

Xylazine in the Era of Synthetic Street Drugs

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At the time of this publication, Miriam E. Delphin-Rittmon, Ph.D, served as Assistant Secretary for Mental Health and Substance Use in the U.S. Department of Health and Human Services and the Administrator of the Substance Abuse and Mental Health Services Administration.

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Roadmap for Today

- ✓ Overview of the Issue
- ✓ Impact of Xylazine
- ✓ Harm Reduction
- ✓ The Role of Prevention
- ✓ Summary
- ✓ Evaluation



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Learning Objectives



Summarize how the sudden expansion of xylazine, fentanyl, and crystal methamphetamine use is related to the history of U.S. drug markets since 1990.



Describe how each of these substances relate to one another in consumption and public health impact, including drug overdose risk.



Examine avenues for public health interventions.



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A scenic landscape photograph featuring a two-lane asphalt road on the left, bordered by a low stone wall. The road curves towards the right, overlooking a vast body of water and a sandy beach. In the background, there are rolling hills and mountains under a dramatic, cloudy sky. The overall mood is serene and expansive.

Overview of the Issue

Poll Question

Is Xylazine an Opioid?

1. Yes
2. No
3. Not sure



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Xylazine: Overview and Pharmacology

- Xylazine is an alpha-2 adrenergic agonist that has long been used by veterinarians to treat large animals such as horses and cattle.
- It is not an opioid
- It is a synthetic sedative



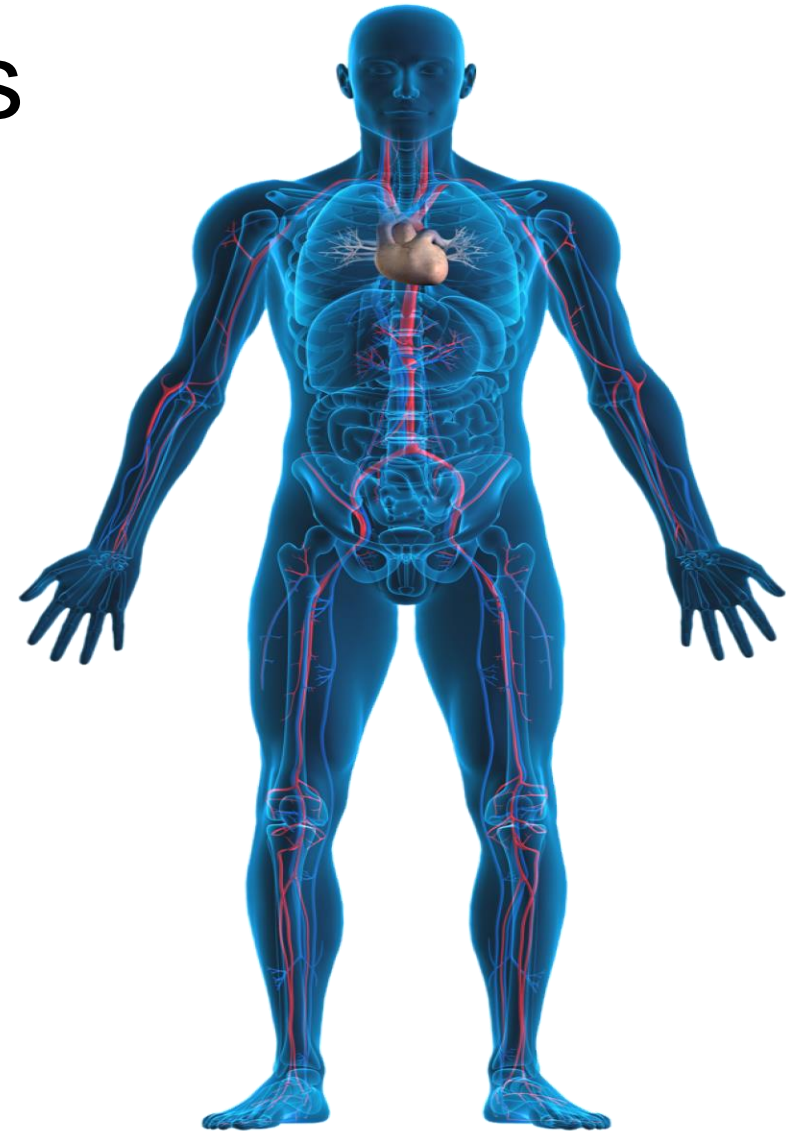
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Xylazine: Effects on Humans

