COSSUP Webinar Series: Understanding the Changing Illicit Drug Landscape

Emerging Substances in the Illicit Drug Landscape: Xylazine

May 30, 2023

Introduction

- Today's webinar is sponsored by RTI International, through the Comprehensive Opioid, Stimulant, and Substance Use Program (COSSUP). RTI is the State Technical and Training Assistance (TTA) Provider for COSSUP.
- **Agenda**:
  - **Introduction**
    - Dr. Bradley Ray, RTI's COSSUP Project Director
  - **Impact and Harm Reduction Strategies**
    - Silvana Mazzella, Associate Executive Director, Prevention Point Philadelphia
  - **Community Driven Responses**
    - Dr. Megan Reed, Research Assistant Professor, Thomas Jefferson University
  - **COSSUP Resources**

This project was supported by Grant No. 2019-AR-BX-K061 awarded by the Bureau of Justice Assistance. The Bureau of Justice Assistance is a component of the Office of Justice Programs, which also includes the Bureau of Justice Statistics, the National Institute of Justice, the Office of Juvenile Justice and Delinquency Prevention, the Office for Victims of Crime, and Office of Sex Offender Sentencing, Monitoring, Apprehending, Registering, and Tracking. Points of view or opinions in this document are those of the author and do not necessarily represent the official position or policies of the U.S. Department of Justice.

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Xylazine's Impact on the Drug Supply and Harm Reduction Strategies

Silvana Mazzella
Assistant Executive Director
Prevention Point Philadelphia

XYLAZINE DETECTIONS AMONG ALL OVERDOSE DECEDENTS, PHILADELPHIA, PA 2010-2020, OVERDOSE FATALITIES BY DRUG GROUP

Xylazine Detected | No Xylazine Detected | Percentage of decedents

Number of Overdose Decedents: 0, 150, 300, 450, 600, 750, 900, 1050, 1200, 1350

Percentage of Overdose Decedents: 0%, 10%, 20%, 30%, 40%, 50%, 60%, 70%, 80%, 90%, 100%

Year	No Xylazine Detected	Xylazine Detected
2010	381	
2011	481	
2012	507	
2013	459	
2014	624	
2015	687	
2016	840	67
2017	1127	90
2018	964	152
2019	887	263
2020	901	313

Data source: Philadelphia Medical Examiner’s Office

NUMBER/PERCENTAGE XYLAZINE DETECTIONS IN PA POLY-DRUG PRIMARY FENTANYL SEIZURES

Number of poly-drug exhibits

90
80
70
60
50
40
30
20
10
0

Percent of poly-drug exhibits

30%
25%
20%
15%
10%
5%
0%

2010 2011 2012 2013 2014 2015 2016 2017 2018 2019

Number of poly-drug heroin and fentanyl exhibits with positive xylazine detections

Percentage of poly-drug heroin and fentanyl exhibits with positive xylazine detections

