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Beyond the Headlines: Drug Trend Insights from Pennsylvania and Beyond

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

COLLABORATE • SHARE • INFORM & HELP

Federal Acknowledgement

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Overview

- Introduction
- Drug Trends
- Challenges
- Recommendations
- Tools
- HIDTA Products

Overdose Response Strategy

COLLABORATE across public health and public safety sectors

SHARE data, insights and trends we are seeing related to drug overdose in our communities

INFORM AND HELP local communities develop local solutions to reduce overdoses and save lives

Liberty Mid-Atlantic HIDTA

- HIDTA = High Intensity Drug Trafficking Areas
- Funded by the Office of National Drug Control Policy (ONDCP)
- A "Program“ not an "Agency"
- Collaboration of federal, state, local, and tribal agencies
- Purpose: Reduce drug trafficking and production in the US
- Started the Overdose Response Strategy (ORS) in 2016

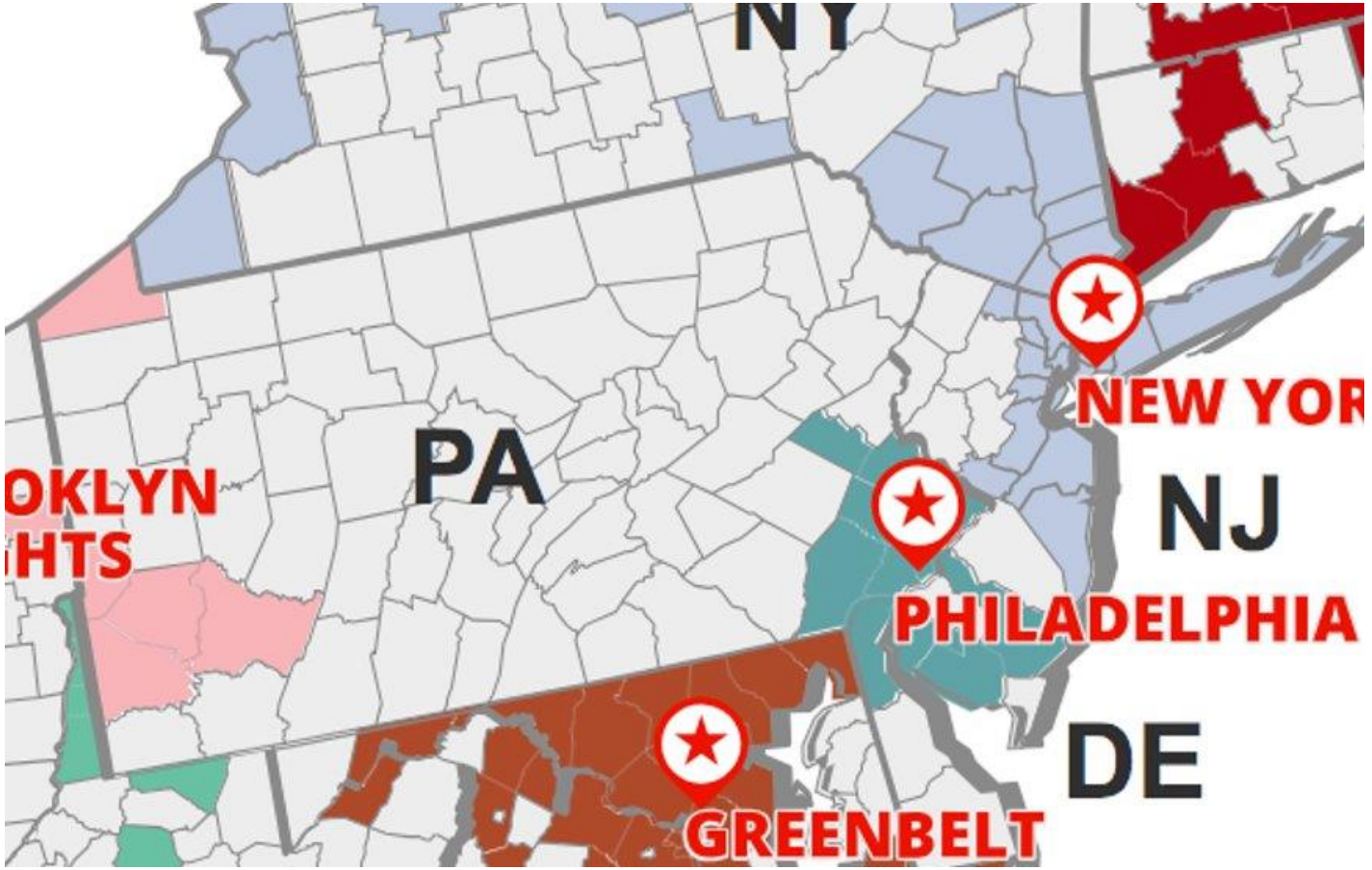
HIDTA in Pennsylvania

6 Eastern Counties Part of LMA HIDTA:

- Philadelphia
- Bucks
- Montgomery
- Chester
- Delaware
- Lehigh

6 Western Counties Part of Ohio HIDTA:

- Erie
- Lawrence
- Beaver
- Washington
- Allegheny
- Westmoreland



Beyond Fatality Data

Other sources can be helpful in identifying drug trends more quickly than decedent data

- Delays in testing
- Testing isn't always comprehensive
- Delays in reporting
- Not all novel substances or trends cause an increase in fatal overdoses (or not right away)
- Unclear how/when substances are consumed

Terminology

Adulterants

Pharmacologically active ingredients intentionally added to enhance or mimic effects.