- Deep sedation and heavy nod within 20/30 minutes
- Slowing down the central nervous system
- Slow breathing
- Low blood pressure
- Slow heart rate
- High/Low blood sugar
- Amnesia
- Severe skin ulcers and abscesses



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Xylazine-Related Skin Wounds

WARNING:

The following slide contains graphic depictions of
xylazine-related skin wounds



Xylazine-Related Skin Wounds



Photos by Kimberly Sue, MD/PhD, Yale University

How is Xylazine Administered?

Swallowed

Inhaled

Snorted

Injected

Smoked



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Poll Question

Which of the following effects are not related to Xylazine use by humans?

1. Slowed Breathing
2. Low Blood Pressure
3. Diarrhea
4. Open wounds



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A scenic landscape featuring a road on a cliffside overlooking a bay under a cloudy sky. The road is paved and has a white line on the edge. The cliffside is covered in green vegetation. The bay is calm and blue, with a sandy beach visible in the distance. The sky is filled with grey and white clouds, suggesting an overcast day.

Impact of Xylazine

What do you know about the prevalence of
xylazine in your community?



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Recent History of U.S. Street Opioid Supply

1991-2013

- Mexican black tar heroin west of Mississippi River
- Colombian powder heroin east of the Mississippi
- Mixed supply in Midwestern cities like Chicago (Ciccarone & Bourgois 2003)

2013-2019

- Mexican powder heroin displaces Colombian heroin from East Coast markets and fentanyl enters opioid supply chains primarily on the East Coast (Ciccarone 2021)

2017

- Xylazine becomes increasingly prevalent in Rustbelt region, beginning in (Friedman, Montero, Bourgois et al. 2022), as fentanyl begins to spread west (Shover et al. 2020)

2020-present

- Opioid supply on East Coast increasingly becomes a mix of fentanyl and xylazine (“tranq”) as heroin disappears.
- Mexican methamphetamine enters East Coast/Rust Belt street markets formerly dominated by heroin and cocaine.
- The West Coast opioid market becomes a predominantly pill-oriented market where people who use drugs crush and smoke fentanyl pills often advertised as Oxycodone or Percocets (Montero et al. 2022).

Fentanyl's Uneven Spread

Fentanyl's spread has been conditioned by pre-existing geographic distribution of heroin formulations (powder vs. black tar)

Fentanyl prevalence on West Coast is increasing substantially but is still below East Coast/Midwest levels (Shover et al. 2020)

Most of the fentanyl entering the country now crosses Southwestern border points with purity levels around 1.5 - 10% (DEA PFD 2020:8)



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Fentanyl Beyond “Potency”

- Experience of fentanyl consumption (vs. heroin)
 - Duration of effect / withdrawal symptoms / frequency of injection
 - Quality of “high” (Montero et al. 2022; Ciccarone, Ondocsin, and Mars 2017)
 - Fentanyl shapes later changes as its deficiencies open space for new additives and substances (xylazine, meth)



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Xylazine

- In 10 jurisdictions—representing all 4 US Census Regions—xylazine is increasingly implicated in overdose mortality, rising from 0.36% of deaths in 2015 to 6.7% in 2020.
- In 2020, the highest xylazine prevalence was observed in Philadelphia (34.7% of overdose deaths), followed by Maryland (19.2%) and Connecticut (10.2%)
- In Philadelphia in 2020, fentanyl was present in 98.4% of xylazine-involved-overdose deaths

Source: Friedman, Montero & Bourgois 2022



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Xylazine

Most recent drug testing data in Philadelphia shows relative concentration of xylazine and fentanyl in local “dope” supply

Average “dope” sample consists of 2-10% fentanyl, 30-40% xylazine, and no heroin (CSFRE 2022)



Number of Overdoses by Region

<i>Region</i>	<i>2020</i>	<i>2021</i>	<i>Percent Increase</i>
<i>Northeast</i>	631	1,281	103%
<i>South</i>	116	1,423	1,127%
<i>Midwest</i>	57	351	516%
<i>West</i>	4	34	750%

Source: DEA 2023

Why Xylazine? Why Now?