Data Source: Drug Enforcement Administration Philadelphia Division

(U) Figure 2. Number of Xylazine-Positive Overdose Deaths by Region

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

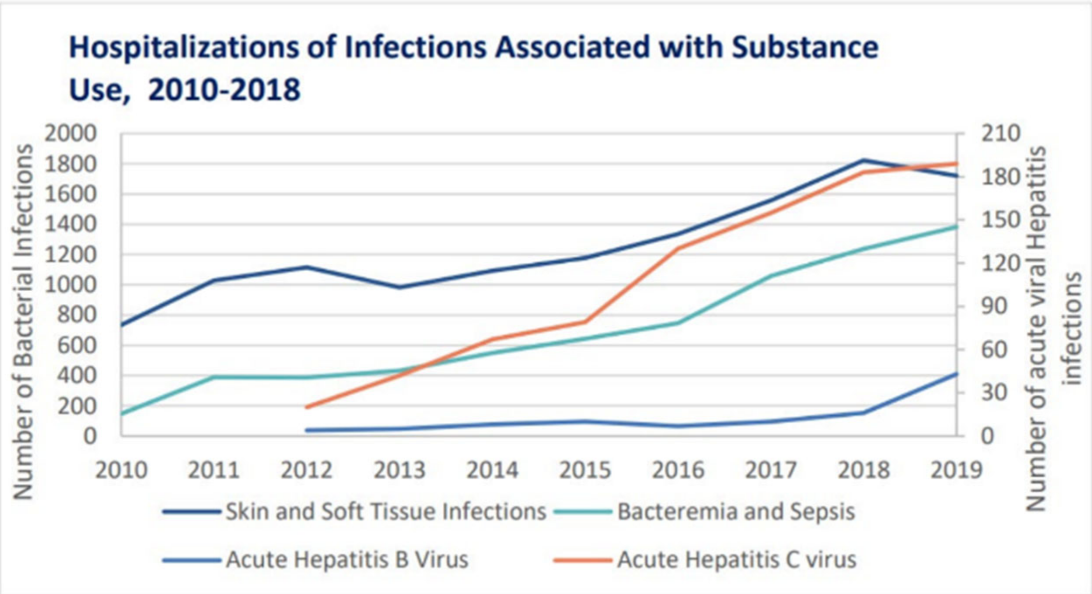
Source: DEA

(U) Figure 1. DEA Forensic Laboratory Identifications of Xylazine by Region

Region	2020	2021	Percent Increase
Northeast	346	556	61%
South	198	580	193%
Midwest	110	118	7%
West	77	163	112%

Source: DEA

SKIN AND SOFT TISSUE INFECTIONS



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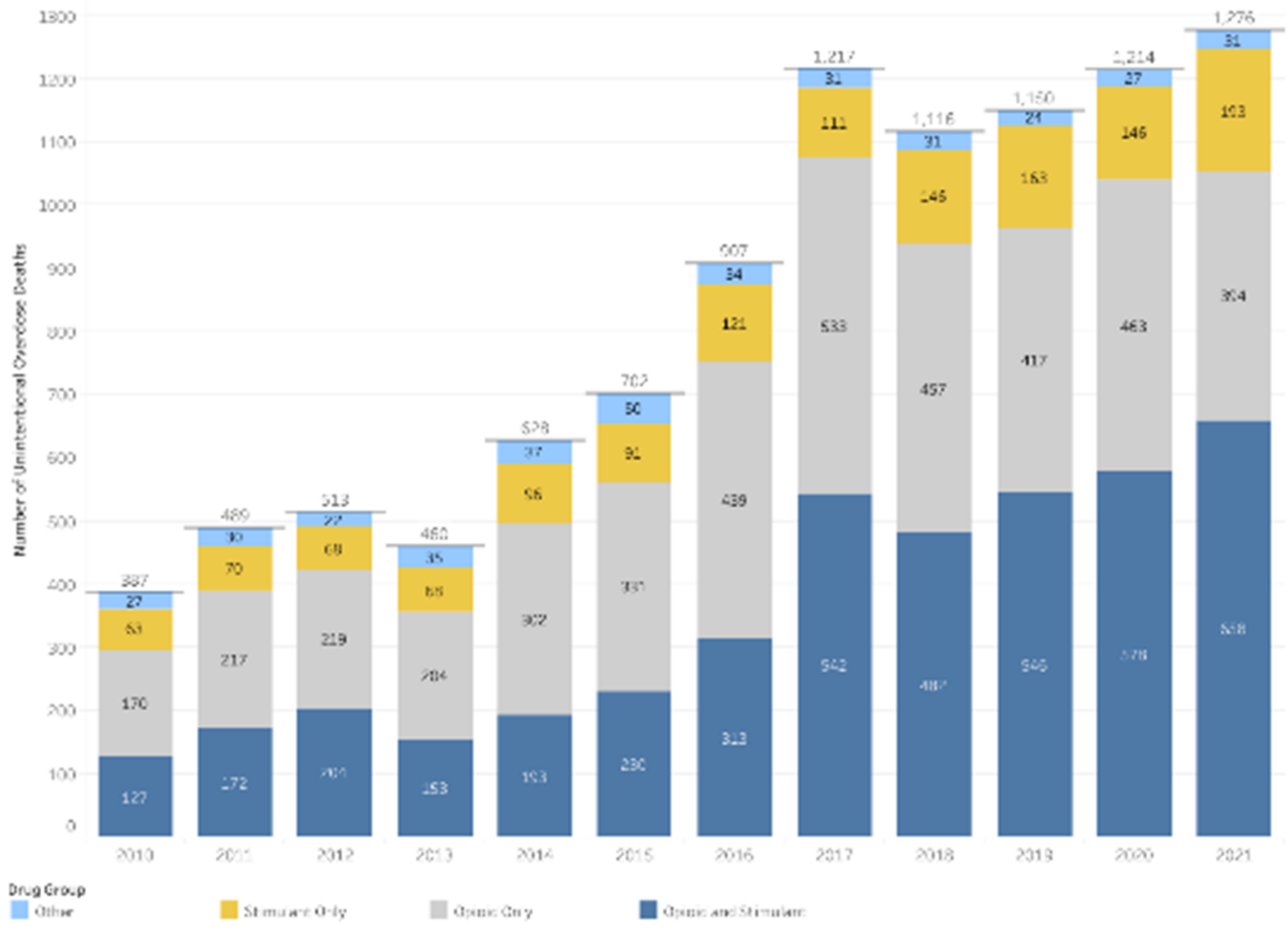
XYLAZINE USE, NAMES/HAS BEEN KNOWN AS

