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American Academy of CME, Inc. designates this activity for 1.0 continuing education credits.

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Other members of the care team will receive a certificate of participation.

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This webinar has been approved by NJ OEMS for 1 EMT Elective CEU.

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Additional Information About Continuing Education

- You must apply to receive continuing education credit. It will not be sent to you just for attending this webinar.
- **WHERE CAN YOU FIND THE LINK TO APPLY FOR CREDIT?**
 - **The last slide of this webinar**
 - **The chat at the end of the program**
 - **The follow-up email you will receive tomorrow**
- The poll at the end of today's webinar **IS NOT** the evaluation for continuing education credit. The evaluation will be available through the link mentioned above.
- The links will be active for 30 days after today's event.

PA Planner Dean Barone discloses that he serves on the speakers bureaus of Ethicon and Johnson & Johnson. All other planners, faculty, and reviewers have no relevant financial relationships to disclose. All relevant financial relationships have been mitigated.

Featured Presenter



Joseph Friedman, MD, PhD, MPH
Department of Psychiatry
University of California, San Diego





The Public Health Risks of Counterfeit Pills

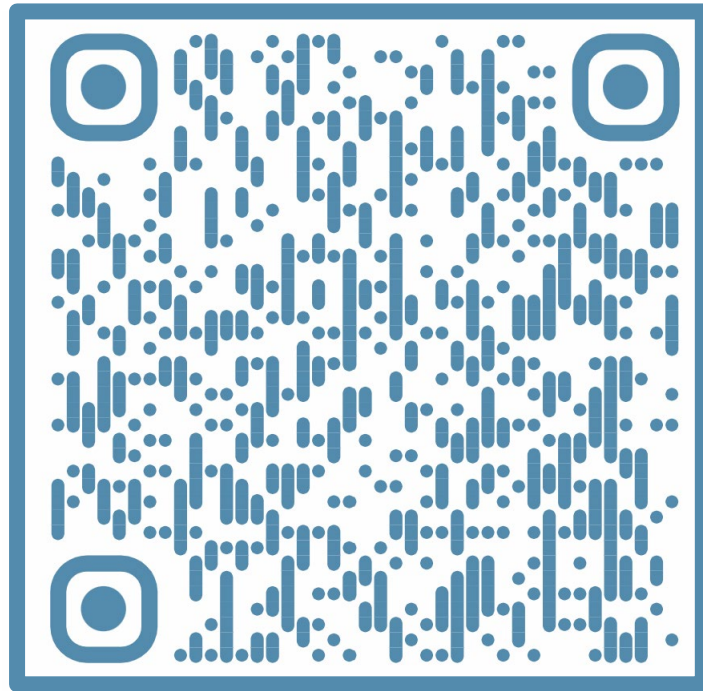


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QR Codes are Used For Reference



THE LANCET

Public Health



VIEWPOINT · [Volume 10, Issue 1](#), E58-E62, January 2025 · *Open Access*

The public health risks of counterfeit pills

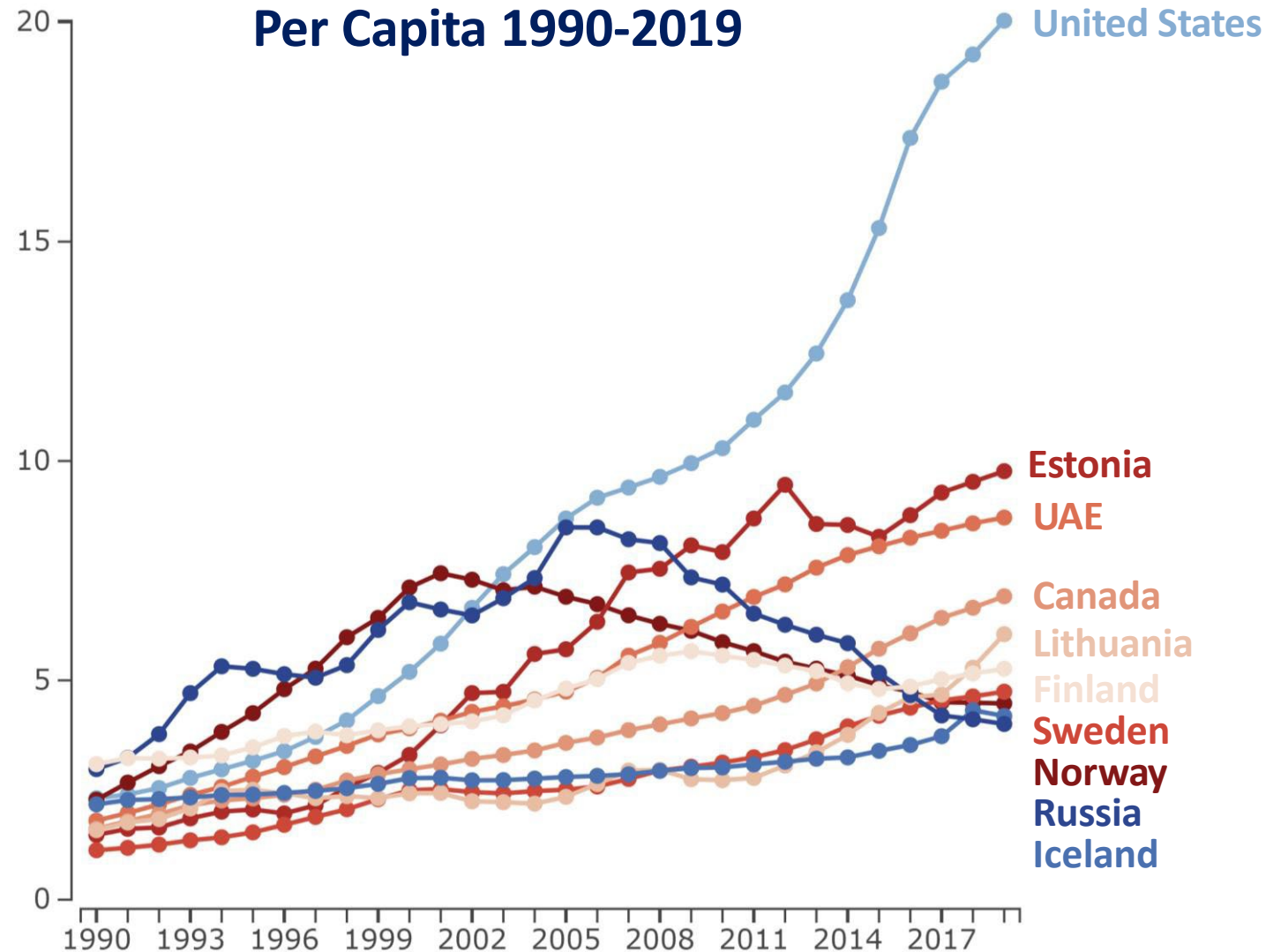
[Joseph Friedman, MD](#) ^a · [Prof Daniel Ciccarone, MD](#) ^b