- *Example: xylazine makes fentanyl last longer*

Dilutants

Inert substances intentionally added for bulk to increase profits

- *Example: talcum powder or sugar added to cocaine*

Contaminants

Unintentionally added; cross contamination

- *Example: fentanyl residue is accidentally transferred to cocaine supply on equipment*

Current Drug Trends

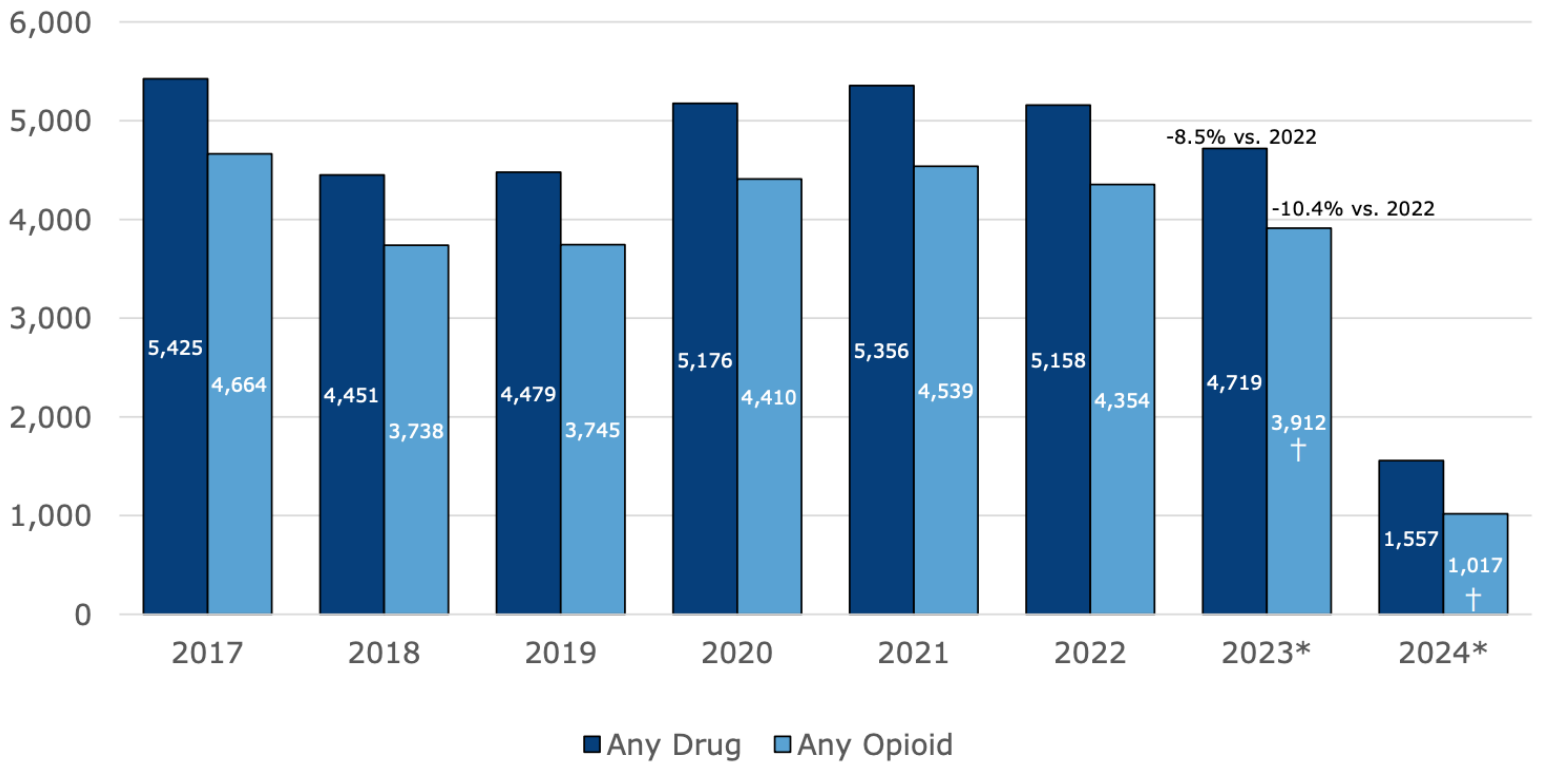
- Fentanyl continues to be the driver behind overdoses
- Stimulants (methamphetamine and cocaine)
- Counterfeit Pills
- Novel Psychoactive Substances (NPS)
  - Benzodiazepines
  - Novel Synthetic Opioids / Nitazenes
  - Hallucinogens/Stimulants
- Xylazine
- Polysubstance use as the norm
- Other emerging substances

