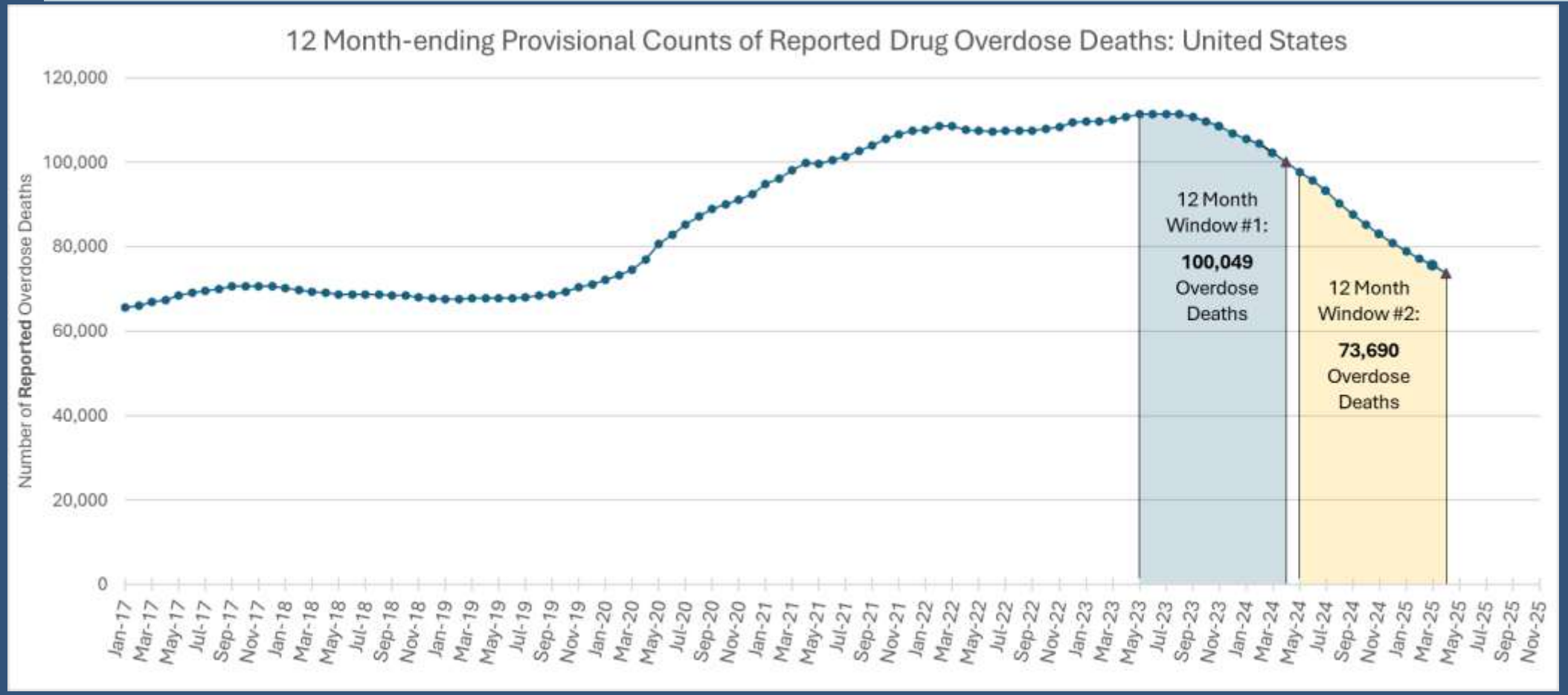
Trends, Analysis & Threats Webinar: Acknowledgement of Data Sensitivity and Use

The information presented and discussed at ORS Trends, Analysis & Threats (TAT) meetings is shared voluntarily by data owners, often in advance of public release and is often preliminary and incomplete. The Overdose Response Strategy (ORS) does not own or manage any of the data presented.

National Overdose Data Snapshot

Steve Barnes, *Technical Advisor, Overdose Response Strategy*

National Picture - Overdose Mortality



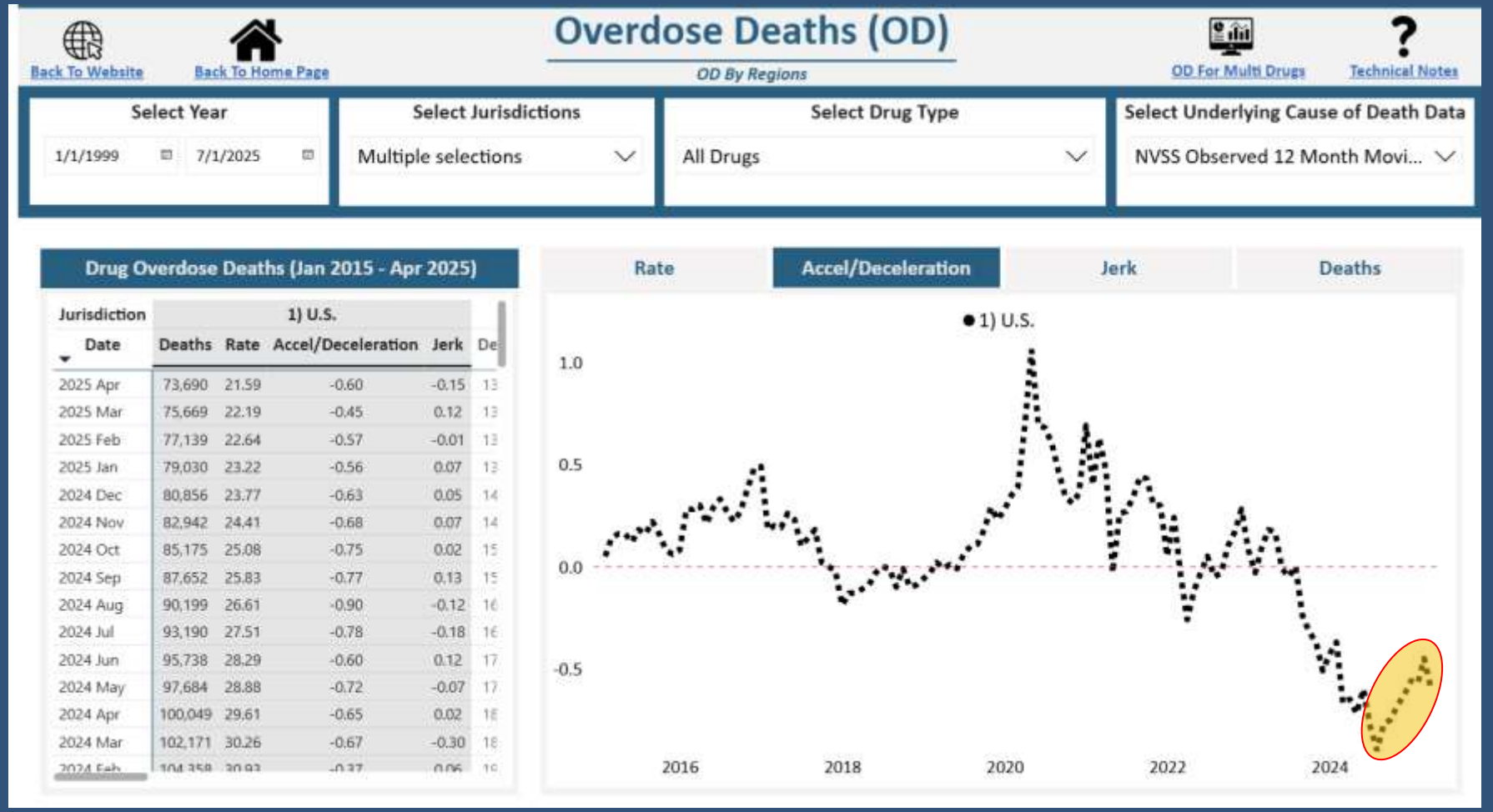
Percent Change for United States

-26.3

Based on data available for analysis on: **September 7, 2025**

National Center for Health Statistics, Provisional Drug Overdose Death Counts

Northwestern University “OD Pulse” Dashboard



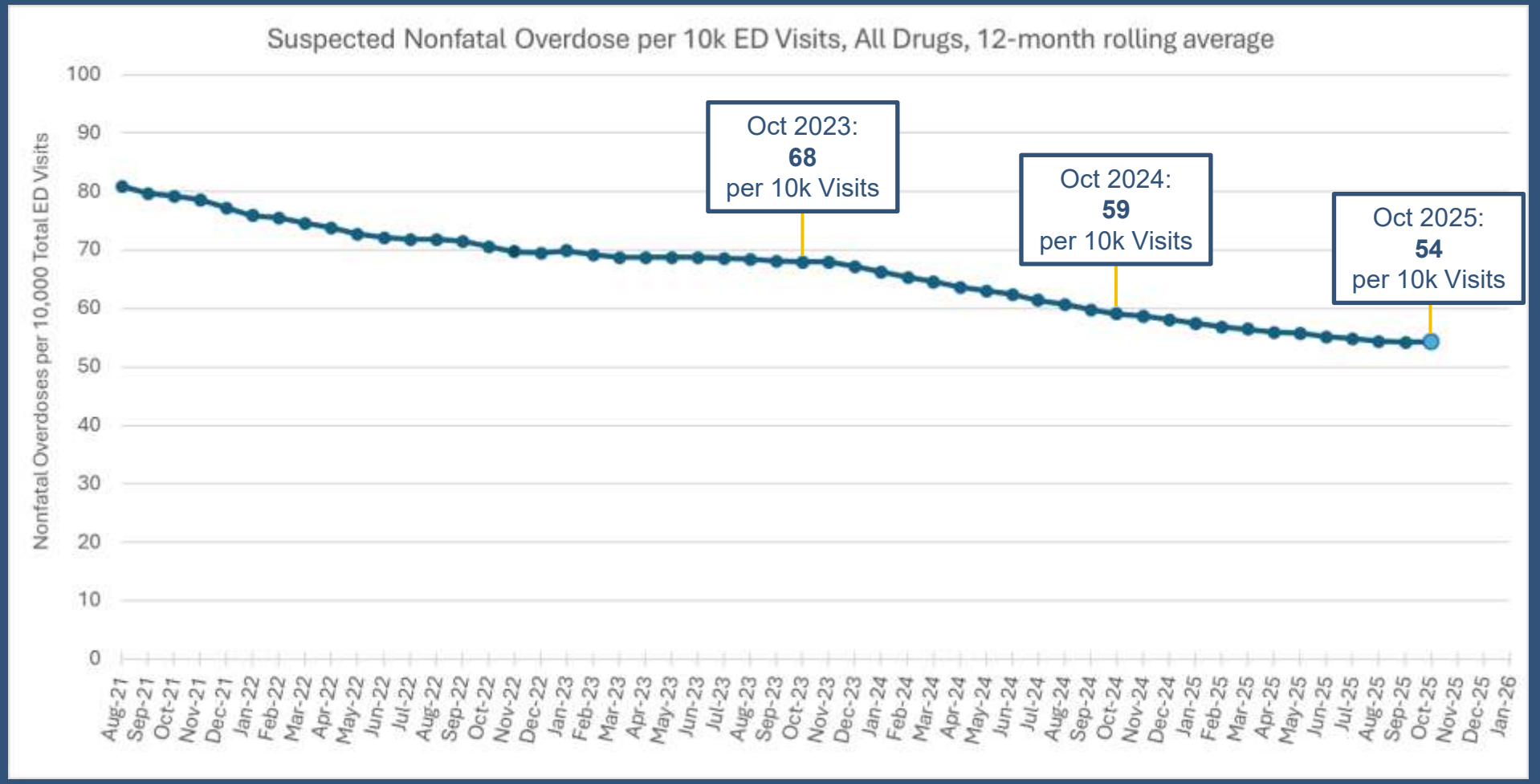
Overdose deaths are still declining, **just not as quickly as before**

Based on CDC NVSS data updated on: **September 7, 2025**

Northwestern University **"The OD Pulse"** Dashboard

Trends in Emergency Department Visits

January 2023 through October 2025



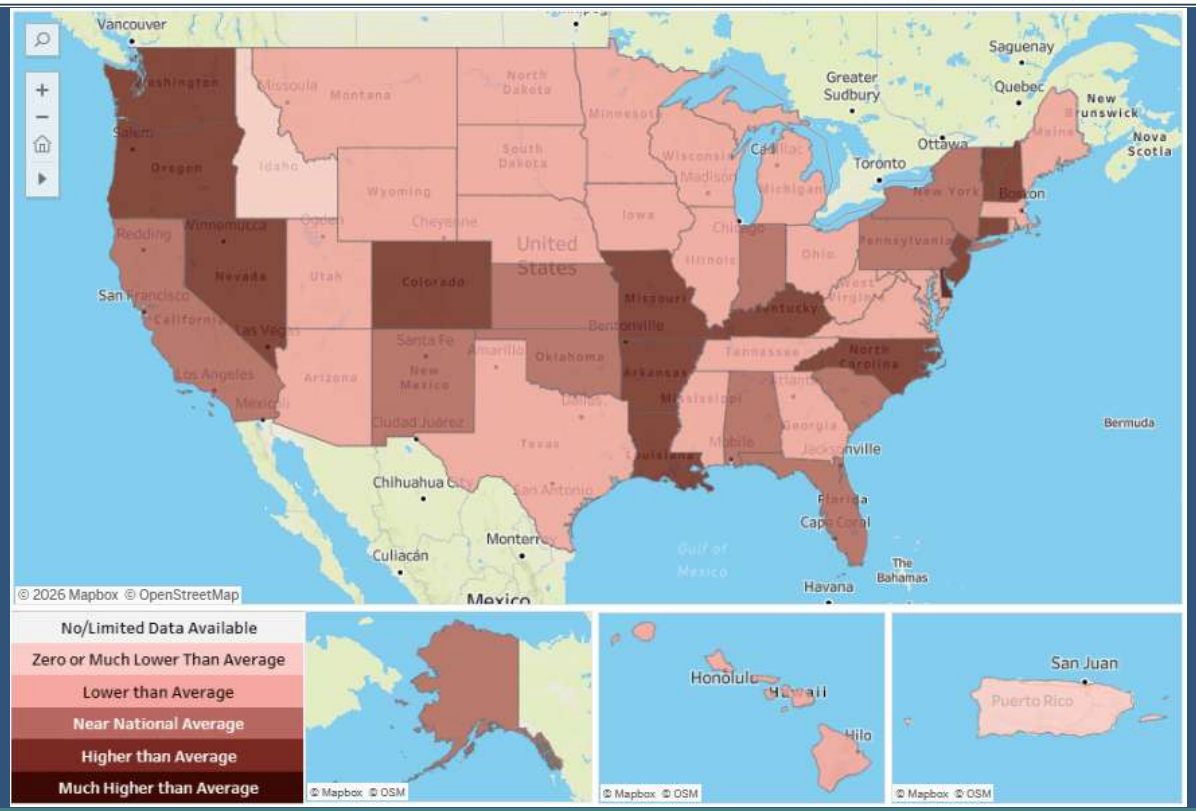
CDC Drug Overdose Surveillance and Epidemiology (DOSE) System: Nonfatal Overdose Syndromic Surveillance

Trends in Emergency Medical Services (911 Calls)

December 2024 Compared to **December 2025**

Drug Overdose Surveillance Dashboard

December 22, 2024 – December 21, 2025



Number/Rate Nonfatal Overdoses

645,993 or 199.1 (-3.8%)

Data last updated on: **January 2nd, 2026**

National EMS information system (NEMSIS)

Partner Briefings

Current Drug Use Trends for the Primary Drivers of Overdose Mortality:

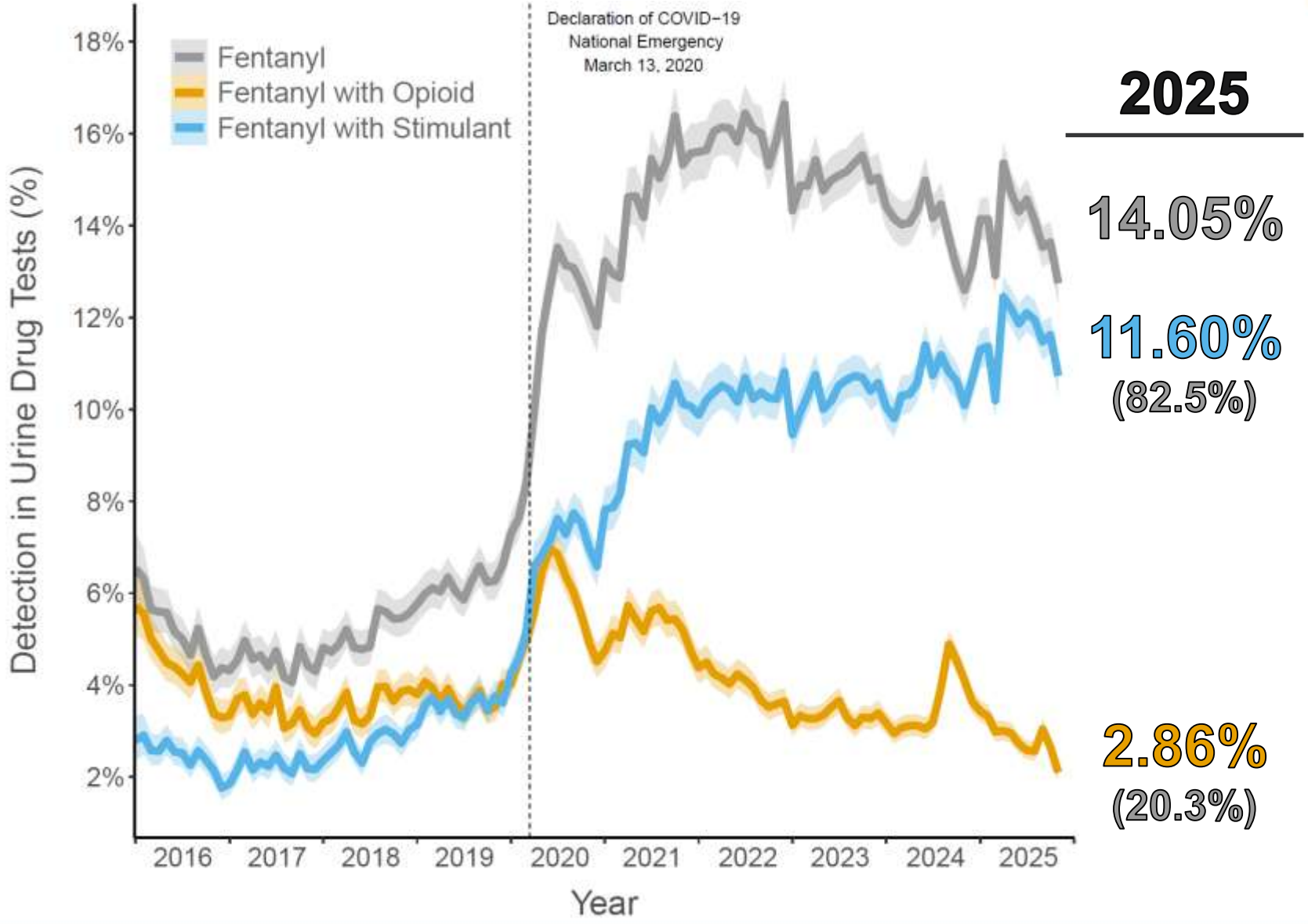
Insights from Clinical Urine Drug Testing Data