[Affiliations & Notes](#) ^v [Article info](#) ^v

The Big Picture of the US Overdose Crisis

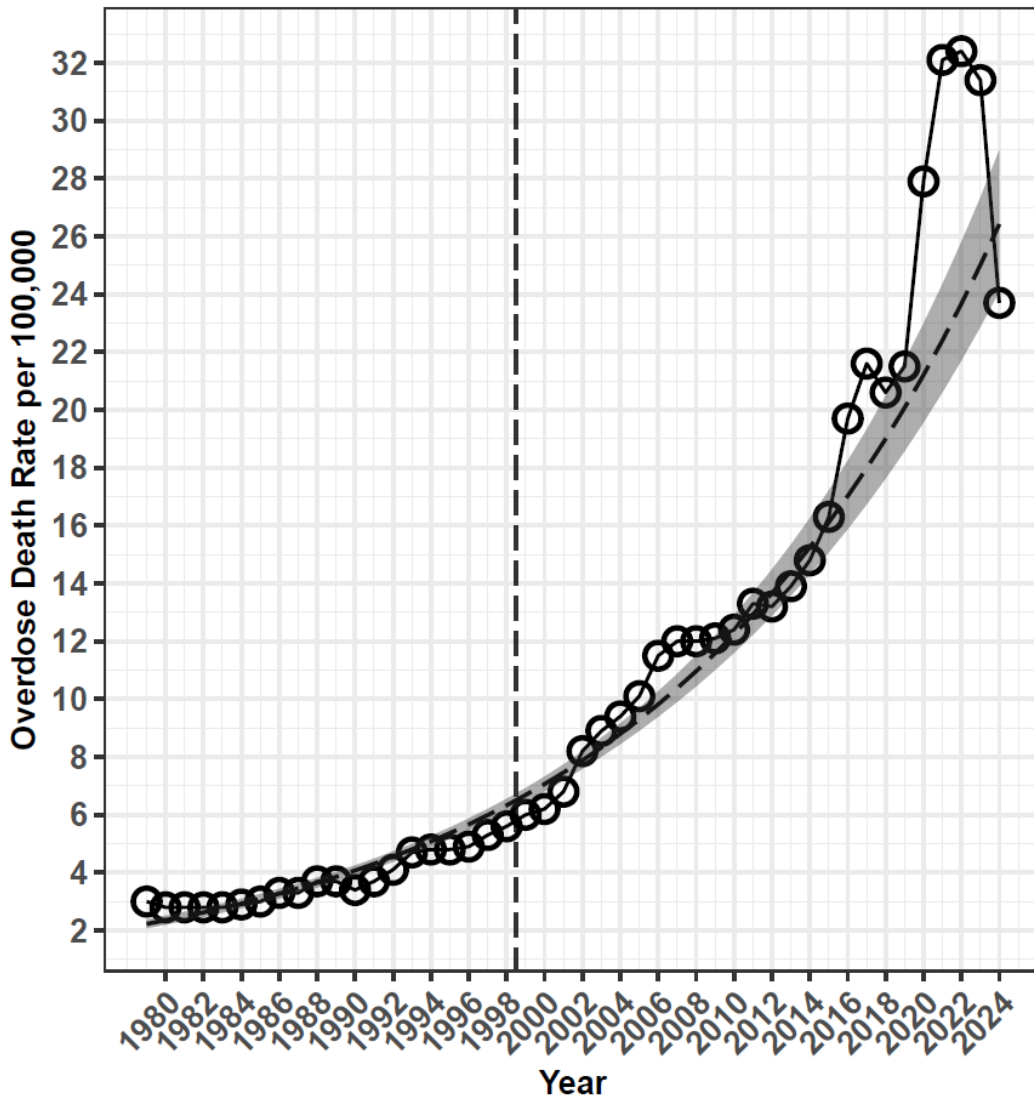
Overdose is a Uniquely American Problem

Top 10 Countries, Drug Overdose Deaths Per Capita 1990-2019

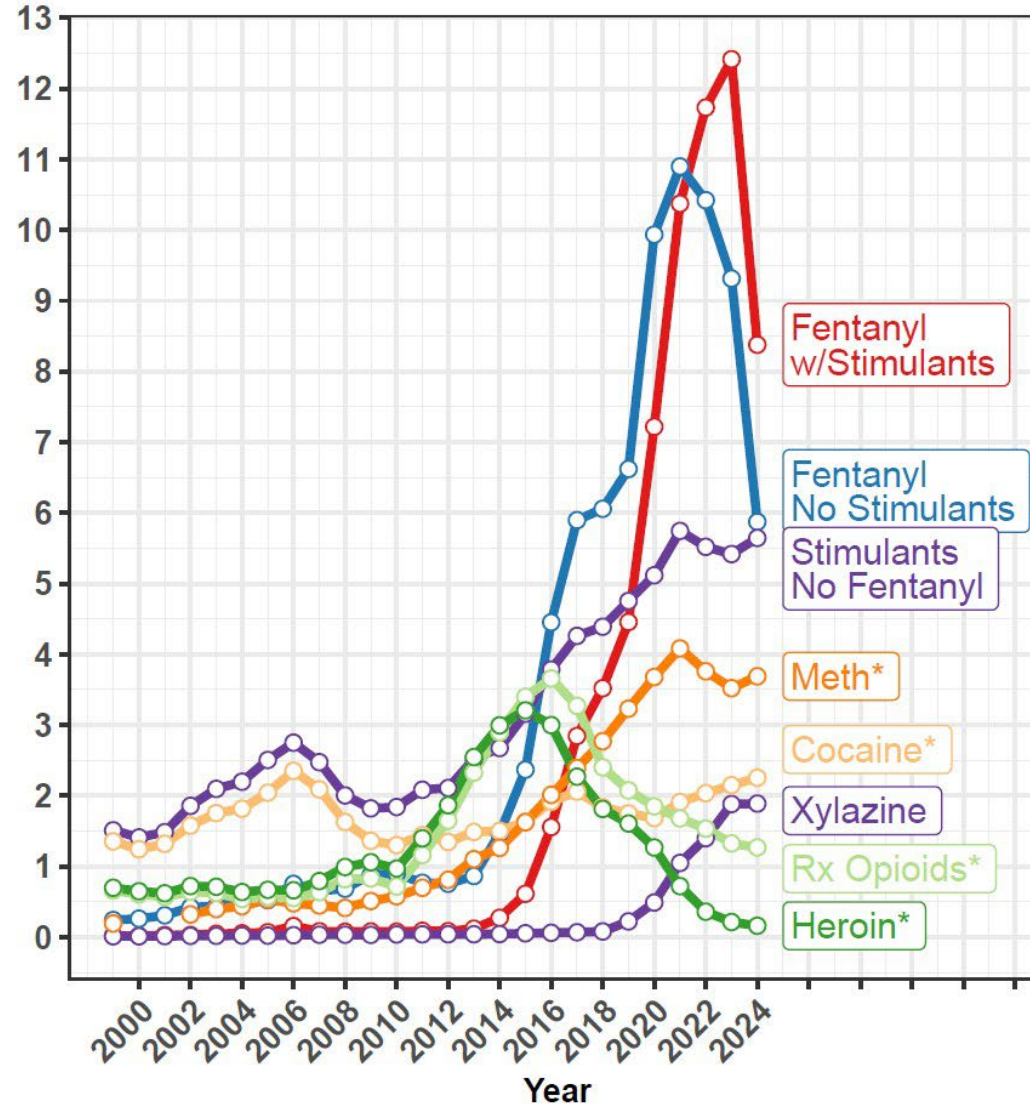


Distinct Waves of Drugs have Driven Exponential Growth

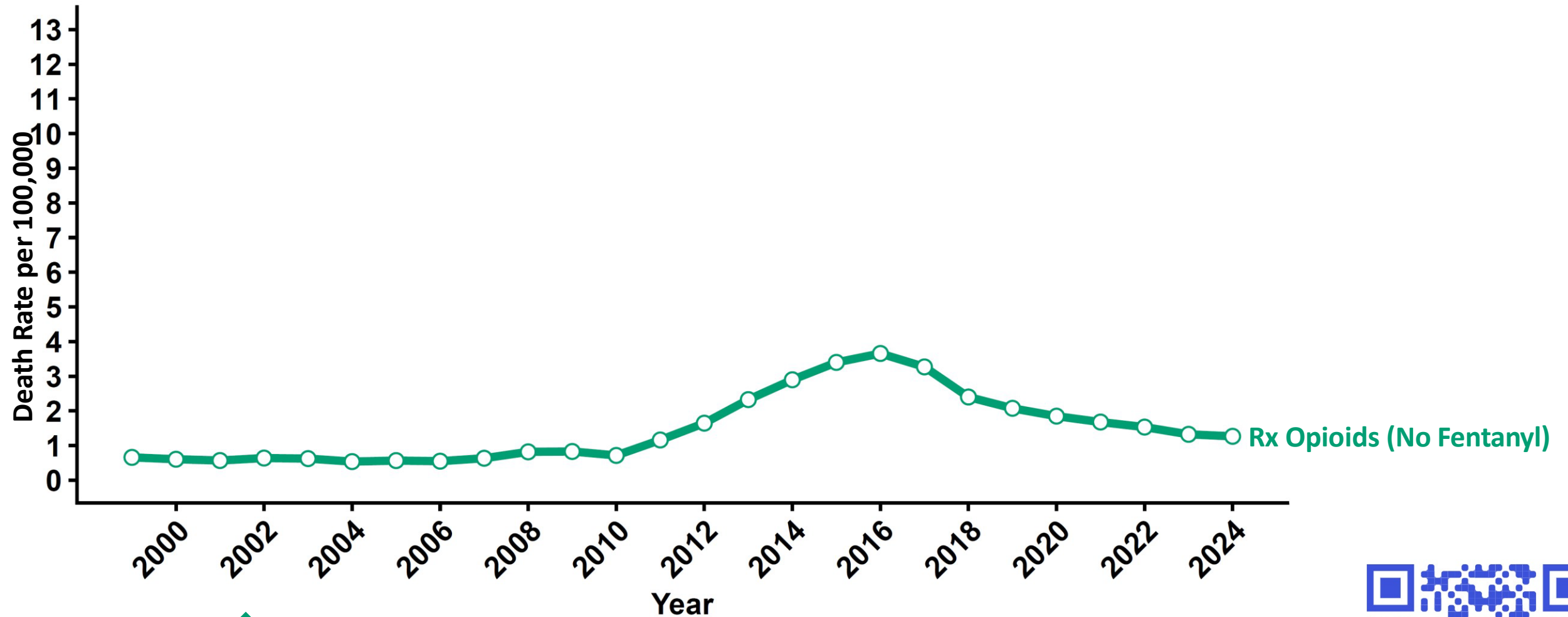
A) Overall Overdose Death Rate



B) Component Overdose Death Rates



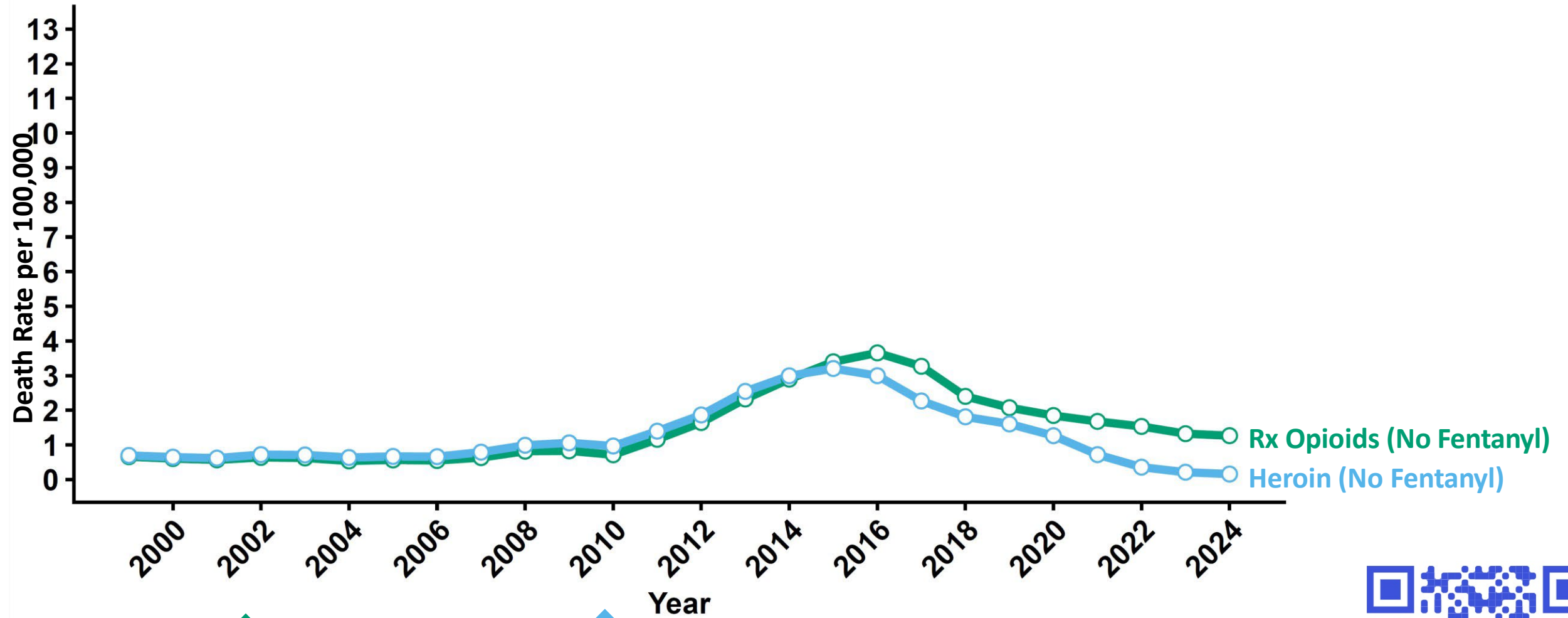