Tom, male, white, unhoused 35-year-old opioid and meth injector in Philadelphia:

“Fentanyl is such a short-lived high, that the high... It’s a good high but it’s so short that the nod is over real quick and you get sicker faster. See, the tranq extends the high, it gives the dope more of a heroin effect, it’s a good rush with the heroin-like ‘legs’ [duration of high].

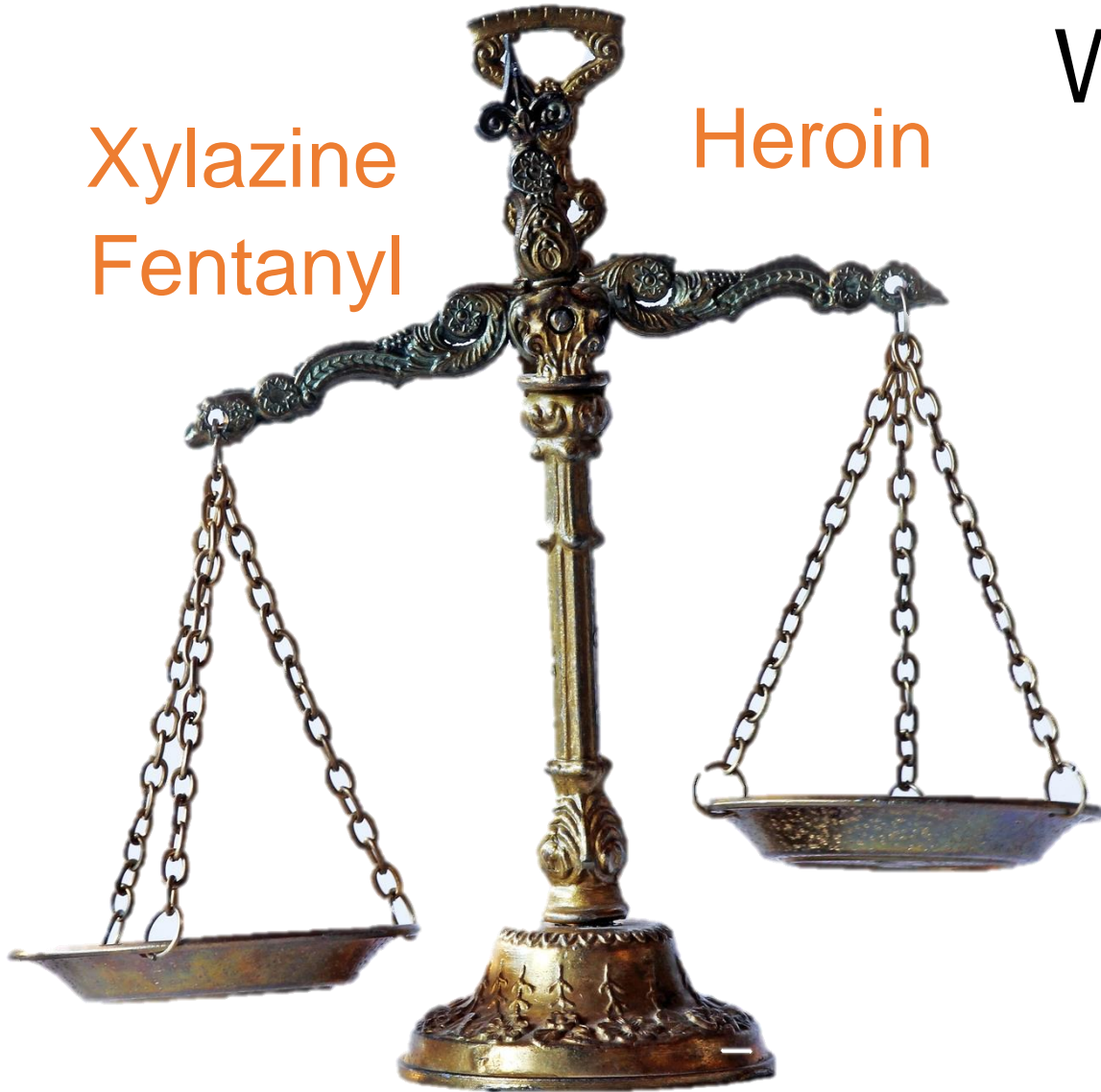
"But they straight put bags out there that are just all tranq. You shoot it, you feel no rush. Tranq-fent is like you shoot it; you get the rush of the fentanyl; then the tranquilizer comes in; you nod; and you fall asleep. A straight tranq bag is like, you shoot it; you get no rush; you’re sitting there for a second talking; and then you’re waking up 2-3 hours later in a weird position. Like one case, I lit a Newport [menthol cigarette]; I shot a bag with a Newport; I woke up with a hole of Newport burnt into my stomach [showing the scar, laughing]. You could literally drown in a half-inch of water if you did a tranq bag and you fell out.”