B. Levi Bolin, PhD
Associate Director, Clinical Affairs
levi.bolin@millenniumhealth.com

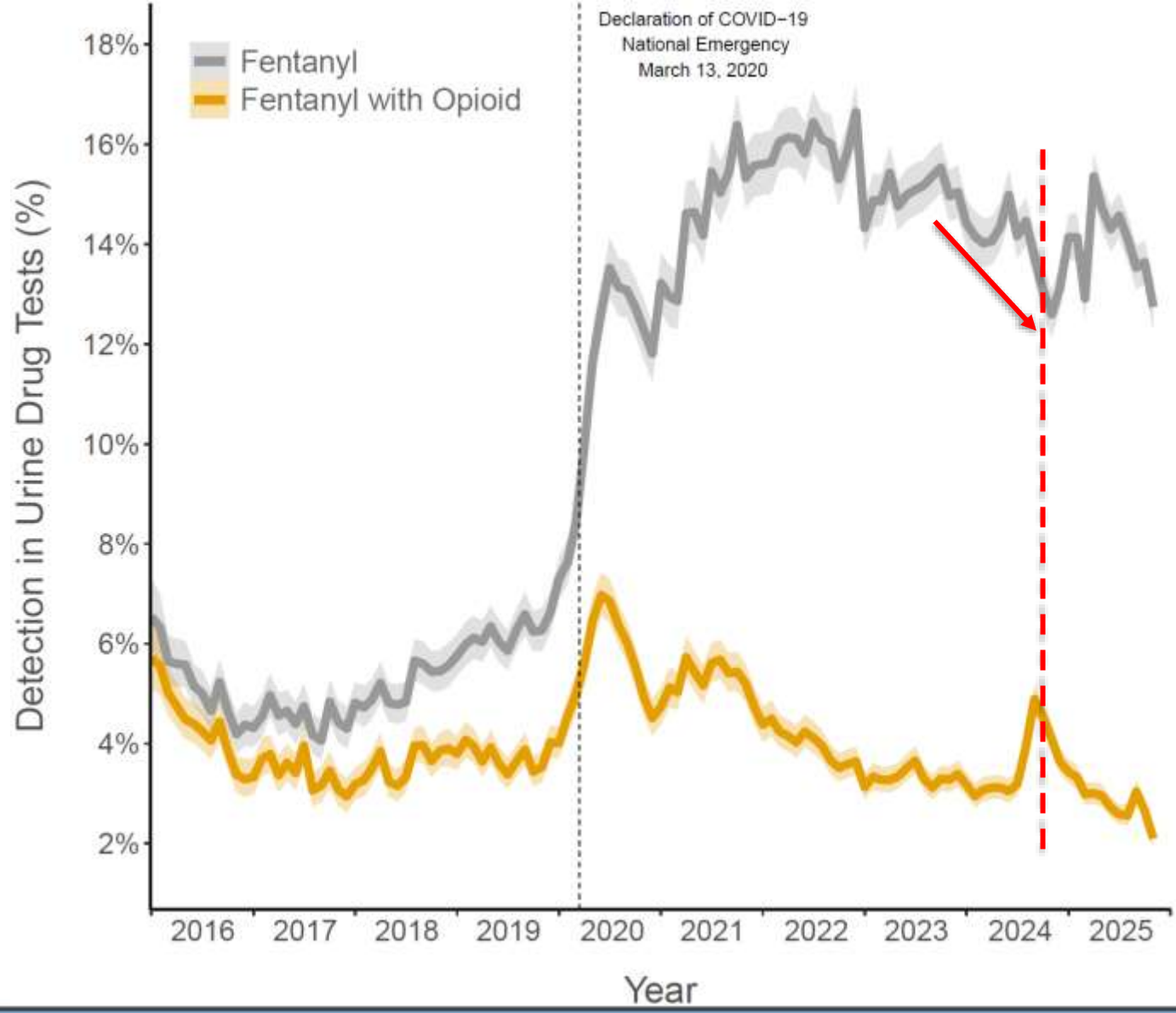
General Methodology

- Retrospective, cross-sectional analysis of de-identified, aggregated urine drug testing results derived from testing with liquid chromatography-tandem mass spectrometry (LC-MS/MS)
- More than 1.69M urine specimens (>530K unique patients) collected from patients ≥18 years of age in multiple healthcare specialties between January 1, 2016 and November 30, 2025
- All specimens associated with a SUD diagnosis code (ICD-10: F11, F13, F14, F15, F16, F18, F19)
- All results consistent with illicit/non-prescribed use (i.e., no reported prescription for any drug studied)
- No more than one specimen per patient within a 30-day period

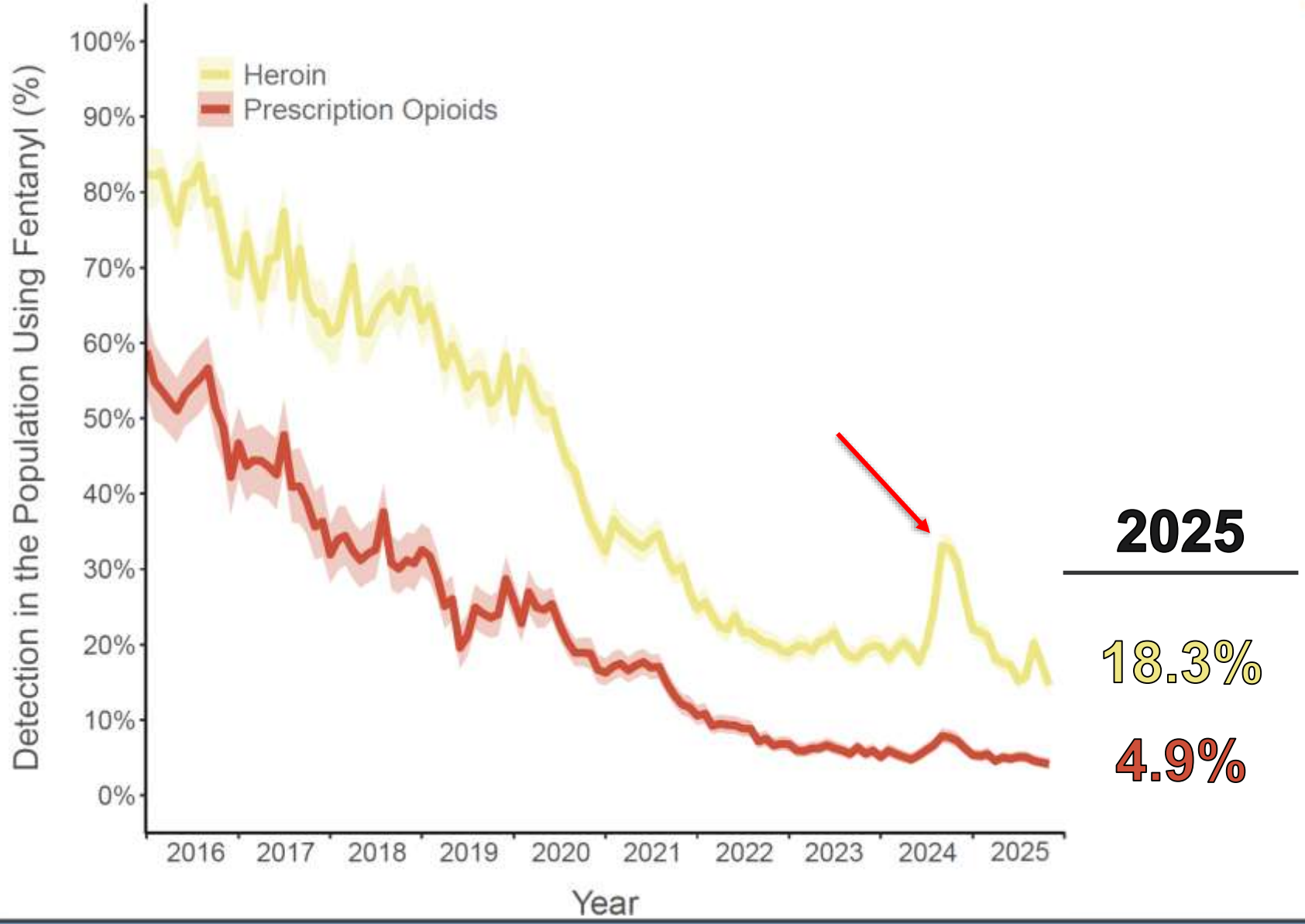
National Total Fentanyl Detection and Fentanyl-Associated Polysubstance Use Involving Stimulants and Other Opioids



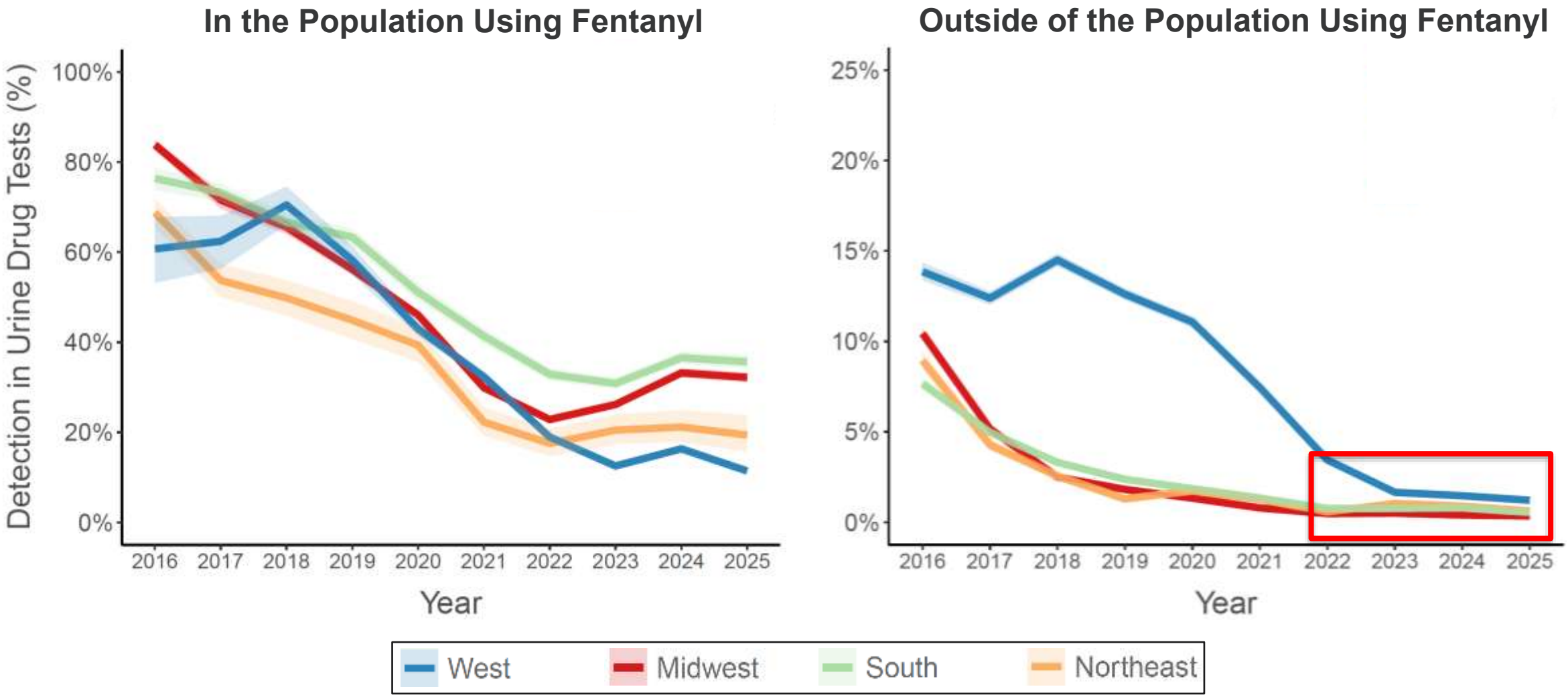
National Fentanyl Detection and Fentanyl-Associated Polysubstance Use Involving Other Opioids (Heroin & Rx Opioids)



National Detection of Fentanyl-Associated Polysubstance Use Involving Heroin and Prescription Opioids



Regional Detection of Heroin Use (2016-2025)

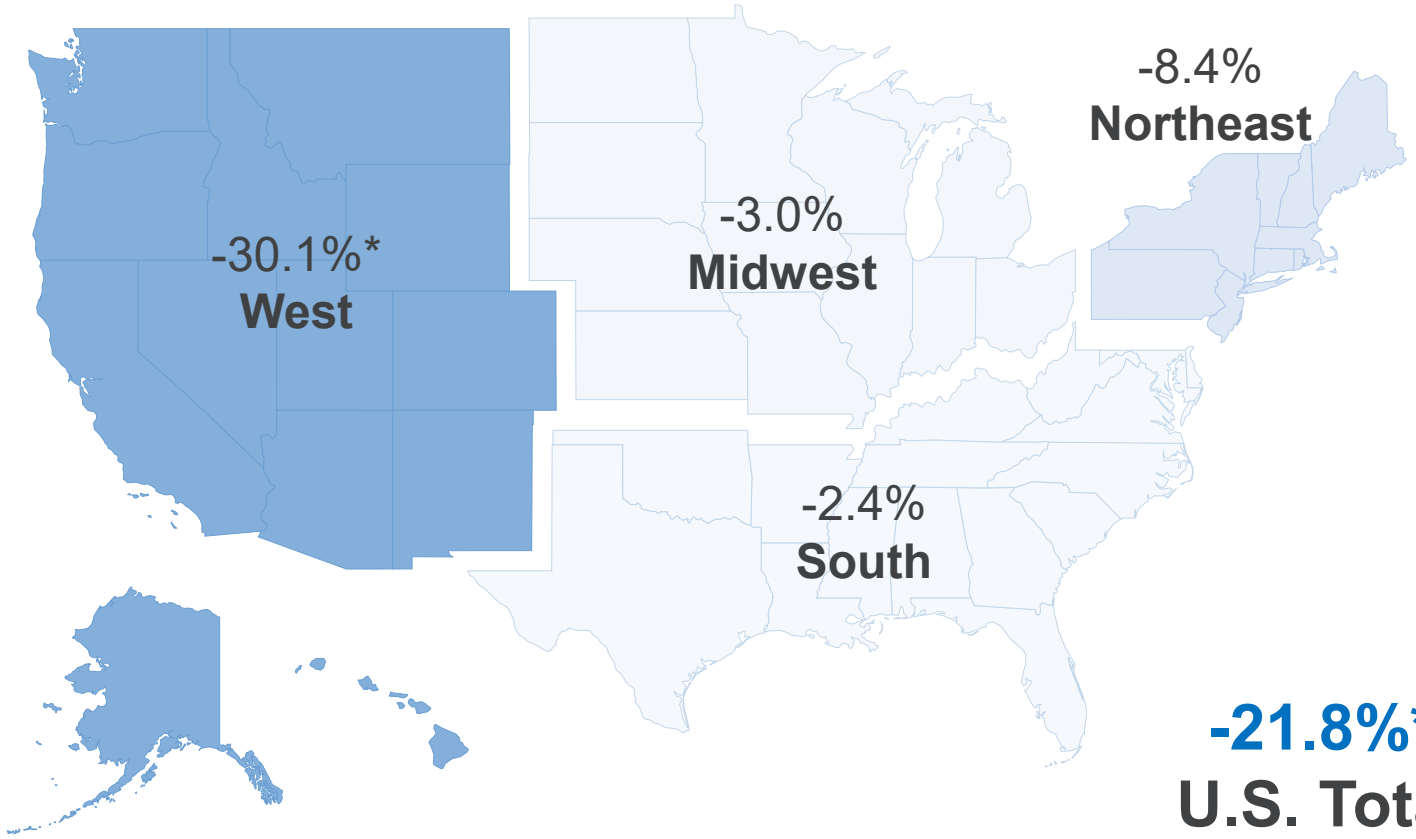


Regional Detection of Heroin Use in the Population Using Fentanyl (2024 vs. 2025)

Detection Rates

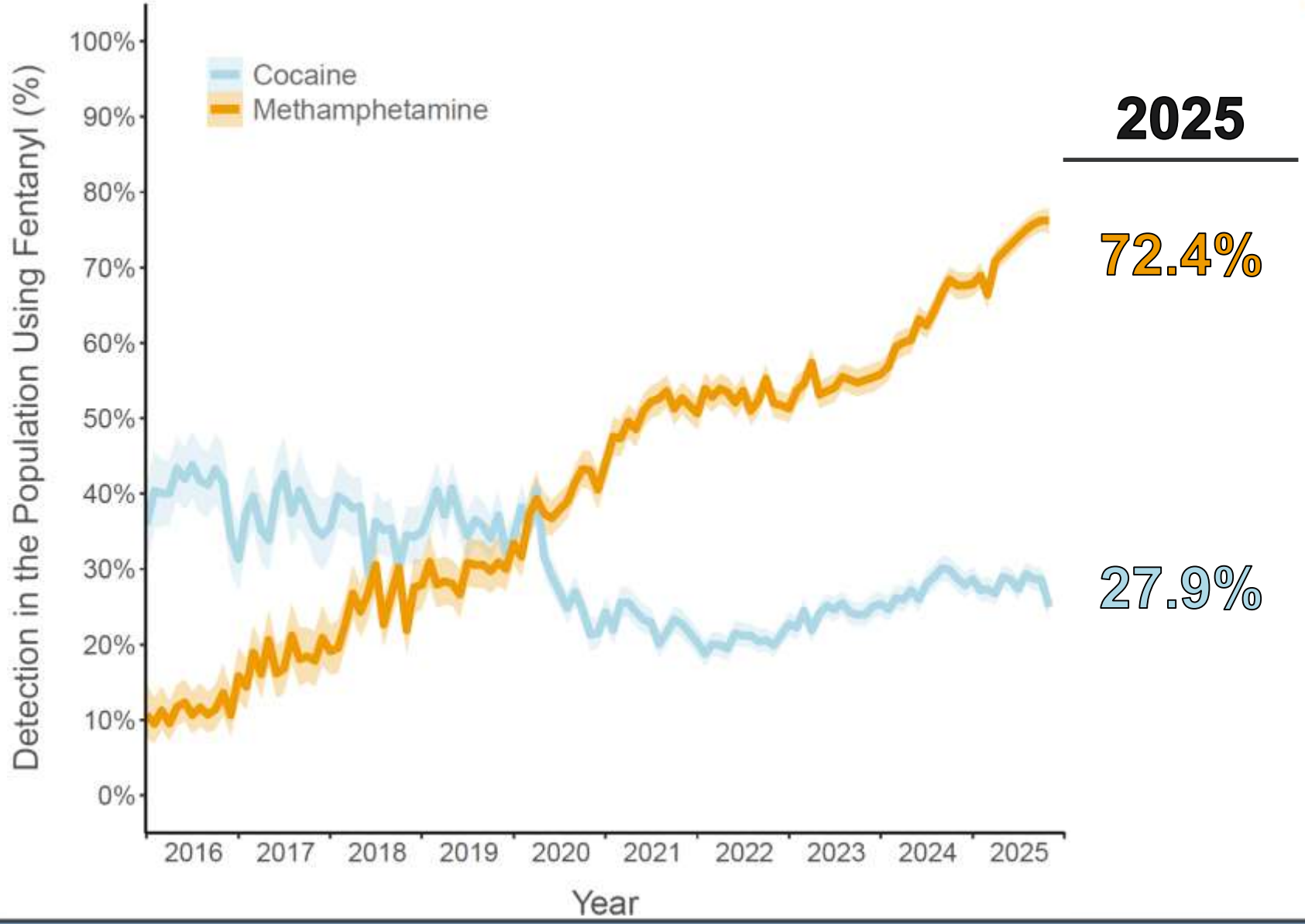
Census Region	2024	2025
West	16.3%	11.4%
Midwest	33.2%	32.2%
South	36.6%	35.7%
Northeast	21.2%	19.4%
U.S. Total	23.4%	18.3%

