

MITIGATING RISKS FROM HUMAN XYLAZINE EXPOSURE

Current Landscape and Epidemiological Trends

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DRUG SUPPLY-NATIONAL DATA

Despite no human consumption, xylazine is increasingly found in the drug supply across the U.S.

- Long seen in Puerto Rico, evidence from death records & drug seizure data from RI, CT, NJ place xylazine there from 2000s onwards but uncommon.
- *Recent shifts:* Philadelphia heroin/fentanyl overdose study detected <2% between 2010-2015 but 31% in 2019. Current data show > 90% of heroin samples also contain xylazine in Philadelphia
- Millenium Health Signals Report (UDS based) released Sept 2023 detected xylazine use from samples in all US Census regions, highest rates in Mid-Atlantic and East North Central areas

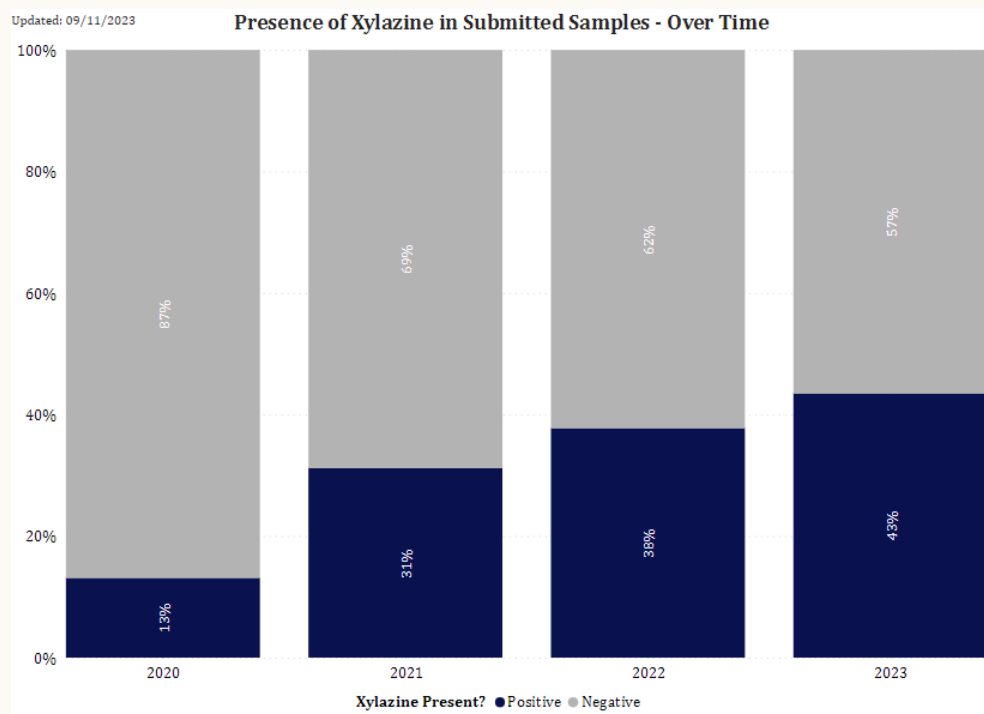


www.youtube.com/watch?v=2JymE2v_mBY

Source: Dr. Banerjee 4/13/16 RI Gov Task Force presentation of 2015 decedent case

DRUG SUPPLY MASSACHUSETTS DATA

- Community drug checking work coordinated through our team in Massachusetts (MADDS) has detected xylazine in progressively higher proportions since 2020, with over 1/3rd of opioid samples in 2022 and 2023 containing xylazine.
- Since the **initial public health bulletin** reporting xylazine by MADDS in **March 2021**, the veterinary sedative xylazine continues to be detected in a substantial number of **samples sold as and also containing fentanyl and heroin** throughout Massachusetts as well as in pressed pills (fake M30/ "Percocet").



Xylazine in heroin and fentanyl samples over time, MADDS, data from 9/11/2023

Massachusetts Drug Supply Data Stream (MADDS)

Street Drugs Alert: Xylazine

Xylazine is on the rise in fentanyl & heroin (dope)

- The animal sedative xylazine has been found in dope samples more and more across Massachusetts.*
- Xylazine is a long-acting tranquilizer, but it is not an opioid.** Some samples had as much xylazine as dope or more xylazine than dope.

Nodding out from xylazine may look like an opioid overdose, but it won't respond to naloxone. If someone is breathing but doesn't respond when you try to wake them, **watch their breathing to make sure they're getting enough oxygen. Give naloxone, start rescue breaths, and call for help** if their breathing is raspy or their skin is ashy or pale.

Xylazine has been found in street dope powder and in fake pain pills.

Xylazine is a health hazard

Xylazine may lead to

- Extreme sleepiness**
- Nodding out for long periods of time**
- Slower heart rate**
- A higher chance of overdose or death** if used with dope and other downers
- Sores and serious infections**, even in places on your body away from where you inject
- Serious injury** if you pass out and lay in one position for too long
- Getting too hot or too cold** if you pass out outside

Some people who submitted samples with xylazine said it "made me sleep weird"; "put me out for 6 hours"; "made me pass out and I woke with vomit on me"; and "skin on fire, teeth felt like they were going to fall out."