Source: Montero et al. 2022

Why Xylazine? Why Now?

Xylazine
Fentanyl

Heroin



- Limits of fentanyl adulteration
 - Length and quality of “high”
 - Fentanyl cannot serve as diluent or bulk of substance sold as “dope”
- Xylazine compensates for deficiencies introduced by fentanyl



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Which Region of the US has seen the highest number of Xylazine-Positive Overdose Deaths?

1. South
2. Northeast
3. Midwest
4. West

A scenic landscape featuring a road on a cliffside overlooking a bay. The road is paved and has a white line on the edge. The cliffside is covered in green vegetation. In the background, there is a large body of water, a sandy beach, and distant mountains under a cloudy sky. The text "Harm Reduction" is overlaid in the center of the image.

Harm Reduction

Xylazine's Transformation to a Harm Reduction Landscape

Xylazine has introduced new problems:

- It is not an opioid (there is a need for new overdose reversal agents to complement, *not replace*, naloxone)
- Ulcers/extensive skin wounds
- Risk of sexual assault and muggings
- Not just overdose; withdrawal and detox

Xylazine-Involved Suspected Overdoses

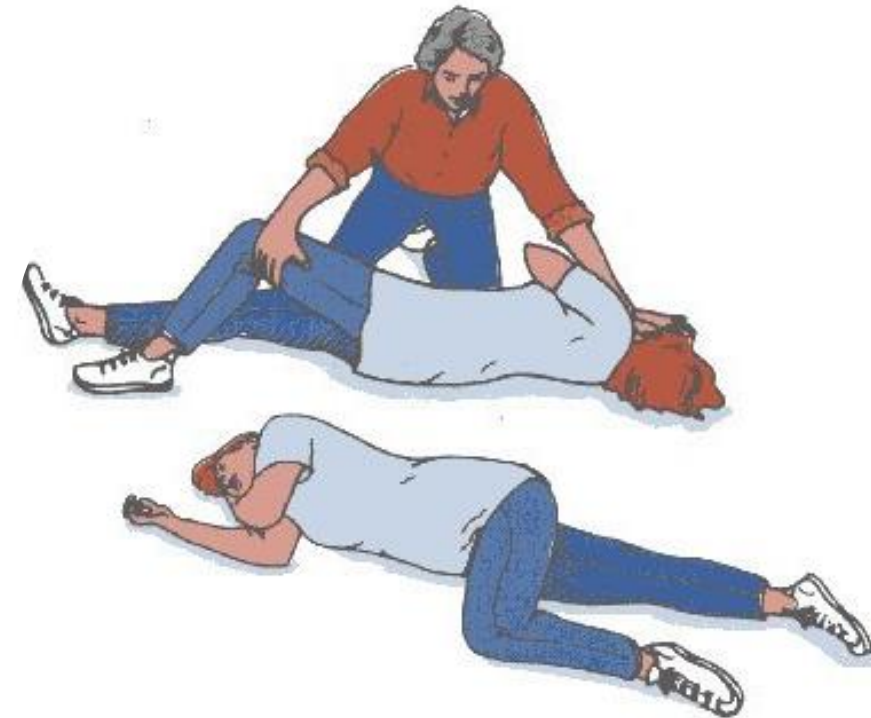
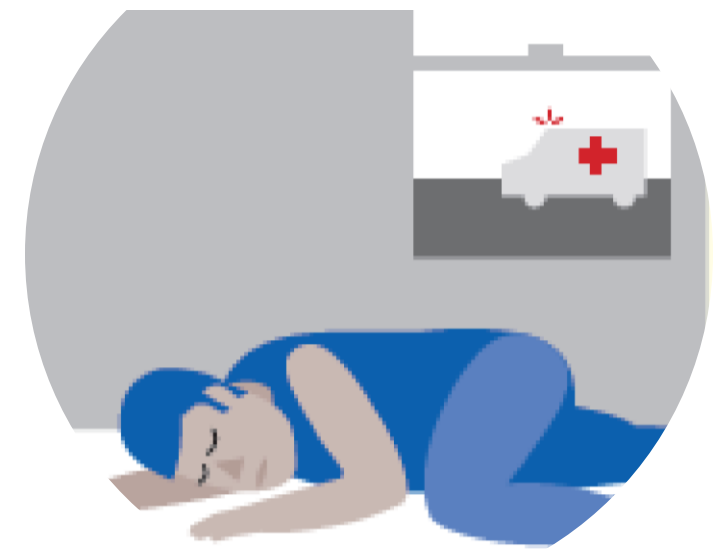
Recovery position, airway maneuvers to clear airway