The Four Waves of the Overdose Crisis



Wave 1
Rise in Rx Opioids
in Early 2000s



The Four Waves of the Overdose Crisis

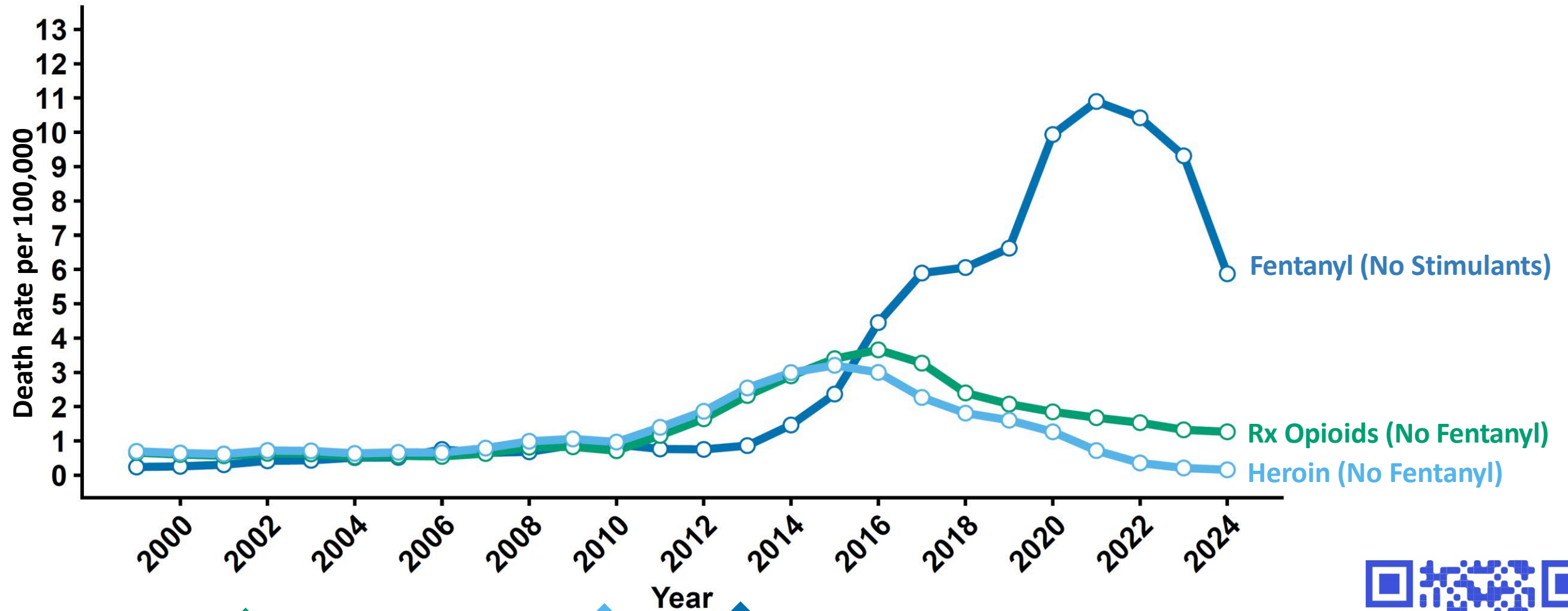


Wave 1
Rise in Rx Opioids
in Early 2000s

Wave 2
Rise in Heroin w/o
Fentanyl in 2010



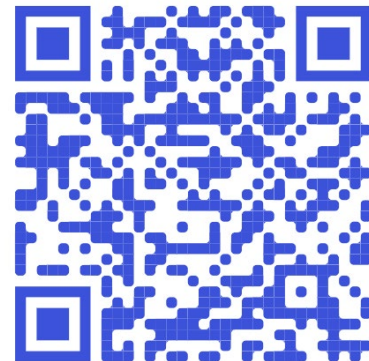
The Four Waves of the Overdose Crisis



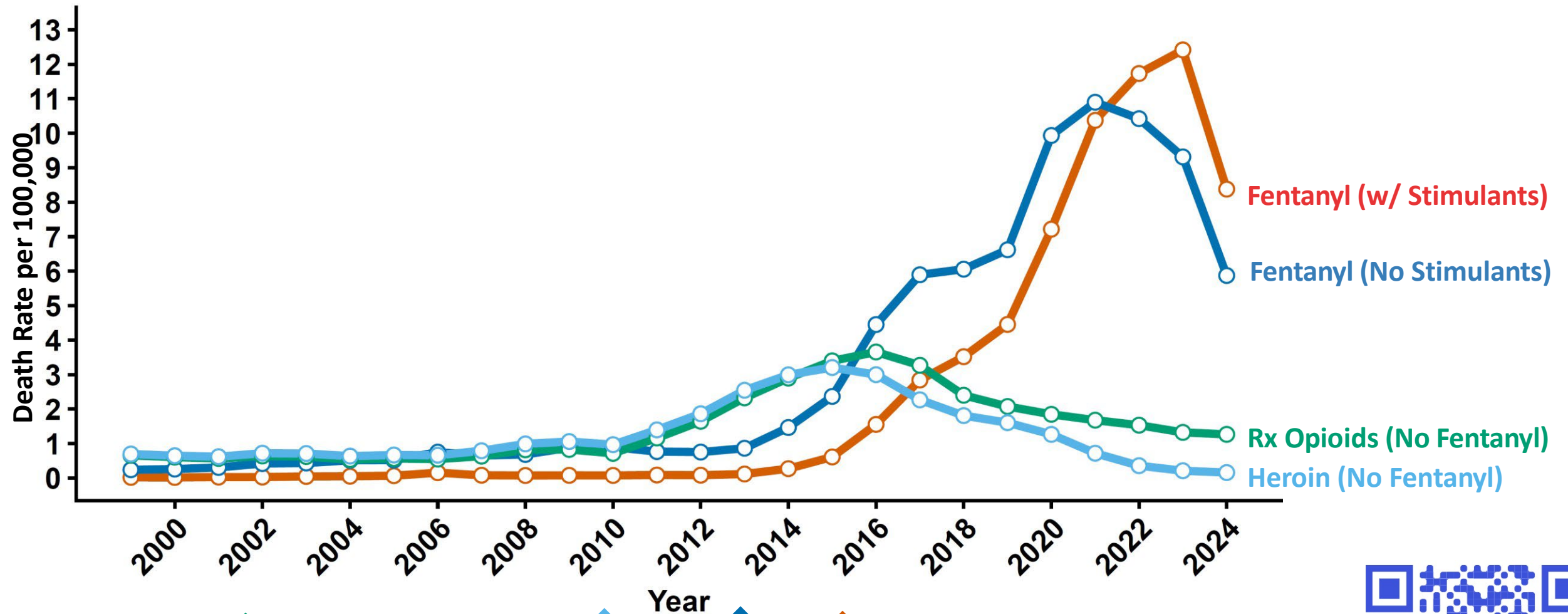
Wave 1
Rise in Rx Opioids
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Wave 2
Rise in Heroin w/o
Fentanyl in 2010