How xylazine can affect your skin

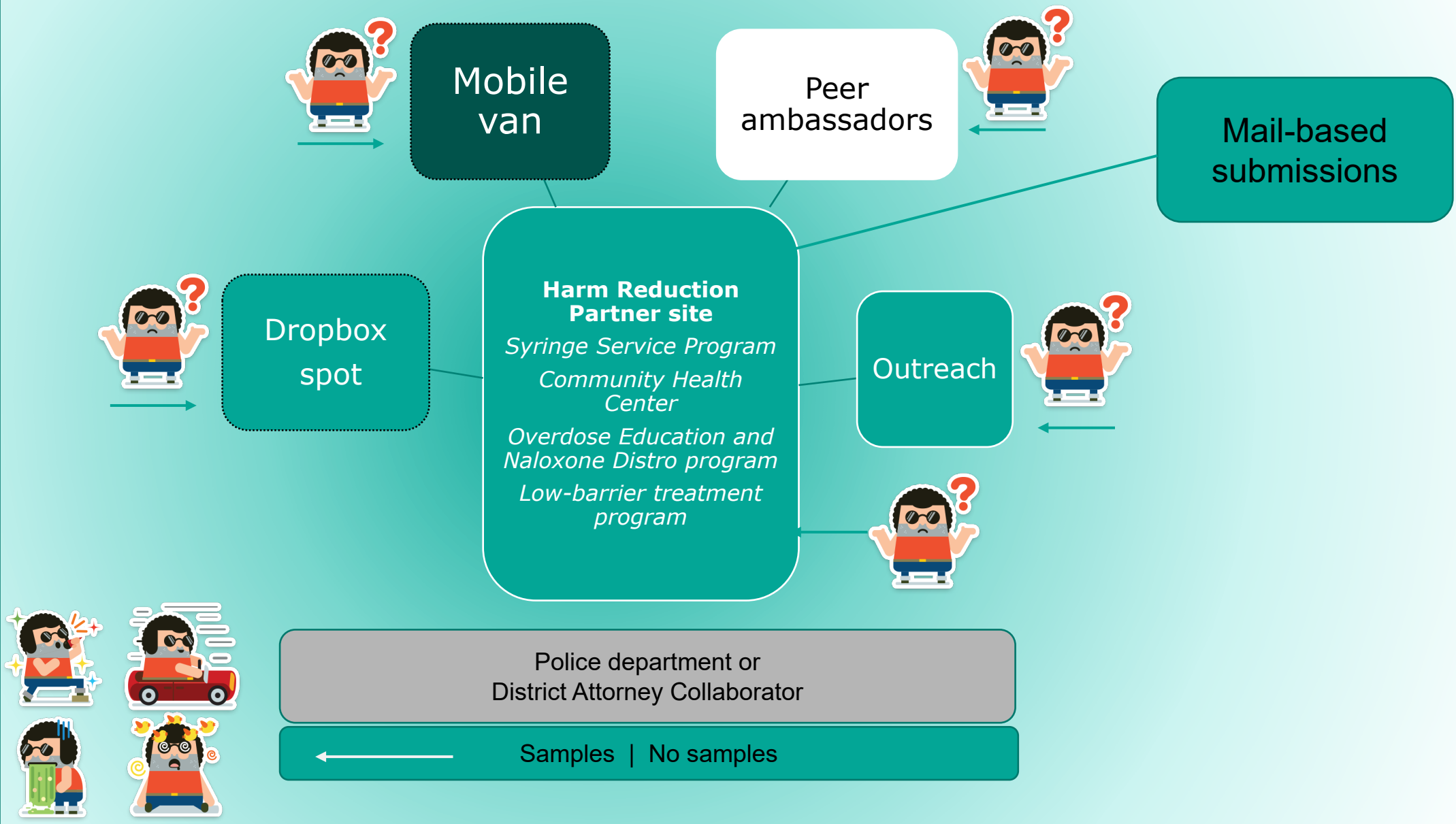
If someone passes out after using, but is still breathing **put them in the recovery position**, as shown here, and **call for help!**

- USE A STERILE SYRINGE** and clean your skin every time you inject to prevent infection. Keep an eye on injection sites and other sores. Get medical help if the sore gets red/swollen or if you have a fever.