Percent Change



-21.8%*
U.S. Total

National Detection of Fentanyl-Associated Polysubstance Use Involving Cocaine and Methamphetamine

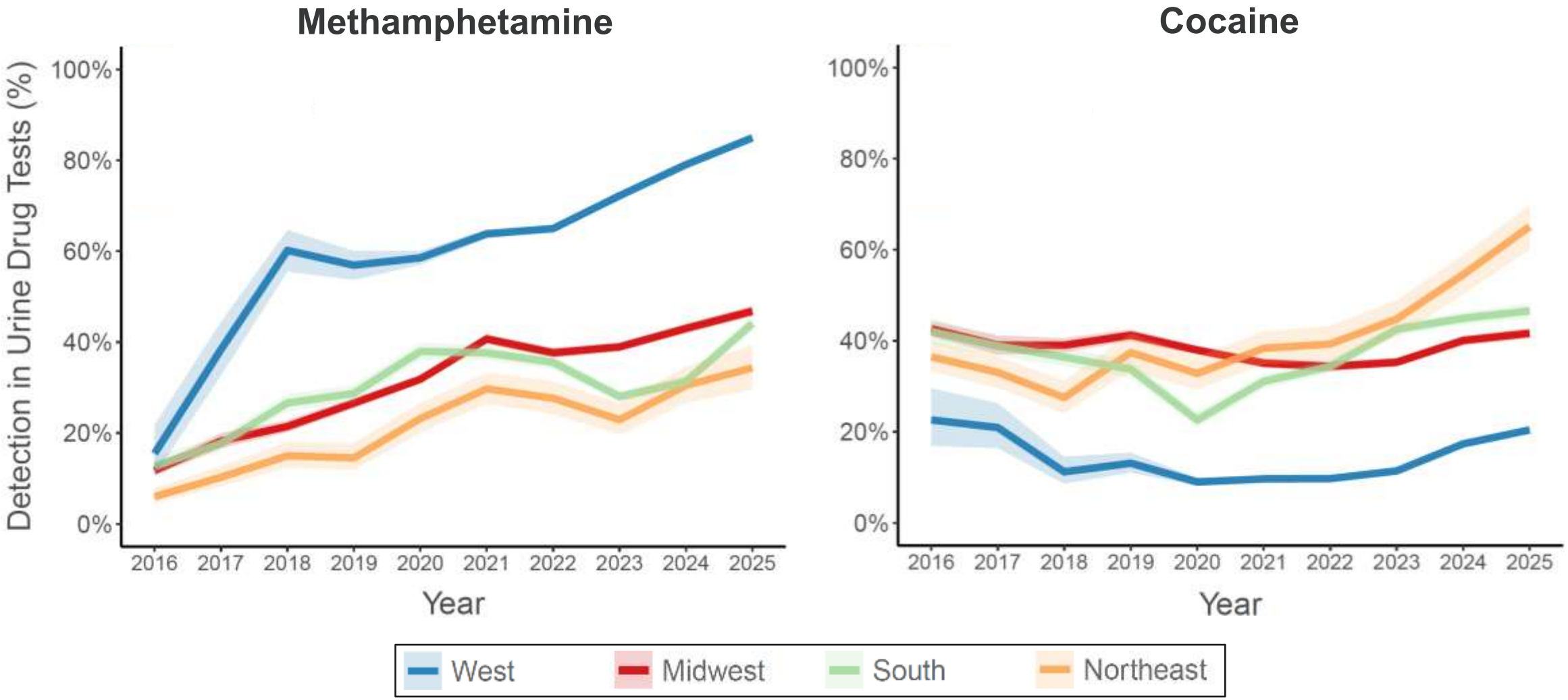


2025

72.4%

27.9%

Regional Detection of Methamphetamine and Cocaine Use in the Population Using Fentanyl (2016-2025)

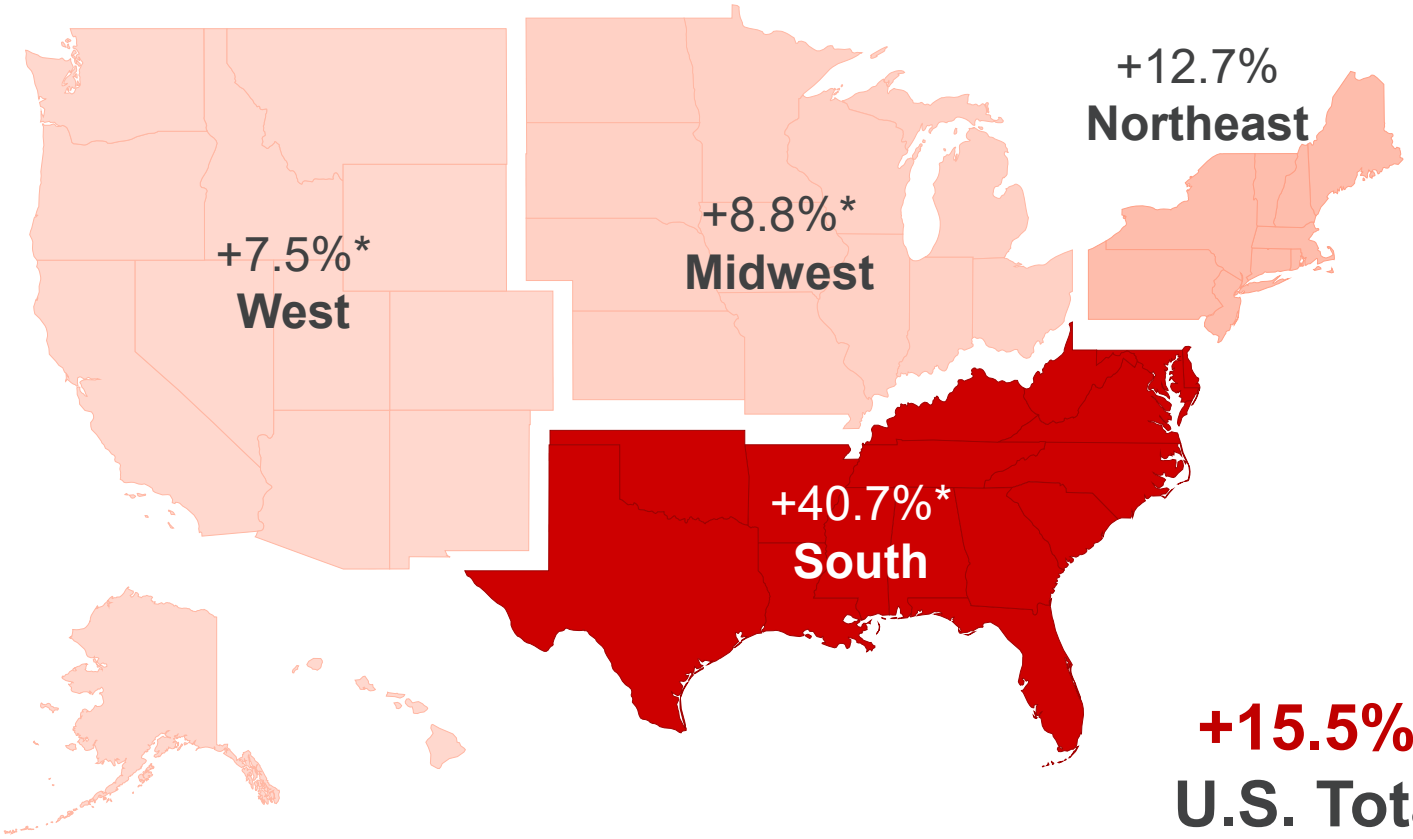


Regional Detection of Methamphetamine Use in the Population Using Fentanyl (2024 vs. 2025)

Detection Rates

Census Region	2024	2025
West	79.1%	85.0%
Midwest	43.0%	46.8%
South	31.3%	44.1%
Northeast	30.5%	34.3%
U.S. Total	62.7%	72.4%

Percent Change



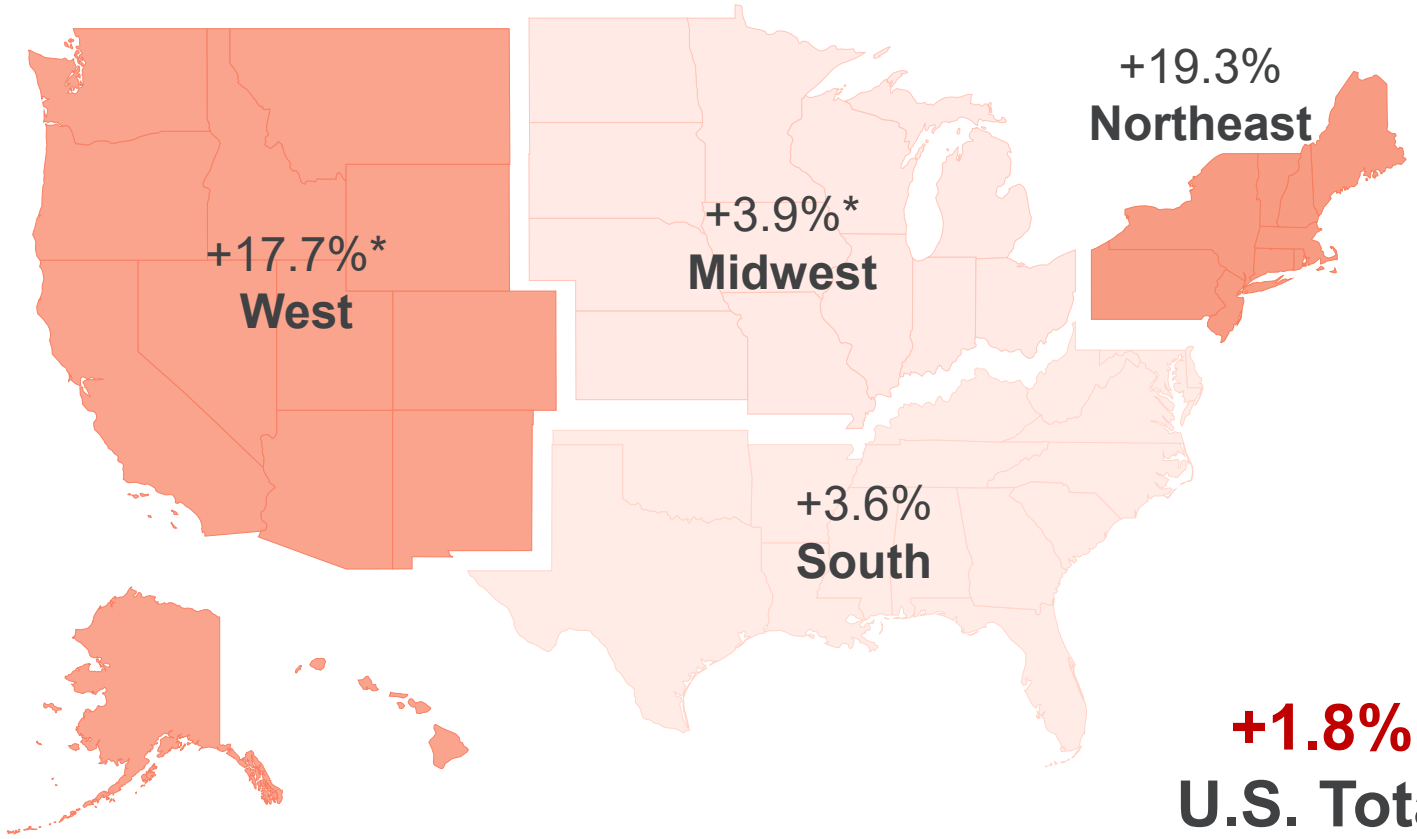
+15.5%*
U.S. Total

Regional Detection of Cocaine Use in the Population Using Fentanyl (2024 vs. 2025)

Detection Rates

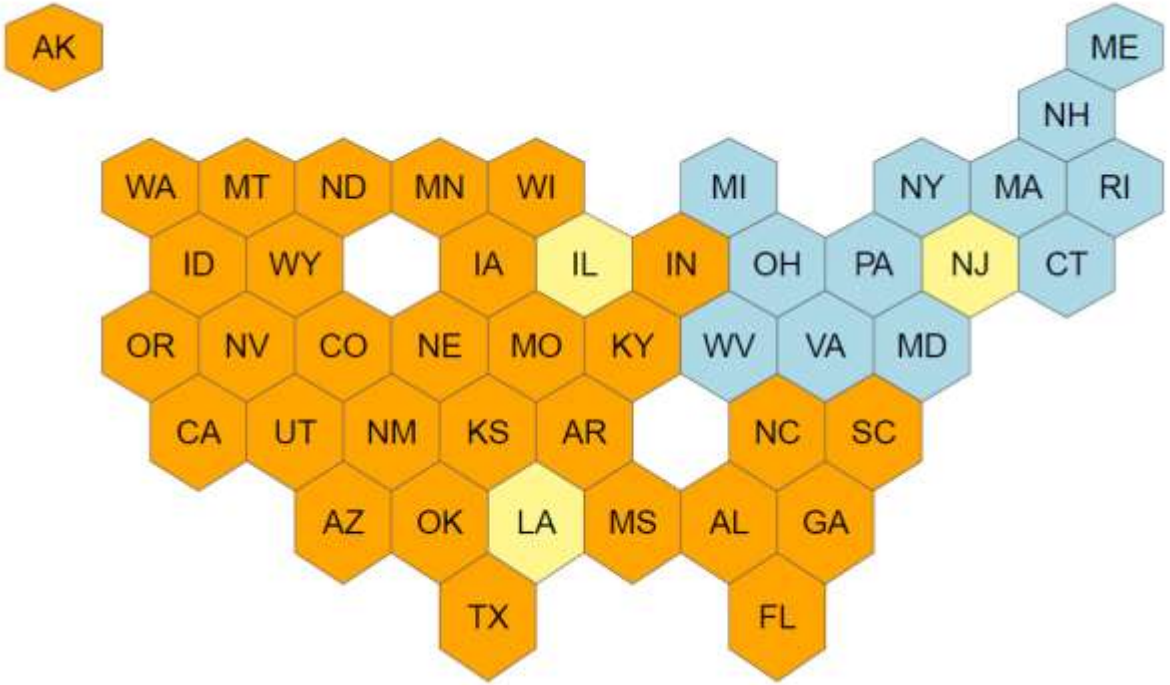
Census Region	2024	2025
West	17.3%	20.4%
Midwest	40.1%	41.7%
South	44.9%	46.6%
Northeast	54.6%	65.1%
U.S. Total	27.4%	27.9%

Percent Change

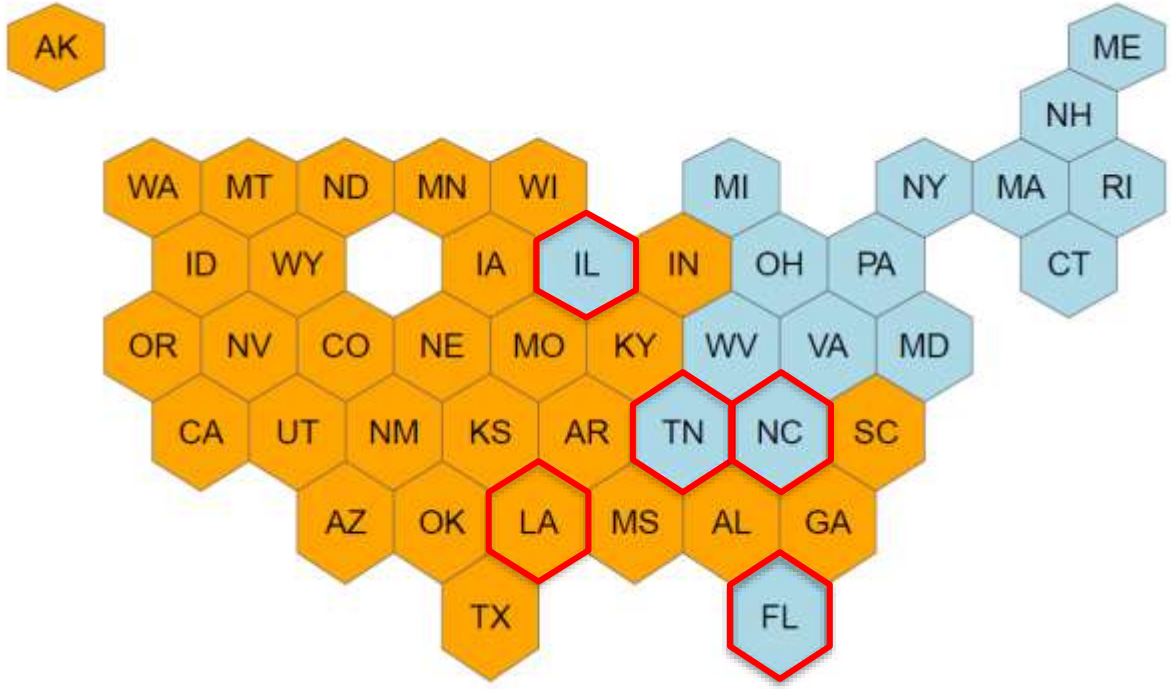


+1.8%
U.S. Total

Most Commonly Co-Detected Drug in the Population Using Fentanyl by State (2024 vs. 2025)