Wave 3
Rise in Fentanyl w/o
Stimulants in 2013



The Four Waves of the Overdose Crisis

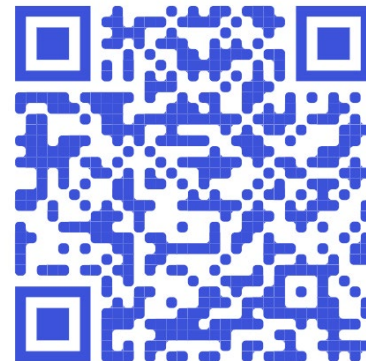


Wave 1
Rise in Rx Opioids
in Early 2000s

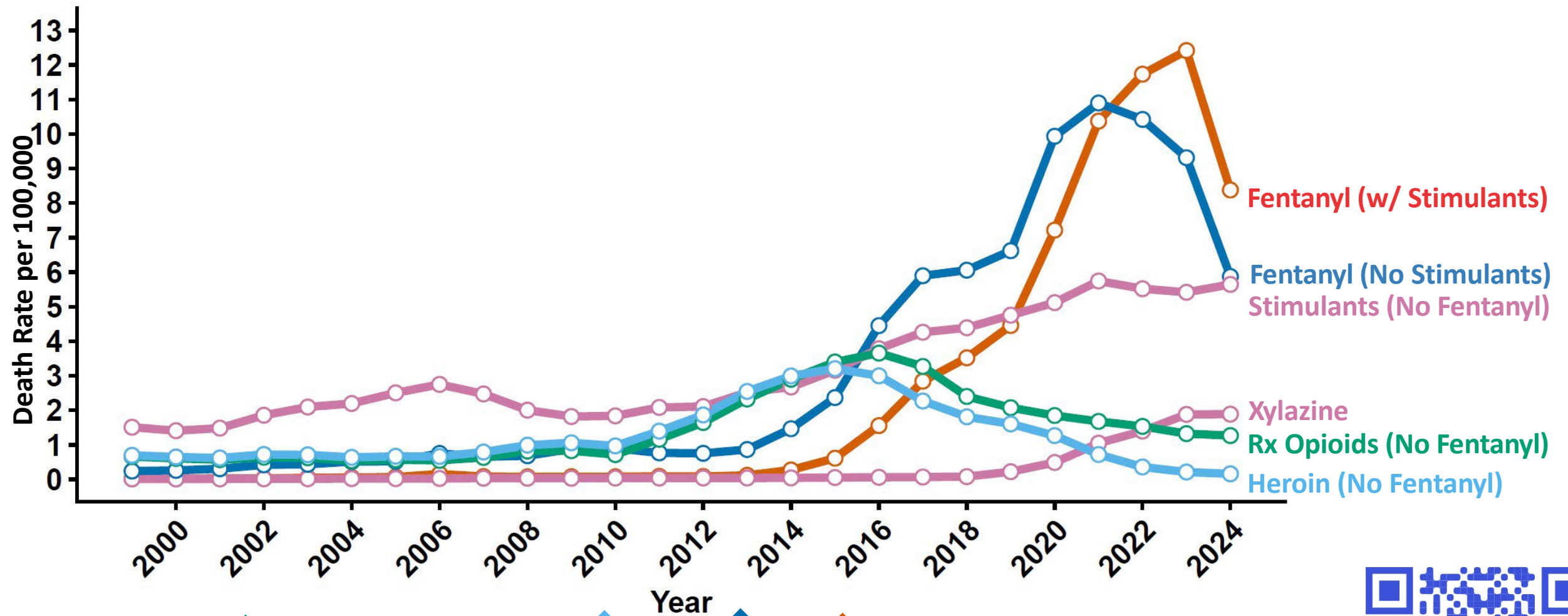
Wave 2
Rise in Heroin w/o
Fentanyl in 2010

Wave 3
Rise in Fentanyl w/o
Stimulants in 2013

Wave 4
Rise in Fentanyl with
Stimulants in 2015



The Four Waves of the Overdose Crisis



Wave 1
Rise in Rx Opioids in Early 2000s

Wave 2
Rise in Heroin w/o Fentanyl in 2010

Wave 3
Rise in Fentanyl w/o Stimulants in 2013

Wave 4
Rise in Fentanyl with Stimulants in 2015

Increasing Trends
Stimulants w/o Fentanyl
Novel Substances



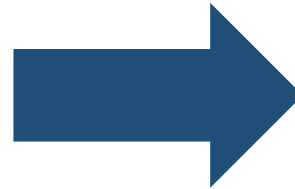
Transition From Agricultural to Synthetics

Plant-Derived

Cocaine

Heroin

Labor Intensive
Numerous Workers
Less Potent (Bulky)



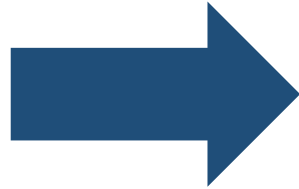
Synthetic

Methamphetamine

Fentanyl

Few Skilled Workers
Highly Potent (Compact)
Extremely Profitable

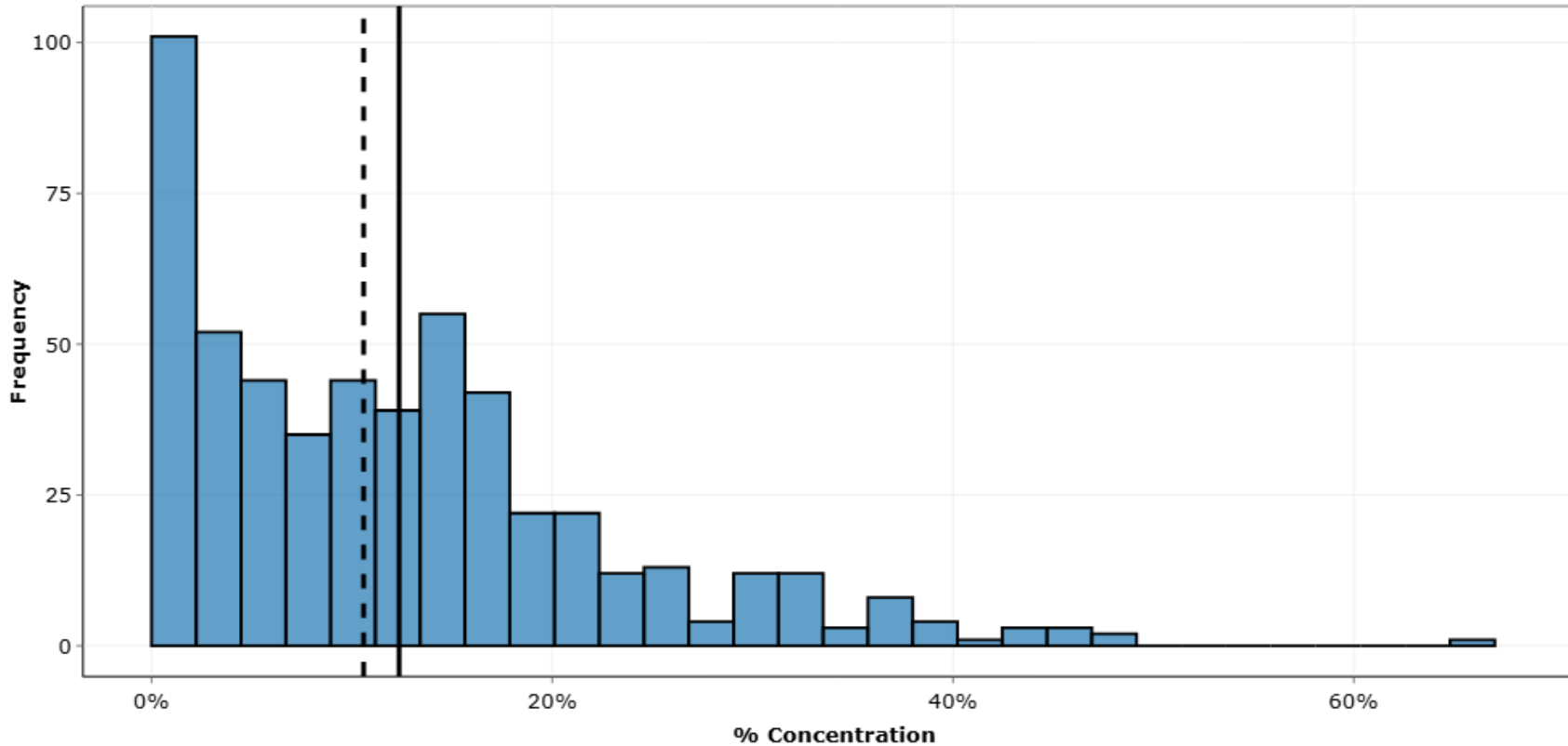
Transition to Fentanyl



- Short-acting opioids, easy to synthesize.
- Vastly cheaper than heroin to produce.
- MME = ~50-100+

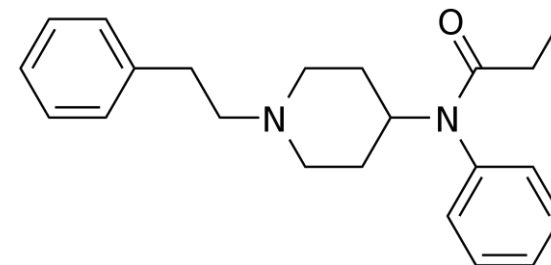
Transition to Fentanyl

Distribution: Fentanyl (Fentanyl Analog) [Expected: Fentanyl] [n=534]



- Main driver of risk is variable potency.
- Huge escalation in MME per day consumed by users.
- Shorter half life = more injections or smoking hits per day.
- Lends itself to combination with other synthetics.