Source: streetcheck.org



MADDS: Massachusetts Drug Supply Data Stream



Police department or
District Attorney Collaborator

← Samples | No samples



**Fourier Transform
Infrared Spectrometer
(FTIR)**



**Fentanyl,
Benzodiazepine,
Xylazine Test Strips**



**GCMS/LC-QToF by
off-site lab**
Drugsdata.org
Rhode Island Hospital
University of North Carolina



**Medical Toxicology
Consultation**

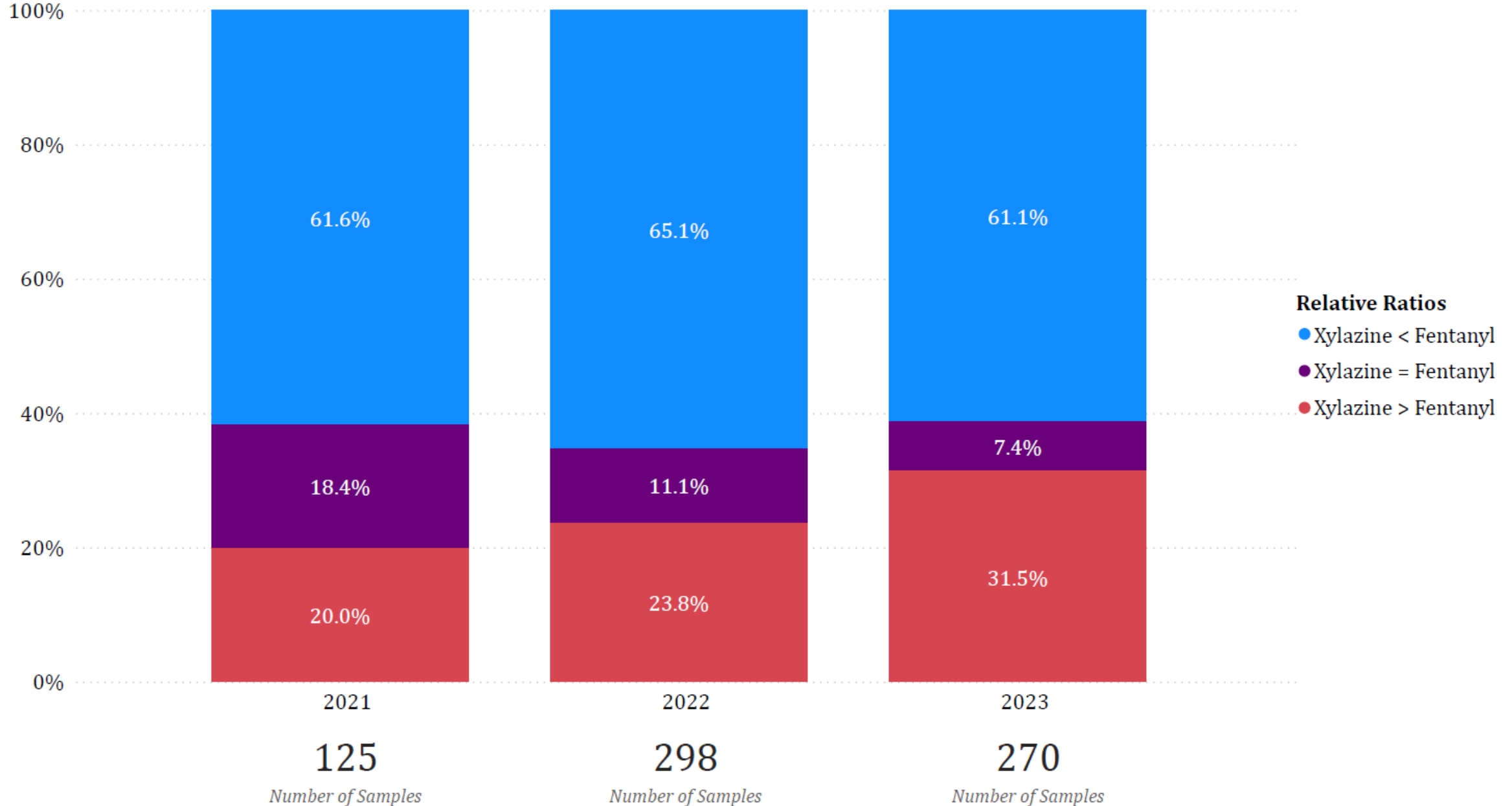


Community Drug Checking Refines Response Capacity

	Qualitative	Semi-quantitative	Quantitative
Devices	Test strips, FTIR, lab testing	FTIR, lab testing	Lab testing, requires weighable sample (5-10mg)
What is reported?	absence/presence	Ratios, major/minor/trace	% component breakdown
What can be measured?	Relative prevalence	Relative exposure	Measured exposure
Question	How common is xylazine in the drug supply?	Relative to ____, is there more xylazine in the drug supply?	What percent of a drug sample does xylazine compose? How much xylazine is in a given drug sample?

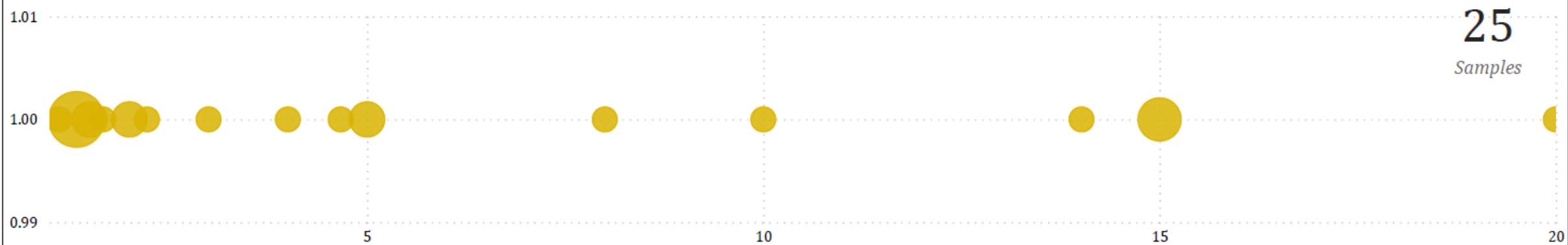
Xylazine to Fentanyl Ratio is Shifting: More Xylazine Exposure