Opioids and Stimulants

Deaths

PA opioid deaths down -10.4% in 2023 compared with 2022

Estimated Drug Overdose Deaths, 2017 – 2024*

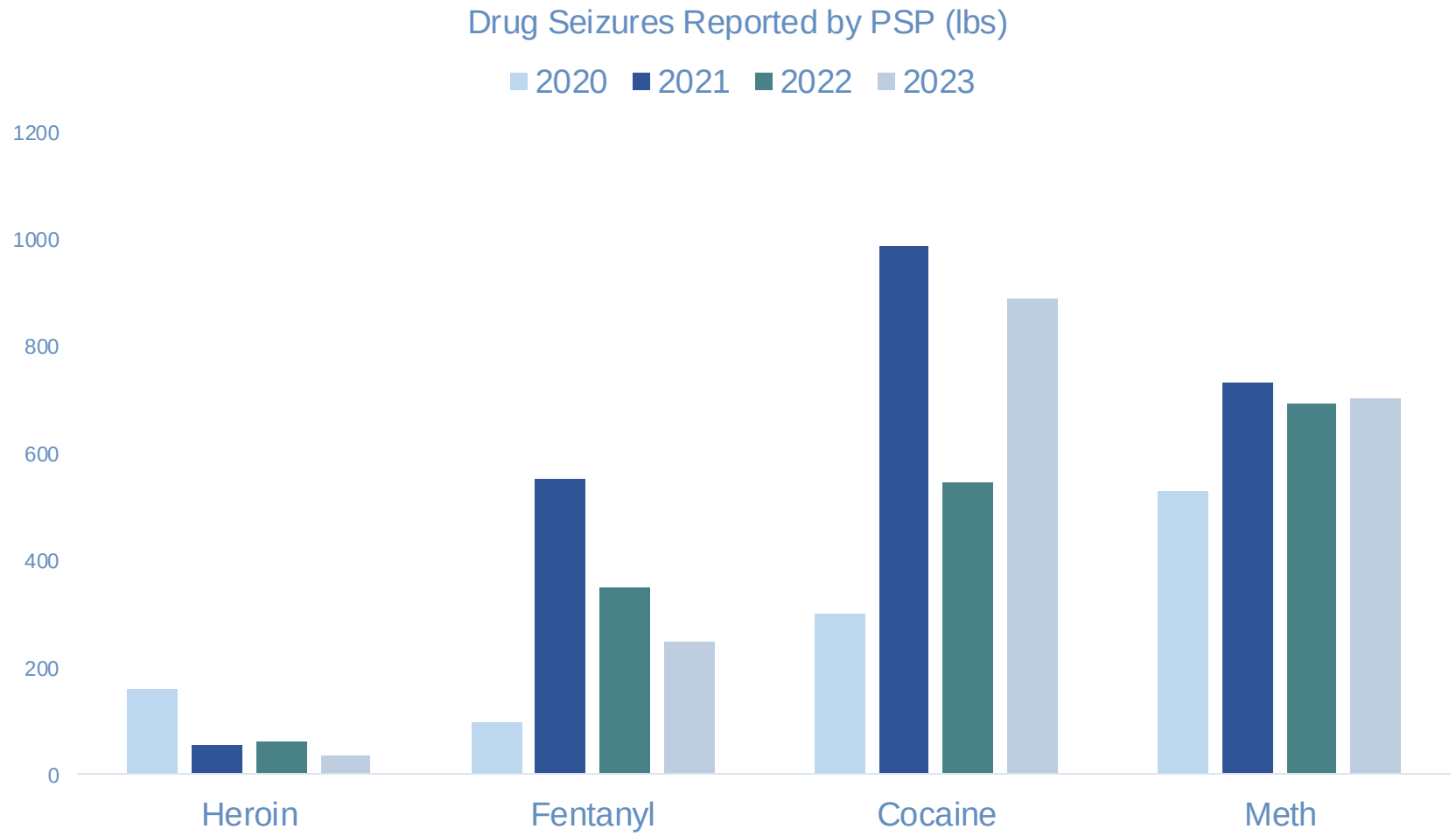


*2023/2024 death data is preliminary, based on death record data as of August 2024. Please note that death records for overdose deaths are often delayed by 3-6 months and counts may change.
Counts do not include suicides or homicides where someone intended to harm another person by poisoning.

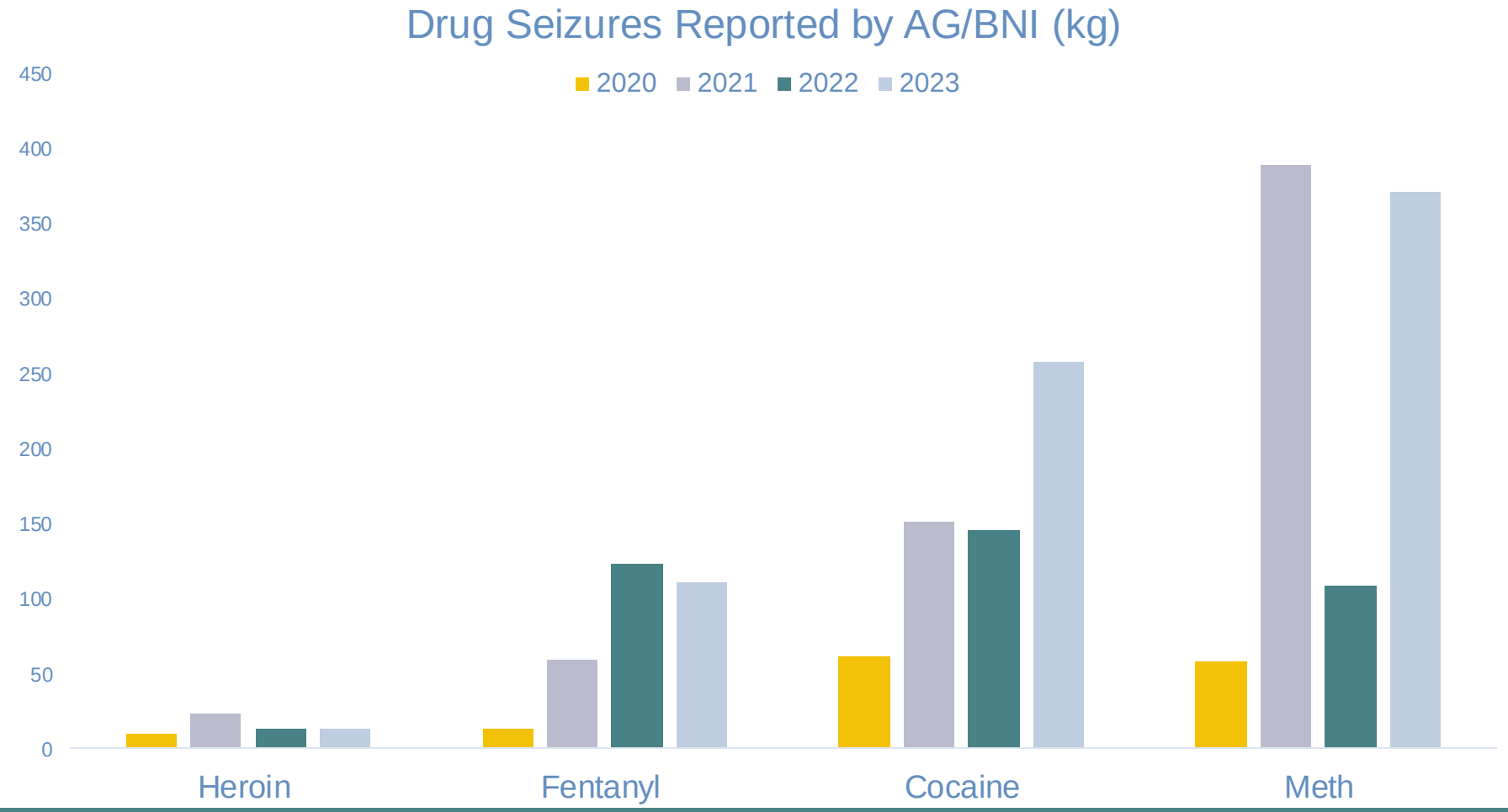
†As of August 2024, ~2% of 2023 and ~16% of 2024 overdose deaths are missing drug specificity. Previous years are missing ≤5%.