Data from Drug Checking Los Angeles. <https://www.drugcheckinglosangeles.com/viz>



Fentanyl Magnified Polysubstance Use

Single Drug Sample From Chicago, Sold as Expected Opioid

- Diphenhydramine
- 4-Fluorofentanyl
- Fentanyl
- Xylazine
- Cocaine
- Despropionyl-4-fluorofentanyl
- 4-ANPP
- 4F-Phenethyl-4-ANPP
- Flualprazolam



Counterfeit Pills

Numerous Drugs Packaged As Counterfeit Pharmaceuticals



Authentic Oxycodone

VS



Counterfeit Oxycodone



Authentic Xanax®

VS



Counterfeit Xanax®



Authentic Adderall®

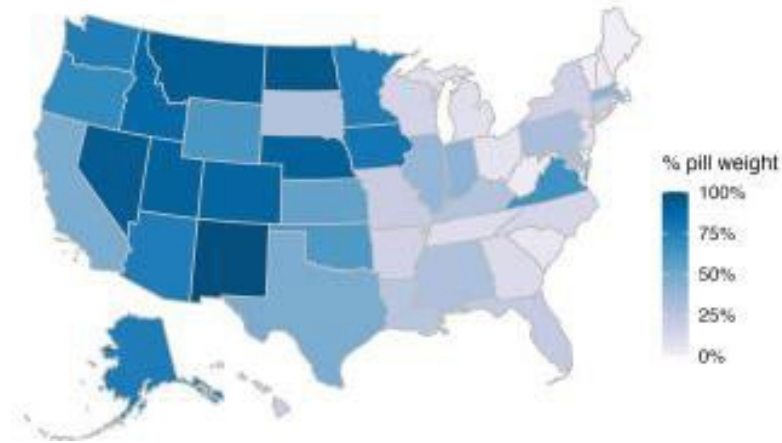
VS



Counterfeit Adderall®

Increasing Fraction of Fentanyl Sold as Counterfeit Pills

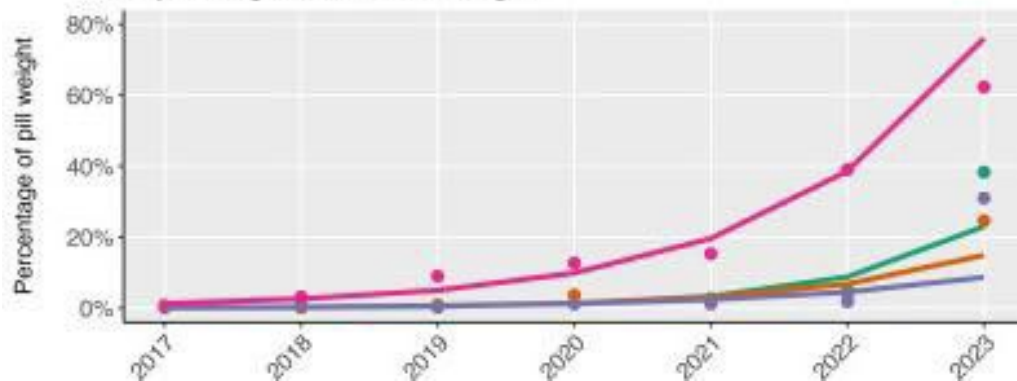
% pill weight out of total weight



Midwest Northeast South West

- Illicit opioids and other drugs increasingly packaged in pill form.
- Percentage of fentanyl seized by law enforcement in pill form (vs powder) rose from 10% in 2017 to 49% in 2023.
- Western states have the highest proportion of counterfeit pills.

% pill weight out of total weight



Proliferation of Black-Market Pill Presses



FENTANYL EXPRESS | PART 1

We bought everything needed to make \$3 million worth of fentanyl.

All it took was \$3,600 and a web browser



<https://www.dea.gov/pill-press-photo-gallery>

Counterfeit Prescription Drugs Increase the Market for Fentanyl

Los Angeles Times

CALIFORNIA

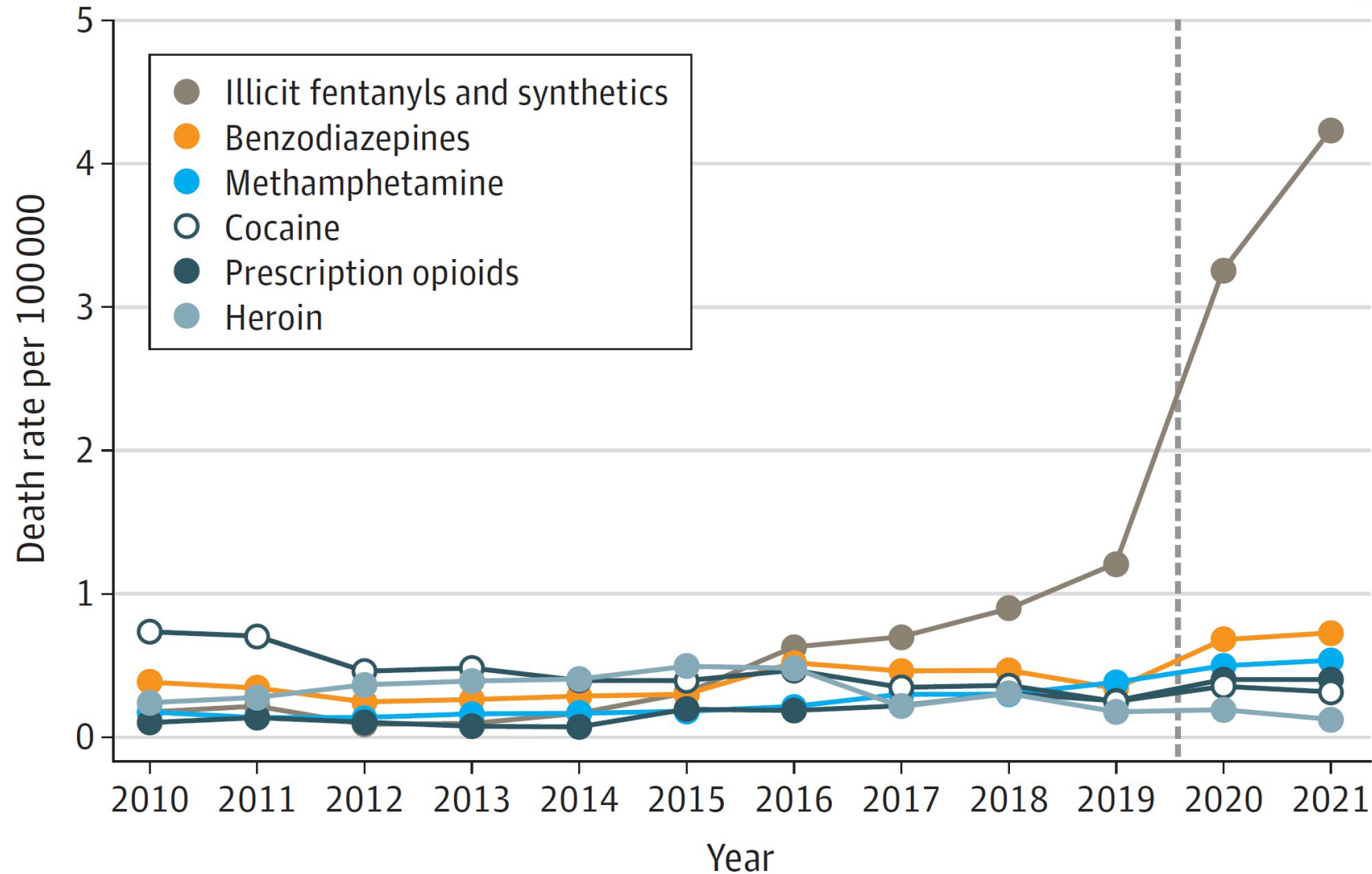
‘One pill kills’: Student’s overdose death prompts urgent action among educators, police



Counterfeit Prescription Drugs Increase the Market for Fentanyls

A Overdose mortality among adolescents by substance type

Trends in Drug Overdose Deaths Among US Adolescents, January 2010 to June 2021



Counterfeit Prescription Drugs Increase the Market for Fentanyl

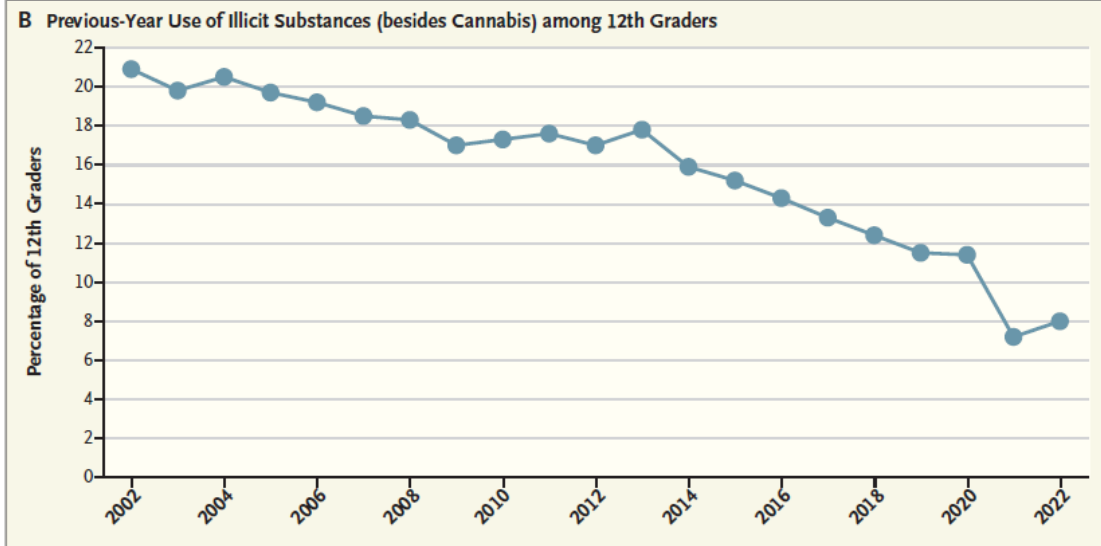
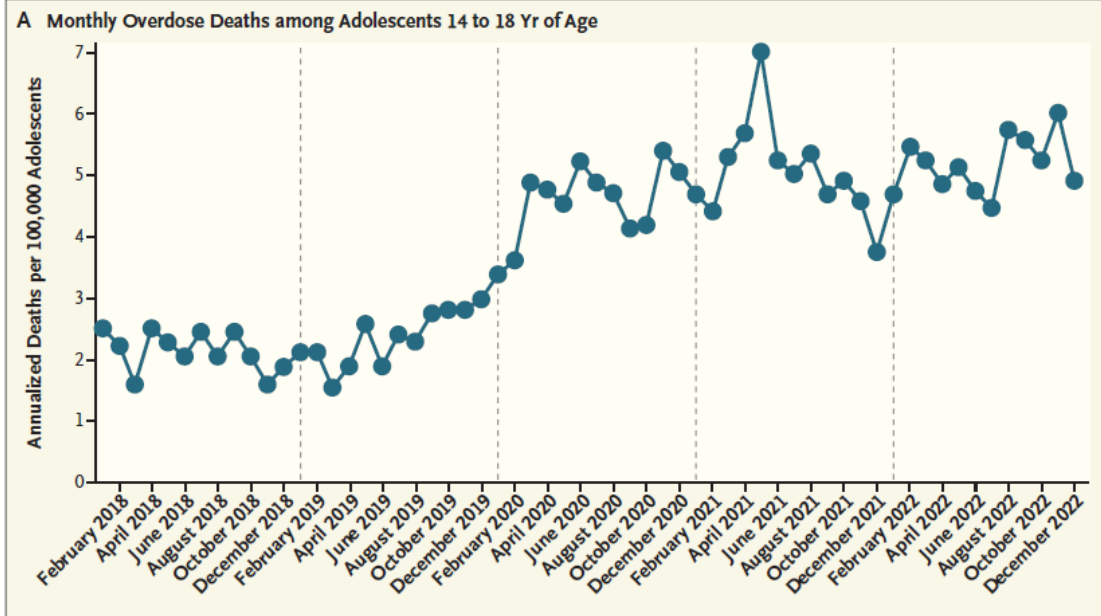


The NEW ENGLAND JOURNAL of MEDICINE

Perspective
JANUARY 11, 2024

The Overdose Crisis among U.S. Adolescents

Joseph Friedman, Ph.D., M.P.H., and Scott E. Hadland, M.D., M.P.H.