Xylazine to Fentanyl Ratio 2021 to present

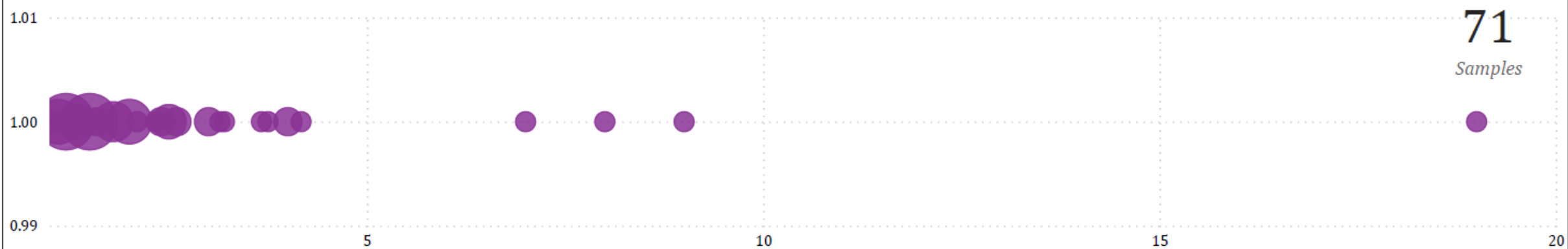


What is Happening When Xylazine > Fentanyl

Lab Tested Samples: Xylazine > Fentanyl (2021)



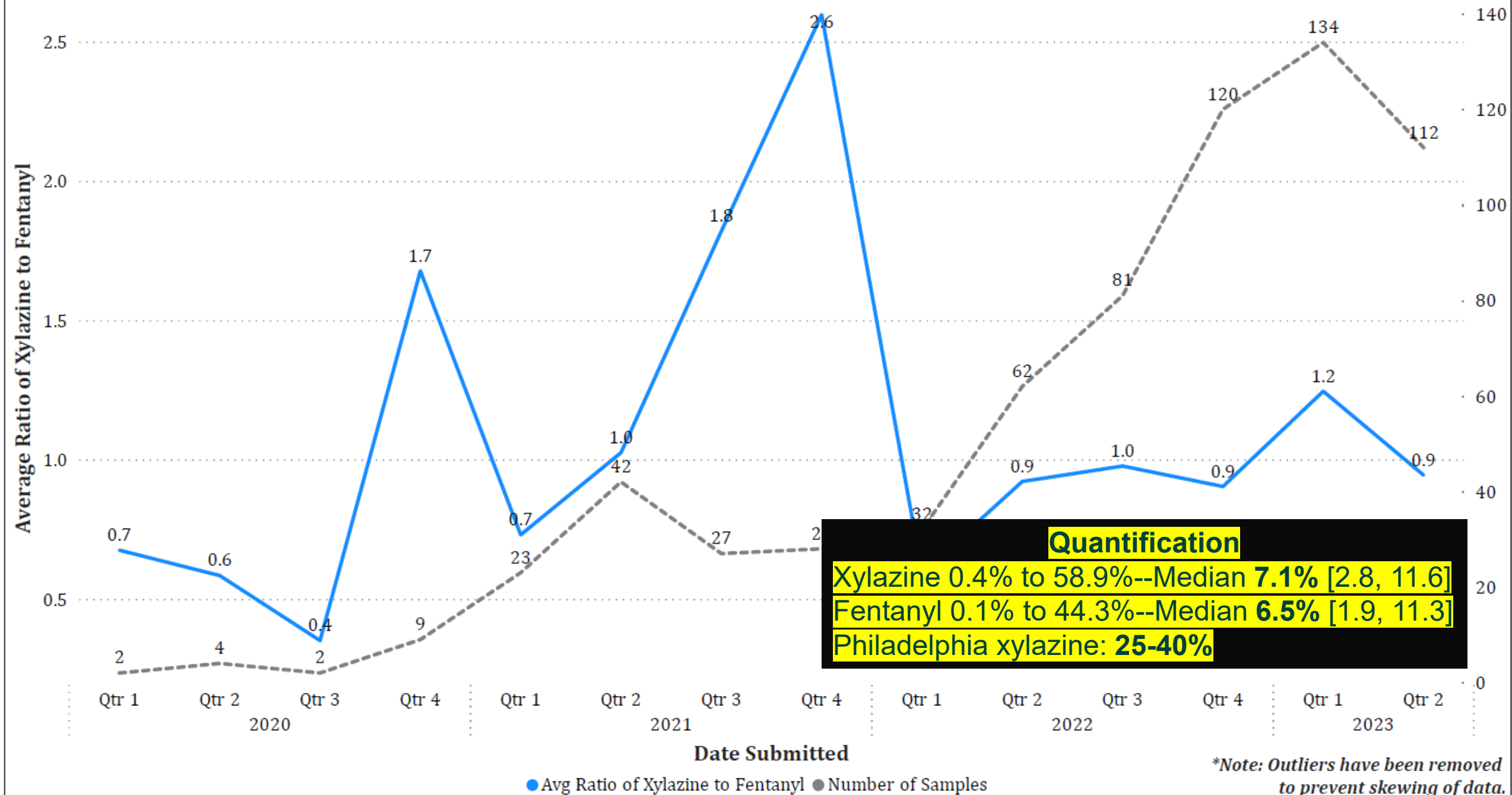
Lab Tested Samples: Xylazine > Fentanyl (2022)



Lab Tested Samples: Xylazine > Fentanyl (2023)



Average Ratio of Xylazine to Fentanyl in Submitted Samples - Over Time



Xylazine Trajectory

March 2023



Wk 1:
Not yet used



Wk 2:
Used, stronger than usual, developed abscesses

Active Component	Ratio
Xylazine	200
Fentanyl	100
4-ANPP	50
Heroin	1

[FTIR Results](#)

Substance	Component
Xylazine	Major
Fentanyl	Major
Mannitol	Minor

Active Component	Result
Xylazine	5
Fentanyl	2
4-ANPP	1

[FTIR Results](#)

Substance	Component
Xylazine	Major
Fentanyl	Major
Mannitol	Minor

April 2023

Wk 5:
Multiple overdoses
(nonfatal, fatal)



Active Component (Relative Ratio)	Result
Xylazine	8
Fentanyl	2
4-ANPP	1

[FTIR Results](#)

Substance	Component
Xylazine	Major
Fentanyl	Major
Mannitol	Unknown

- Injected: stronger than usual, tasted and smelled like CHEMICALS.
- No "dope rush", just went out. Only used 3 bags vs. usual 5-10. On second use, felt foggy, hard time walking.