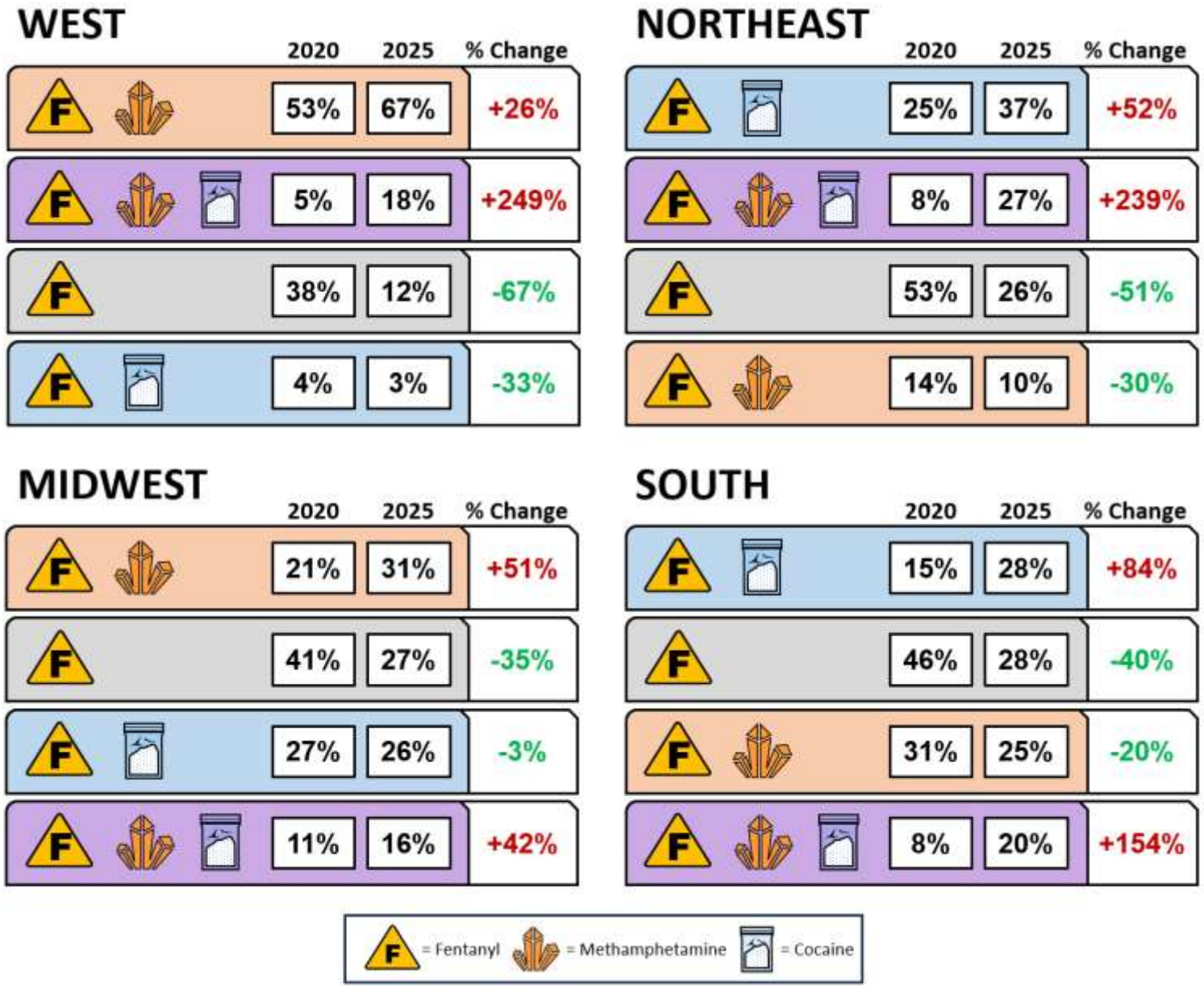


2024

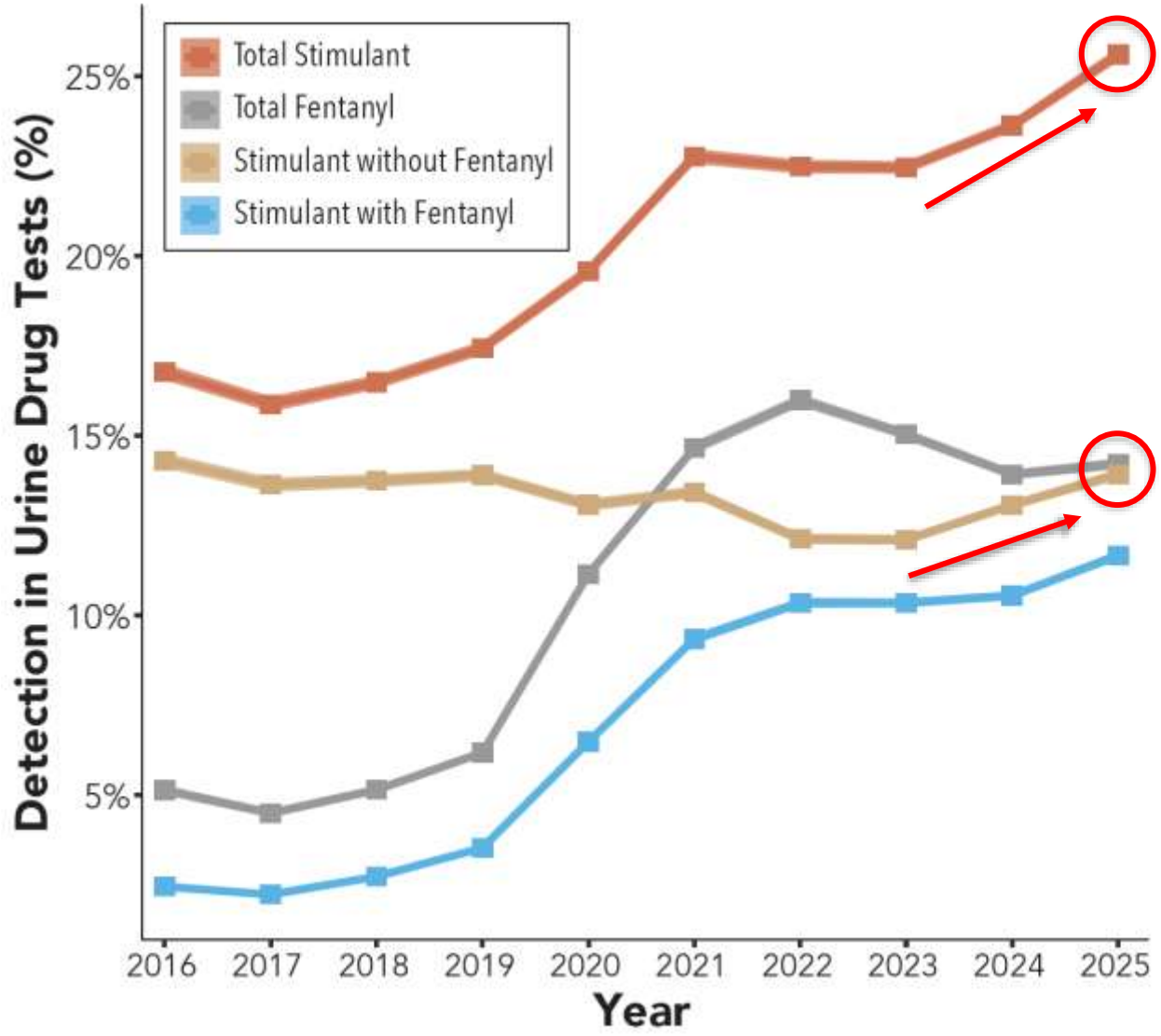


2025

Regional Detection of Fentanyl-Stimulant Combinations



National Comparison of Stimulant Use With and Without Fentanyl Relative to Total Fentanyl Detection



Key Findings

1. The detection rate for stimulants (i.e., cocaine and/or methamphetamine; ■) has consistently been higher than that of fentanyl (■), with stimulants being detected at almost double the rate as fentanyl in 2025 (i.e., 26% vs. 14%, respectively) and still climbing.
2. Co-detection of fentanyl and stimulants (■) has increased over time and continued to rise in 2025; over 85% of those using fentanyl (■; 14%) also tested positive for a stimulant (■; 12%) in 2025.
3. Although the detection of stimulants without fentanyl (■) had generally decreased since 2016, it began to increase in 2024; stimulant use without fentanyl (■; 14%) is now detected at the same rate as fentanyl overall (■;14%).

LEFT: National, yearly urine drug testing (UDT) detection rates (with 95% confidence intervals, light shading) for total stimulants (red line; includes methamphetamine and/or cocaine), total fentanyl (gray line), stimulants with fentanyl (blue line), and stimulants without fentanyl (tan line) in patient specimens collected from January 1, 2016 through November 30, 2025. Detection rates were estimated using logistic regression. **ABOVE:** Annual detection rates were rounded to the nearest whole number. **Note:** Co-detection of stimulants and fentanyl via UDT does not differentiate between intentional use of and inadvertent exposure to either drug/drug class.

Conclusions

- After an extended period of decline and rebound in late 2024 early 2025, fentanyl detection rates generally fell throughout 2025
- Heroin co-detection rates surged in late 2024 as fentanyl detection rates reached their lowest level since 2020, but plummeted as fentanyl quickly returned to 2023 levels (disruption of illicit fentanyl supply?)
- Stimulant use remains a major—and still growing—concern across the U.S., especially among people who use fentanyl
  - No stimulant overdose reversal agents or FDA-approved medications for stimulant use disorders
  - Treatment of co-occurring opioid and stimulant use disorders may be particularly challenging
  - Chronic, heavy use of stimulants associated with significant psychiatric complications, the development of chronic health conditions, and elevated infectious-disease risk
  - Widespread dissemination and utilization of effective, evidence-based interventions desperately needed

Drug Supply Update and Look Ahead to 2026

Nabarun Dasgupta, MPH, PhD
University of North Carolina
Chapel Hill, NC, USA

January 7, 2026 • ORS-TAT • Virtual

Funding

I do not accept industry funding. My views do not necessarily reflect those of our funders.

Foundations & Non-profits	State	Federal	Fee-for-service
FORE MacArthur NASTAD	NC DHHS NC General Assembly, via NC Collaboratory, using opioid settlement funds	US FDA	Drug sample analysis **free or at-cost**

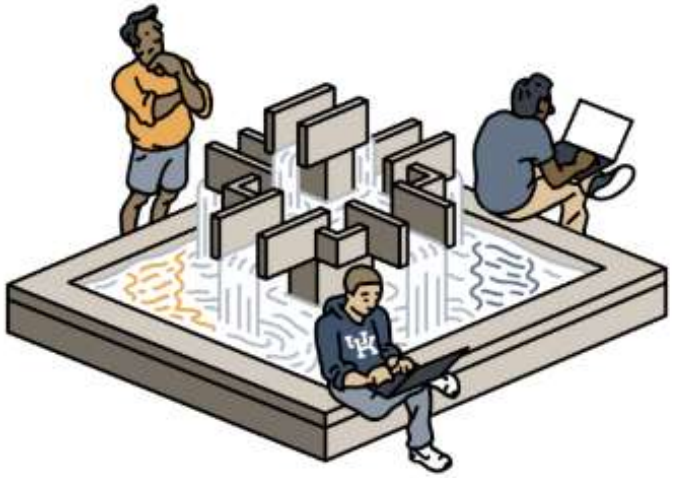
Disclosure

I am an **uncompensated** Board member of the non-profit Remedy Alliance For The People, which provides technical assistance for drug checking, and distributes bulk naloxone and other supplies **free or at-cost**.

OPIOID DATA LAB

Street Drug Analysis Lab @ UNC

Theory



Foundational Studies

- Biostatistics
- Epidemiology methods
- Psychology of communication
- Pharmacology

Practice

Applied Research

- Pharmacy
- Medicine
- Vital statistics
- Harm reduction

Lived Experience

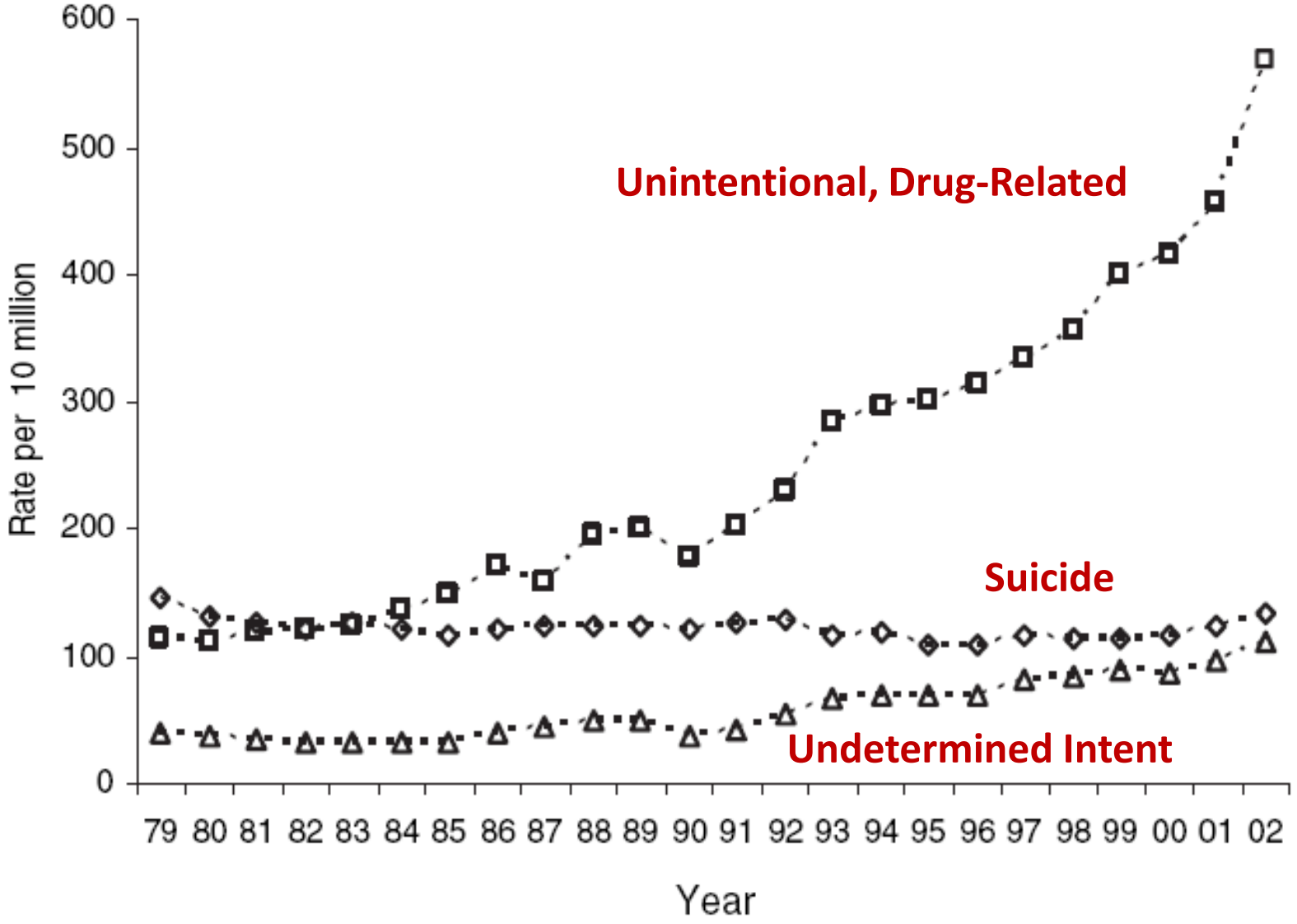
Community Questions

- Drug checking
- Sociology (qualitative)
- Evidence-making interventions
- History of asylums

1.

Generational shifts offer an opportunity for change long-term.

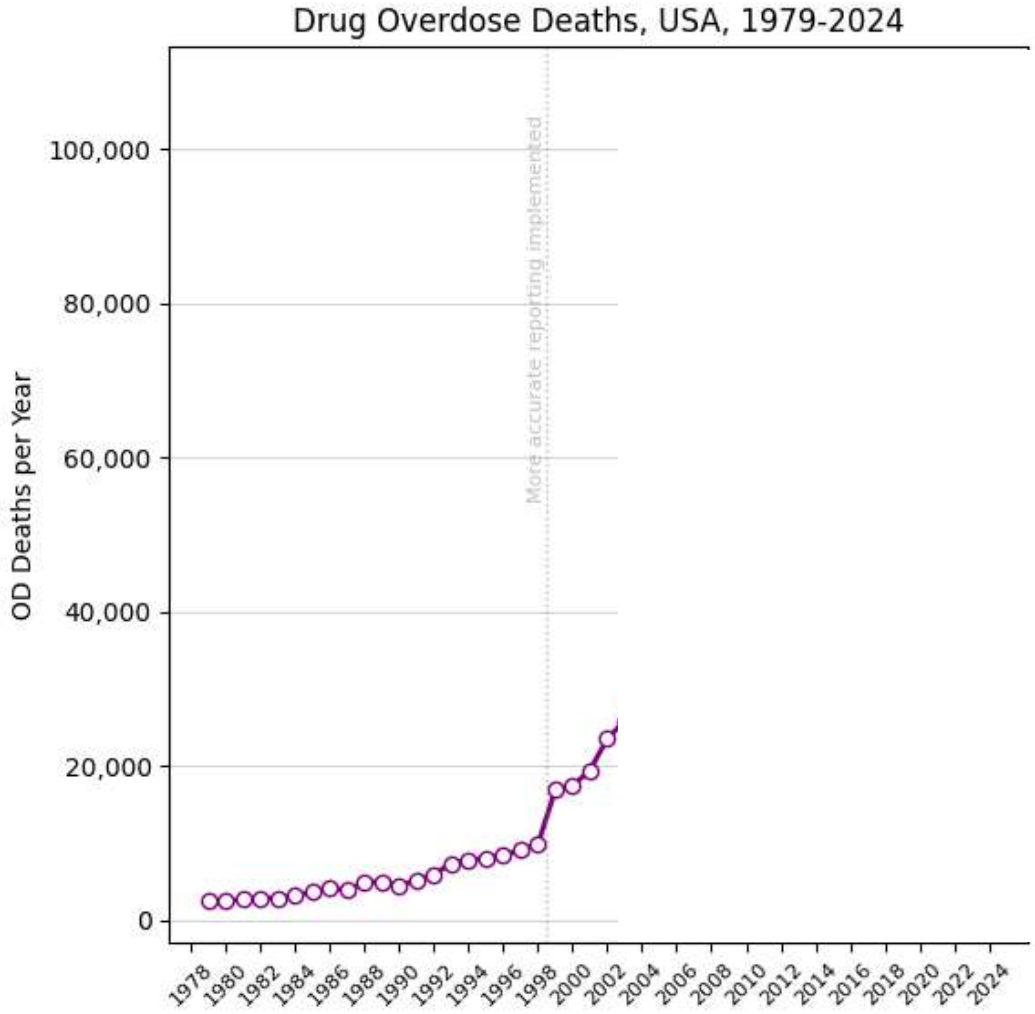
Increasing Poisoning Mortality (USA)



Source: Paulozzi L, et al. *Pharmacoepidemiol Drug Saf*. 2006 Sep;15(9):618-27.