- Xylazine has been used alone, with heroin added, as an addition to speedball, heroin, fentanyl, cocaine, or as an adulterant in speedball, heroin, fentanyl and cocaine

- “Tranq”
- “Tranq dope”
- Horse tranquilizer
- Anestesia de caballo
- Sleep cut



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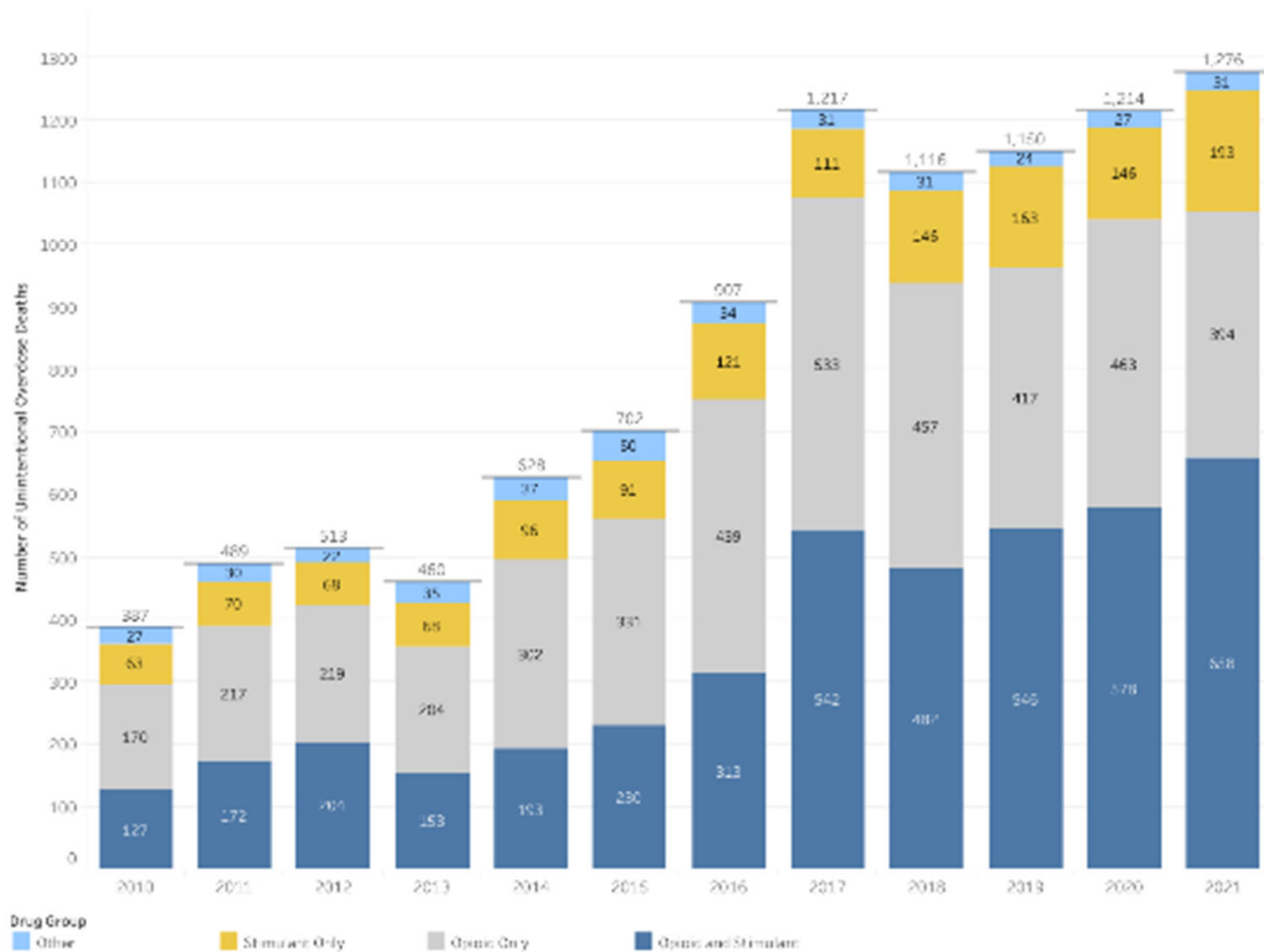
Unintentional Overdose Deaths by Drug Group and Year
Number of Unintentional Overdose Deaths
387
489
513
460
528
702
907
1,217
1,116
1,160
1,214
1,276
2010
2012
2013
2014
2015
2016
2017
2020
2021
Drug Group
Other