HST_0712 (Complete)

Location
Massachusetts [REDACTED]

Suspected as
Heroin

Completed Analysis This sample was confirmed by the laboratory to contain Xylazine (8), Fentanyl (2), 4-ANPP (1)

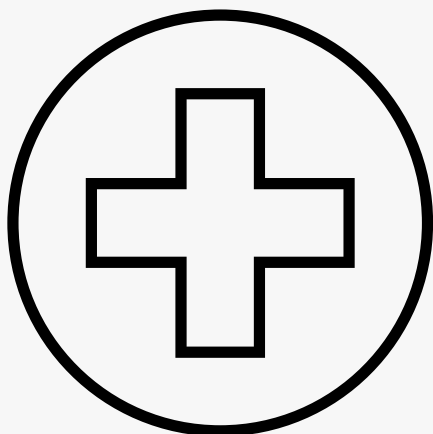
Key Findings

!! Note that this stamp is associated with several severe overdoses in the local area. Please take care and keep plenty of naloxone with you!!
Xylazine is a strong sedative and high amounts of a strong sedative can be harmful. Learn more [here](#).

Xylazine-Related Effects



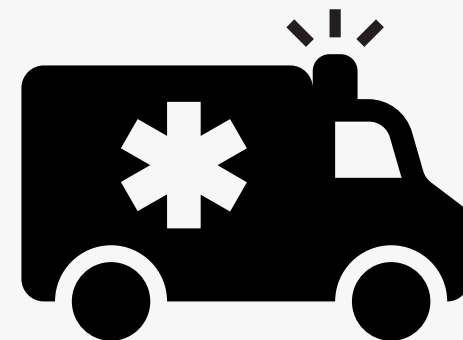
**USE EXPERIENCE,
UTILITY**



**COMPLICATED
OVERDOSE
MANAGEMENT**



**ATYPICAL SKIN
LESIONS: ULCERS,
INFECTION**



**OVERSEDATION &
TREATMENT**

REPORTED USE EXPERIENCES

Sensations

- No rush but did go into a nod [smoke]
- Good quality, noticed little white chunks-thought to be pressed fentanyl pill [snorts]
- Really strong, strongest substance used in 6 months [smokes, snorts; similar among injection use]
- Weird high after initial push [snorts]; Very good high [snorts]

Numbing and burning, painful use

- Made participant's arm numb [commenting on injection]
- Burning and swelling at injection site [injects]; Burns nose, leaves abscesses [snorts, injects]
- Cooked down fine but injection was painful and swollen right away [injects]

Sedation and consciousness

- Feels more sedated [injects], Instantly sleepy [injects]; No control of muscles [injects]; Extreme almost immediate tiredness and then blacked out [injects]; Felt like cut with benzo [injects]

Wounds

- Wounds appeared on ankle [snorts], back [smokes]; Got abscess at injection site [injects]; Has been using the same (pressed) pills for 2 weeks, now doing wound care and referral with VA [injects]

Withdrawal and other symptoms

- Rash and paranoia [unclear ROA]
- Woke up feeling sick the next day—vomited [injects]