pennsylvania
DEPARTMENT OF HEALTH

Drug Seizures - State Police Opioids and Stimulants 2020-2023



Drug Seizures - Attorney General Opioids and Stimulants 2020-2023



Counterfeit Pills

Counterfeit Pills

- Types: Oxycodone M30, Adderall, Xanax
  - Fentanyl and Methamphetamine
- Dark Web and Social Media
- Pill Presses

Department of Justice/Drug Enforcement Administration

Drug Fact Sheet

Counterfeit Pills

WHAT ARE COUNTERFEIT PILLS?

Counterfeit pills are fake medications that have different ingredients than the actual medication. They may contain no active ingredient, the wrong active ingredient, or have the right ingredient but in an incorrect quantity. Counterfeit pills may contain lethal amounts of fentanyl or methamphetamine and are extremely dangerous because they often appear identical to legitimate prescription pills, and the user is likely unaware of how lethal they can be.

WHAT IS THEIR ORIGIN?

The majority of counterfeit drug production occurs in other countries, mainly China, Mexico, and India. Furthermore, an increasing number of pills laced with fentanyl are being produced in the U.S. Mexican and domestic drug trafficking organizations operating in the U.S. produce counterfeit pills with pre-made chemicals and drugs from China and/or Mexico. They are usually produced in substandard conditions, labeled incorrectly, and may include dangerous, unapproved substances. There are no quality control mechanisms in the illicit labs producing counterfeit pills to ensure dosing is not lethal. Online sales via internet marketplaces and social media are the major sources for obtaining counterfeit pills.

A significant number of high school and college students purchase Adderall and Xanax from dark web drug markets and/or through social media referrals[1], which market deadly versions of these drugs tainted with fentanyl and/or methamphetamine. Some students begin using prescription stimulants, often referred to as "study drugs," in the belief it will benefit their academic performance, but the nonmedical use of prescription stimulants has not been proven to improve academic performance[2].

Left: Authentic oxycodone M30 tablets (top) vs. counterfeit oxycodone M30 tablets containing fentanyl (bottom). Center: Authentic Adderall tablets (top) vs. counterfeit Adderall tablets containing methamphetamine (bottom). Right: Authentic Xanax tablets (white) vs. counterfeit Xanax tablets containing fentanyl (yellow).

What are common street names?