WHERE IS XYLAZINE?

- Xylazine present in the illicit drug market in specific areas including Puerto Rico and Philadelphia in early and mid 2000s
- Philadelphia→ Kensington, Frankford, Fairhill, and Fishtown/ Port Richmond, as per seizures of "exhibits" and decedent drug toxicology
- Decrease in presence and popularity after encampment clearings
- Recent zip codes- South Philadelphia and the lower Northeast
- Found in all but two ZIP Codes in Philadelphia
- Northeast, some southern states, and growing on the West Coast
- Since 2016 Fentanyl/Xylazine noted in 85% of xylazine positive OD's, Cocaine/Xylazine noted in 50%

THE RISE OF XYLAZINE

- Detection of xylazine in poly-drug seizures, mirrors presence of fentanyl in Philadelphia's heroin supply
- 2013 -24 decedents with fentanyl in UDS
- 2014 -99 decedents with fentanyl in UDS
- 2014 was the first year post 2010 where xylazine was detected and seizures with xylazine represented >30% of poly drug “exhibit” seizures in 2020
- 30% of all Philadelphia overdoses have tested positive for xylazine
- Reduced prescribing of benzodiazepines and inception of PDMP in Pennsylvania coincide with xylazine overdose increases

WHAT IS XYLAZINE?

- First synthesized in 1962 by Bayer
- Commonly used adulterant in heroin previously, and now as the primary adulterant in fentanyl
- Used in veterinary medicine procedures for sedation of non-human animals, and approved for veterinary use only
- Available in liquid solutions at 20, 100, & 300 mg per mL
- Not intended for human use; not controlled under federal controlled substances act

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HOW XYLAZINE OPERATES

Has muscle relaxant properties, analgesic / pain relieving properties, and has been used for hypnosis

Acts as an agonist at Alpha 2 Andrenergic receptors decreasing and inhibiting release of nor-epinephrine and dopamine

Similar chemical structure to Imidazoline compounds/derivatives (Clonidine, Guanfancine, Dexmedetomidine) and Phenothiazines (Thorazine, Compazine)