Pulse oximetry, airway monitoring, supplemental oxygen as needed

No known antidote

Naloxone administration recommended if uncertain cause of overdose

Try to move the patient semi-regularly if in deep xylazine nod – prevent rhabdomyolysis



Methamphetamine

- “Fentanyl is so short-lived that we gotta get high every 6 hours. But sometimes, let’s say things were tough or whatever, if we were 10 hours in and you started getting sick, a nice shot of meth will hold you over for another 6 hours, as far as not being sick altogether. You just wouldn’t be as sick, I mean eventually it would turn against you but it would keep you feeling better to get up and make a move to make money.”
- “Meth does its part too, because if you really don’t have the money, meth can keep you well for a little bit longer, it kind of will help you like, give you some time to gather up money to find some dope, you know what I mean? And you can stay up later, scheming to get money, or if you do your thing at night, boosting or whatever. I scrap, so a lot of my work is nighttime stuff.”

The Increasingly Synthetic Polydrug Context

- Impact on HIV and hepatitis C risk: an era of countervailing forces
 - Xylazine vs. methamphetamine
 - Psychostimulant overdose deaths in the US rose by 625% between 2012 and 2019 (Hedegaard, Minino & Warner 2020:4)
 - Plenty of room for expansion east of the Mississippi River: CDC reports that age-adjusted death rates for drug overdoses involving psychostimulants ranged from 1.2 [per 100,000] in the Northeast to 5.3 in the West (CDC 2019:37)

What is the street name for Xylazine?

1. Tranq
2. Tranq Dope
3. Zombie Drug
4. Sleep-Cut
5. All of the above



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Looking Ahead

- Overdose prevention centers will prevent both overdoses and sexual assault
- Support for community-based gas chromatography-mass spectrometry testing in addition to fentanyl test strips (FTS) and xylazine test strips (XTS)
- Safe Supply



Toward Supply-Side Harm Reduction

- Importance of not vilifying people who sell drugs (street sellers)
- It is crucial to understand socioeconomic organization of narcotics markets at all levels of supply chain (vs. simply drug use)
- Enhances understanding of how supply changes happen and how public health can intervene more efficiently and non-punitively



A scenic landscape photograph featuring a paved road on the left, a stone retaining wall in the foreground, and a view of the ocean and distant mountains under a cloudy sky. The text "Opportunities for Prevention" is overlaid in white in the center.

Opportunities for Prevention

Prevention and Treatment Opportunities

Continue focusing on core prevention strategies, but beyond that you can:

- Increase and improve data collection
- Pilot new evidence based programs/adapt existing programs and publish the results
- Continue to build cultural humility and culturally responsive practices

Other Potential Strategies for Prevention

- Advocate for greater access to treatment/detox
- Raise awareness and increase information about xylazine
- Draw from lessons-learned about fentanyl messaging campaigns



What are some steps that you're taking to address xylazine use?

Or that you will take if xylazine becomes an issue in your community?



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Summary

- Xylazine use is a growing issue across the United States
- Prevalence is likely still relatively low, outside of certain localities
- It is Important for prevention and public health to prepare and act before trends worsen
- Cultural humility and other best practices learned throughout the course of the opioid epidemic can help

Let's hear from you!
What are your questions?



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For further questions, contact:

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