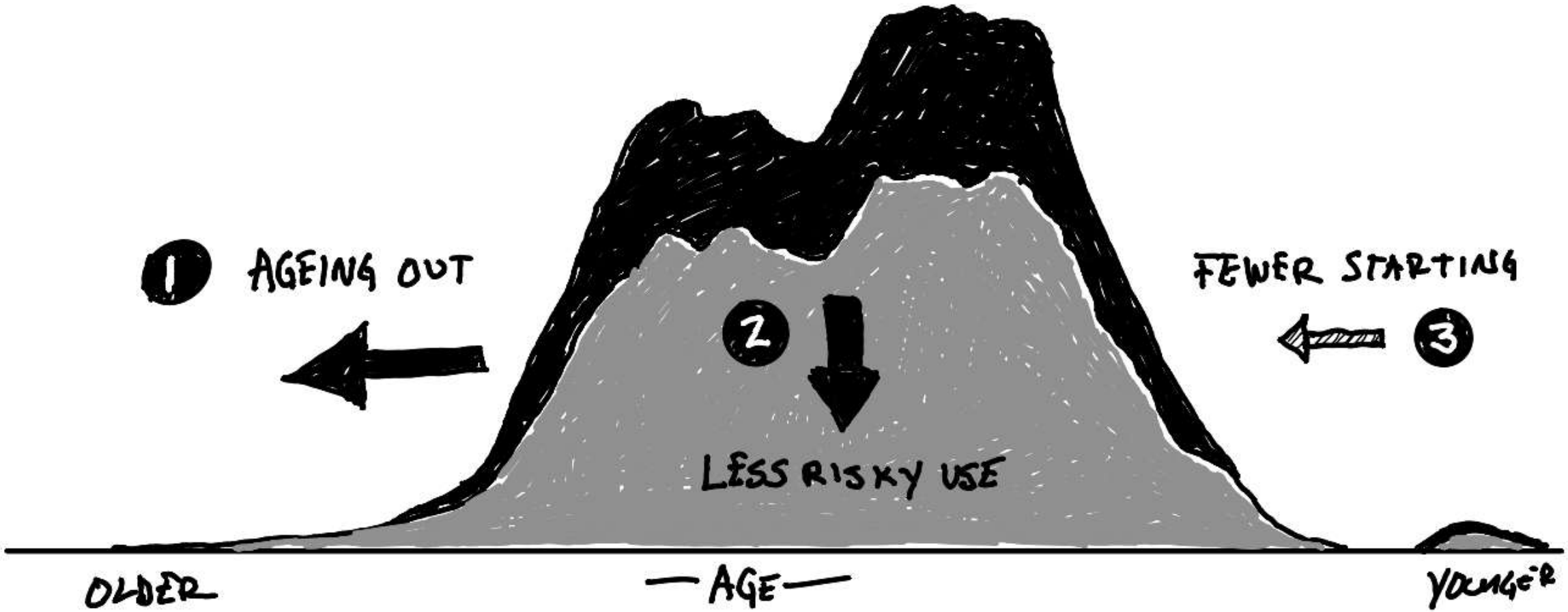
-30%

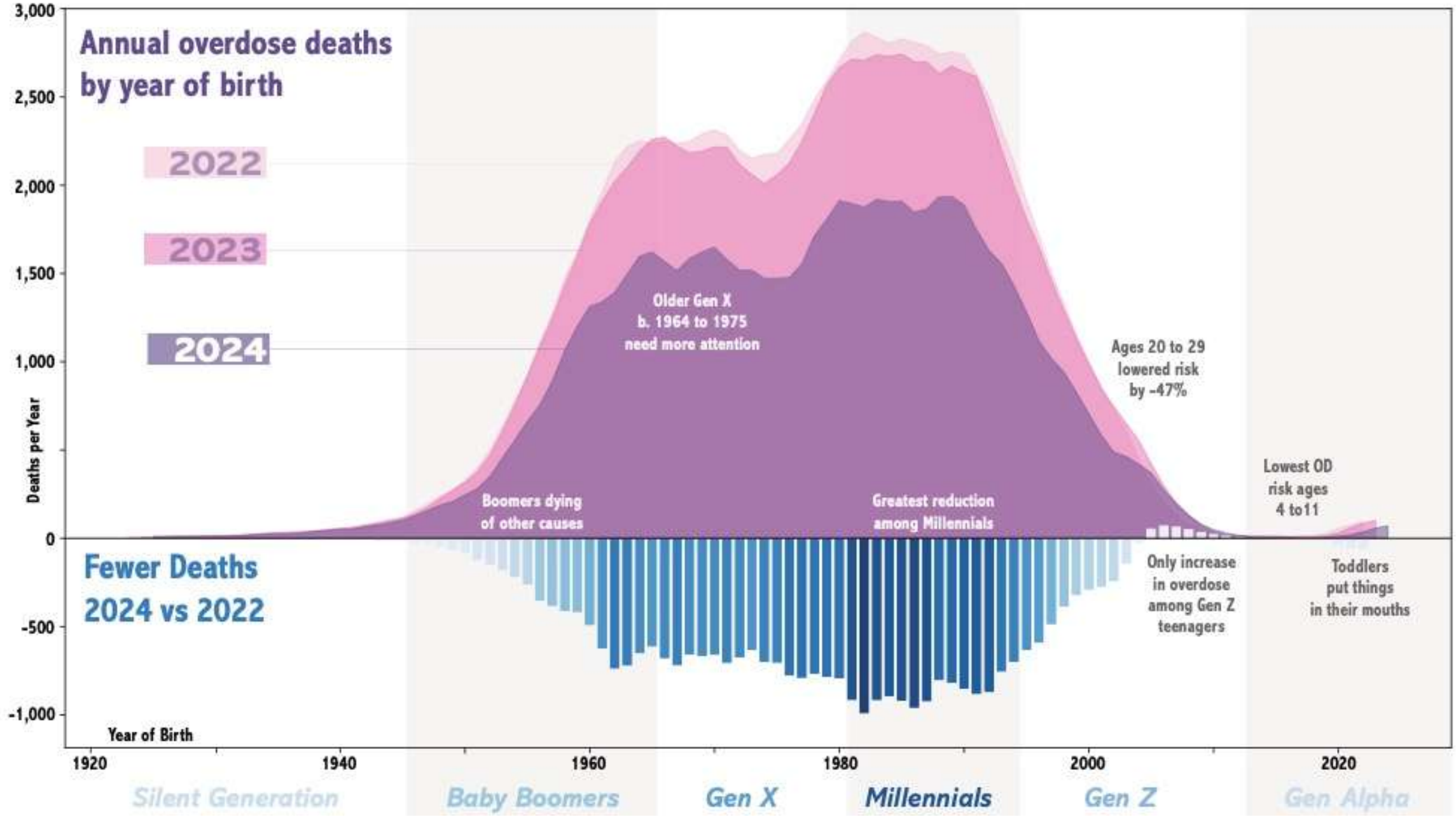
approximate reduction
in all drug
overdose mortality
from peak
Summer 2023 vs. 2025
All USA



+4x

increase in all drug
overdose mortality
from
1999 vs. 2025
All USA


1
AGEING OUT
2
LESS RISKY USE
FEWER STARTING
3
OLDER
AGE
YOUNGER



Source: CDC WONDER, processed and analyzed by UNC Opioid Data Lab

General Dissatisfaction with the drug supply

There's a lot of things that you will accept, if it was going to be as good as it was when you first started. You'll go through a lot of bullshit to get there, but if it's not even going to be that, then you're kind of done.

Emma, Michigan, 2024

Sibley AL, Miller CW, Joniak-Grant E, Bell A, Visnich M, Alsum S, Dasgupta N.
A brick to a bundle: A qualitative study of behavioral responses to xylazine adulteration.
International Journal of Drug Policy. 2025 Nov 1;145:105017.

2.

Geographic comparisons help us understand how drug supply, demographics, and overdose are connected.

Place matters in overdose trends.

Missouri Statewide opioid deaths

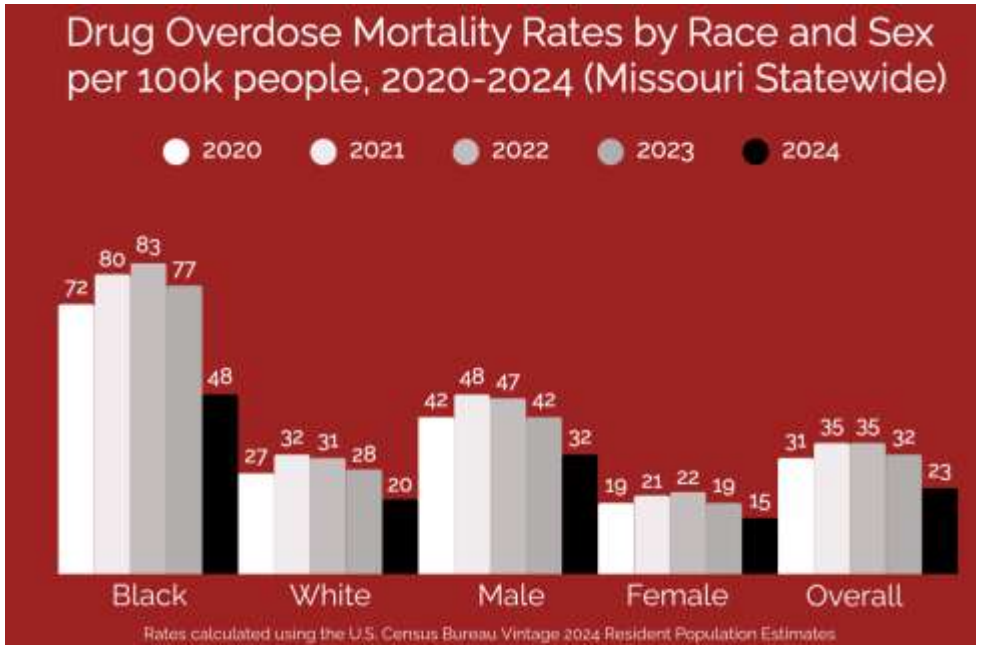
-36% decrease

n=1,427 in 2023 → 910 in 2024

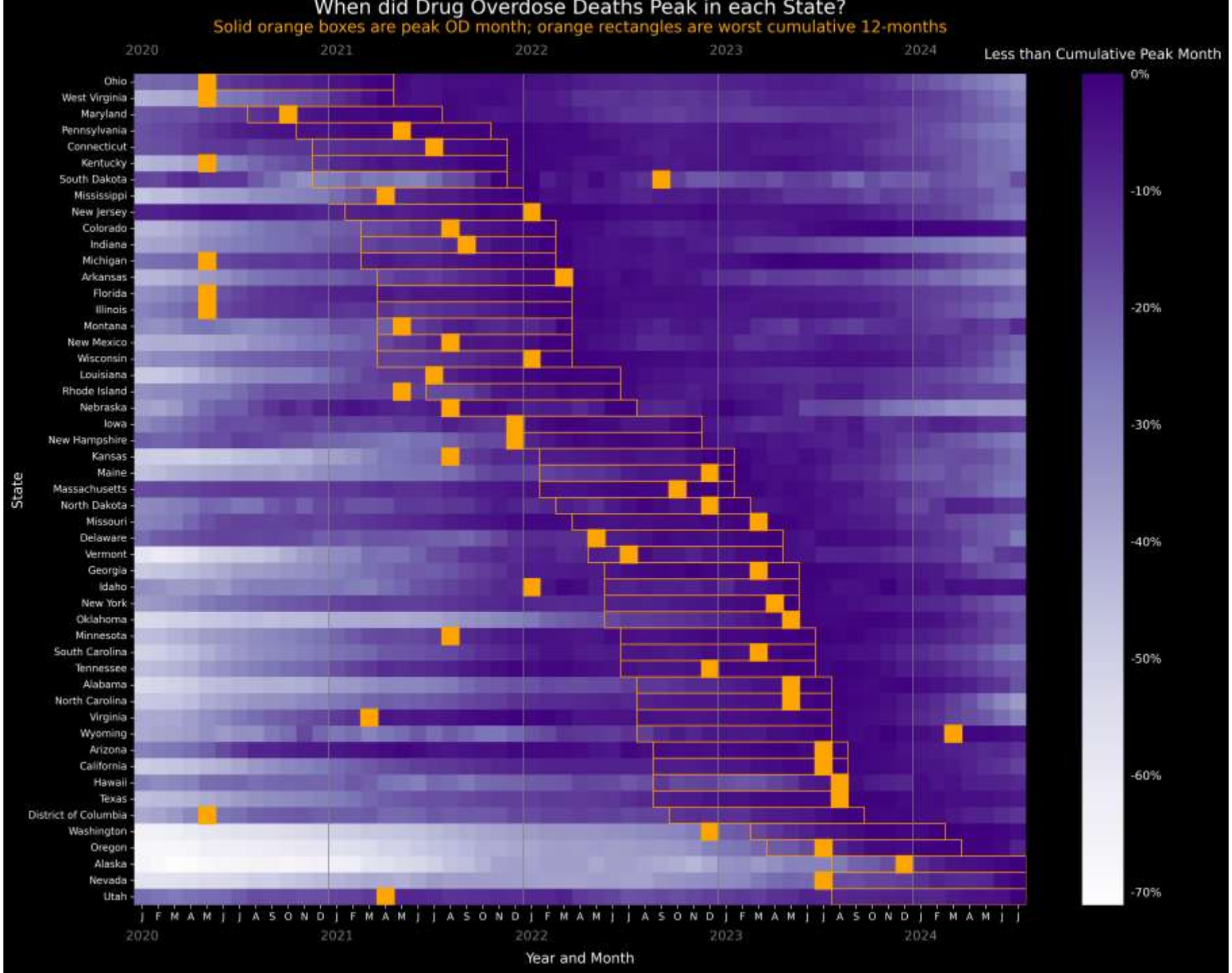
But among Black individuals:

-44% decrease in St. Louis

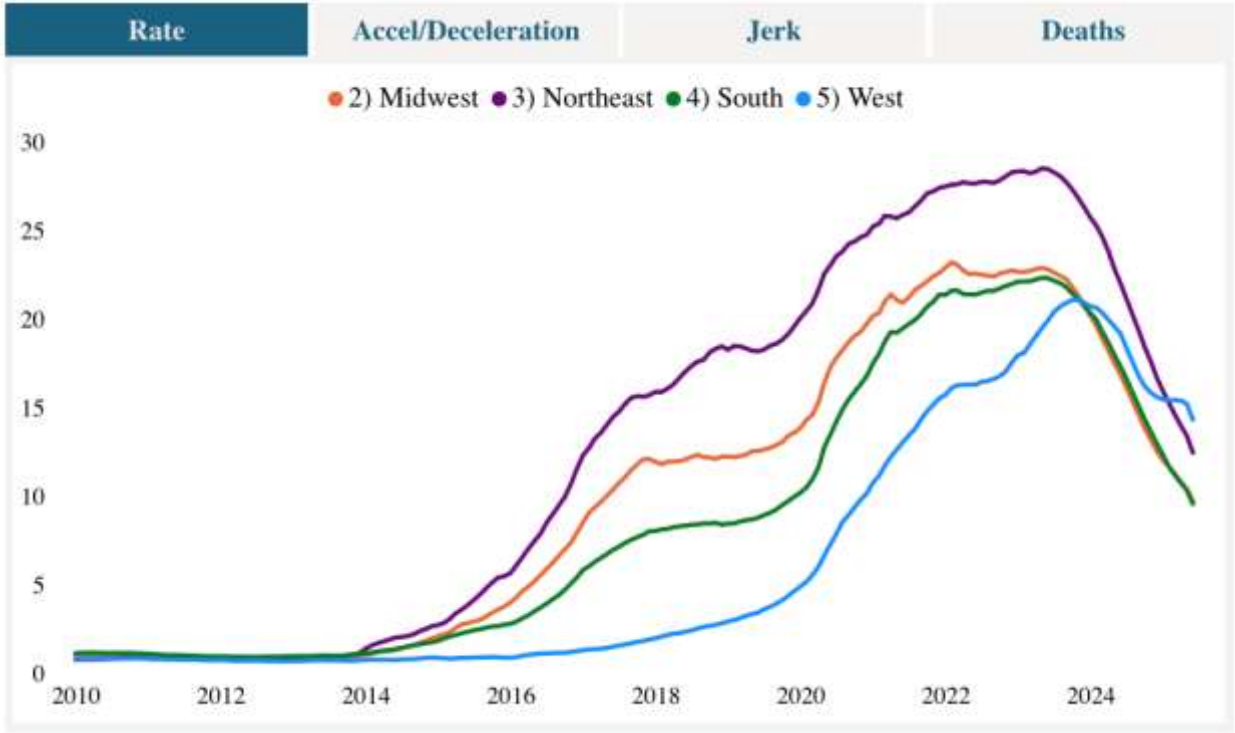
+11% *increase* in Kansas City

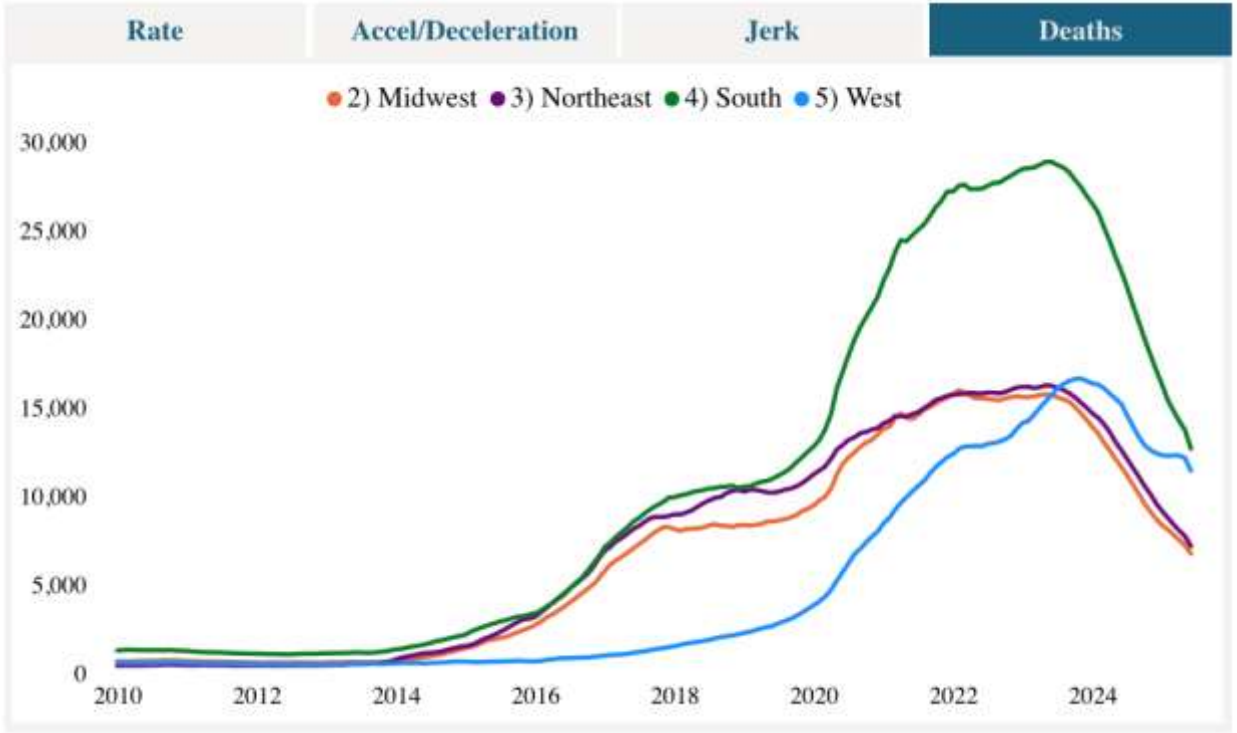


Source: ASPIRE Lab, University of Missouri, St. Louis


When did Drug Overdose Deaths Peak in each State?
Solid orange boxes are peak OD month; orange rectangles are worst cumulative 12-months
2020
2021
2022
2023
2024
Less than Cumulative Peak Month
0%
-10%
-20%
-30%
-40%
-50%
-60%
-70%
State
Ohio
West Virginia
Maryland
Pennsylvania
Connecticut
Kentucky
South Dakota
Mississippi
New Jersey
Colorado
Indiana
Michigan
Arkansas
Florida
Illinois
Montana
New Mexico
Wisconsin
Louisiana
Rhode Island
Nebraska
Iowa
New Hampshire
Kansas
Maine
Massachusetts
North Dakota
Missouri
Delaware
Vermont
Georgia
Idaho
New York
Oklahoma
Minnesota
South Carolina
Tennessee
Alabama
North Carolina
Virginia
Wyoming
Arizona
California
Hawaii
Texas
District of Columbia
Washington
Oregon
Alaska
Nevada
Utah
J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J
2020
2021
2022
2023
2024
Year and Month