Similar to clonidine structurally in its ability to lower blood pressure and heart rate

XYLAZINE SIDE EFFECTS

Decreases nor-Epinephrine and dopamine release in central nervous system

Decreased and or inhibited release results in pain relief, muscle relaxation, sedation

Most notable side effects include extreme hypotension and central nervous system depression

Medically documented effects include drowsiness, profound sleep, staggering, disorientation, blurred vision, coma, bradycardia, respiratory depression, hypotension, and hyperglycemia

MEDICAL AND BEHAVIORAL IMPACT OF THE CHANGING DRUG SUPPLY

- Fentanyl, cocaine, and methamphetamine use have resulted in increased frequency of injections
- Adding xylazine to this trend has serious implications for injection sites, wounds, and skin & soft tissue infections (SSTIs)
- Increased injection practices have contributed to reduced harm reduction practices, outbreaks of human immunodeficiency virus (HIV) and hepatitis c virus (HCV) among people who use drugs (PWUD)
- Increased cardiovascular episodes with cocaine, methamphetamine, xylazine, and K2 (synthetic marijuana) use
- K2 use increased mental health emergencies, hospitalization
- Potential for xylazine concentration and withdrawal may impact mental health, anxiety, sleep, and pain

DAY TO DAY AND LONG TERM SIDE EFFECTS OF XYLAZINE

- Fainting
- Headaches
- Weakness
- Feeling of lost time or lost days
- Severe and prolonged bradycardia
- Hypotension
- Elevated blood sugars
- Increased incidence of overdose, overdose like events
- Necrotizing slow or non-healing wounds

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XYLAZINE'S IMPACT ON DRUG SUPPLY, PEOPLE WHO USE DRUGS, FRONTLINE SYSTEMS

- Increase in fatality in Philadelphia related to replacement of heroin with fentanyl and xylazine complicates the picture
- Xylazine present in other substances
- Individuals unaware of exposure to xylazine
- Xylazine + Fentanyl = "Heroin of the past"
- Xylazine is sought after by some and disliked by others, due to synergistic effects

THE IMPACT OF XYLAZINE ON WOUNDS, CARE AND MANAGEMENT OF WOUNDS

- Increase in skin abscesses, skin lesions, skin ulcers, wound acceleration, bone infections
- Believed to be related to decreased blood oxygenation and vasoconstriction
- Lesions, necrotic lesions in people with reduced renal function, kidney failure
- Deep wounds and ulcers that heal more slowly and accelerate with dehydration, chronic dehydration, protein and other deficiencies
- Reluctance to seek care for these “different” wounds related to fear and stigma
- Reduced care of wounds contribute to acceleration

IMPACT OF XYLAZINE ON OVERDOSE, REVERSAL, POST REVERSAL MANAGEMENT

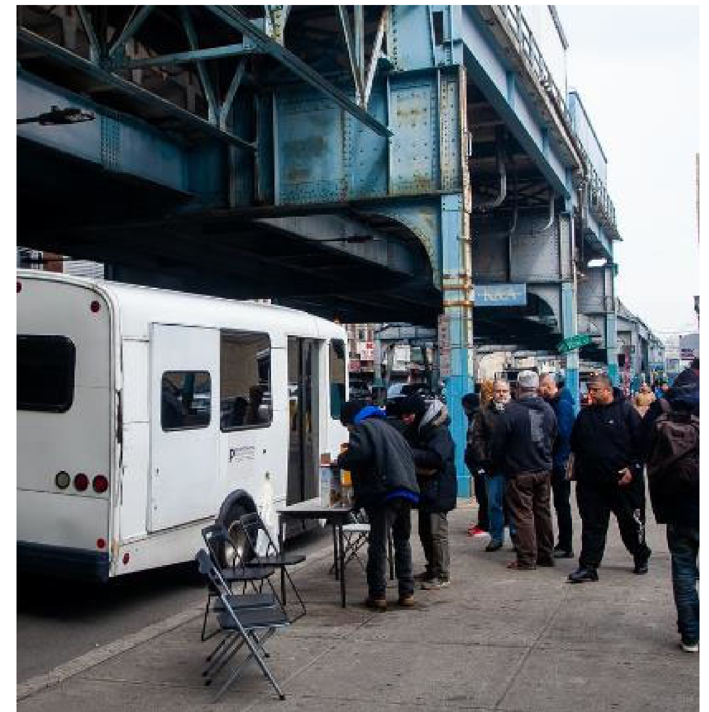
- Reversals more complicated and nuanced
- Reversal may not be complete, additional doses of Narcan will exacerbate withdrawal
- Amplifies overdoses, respiratory depression
- Synergistic impact on overdose
- May increase overdose risk
- May look like overdose when it is not
- Narcan DOES NOT reverse the respiratory and other central nervous system (CNS) depression
- May need blood pressure stabilization and enhanced respiratory support