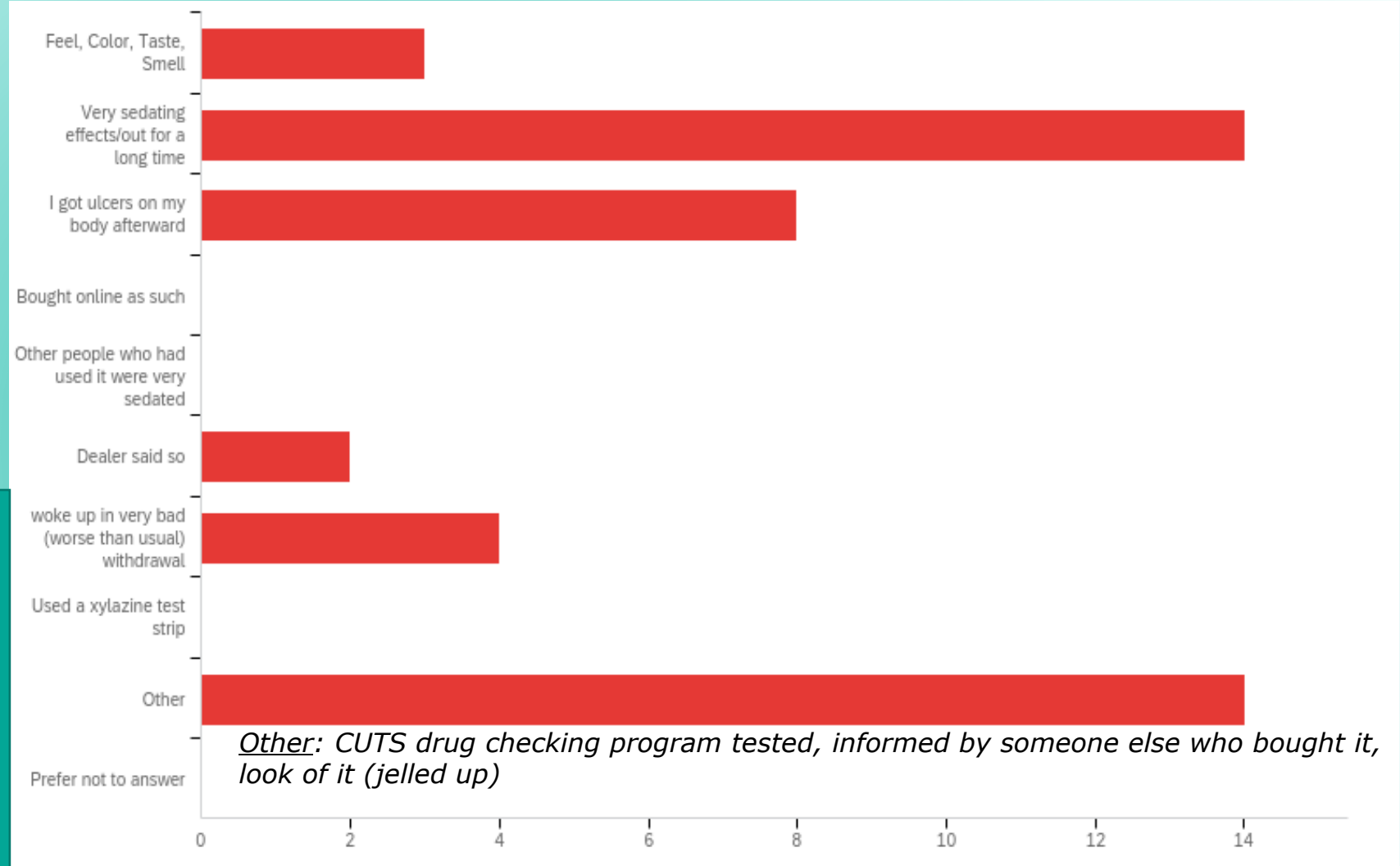
Cohort Study, Rhode Island

Only 26% report **having used xylazine or drugs they thought or knew to have xylazine in them** in the past 6 months

Implies need for information for **consumer safety**

- Community drug checking
- Test strips
- Public sharing of drug seizure data

What makes you think it was xylazine that you used?