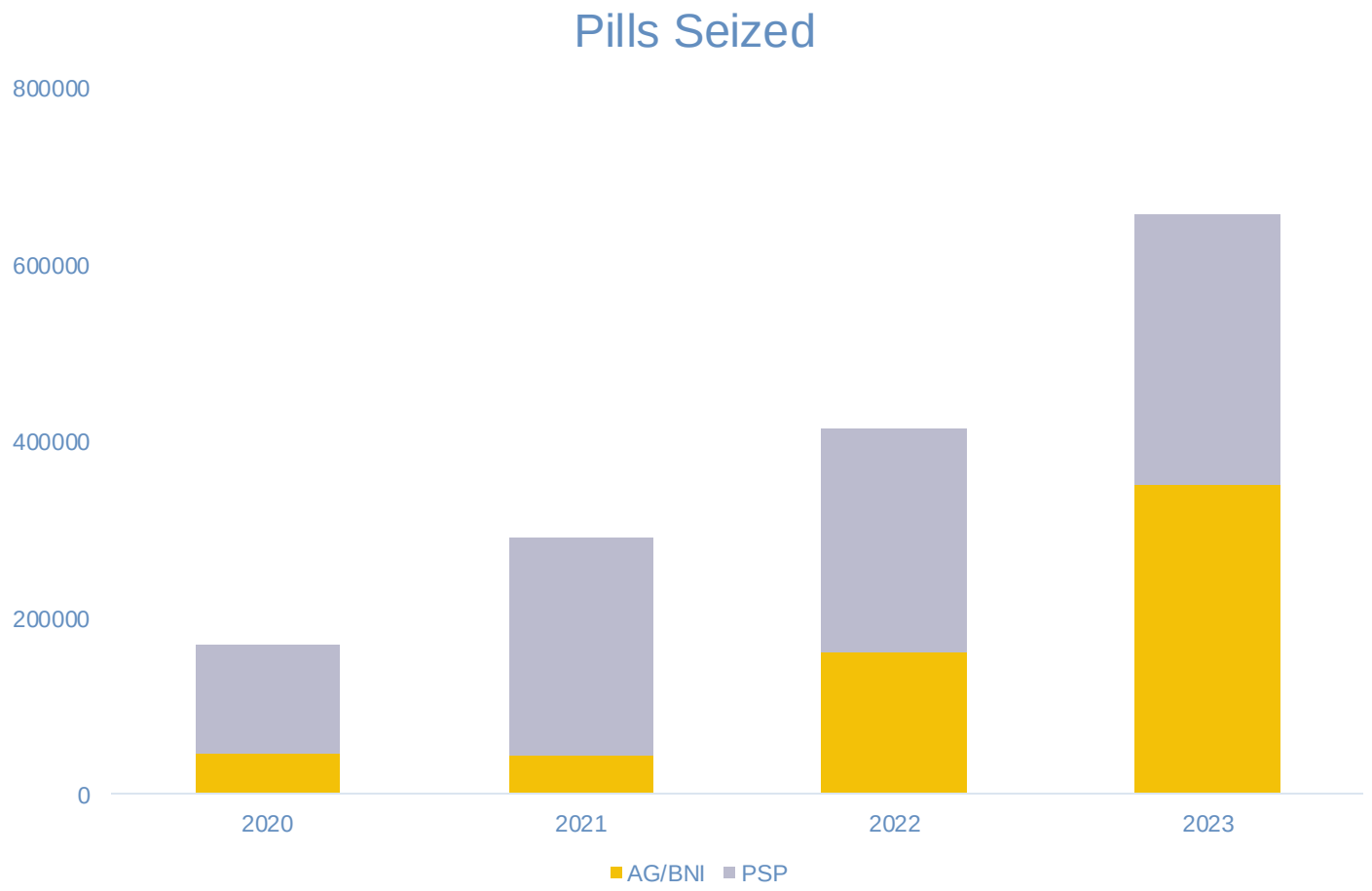
Counterfeit oxycodone M30 pills: Mexican Blues, Blues, M-Boxes

1. Mayle L, Childs A, Coomber R, Barratt MJ. #Drugsforsale: An exploration of the use of social media and encrypted messaging apps to supply and access drugs. Int J Drug Policy. 2019 Jan;63:101-110. doi: 10.1016/j.drugpo.2018.08.005. Epub 2018 Dec 7. PMID: 30530252.

2. University of Rhode Island. "ADHD drugs do not improve cognition in healthy college students." ScienceDaily. ScienceDaily, 19 July 2018.

Image Source: https://legislativeanalysis.org, DEA.gov

Drug Seizures - State Police and Attorney General – Pills 2020-2023



Novel Psychoactive Substances (NPS)

Novel Psychoactive Substances (NPS)

Center for Forensic Science Research and Education (CFSRE)
Q3 2024 Trend Report

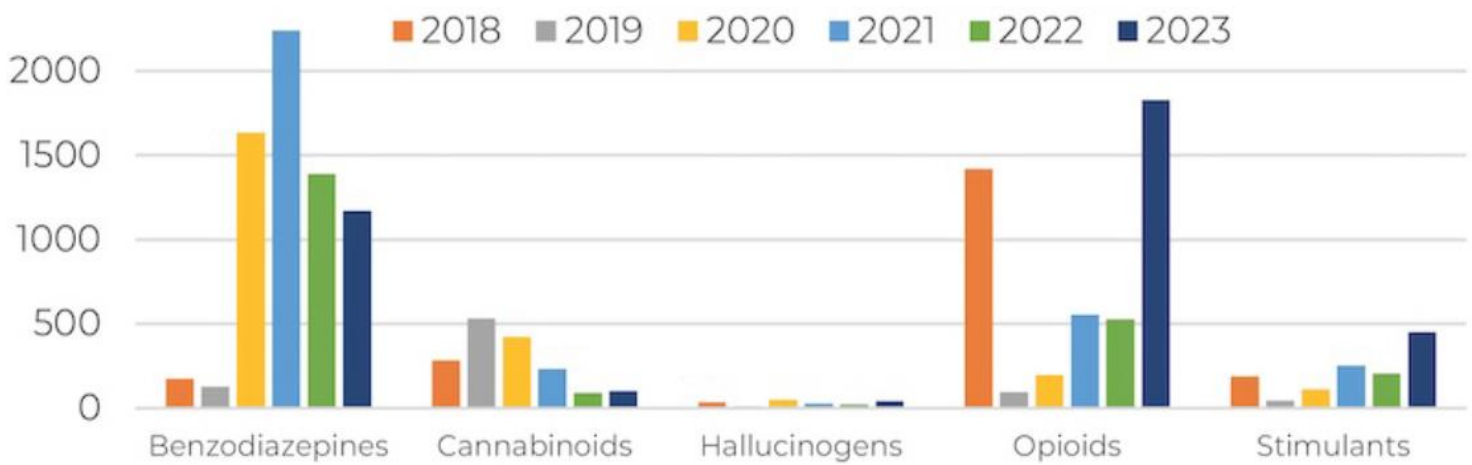
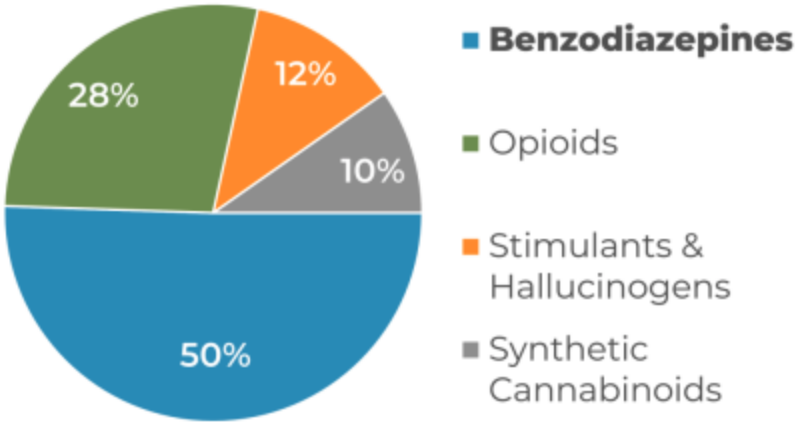