IMPACT OF XYLAZINE ON DEPENDENCE, WITHDRAWAL, INDUCTION AND STABILIZATION ON MOUD

- Fentanyl and chronic fentanyl use have drastically changed induction, stabilization
- Xylazine further confounds that process
- Many fear becoming addicted or dependent on xylazine, or believe they already are
- Concerned buprenorphine no longer works for fentanyl and that nothing works for xylazine
- Acknowledge these fears, validate them, provide more support during and after induction

INDUCTION IN THE CHANGING DRUG SUPPLY

- Withdrawals, inductions more traumatic due to changing drug supply, tolerance, chronic higher daily use of shorter acting substances
- Less patience for withdrawal while attempting to access treatment
- Limited awareness among potential patients of how to access treatment in behavioral health and primary care
- High barrier assessment and treatment access with long induction periods turn people off from attempting to access care



We can be a part of reinstating what our society has denied to people in difficult situations

– HUMANITY

PPP volunteer

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Community-Driven Responses to the Unregulated Drug Supply

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Research findings presented here were supported by Grant No. 080 - 31050 - C21501 awarded by the Philadelphia Department of Health (PI: Megan Reed) and Grant No. Subaward no: 6/ Fed Award: G2299ONDCP06A awarded by the Combating Overdose through Community-Led Interventions funded by ONDCP and the CDC (PI: Mary Jo Larson).

Perspectives on Xylazine from People Who Use Drugs

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Previous Research with PWUD on Xylazine

Fentanyl test strip (FTS) study:

- Qualitative interviews with people who use drugs (PWUD) about FTS practices
- Xylazine emerged organically; was probed for in later interviews

Responding to Xylazine (R2X) study:

- Focus group with PWUD who believe they've been exposed to xylazine
- Additional focus groups with police, clinicians, harm reduction workers

Findings

- Did not replicate prior qualitative research by Friedman 2022
- Four themes: wounds, sedation, difficult withdrawal, xylazine test strips

Findings

- Wounds
  - *"It's not meant for human consumption. I mean, it says right on the bottle. And there's no way to prevent it. I got wounds in places I don't even get high in."*

    -- focus group participant

- Sedation
  - *"And they hate when they get it by accident because, a lot of times, bad things will happen to them. They'll pass out somewhere, get robbed, won't remember what happened. All kinda crazy stuff. Be- cause there's a lot of people out here that love tranq. I don't know why because it literally puts you out and then that's when people rob your stuff."*

    -- "E", 56, male, Black

Findings

- Difficult withdrawal
  - *"Because it's like one of the worst detox right now, because the rehabs can't seem to find something to help with the [withdrawal] … And the tranquilizer is the worst habit to kick because apparently it takes two to four weeks to get off of it."*

    -- "Nicole", 29, female, White

- Xylazine test strips
  - *"I don't know if anyone has mentioned this, but the dope that they've been putting out here has tranquilizer in it too, that's what's killing a lot of people … I don't know if there is a way for them make tranquilizer test strips too, but they would be useful to us in particular if they could make them too."*

    -- "Judah", 32, male, White

Conclusions

- People who use drugs (PWUD) want to take care of their health
- Drug supply is going to continue to change – today xylazine, tomorrow … xylazine analogs, nitazines, benzo-dope?
- Structural interventions are needed; until that happens, we need harm reduction tools to help people stay safer
- Important to get perspectives from PWUD about what they're seeing, what they're doing, and what they need

Recommendations from People Who Use Drugs for Establishing Point of Care Drug Checking

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What is Point of Care Drug Checking?