Counterfeit Prescription Drugs Increase the Market for Fentanyl

Los Angeles Times

THURSDAY, FEBRUARY 2, 2023 latimes.com

State pushes its plan to save water

Proposal counters one by six neighbors that targets California for Colorado River cuts.

By IAN JAMES

California has given the federal government its own proposal for making cuts in Colorado River water use, saying a plan offered by six other states would disproportionately burden farms and cities in Southern California.

Water agencies that depend on the river submitted their proposal to the Biden administration on Tuesday, the same day federal officials had set as a deadline for the Colorado River Basin states to reach agreement on how to prevent reservoirs from dropping to dangerously low levels.

The state put forward its proposal a day after Arizona, Colorado, Nevada, New

A TIMES INVESTIGATION



IN TOURIST DISTRICTS in Cabo San Lucas, Mexico, pharmacies catering to Americans seem to be everywhere. Some drugstores there and in other northwestern Mexican cities are selling tainted pills.

Mexican pharmacies sell fentanyl-, meth-tainted pills

GIRARDI CHARGED WITH FRAUD IN 2 STATES

Disgraced lawyer accused of swindling clients is indicted in Chicago and L.A.

By MATT HAMILTON AND HARRIET RYAN

Tom Girardi, the once-vaunted Los Angeles trial attorney, has been indicted by federal grand juries in two states on fraud charges for allegedly swindling more than \$18 million from clients who had endured severe injuries or tragic deaths of loved ones, prosecutors announced Wednesday.

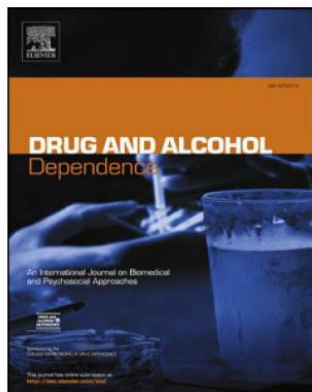
In Chicago, Girardi and his son-in-law, attorney David Lira, and the former chief financial officer of Girardi's law firm, Christopher Kamen, were charged with eight counts of wire fraud and four counts of contempt of court. Prosecutors said the trio had misappropriated more than \$3 million in



Alprazolam (Xanax)			
Real		Counterfeit	
		Not Detected	Not Detected
D-L-Amphetamine (Adderall)			
Real		Counterfeit	
Oxycodone (Various Brands; +/- Acetaminophen)			
Real		Counterfeit	

Fentanyl, heroin, and methamphetamine-based counterfeit pills sold at tourist-oriented pharmacies in Mexico: An ethnographic and drug checking study

Joseph Friedman ^{a,*}, Morgan Godvin ^b, Caitlin Molina ^c, Ruby Romero ^c, Annick Borquez ^d, Tucker Avra ^e, David Goodman-Meza ^f, Steffanie Strathdee ^d, Philippe Bourgois ^a, Chelsea L. Shover ^c



Unique Risks of Counterfeit Pills

- Synthetic drugs, often in polysubstance formulations, increasingly packaged in counterfeit pill form
- Often indistinguishable from authentic pharmaceuticals
- Widen the scope of who is susceptible to synthetic drugs.
- Inherent misalignment between demand and supply (false advertising).
 - 0.3% of students aged 18 years report having ever used heroin
 - 5.0% report recreational use of prescription pills
 - This 15-fold gap shows the role of stigma and cultural norms in shaping illicit substance consumption patterns
 - The legitimacy of pharmaceutical products and establishments can be co-opted to convince tourists who would likely never purchase powder fentanyl into unknowingly purchasing it in pill form while seeking painkillers.
 - Risks for wide range of groups, e.g., chronic pain patients.

Approaches to Mitigate Risk

- Education and awareness can have outsized impact in this area.
- Pill testing services.
- Increase monitoring of pill contents – early warning systems to detect dangerous outbreaks before they fully take off.
- Improve clinical responses to polysubstance overdoses with unknown drugs involved.
- Recognize the tension between cracking down on diverted authentic pharmaceuticals and inadvertently driving demand toward counterfeits

Awareness and Education Campaigns

- School and campus interventions.
- Ideally coupled with naloxone distribution and training



Pew

TOPICS: ADVANCE HEALTH & WELL-BEING

PROJECTS: SUBSTANCE USE PREVENTION AND TREATMENT

Amid Colorado Overdose Deaths, State Legislature Supports Naloxone in Schools

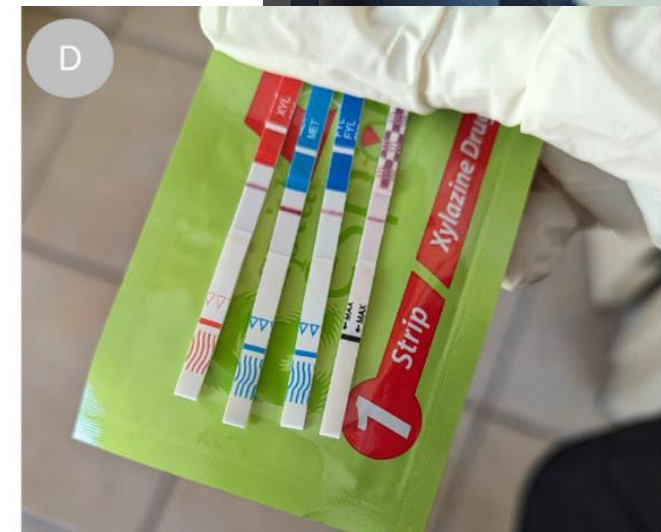
State Senator Cleave Simpson explains why making an opioid overdose reversal drug more available matters

Authors: [Alexandra Duncan](#)

Drug Checking/Pill Testing

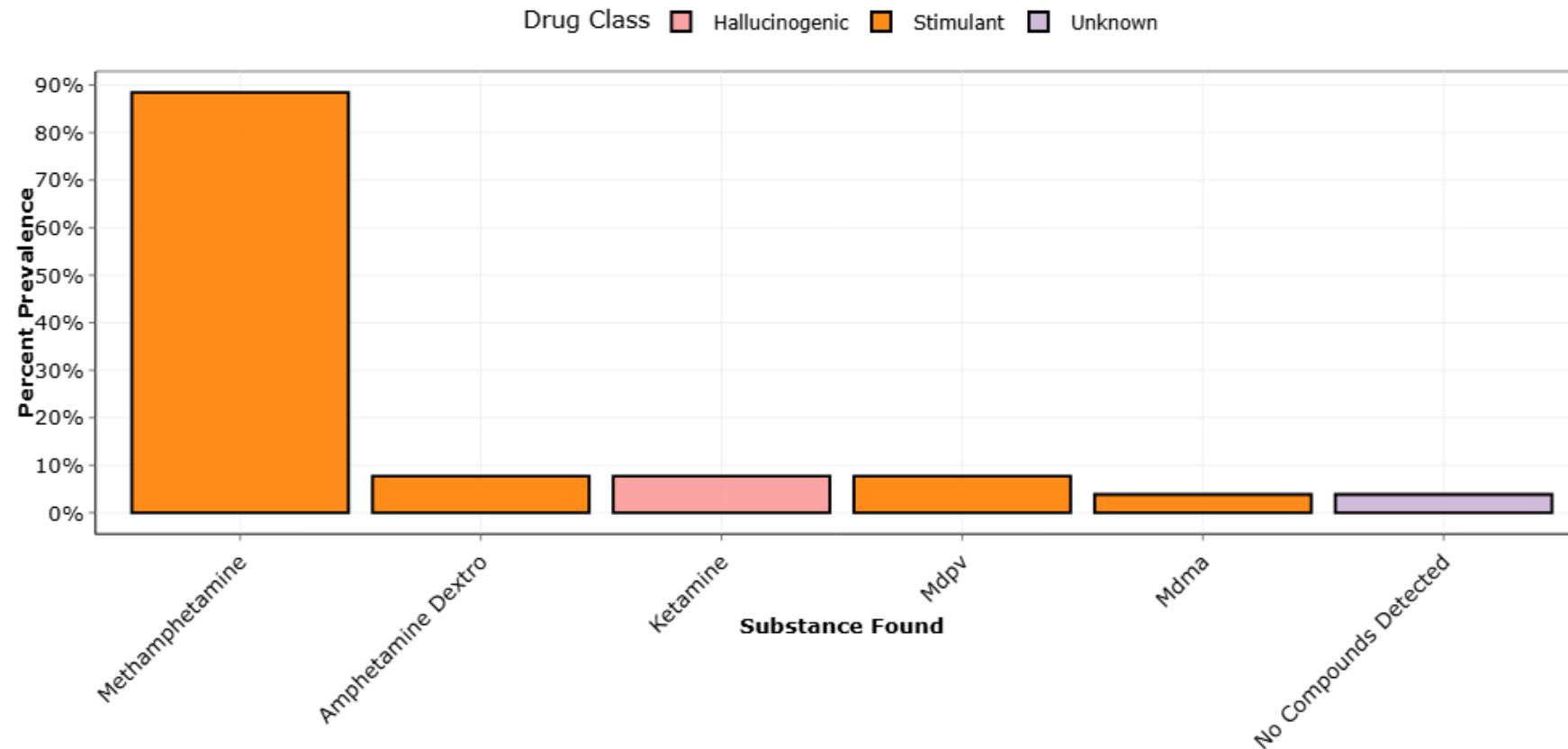
Drug Checking Technologies

- Most consumers of illicit drugs want to avoid strange, new, harmful things.
- Drug checking empowers consumers to shift their demand away from more dangerous products.
- Testing strips are a low-cost solution. Work on substances and urine in practice. But have numerous limitations.
- FTIR spectroscopy is a more comprehensive point-of-care option.
- Gold standard testing using mass spectrometry or other techniques is more expensive and slower.