Figure 5: Total number of NPS detections by year among samples analyzed since 2018.

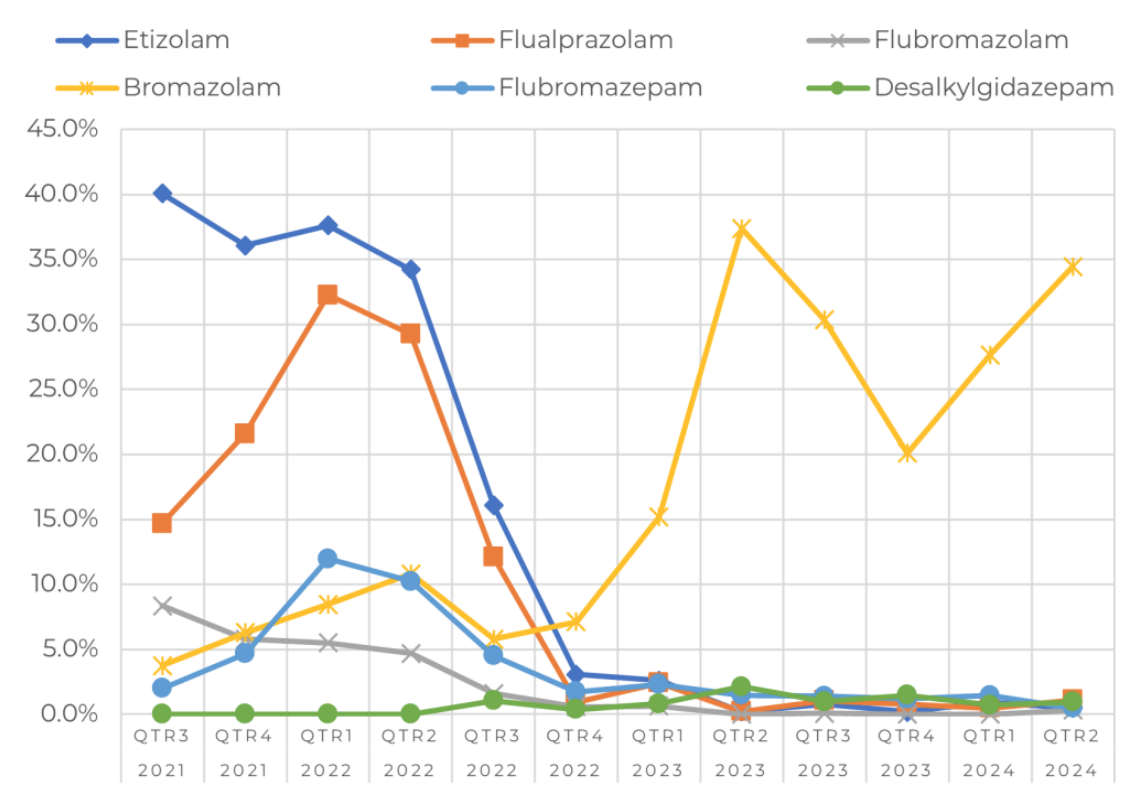


Q3 2024

Image Source: https://www.cfsre.org/nps-discovery/trend-reports

Designer Benzodiazepines - Bromazolam

- Powder and pill form, mixed with heroin or fentanyl
- Combined with opioids: "Benzo Dope"