Fentanyl OD mortality is strongly regional



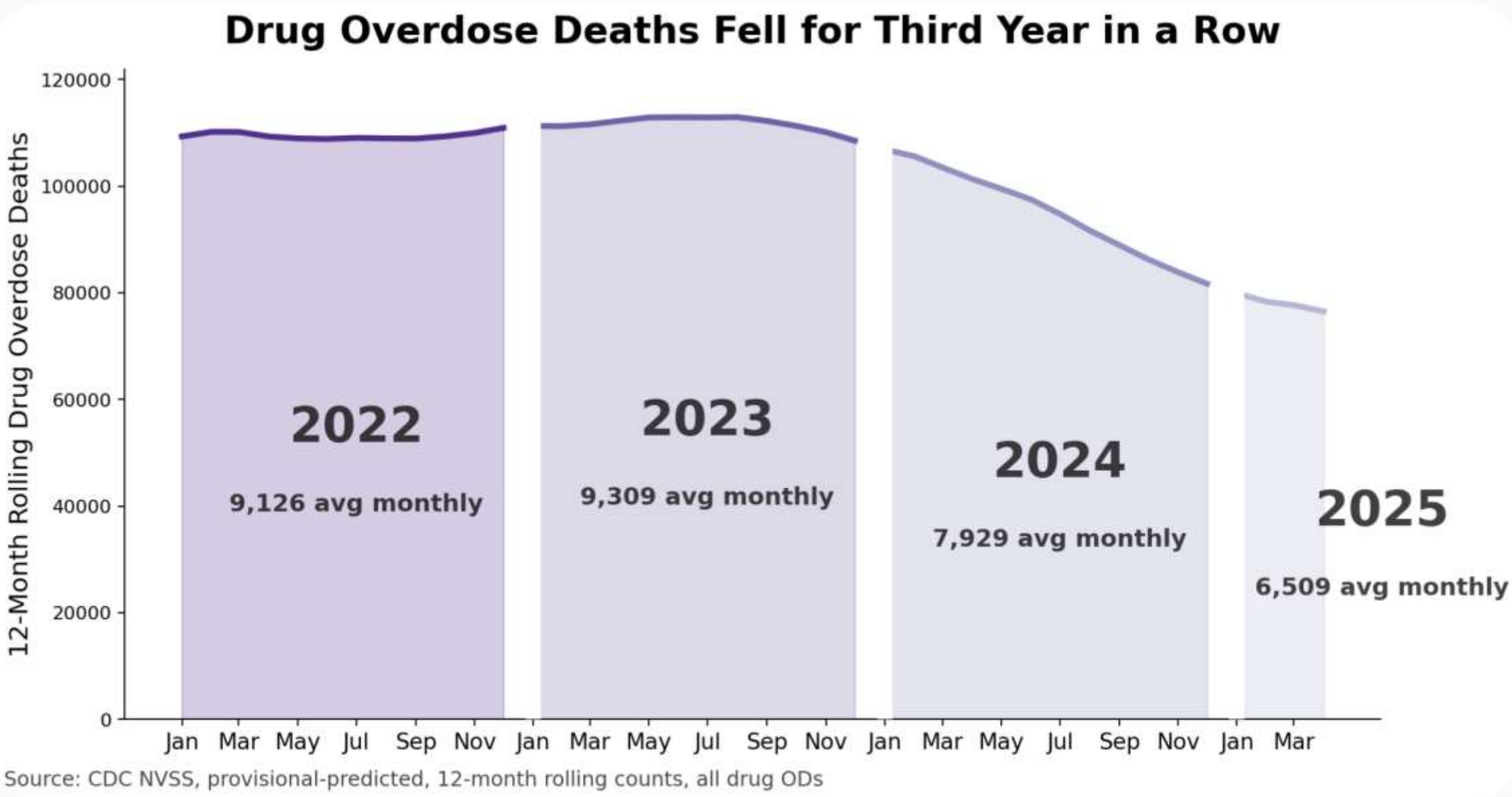


Source: CDC via OD Pulse @ Northwestern University (Lori Ann Post, et al.)

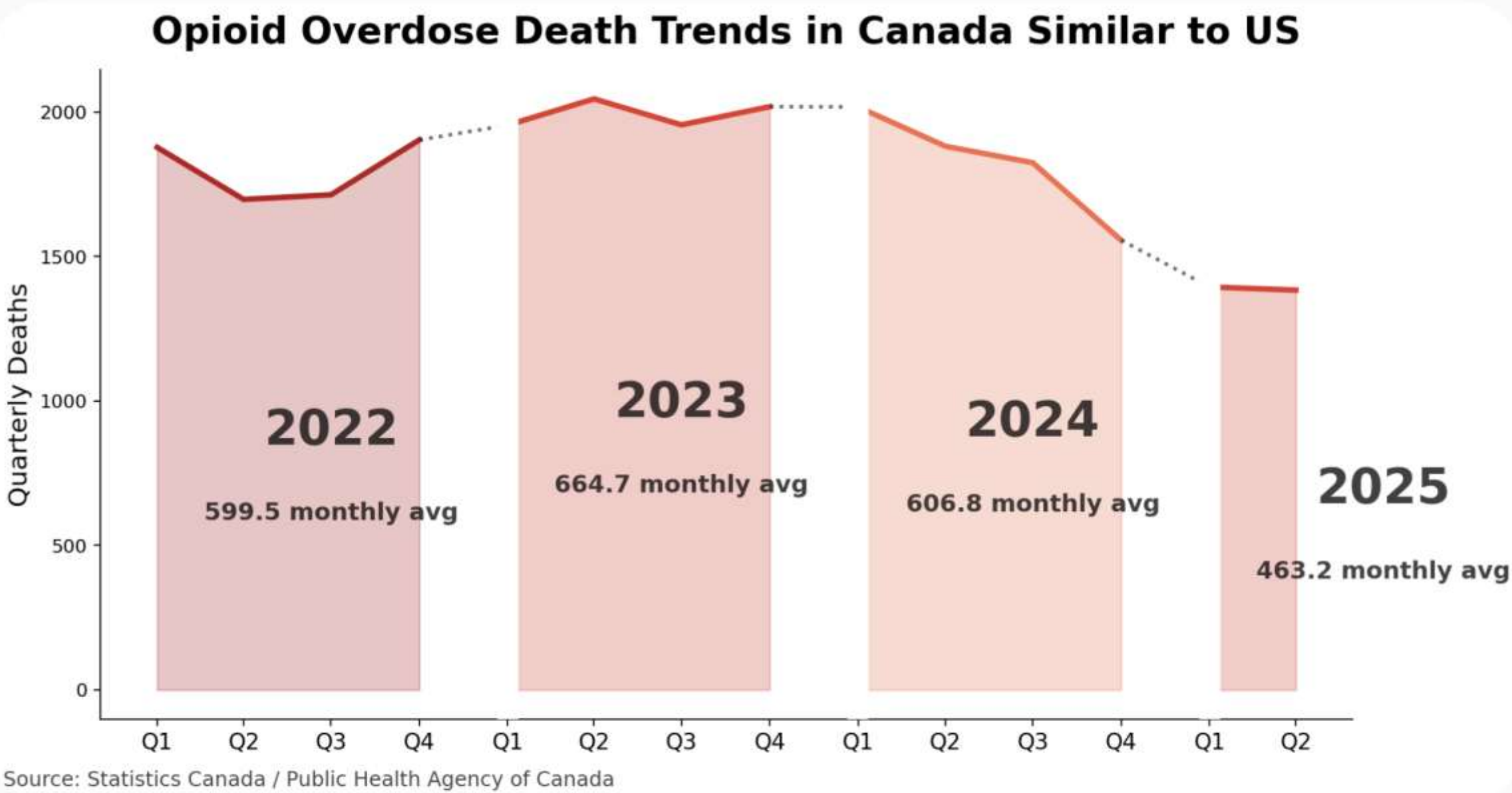
Episodic ODs increases were seen in 4Q2024 to 2Q2025, but trends resumed decreasing in the second half of 2025.

Based on rapid and reliable city/state overdose dashboards. Links at OpioidData.org

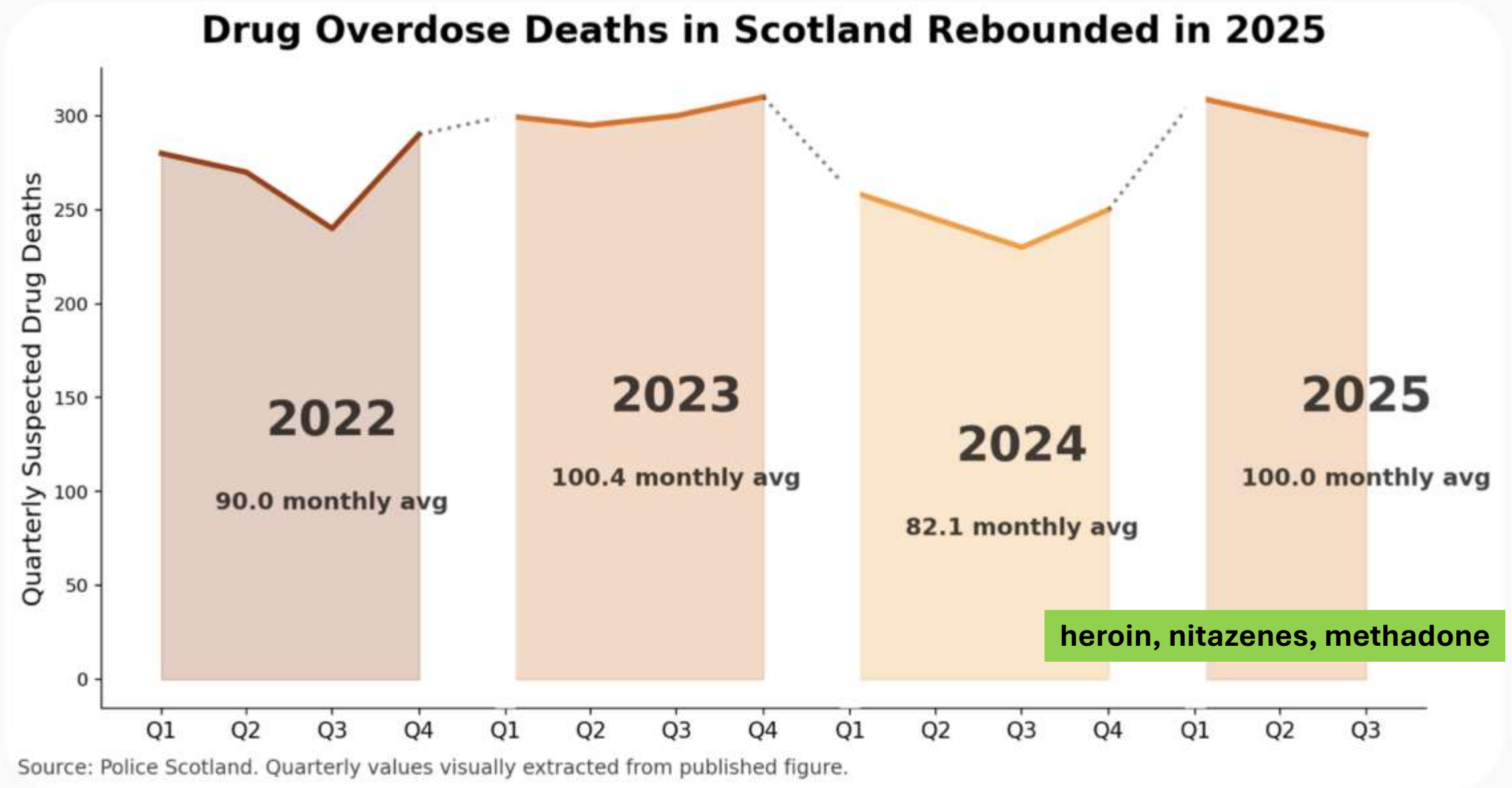
- November 2024: Arizona, Milwaukee, and Seattle
- January 2025: California, San Francisco
- 1Q2025: Cleveland
- March 2025: Seattle (again)
- April 2025: North Carolina
- 2Q2025: Connecticut, Maine
- June 2025: Kentucky



Source: CDC NVSS (thru April 2025), all drugs



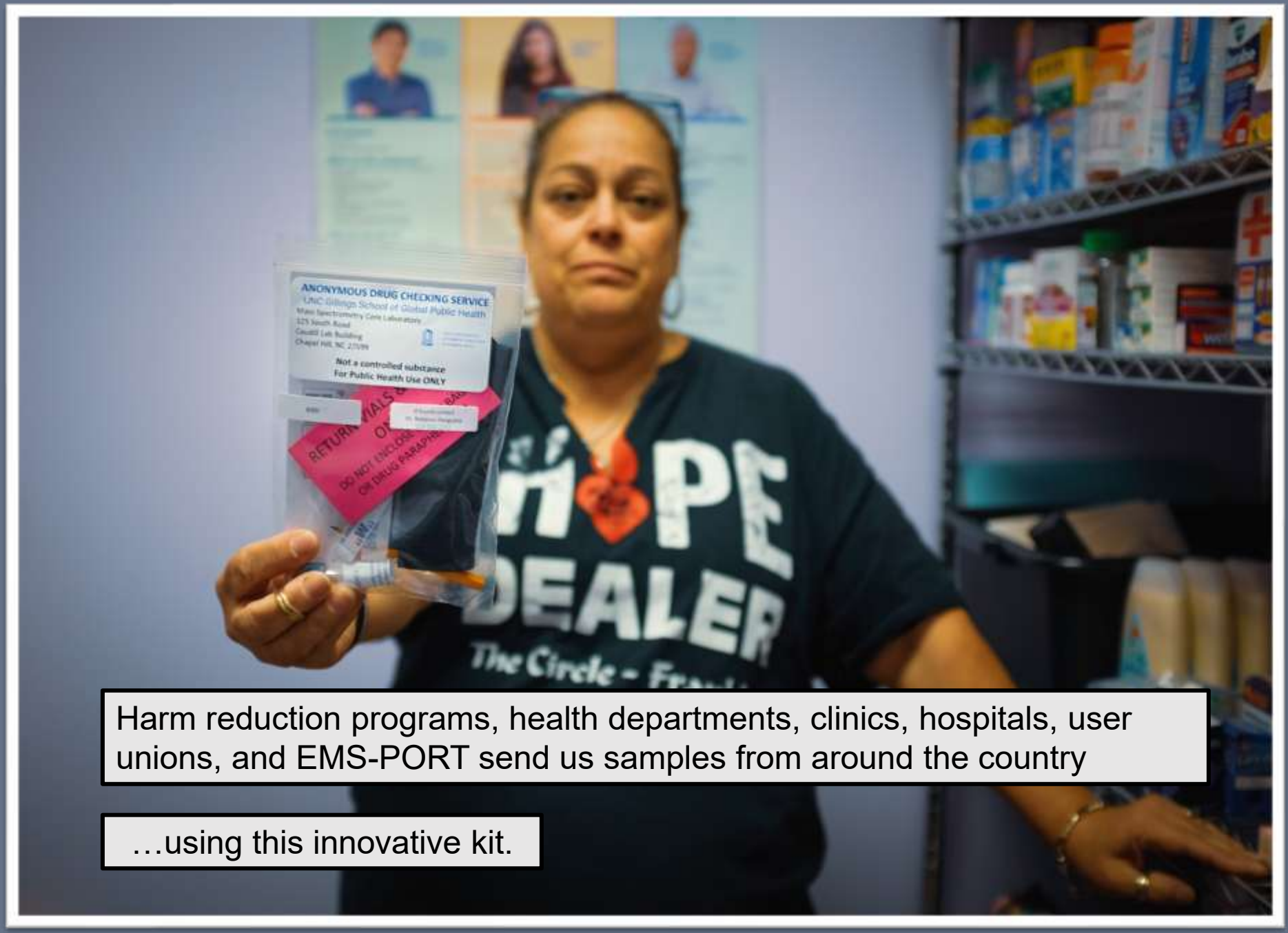
Source: Government of Canada



Source: Police Scotland, National Records of Scotland, Public Health Scotland

3.

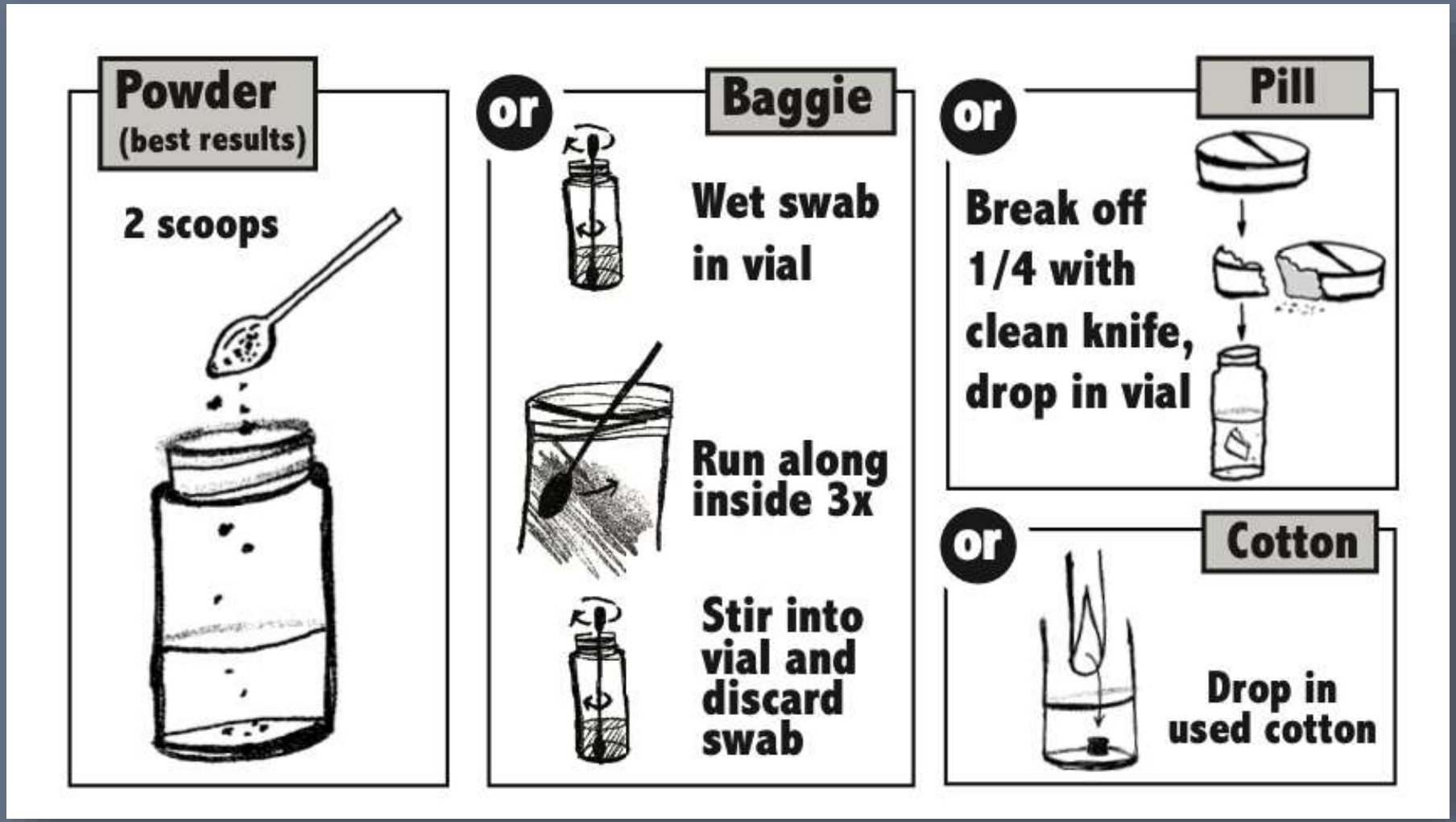
Sedatives, numbing agents, and new synthetic opioids are replacing fentanyl.