When Expecting Adderall

Drugs Found When Expecting: Adderall (n=26)

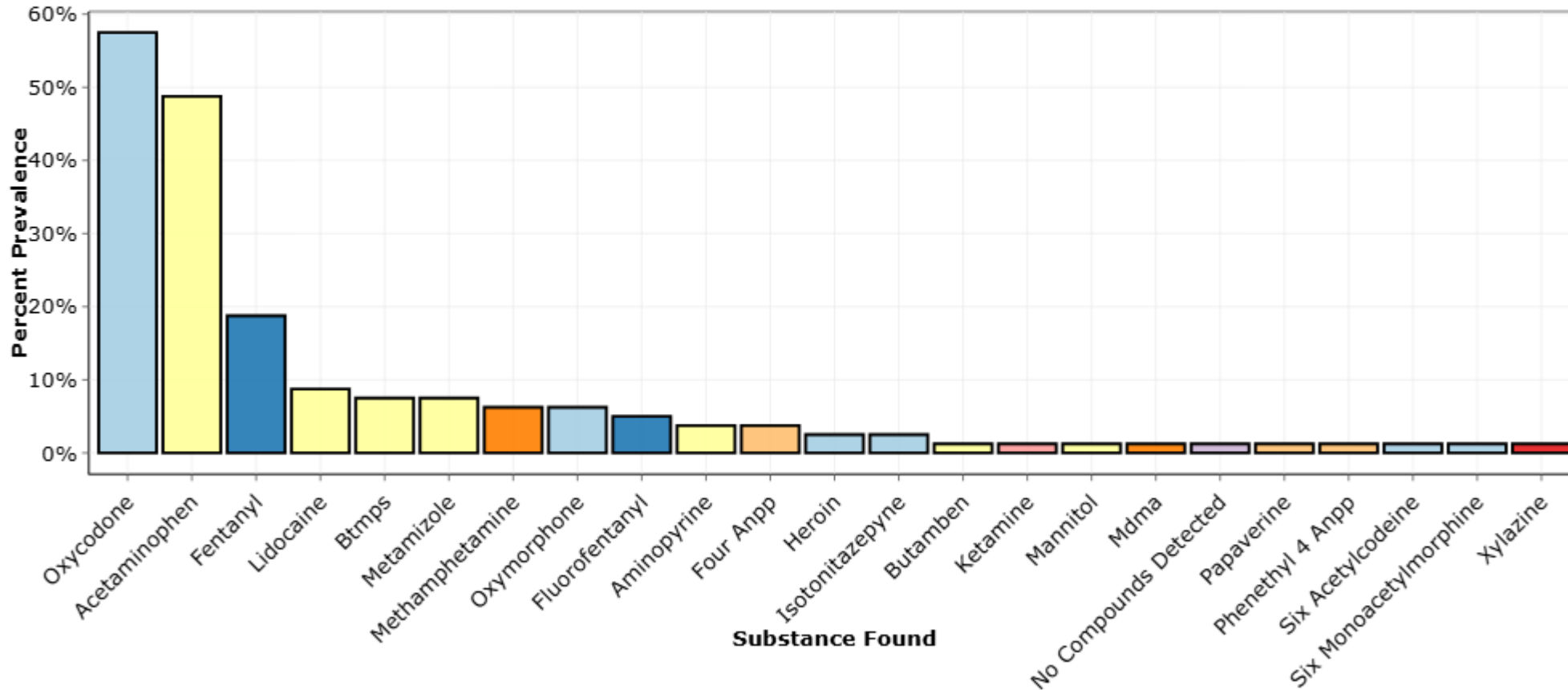


When Expecting Prescription Opioids

Drugs Found When Expecting: Prescription Opioids (n=80)

Drug Class

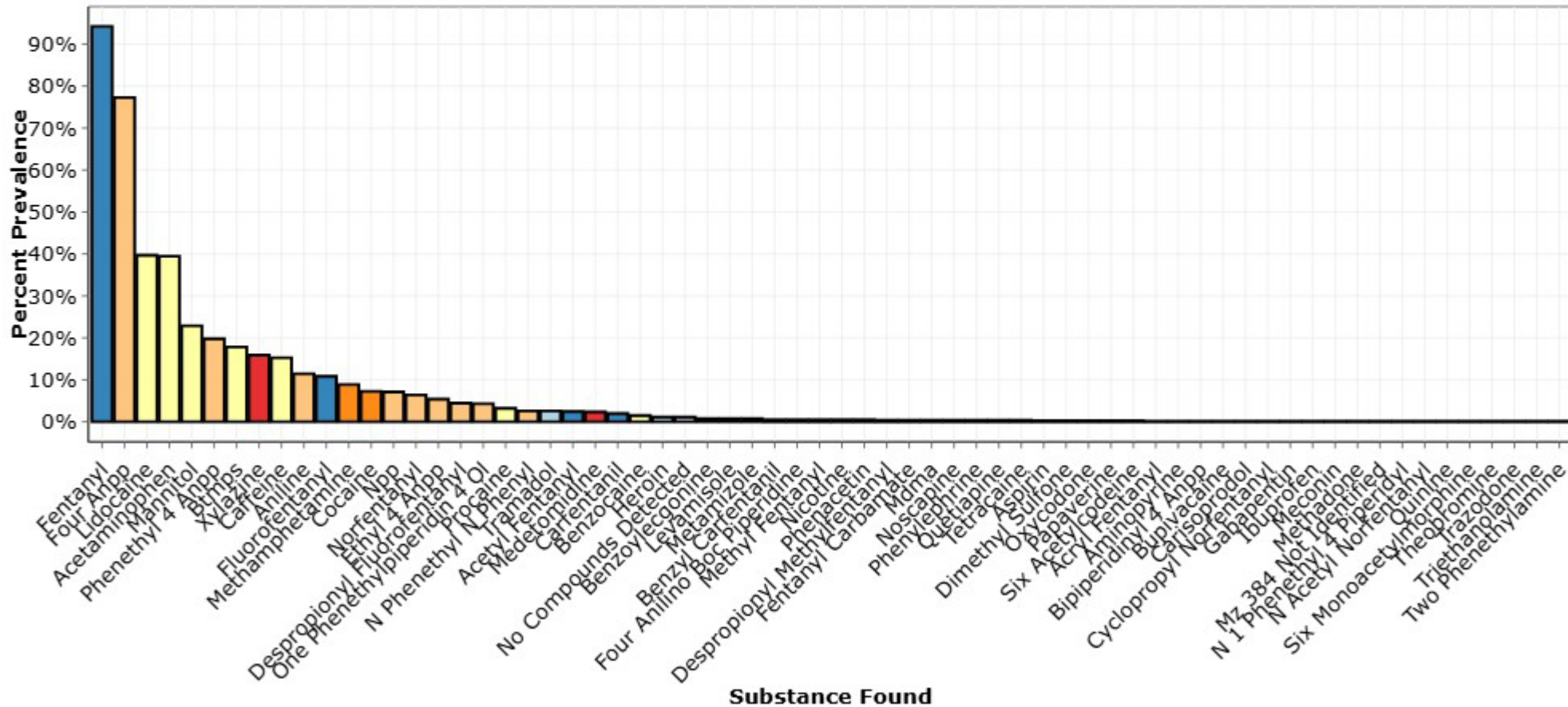
- Bulking Agent
- Fentanyl Analog
- Hallucinogenic
- Non-Fentanyl Opioid
- Precursor/Byproduct
- Sedative/Tranquilizer
- Stimulant
- Unknown