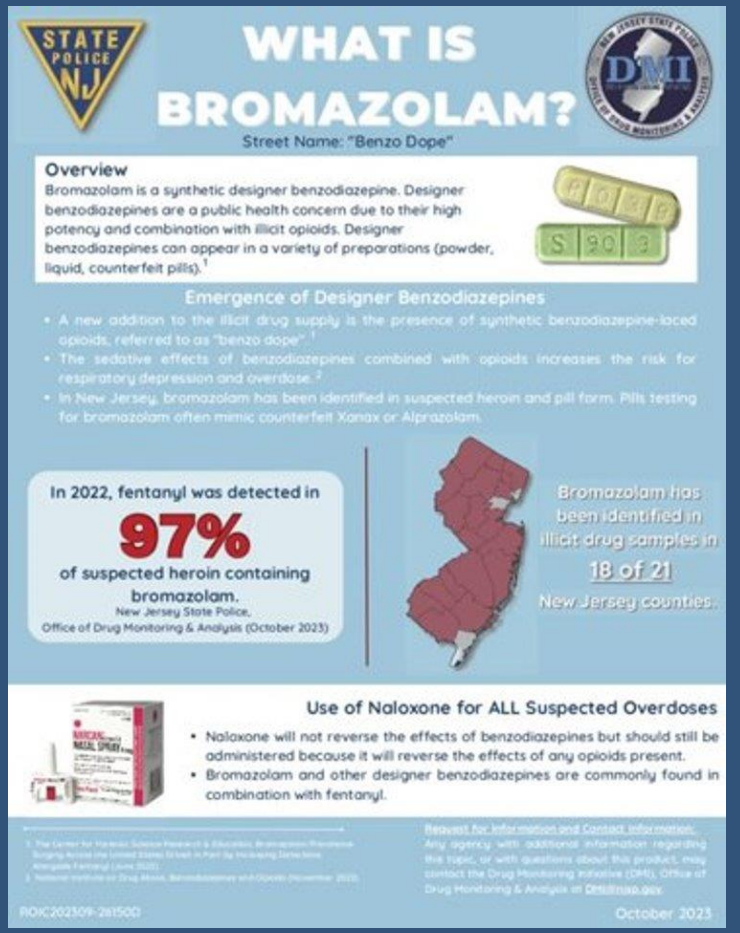


Image Sources: CFSRE.org, NJ State Police

Benzodiazepines – Q3 2024

Bromazolam

- Made up half of all drug samples sent to NPS Discovery in Q3 2024
- Scheduled in March 2024
  - Possible replacement:

    Phenazolam ("clobromazolam")

Benzodiazepines contributed to 59 deaths in Pennsylvania in 2022, increasing to 147 in 2023

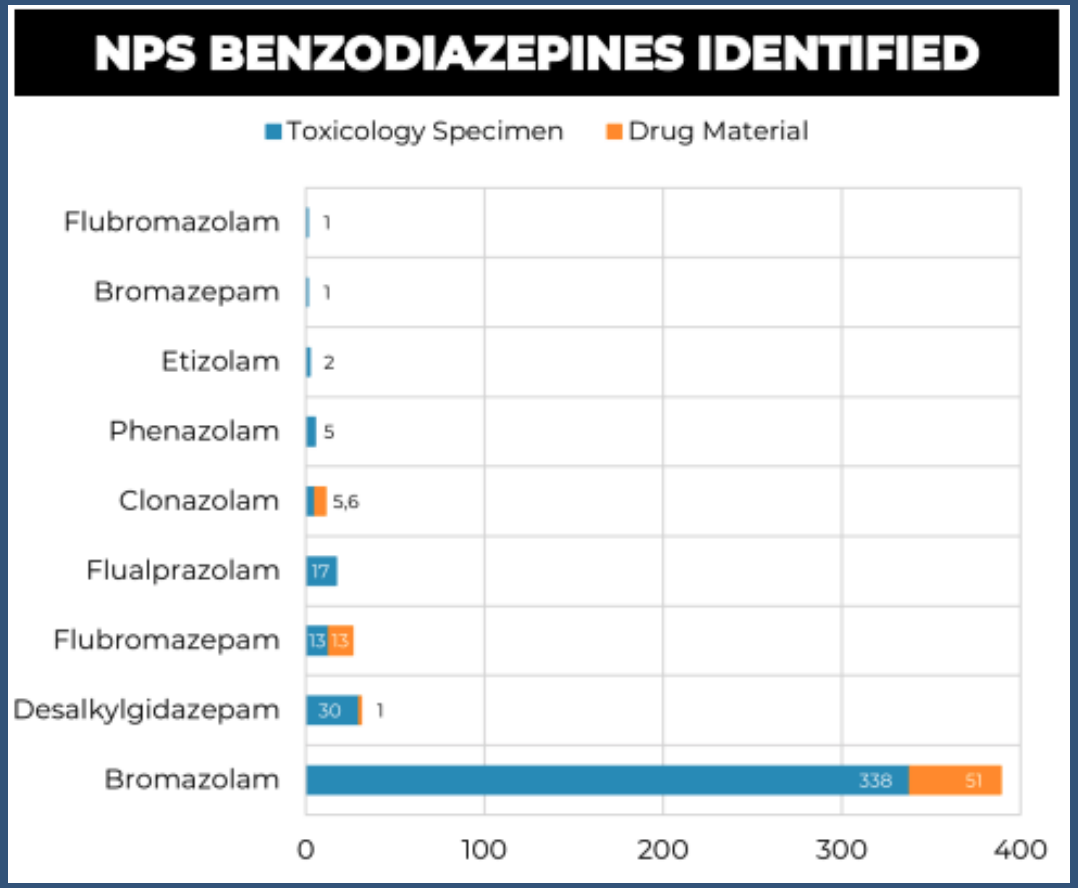
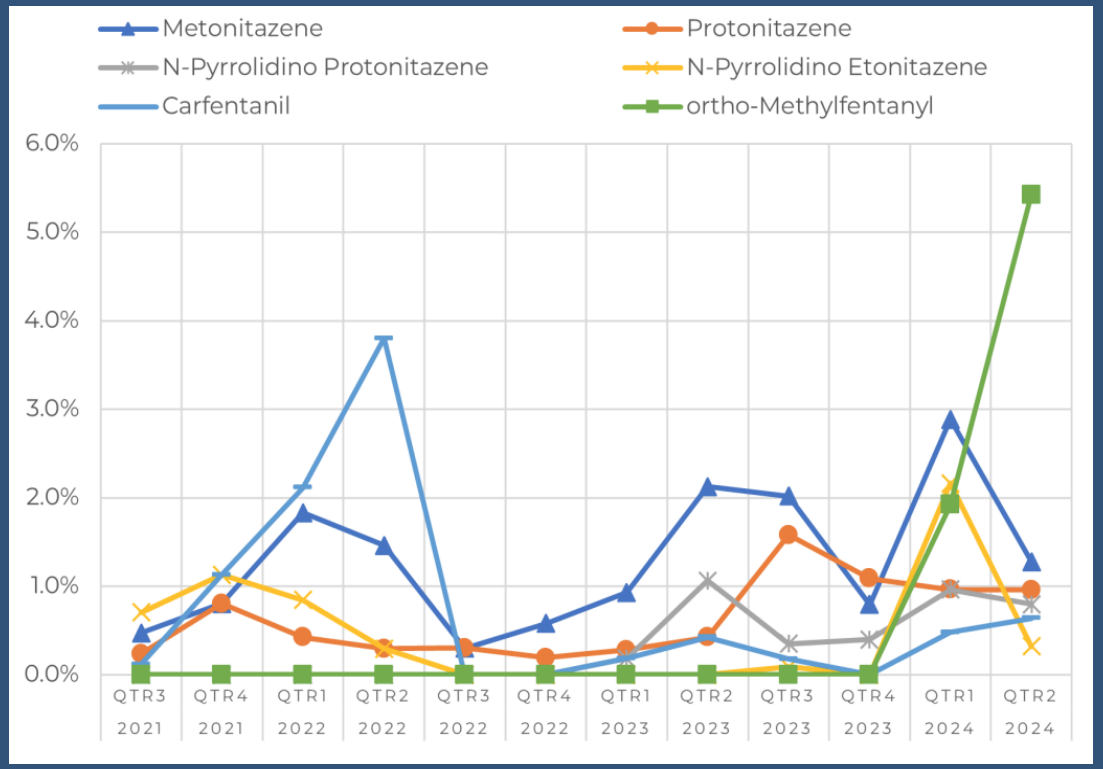