Harm reduction programs, health departments, clinics, hospitals, user unions, and EMS-PORT send us samples from around the country

…using this innovative kit.

Samples can be collected via scoop, reside swab, pill fragment, or used cotton.



Samples are given voluntarily.

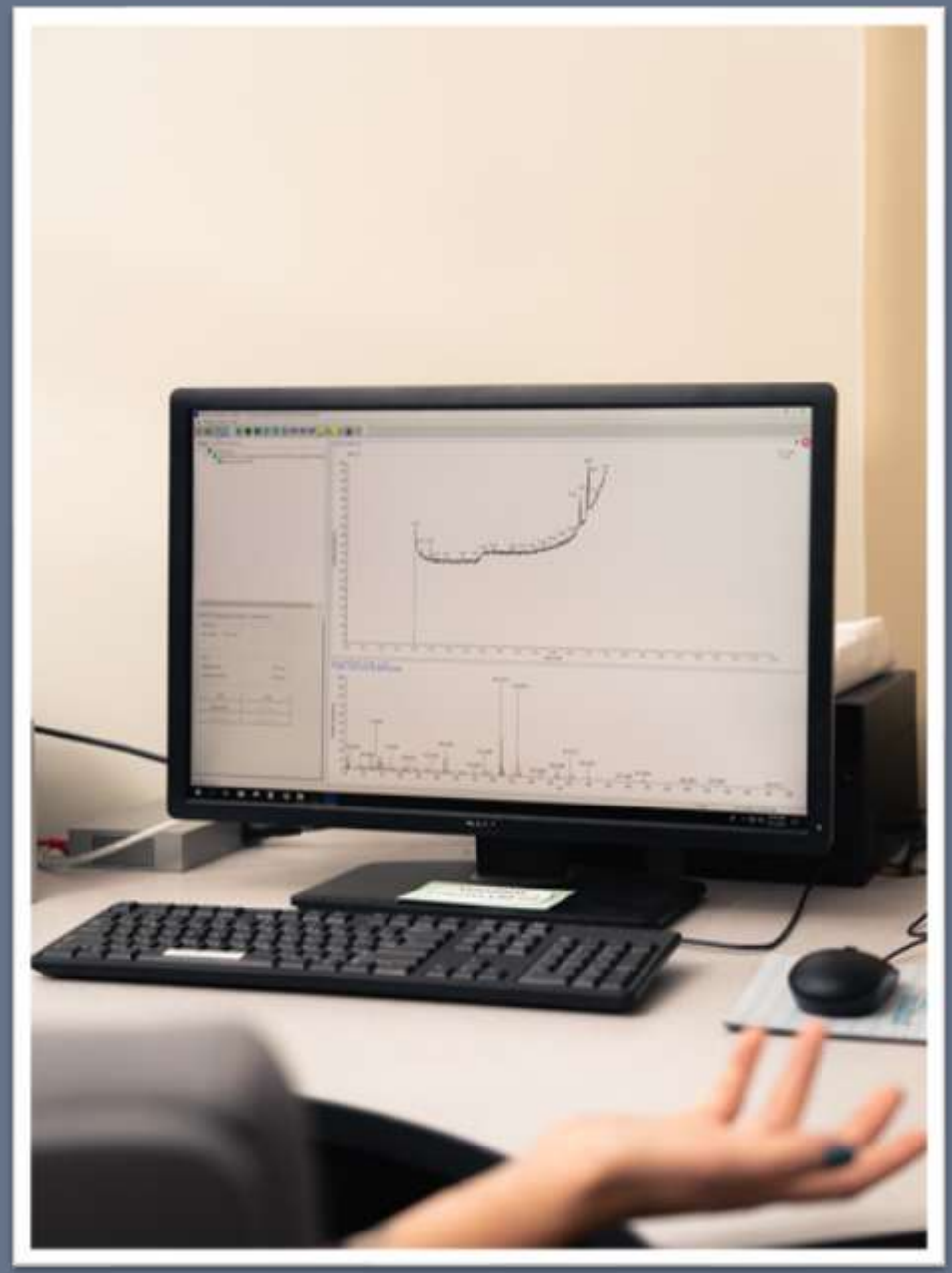
The tests are anonymous.

Packages arrive on campus

in compliance with drug and postal laws.

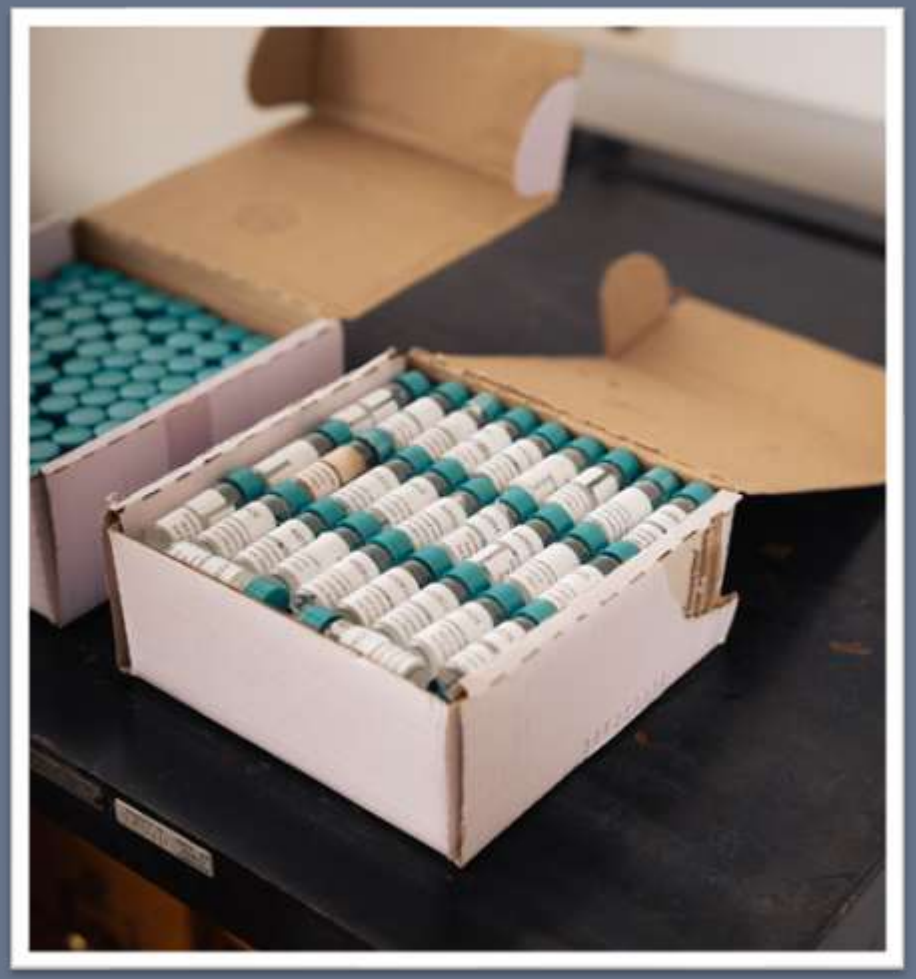
We do *untargeted* search with atomic precision

to determine exactly what's in the sample.



Data Interpretation

- Most of our samples are post-consumption, so we may get drugs specifically because they caused unexpected reactions
- We serve dozens of point-of-care drug checking programs that are testing the sample (FTIR) first, and may be sending us more complex samples
- We get more samples from:
  - NC, WA, NY, MI, CO, CA, NM, OR, FL
  - PA, MN, IL, OH, TX
- *There is no such thing as a representative sample of the national drug supply!*



March 2022 to Tuesday January 6, 2026

N = 18,351 samples analyzed

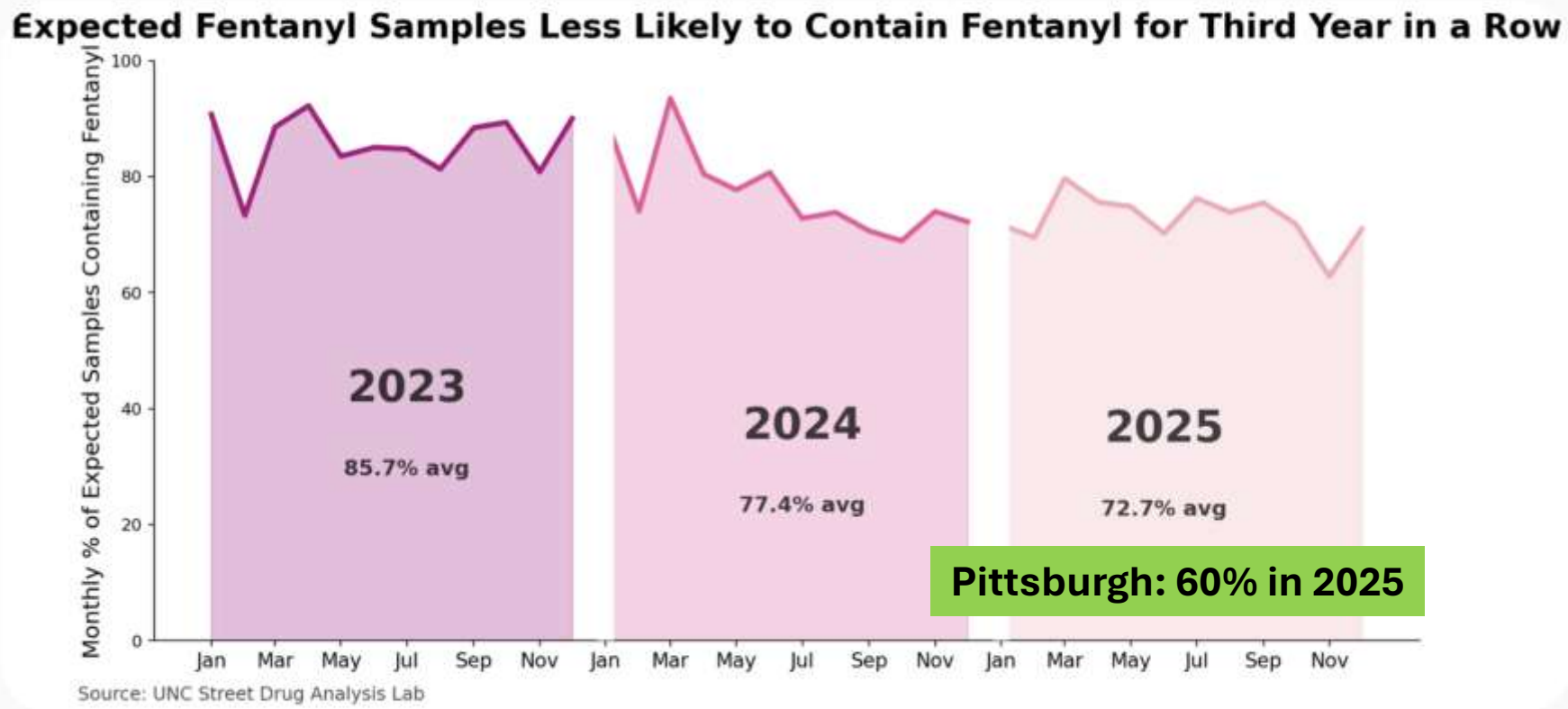
Serving 189 harm reduction programs

Including **62 FTIR drug checking services**

Reaching 296 counties in **43 states**

We’ve detected a multitude of substances in drug supply.

Another possibility is that people are not actually getting fentanyl even when they buy it and are expecting it. We looked at samples analyzed using GCMS in our lab (n=8,012) and quantified how often expected-fentanyl samples contained fentanyl in primary abundance.



Source: UNC Street Drug Analysis Lab (sampling frame) (thru Dec 16, 2025)

What happens when you have less of the main ingredient?

An example of kitchen logic with theobromine, caffeine, phenethylamine, and anandamide

What's Missing From Your Favorite Chocolate Bar? It May Be Chocolate.

The New York Times

By Claire Brown

Published Oct. 30, 2025 Updated Oct. 31, 2025

As climate change has helped push cocoa prices higher, companies are changing candy recipes in subtle ways.

Previous packaging read: "Milk chocolate with peanuts." via Walmart.com

Packaging now describes it as "chocolate candy with peanuts."

BBC

Why your chocolate is getting smaller, more expensive and less chocolatey

12 December 2025

Archie Mitchell
Business reporter

Share Save

Crack open a tub of Celebrations or pull a Terry's Chocolate Orange from a stocking these days, and have you noticed, there seems to be a little less to go around?

TODAY ON THE SHOW SHOP HEALTH SIGN UP / SIGN IN

ON THE SHOW

Is Your Favorite Chocolate Bar Actually Made of Chocolate?

Many chocolate brands are removing cocoa from their products due to rising costs of the key ingredient.

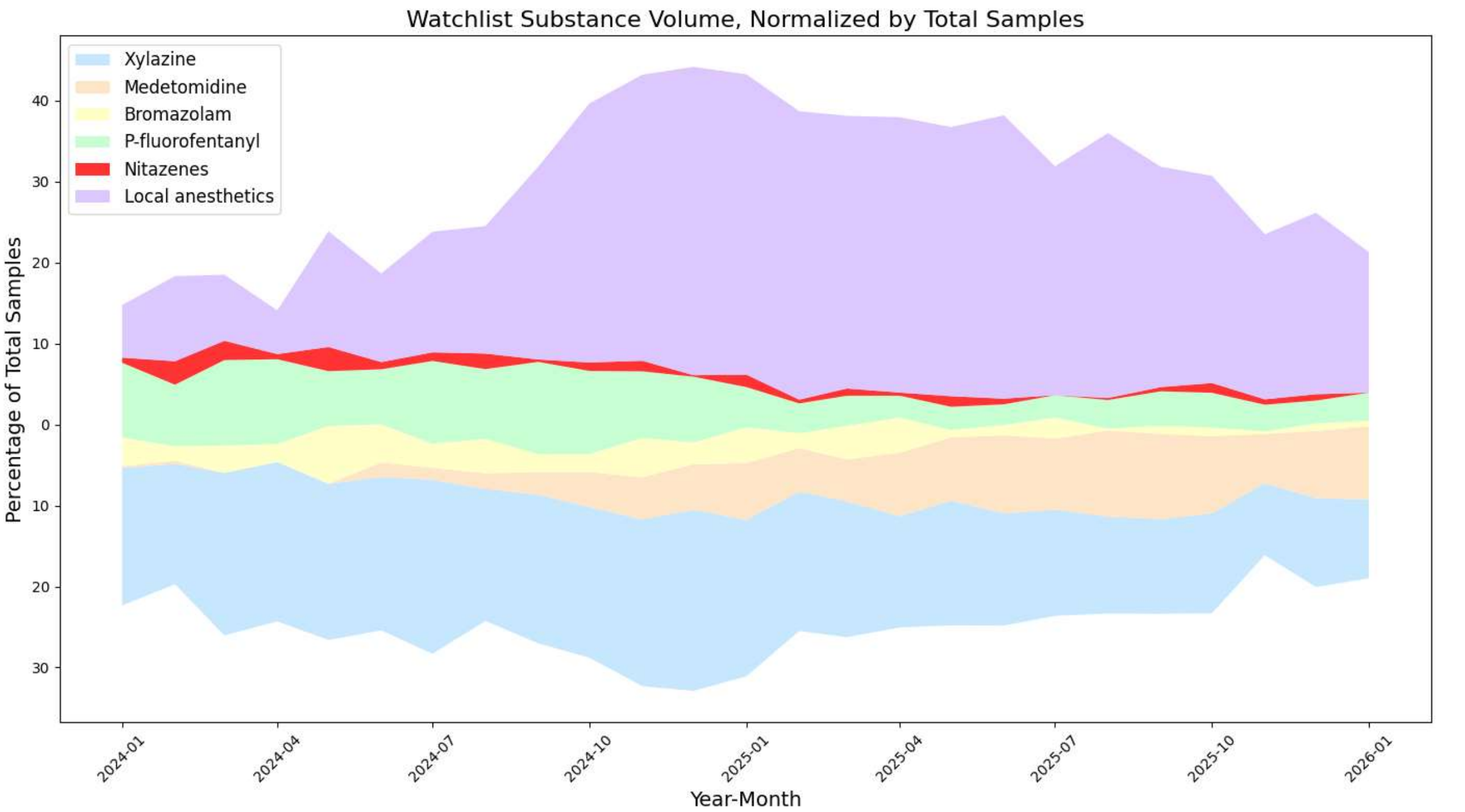
Dec. 9, 2025, 12:56 PM EST / Source: TODAY


Chrissy Callahan


Vicky Nguyen
Investigative and Consumer correspondent

Hartel says some brands are turning to less expensive vegetable oils and swapping out cocoa for more sugar. Doing so can change the taste and labeling since brands can't call a product "chocolate" under FDA rules if it doesn't contain cocoa.

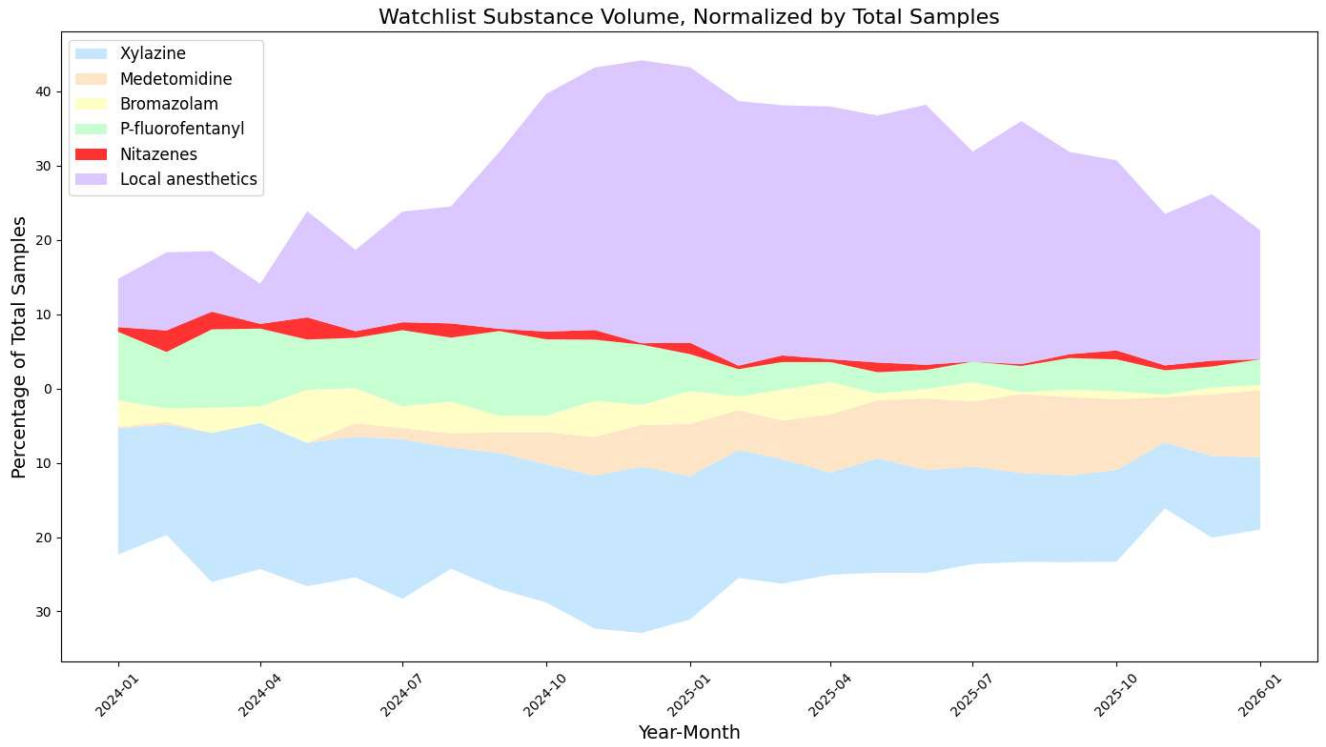
In these cases, products are labeled with the following terms: "chocolate flavor," "chocolate taste" or "chocolatey."