When Expecting Fentanyl

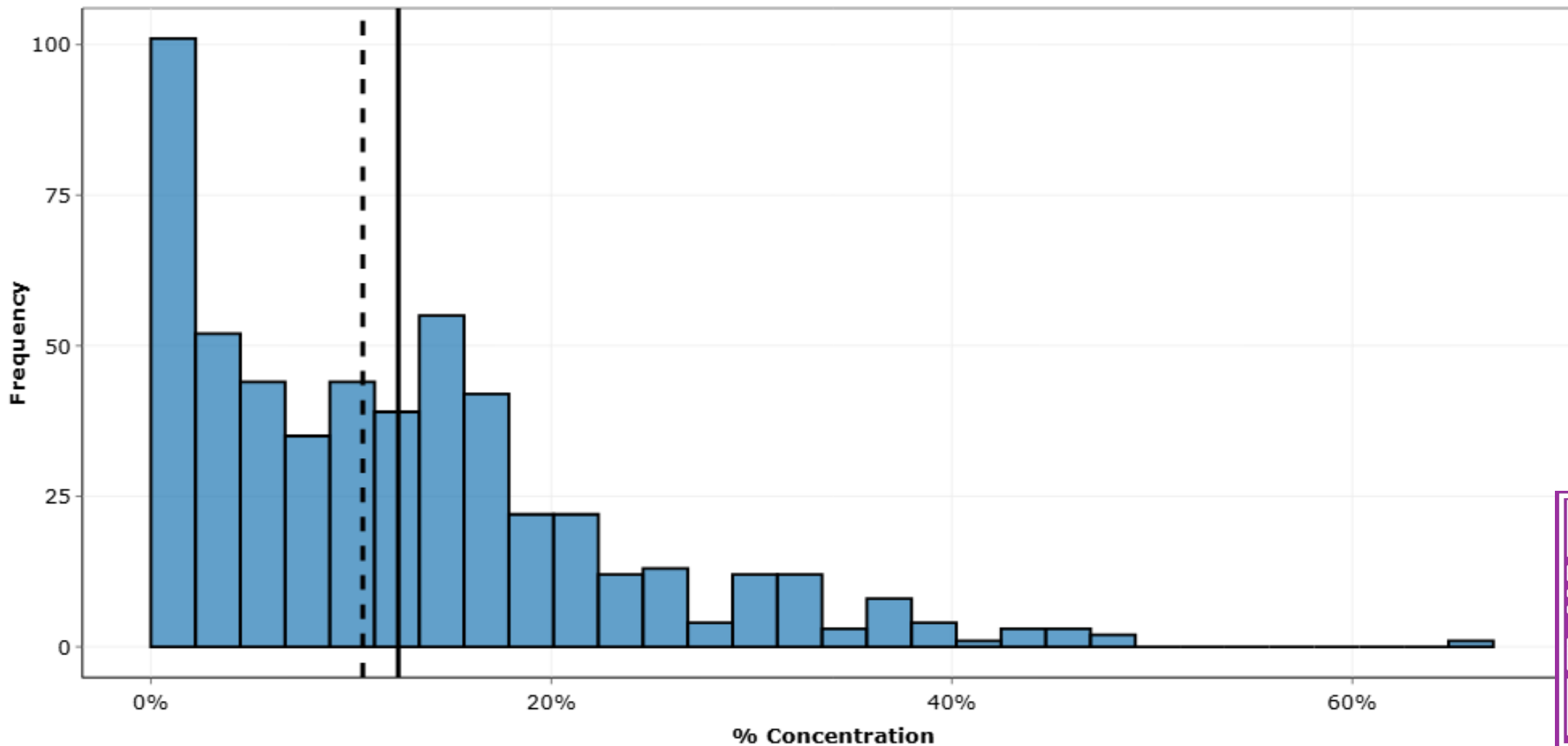
Drugs Found When Expecting: Fentanyl (n=814)

Drug Class ■ Antipsychotic ■ Bulking Agent ■ Fentanyl Analog ■ Non-Fentanyl Opioid ■ Precursor/Byproduct ■ Sedative/Tranquilizer
■ Stimulant ■ Unknown



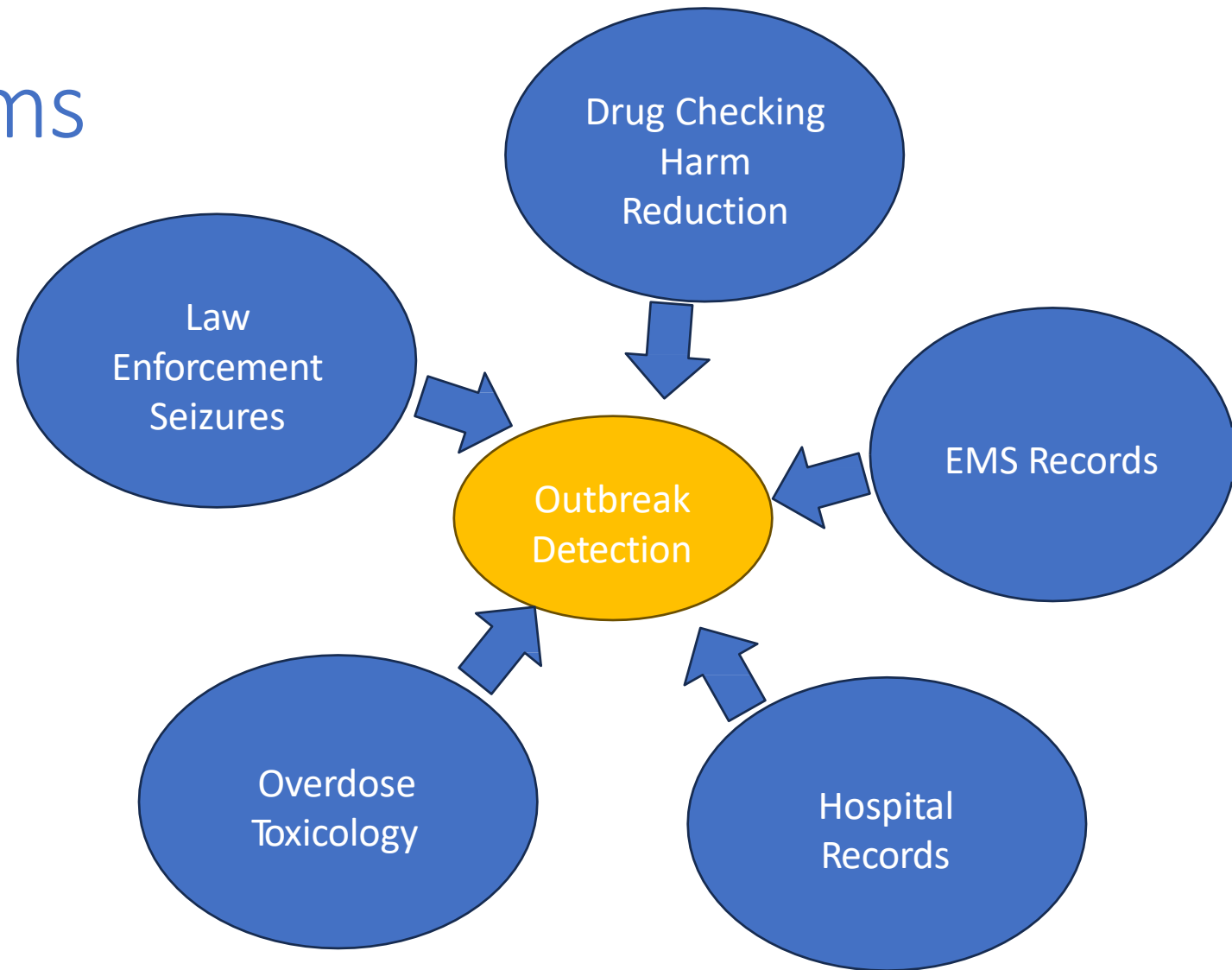
When Expecting Fentanyl

Distribution: Fentanyl (Fentanyl Analog) [Expected: Fentanyl] [n=534]



Early Warning Systems

- Efforts needed to synthesize data streams.
- Rapid communication of results.



Improving Clinical Response

- **Counseling about the illicit drug supply**
 - Don't trust pills.
 - Be aware that things are changing rapidly.
 - Drug checking technologies can empower consumers to shift demand.
- **Naloxone-Resistant Overdose**
 - Still give naloxone! Additional measures also needed.
- **Complicated withdrawal syndromes**
 - Very high MME needed for opioid withdrawal.
 - Still give buprenorphine/methadone, additional agents for symptom management.
 - Consider benzodiazepines, dexmedetomidine, other sedatives as appropriate.
 - Contingency management or medication treatment for stimulant cessation.

Shift Demand Onto Safer Medically Managed Therapies

- Current demand for diverted pharmaceuticals and other legal products is often relatively inelastic, due to physical and behavioral dependence.
- Disruptions to these markets can shift use onto illicit drug products.
- Methadone and buprenorphine provide effective stabilization and mortality reductions.
- Other aspects of dependence require tailored treatments.

Global Implications

Counterfeit Pills in Other Countries

- Taliban opium ban creating new global market openings.
- Signs of global shift towards synthetic illicit drugs, especially fentanyl and nitazenes.
- Europe
 - Experiencing rise in nitazenes
 - Novel synthetic benzodiazepines highly prevalent
 - Etizolam present in 2/3 of overdose deaths in Scotland
 - Veterinary sedative xylazine found in pills and vaporizers in the UK



Overall Conclusions

- **The Overdose Crisis has Fundamentally Shifted**

The transition from agricultural drugs to highly potent, easily disguised synthetic formulations is nearly complete, fundamentally altering global drug markets.

- **Counterfeit Pills Widen the Target Demographic**

By mimicking trusted, less-stigmatized pharmaceutical brands, illicit synthetics are now unknowingly consumed by populations who would otherwise avoid street drugs, such as adolescents and tourists. This has broad implications for wide groups of consumers.

- **Expectation No Longer Matches Reality**

As drug checking data reveal, there is a dangerous misalignment between what consumers intend to buy and the deadly polysubstance mixtures they actually receive.

- **Harm Reduction is Critical and Urgent**

Mitigating this crisis requires scaling point-of-care drug checking services, deploying early warning surveillance systems, and removing barriers to safe, medically managed alternatives like buprenorphine and methadone.

- **A Looming Global Threat**

The US experience serves as a warning for other nations; geopolitical shifts (like the Taliban opium ban) are already accelerating the spread of synthetic pills into Europe, Australia, and Latin America



Questions/Discussion

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