- Fourier-transform infrared spectroscopy (FTIR) is a characterization technique based on the amount of infrared radiation absorbed or emitted by the tested sample
  - ≥5% of the total volume
  - particularly powerful when combined with fentanyl test strips (FTS)
- Provide results directly to consumers
- Increasingly common in the United States

(Harper, Powell, & Pijl, 2017; Alliance for Collaborative Drug Checking; Wallace et al., 2021; Laing, Tupper, & Fairbairn, 2018)

Methods

- Qualitative interviews with PWUD (n=40)
- Data collected December 2021
- Recruited from mobile harm reduction sites
- Advised by a Community Advisory Board of people with lived experience
- Interview guide about opinions and preferences for a future drug checking program
- Audio recorded and transcribed
- Content analysis to identify themes

Results – Demographics & Background

- Primarily male (60%) and White (52.5%)
- Unhoused (62.5%), no income (60.0%)
- Drug use:
  - Daily, 85.5%
  - Heroin/fentanyl, 72.5%
  - Crack cocaine, 60.0%
  - Powder cocaine, 47.5% (speed balling)
  - Methamphetamine, 15.0%
- Median lifetime overdoses 4.5 (IQR 1, 8)
- All taking risk mitigation/harm reduction actions to stay safer

Interest in Drug Checking

- Unanimous interest
  - *"I do get curious, especially like certain times where you can tell something's off and you just sort of want to know what it is, even if you're still going to end up using it, which sounds stupid, but – you know? … It's pretty important. I would say that's at about a ten if you're on a scale just because, again, you don't know at all. You have no idea. They could be putting anything in it. Like you could literally die. I mean you could die anyway, but there's things that add risks. It's not very available. Because there's fentanyl test strips and stuff, but other than that you can't really find out, so I think it would be really great to have more opportunity for it because it is really important."*

– "Sally" (female; White; heroin/fentanyl, powder cocaine)

Prospective Post-test Actions

Responses varied: seek treatment, use differently, do not use, proceed to use

- 5/11 of those not using opioids would stop using if drugs tested positive for fentanyl
  - *"I know it would slow me down and probably make me realize that this ain't for me. Because like certain things have a tendency to scare me".*

-- "Derrick" (male; Black; powder cocaine, heroin/fentanyl)

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Concerns

- *"Just show up, real in and out the door, no names. You know what I mean? People, they like the anonymity of things. People don't want to go there and think they're gonna get arrested or something."*

-- Josh (male, White, heroin/fentanyl, powder cocaine, crack cocaine, cannabis)

- *"This program should be something that is assistive. It doesn't come across as controlling, just something that is here to make sure that whatever we're utilizing we're aware of it. It's not here to aid us or to make us better drug users but to just let us know – aware of what we're putting into our bodies. The location would have to be ground zero, because that's where everything usually is transpiring, taking place. Ground zero is here in Kensington."*

– Akbar (male; White/Black; heroin/fentanyl, powder cocaine, methamphetamine)

Recommendations

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Recommendations & Considerations for Developing Drug Checking Programs

- Staffing
  - Leverage relationships between harm reduction agencies and people who use drugs; trusted agencies should operate drug checking programs.
  - Hire people with lived experience of drug use or people with clinical experience.
- Safety
  - Work with city, county, or state leadership to anticipate legal challenges.
  - Information given to participants should not be able to be linked back to individuals; if necessary, participants should be identified with unique identifiers.