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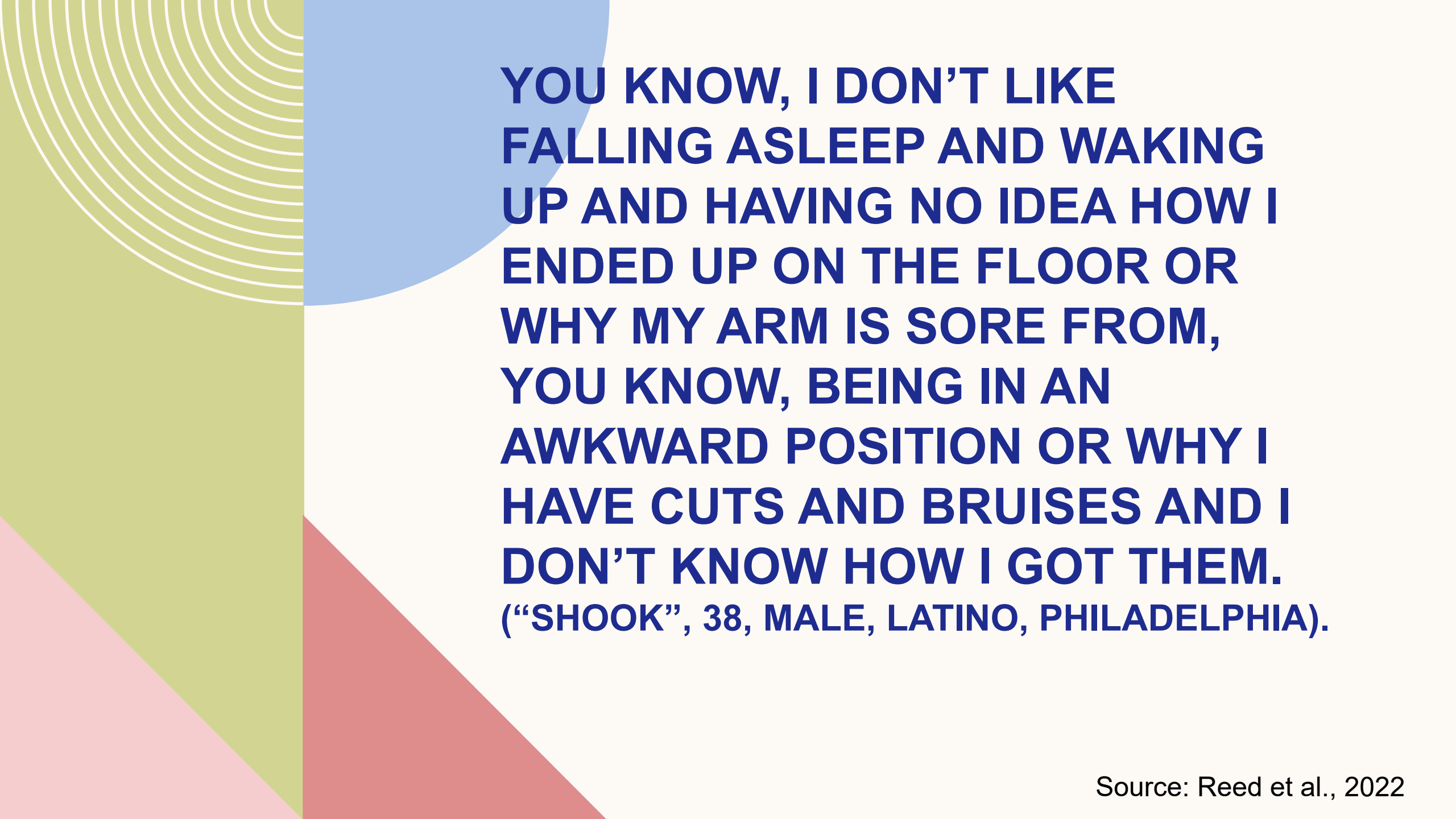
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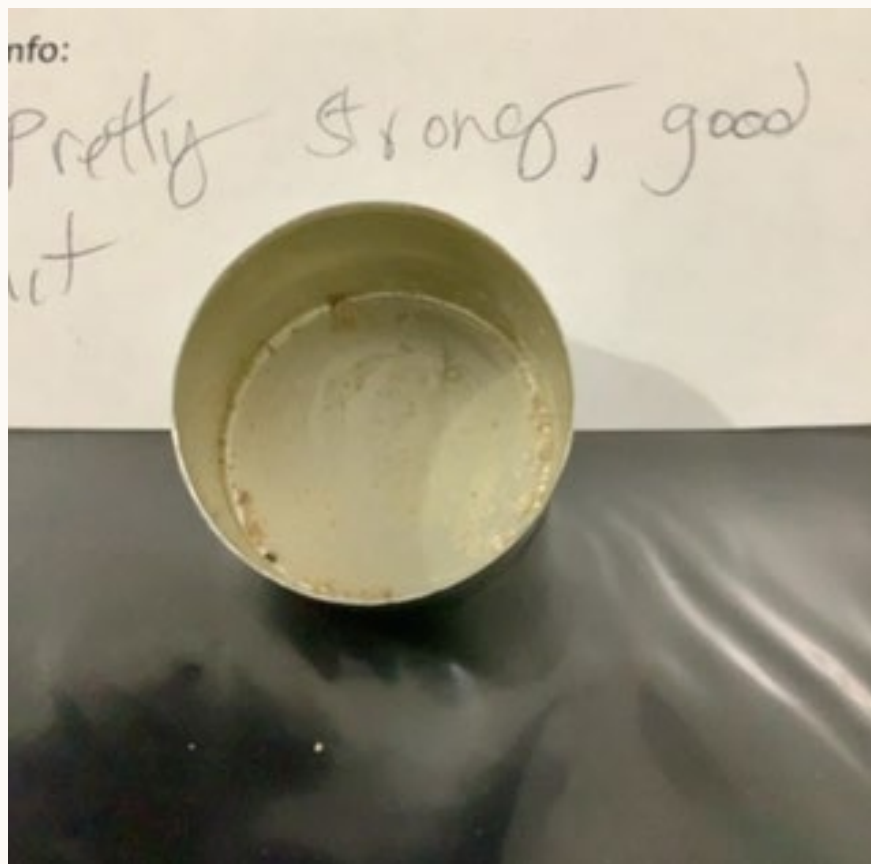
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**YOU KNOW, I DON'T LIKE
FALLING ASLEEP AND WAKING
UP AND HAVING NO IDEA HOW I
ENDED UP ON THE FLOOR OR
WHY MY ARM IS SORE FROM,
YOU KNOW, BEING IN AN
AWKWARD POSITION OR WHY I
HAVE CUTS AND BRUISES AND I
DON'T KNOW HOW I GOT THEM.
("SHOOK", 38, MALE, LATINO, PHILADELPHIA).**

CONSIDERATIONS BASED ON USE EXPERIENCES IN EMERGING AREAS

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Source: CUTS Study, Streetcheck.org
>900 use experience reports

- Using alone: amplifies xylazine risk's
 - Overdose complications; lack of movement: circulation, compartment syndrome, amputation
- Using in public:
 - Oversedation, victimization, physical/sexual violence, harm
 - Environmental exposure harms (heat, cold)

Implies need to increase **witnessing** of use, response to oversedation, **monitoring**

Overdose prevention sites

Monitoring Hotlines, Apps: NeverUseAlone, MA Overdose Prevention Hotline

SPOT/supervised place for observation and treatment
Safe, trusted partnered use or monitoring

BACK TO BASICS: NALOXONE FIRST, RESCUE BREATHING

DID YOU
KNOW?

MASSACHUSETTS is seeing an increase of **XYLAZINE** in the drug supply.

WHY
SHOULD I
CARE?

NARCAN DOES NOT WORK on **XYLAZINE**, because it is not an opiate.

WHAT DO
I DO ABOUT
IT?