Watchlist Substance Volume, Normalized by Total Samples
Xylazine
Medetomidine
Bromazolam
P-fluorofentanyl
Nitazenes
Local anesthetics
Percentage of Total Samples
40
30
20
10
0
10
20
30
2024-01
2024-04
2024-07
2024-10
2025-01
2025-04
2025-07
2025-10
2026-01
Year-Month

Common and Puzzling: Numbing Agents

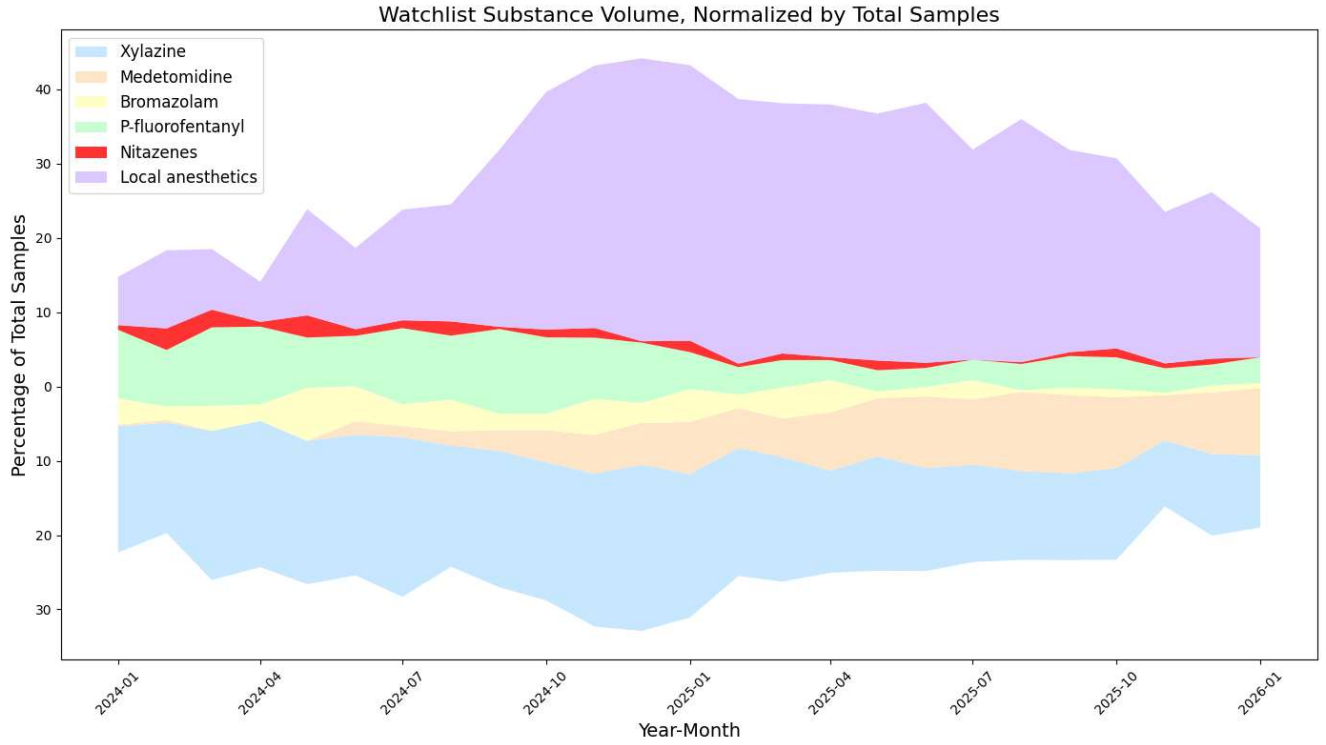
- Lidocaine, procaine, tetracaine
- Initially an East Coast phenomenon, but now spreading

- Procaine: serious cardiac complications possible

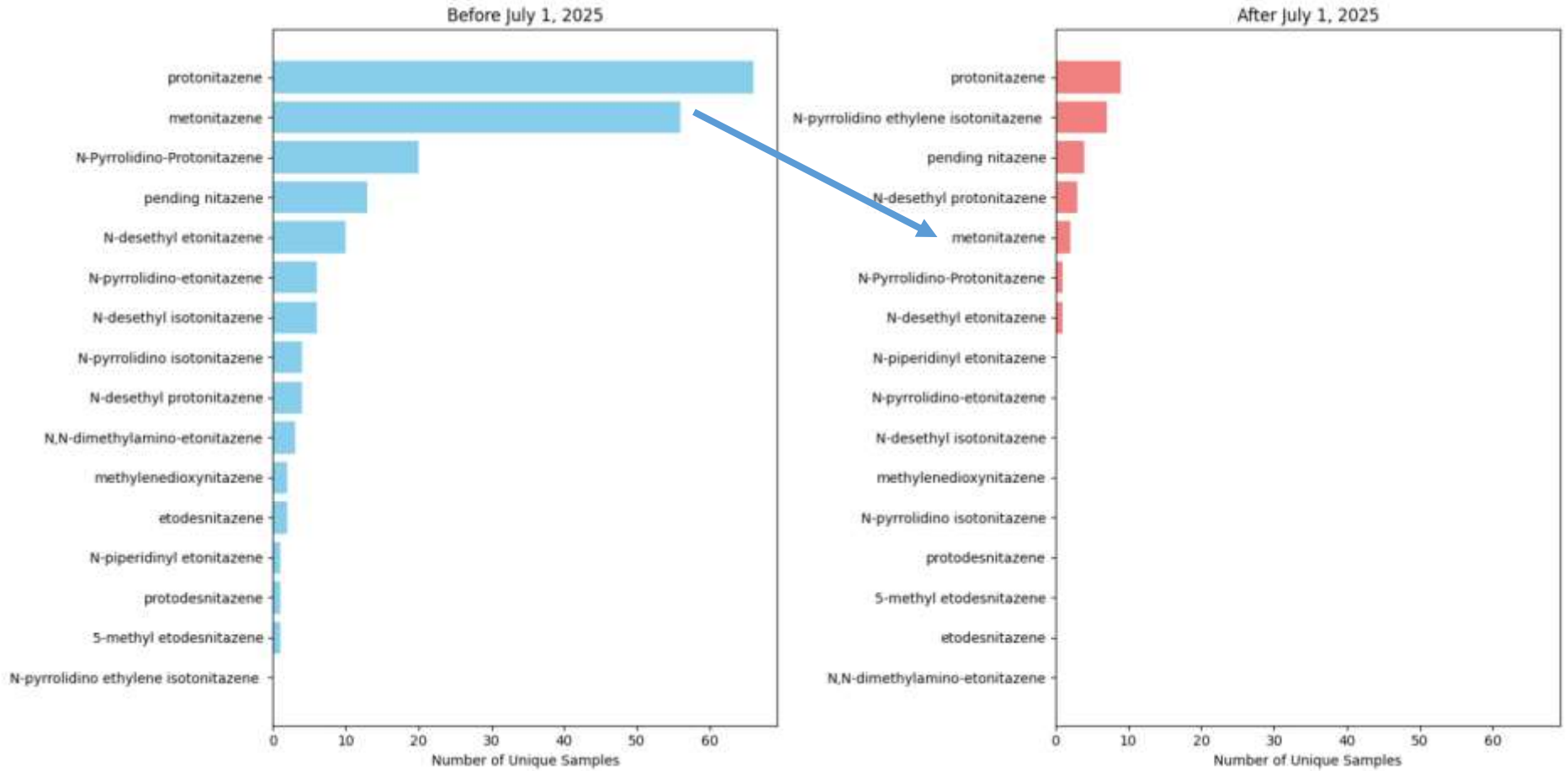


Established, declining, and evolving: Benzodiazepines

- Bromazolam appears to be slightly decreasing
- Sporadic outbreaks of newer more potent variants like N-methylclonazepam



We expect dominant nitazenes species to change in 2026.



Rare: Methadone Analogues

- Emerging in Europe in the wake of China nitazene production ban

- Examples:
  - Dipyanone
  - Methiodone (IC-26)

- We’ve seen one sample from the Midwest, where the donor expected IC-26

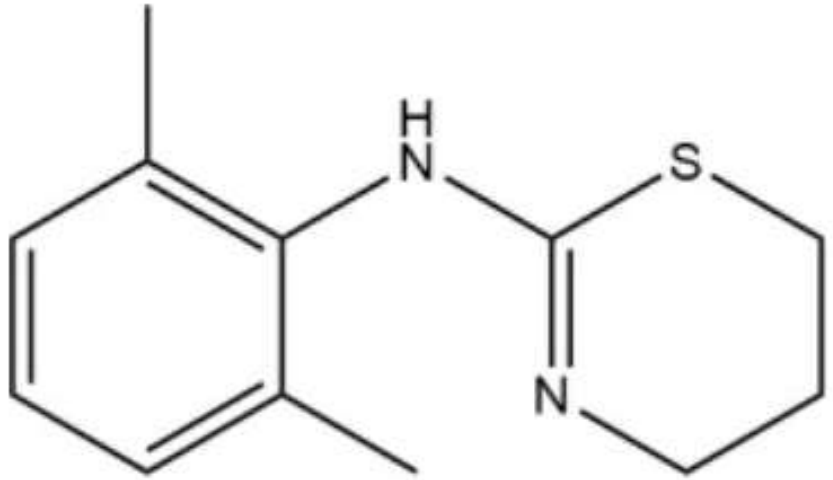
Rare: Orphines

- Emerging in Europe in the wake of China nitazene production ban

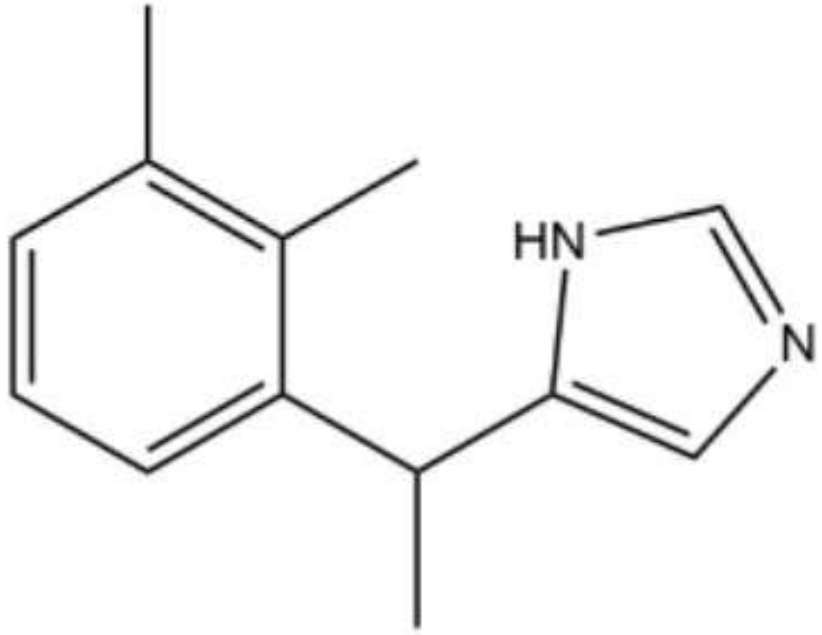
- Examples:
  - Brorphine
  - Cyclorphine

- We've seen one sample from the Midwest, where it was mixed in with a lot of other drugs

Common and Concerning:
Sedatives α-2 adrenergic agonists

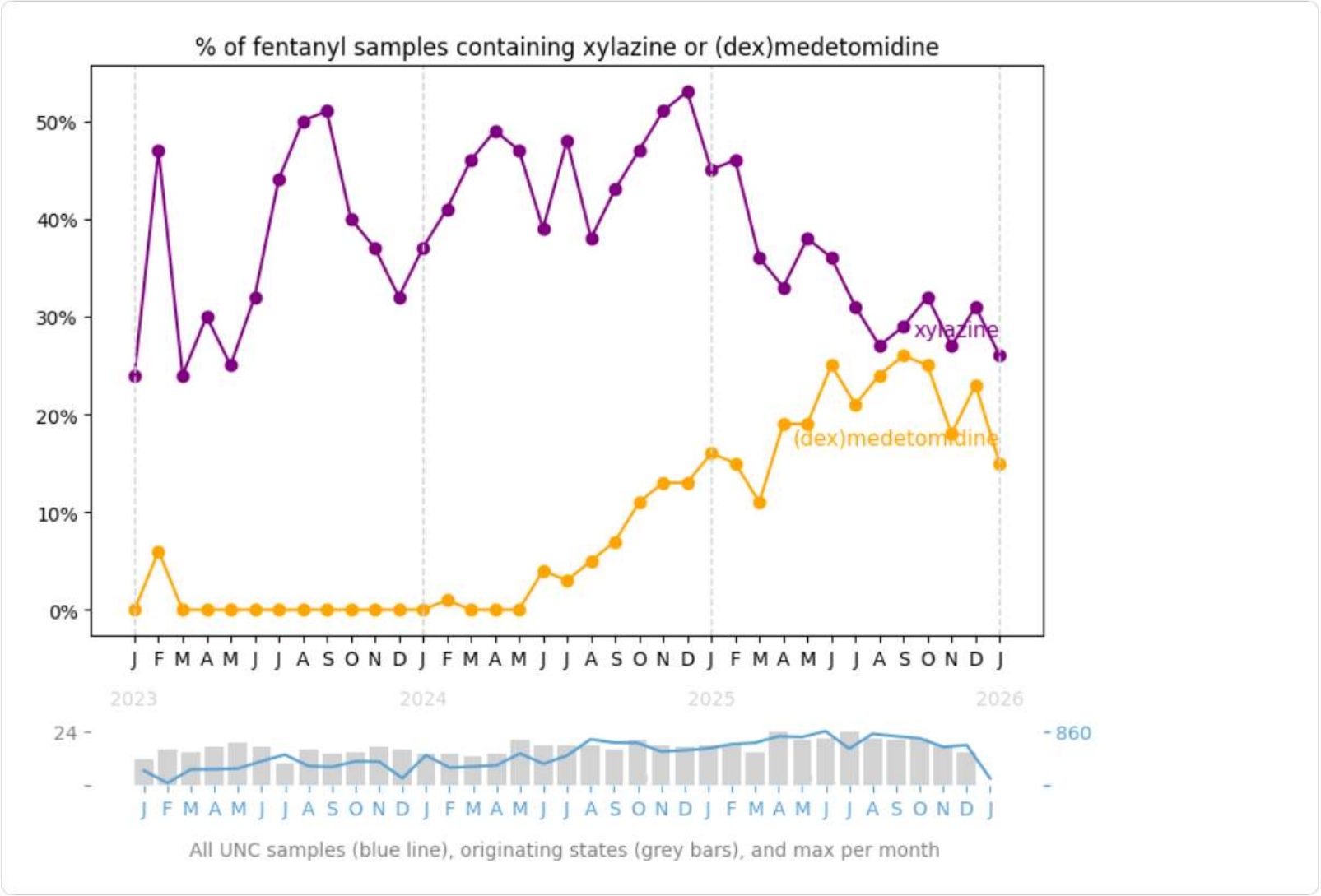


Xylazine



Medetomidine

Xylazine & (dex)medetomidine



Medetomidine Woes

1. Heavy unexpected sedation leaves people vulnerable to theft & assault
   Be careful with language!

2. Severe hallucinations

3. Quitting suddenly carries life threatening blood pressure risk, requiring expensive ICU stays

(4.) But not the skin wounds of xylazine

Drug and Alcohol Review

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ORIGINAL PAPER OPEN ACCESS

Emergence of Medetomidine in the Unregulated Drug Supply and Its Association With Hallucinogenic Effects

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Keywords: drug adulteration | drug checking | fentanyl | harm reduction | xylazine

ABSTRACT

Introduction: The unregulated drug supply in the United States is rapidly evolving, and veterinary tranquillisers have emerged as adulterants of concern, especially in illicitly-manufactured fentanyl. Following the proliferation of xylazine, medetomidine, a more potent sedative, has recently appeared in multiple US states. This study describes the characteristics of medetomidine samples from a national mail-based drug checking program and aims to determine whether medetomidine is associated with hallucinogenic effects.

Methods: We conducted a retrospective analysis of 11,363 drug samples between December 2022 and April 2025. Samples were sent voluntarily by people who use drugs. Participant-reported sensations and sample characteristics (e.g., colour, texture) were gathered at point-of-contact. Composition was analysed using gas-chromatography mass spectrometry. We estimated adjusted prevalence ratios for hallucinations in medetomidine-containing samples using generalised estimating equations.

Results: Medetomidine was identified in 278 samples (2.4%), with pronounced growth beginning June 2024. Medetomidine commonly appeared with fentanyl (58.8%) and/or xylazine (55.9%). Most samples were powders (85.3%). Among all 11,363 samples, those containing medetomidine in primary abundance ($n = 136$) were more likely to be associated with reported hallucinations (17.6%) compared to all other samples (1.2%; adjusted prevalence ratio: 11.95, 95% confidence interval 6.36, 22.44).

Discussion and Conclusions: Medetomidine is an emerging adulterant, although its risk profile is under-described. Our findings suggest medetomidine may cause hallucinogenic effects, contradicting clinical use for preventing delirium in postsurgical settings. Unexpected hallucinations may serve as a sentinel signal for medetomidine's presence in local drug markets. Education is needed for people who use drugs and clinicians about novel adverse effects of medetomidine.

1 | Introduction

The United States is experiencing a rapidly evolving unregulated drug supply, complicating efforts to protect people who use drugs from overdose and other health sequelae of substance use. Recent trends include the introduction of new psychoactive substances (e.g., nitazenes and synthetic cannabanoids), nontherapeutic fillers with uncertain safety profiles (e.g., bis(2,2,6,6-tetramethyl-4-piperidyl) sebacate [BTMPS]), and of particular concern, xylazine, a veterinary tranquilliser

Making Sense of the Moment

Are fatal overdoses down overall? ✅

Is there less fentanyl in the supply? ✅

Are fewer people starting to use fentanyl? ✅
Are fewer people using fentanyl daily? ✅
Are people taking less fentanyl? ✅
Are people using less often? ✅

But there are worse things replacing fentanyl, with a mix of known acute and medium-term health risks.

“Love is a research value.” – Louise Vincent

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Feedback Requested

THANK YOU!