Recommendations & Considerations for Developing Drug Checking Programs

- Logistics
  - Operate multiple drug checking sites; consider how to make them responsive to the diverse needs of people who use drugs.
    - E.g., people who want access to clinicians to ask about medical implications versus people who want access to peers.
  - Situate drug checking services within a larger suite of harm reduction services. It is critical that links to detoxification and other treatment programs be available.
  - Offer printed materials to participants after testing stating what drug checking can and cannot tell them, precautions to take when using drugs. Fact sheets for specific adulterants (e.g., xylazine, levamisole) should be readily available.
  - Aggregate all test results and publish them as community reports during “surge” events and as general information for people who use drugs.

Recommendations & Considerations for Developing Drug Checking Programs

- Cultural Competency
  - Most participants are engaged in polysubstance use. Programs should expect a diverse range of drugs to be brought in and should be familiar with all illicit drugs and common adulterants/diluents.
  - Establish and meaningfully engage a community advisory board to provide program feedback.
  - Consider the use of a participant fact sheet about the program prior to implementation to address and allay concerns related to transparency of process, amount of substance needed, etc.
  - There should be legal protections for people using the service but no police presence while the service is operating.

Conclusions

- Considering and addressing concerns and preferences for point of care drug checking will create acceptable programs
- Programs should take into account: staffing, safety, logistics, and cultural competency
- Preferences may be highly localized; this research should be done on a site-by-site basis
- When possible, a range of programs should operate with different structures to meet diversity of needs

Questions?
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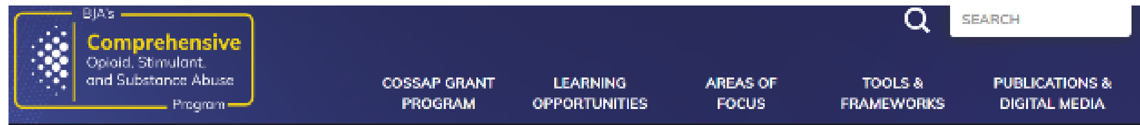
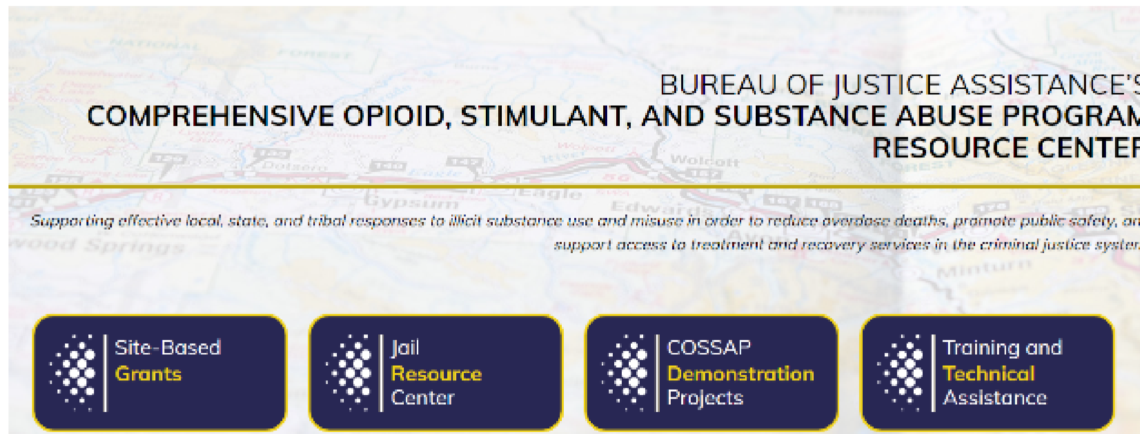
Bureau of Justice Assistance's

Comprehensive Opioid, Stimulant, and Substance Abuse Program (COSSAP) Resource Center





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COSSUP Resources

Tailored Assistance—The COSSUP training and technical assistance (TTA) program offers a variety of learning opportunities and assistance to support local, tribal, and state organizations, stakeholders, and projects in building and sustaining multidisciplinary responses to the nation's substance abuse crisis. ***You do not need to be a COSSUP grantee to request support***. TTAs are provided in a variety of formats, including virtual and in-person training events, workshop and meeting presentations, and online resources. Request TTA to support your activities at https://cossapresources.org/Program/TTA/Request.

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