If someone OD's, give them Narcan **AND**
↳ **RESCUE BREATHS** ↳ 1 BREATH every 5 SECONDS

pay attention to getting a person's breathing started again, rather than giving lots of Narcan doses that might be ineffective.

xylazine causes breathing to slow down or stop (respiratory failure) so **GIVING RESCUE BREATHS** in between Narcan doses **IS NECESSARY!**

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Withdrawal and other symptoms

- Rash and paranoia [unclear ROA]
- Woke up feeling sick the next day—vomited [injects]

CONSIDERATIONS FOR WOUNDS BASED ON USE EXPERIENCES IN EMERGING AREAS



Source: Boston Medical Center

- *Xylazine wound prevention*: Unclear why they appear, what helps to prevent them, what exacerbates their appearance or progression
- *Wound care*: clearer from practice/info exchange
- *Scaling up care*: very unclear for treatment programs, EDs/hospitals, CHCs, criminal justice

Implies need for **systems change**

Task shift to peer-based, mobile, non-institutionalized care, especially harm reduction groups

Makeshift to self-manage

I FIGURED I'LL DRAIN IT MYSELF WITH MY NEEDLES YOU KNOW? AND I PUT IT IN AND I DRAINED IT MYSELF A LITTLE BIT AND THEN THE BLOOD WOULD START TRICKLING OUT WITH LIKE A LITTLE BIT OF PUS AND SHIT AND IT WOULD SMELL AND I WAS LIKE 'OH, ALL RIGHT THAT'S CLEAN', YOU KNOW? NEXT TIME I DRAIN OUT MAYBE I'LL BE BETTER. BEFORE LONG ALL THE SPOTS I STABBED TO DRAIN IT TURNED INTO A BIG PURPLE NIPPLE.

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REPORTED USE EXPERIENCES

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Wounds

- Xylazine wounds appeared on the skin [injects]; Got abscess at injection site [injects]; Has been using the same (pressed) pills for 2 weeks, now doing wound care and referral with VA [injects]

Withdrawal symptoms

- **Rash and paranoia; Anxiety, panic attacks [injects]**
- **Woke up feeling sick the next day—vomited [injects]; very uncomfortable coming out; felt sick, didn't take dope sick away [injects]; Makes you withdrawal quicker [injects]**

CONSIDERATIONS FOR WITHDRAWAL BASED ON USE EXPERIENCES IN EMERGING AREAS

- *Self manage: seek available benzodiazepines, stimulants*
- *Re-administer: xylazine, fentanyl*
- *Accessible alternatives are few*
- *Current withdrawal care options hard to scale*



Implies need for **safer withdrawal care alternatives and easier start to medication treatment**

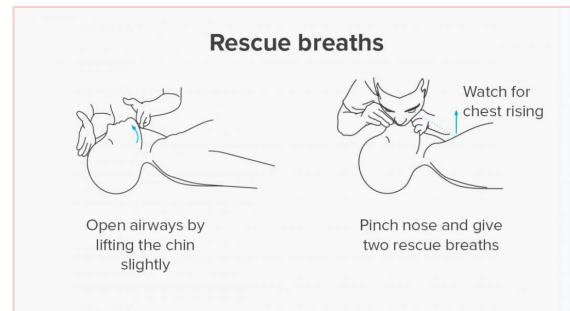
Single dose buprenorphine from pharmacies for withdrawal
ED-based opioid withdrawal support

Rapid methadone start from hospitals/EDs/mobile teams,
Quick start buprenorphine (Martin et al, 2022)

Xylazine withdrawal support [case study](#)

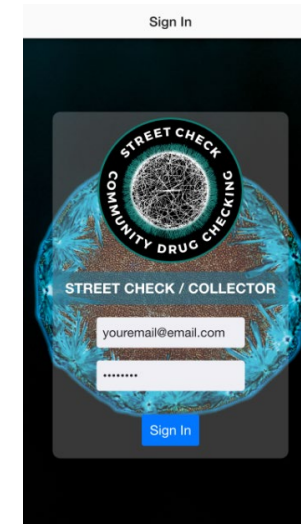
Until we have research to answer our many questions, strategies should:

Minimize Dose & Exposure to Xylazine	Mitigate Harm	Invest in Innovative Interventions, Task Shifts, & Make Shifts
Information for consumer, supplier, distributor: Drug Checking, test strips	Overdose prevention sites, Hotlines, supervised observation & treatment sites	Mobile teams (people, vans)
Lower barrier, additional medication treatment (e.g., methadone, buprenorphine, HAT?)	“Back to basics” overdose response trainings, Rescue breathing	Wound care in more low-barrier spaces
Withdrawal supports & broadscale strategy (e.g., standing order/ protocol for buprenorphine)	Measurable stigma reduction @ institutional level (e.g., quality indicator, metrics)	Self-management of wounds



And Invest in Data

- Community drug checking holds a mirror up to supply in local community
- Services provide lifesaving information, prevention intervention, are data-generating for monitoring
- Would benefit from clear direction, legality, support
- Capacity is growing but need investments in practice, science, staffing
 - *Laboratory guidance: Permit laboratories to test publicly submitted samples for community drug checking purposes*
- Testing arrangements and tools need to be realistic and applicable in community settings
- **Cannot be a critical component of a strategy AND exist in indecision**





WWW.STREETCHECK.ORG

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RESOURCES/REFERENCES

Resources

Dr. Joseph D'Orazio, Temple University, Philadelphia, Presentation for COBRE on Opioids and Overdose <https://www.youtube.com/watch?v=Rqpf0jluyCo>

The Guardian: www.youtube.com/watch?v=2JymE2v_mBY

Xylazine Resources on MADDs: <https://heller.brandeis.edu/opioid-policy/community-resources/madds/xylazine-resources.html>

Streetcheck.org

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