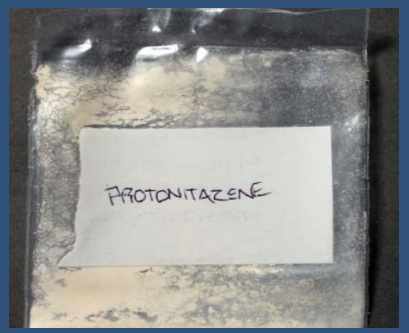
Image Source: CFSRE.org/

Novel Synthetic Opioids - Nitazenes

Potent analgesic (painkiller) and sedative properties

- Examples: Protonitazene, Isotonitazene





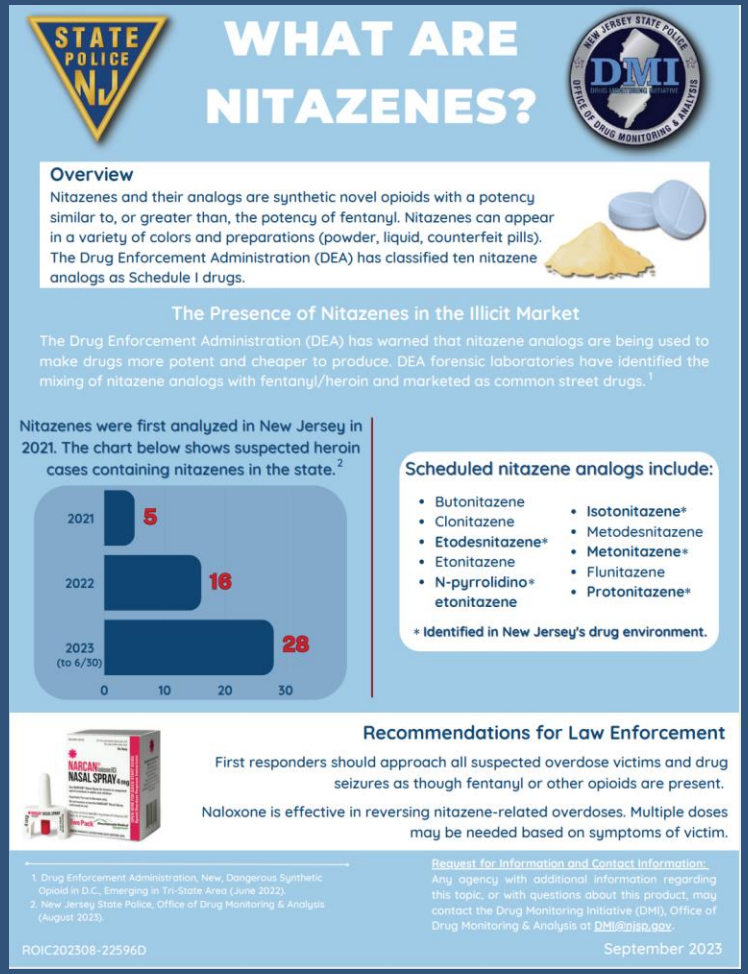


Image Sources: NJ State police, CFSRE.org, PA State Police

Novel Synthetic Opioids - Nitazenes

- Fluorofentanyl most prevalent and not on the chart because there were more than 300 detections
- "-orphine" analogs appear to be the possible next big thing

Nitazenes contributed to <6 deaths in PA in 2022, increasing to 15 in 2023

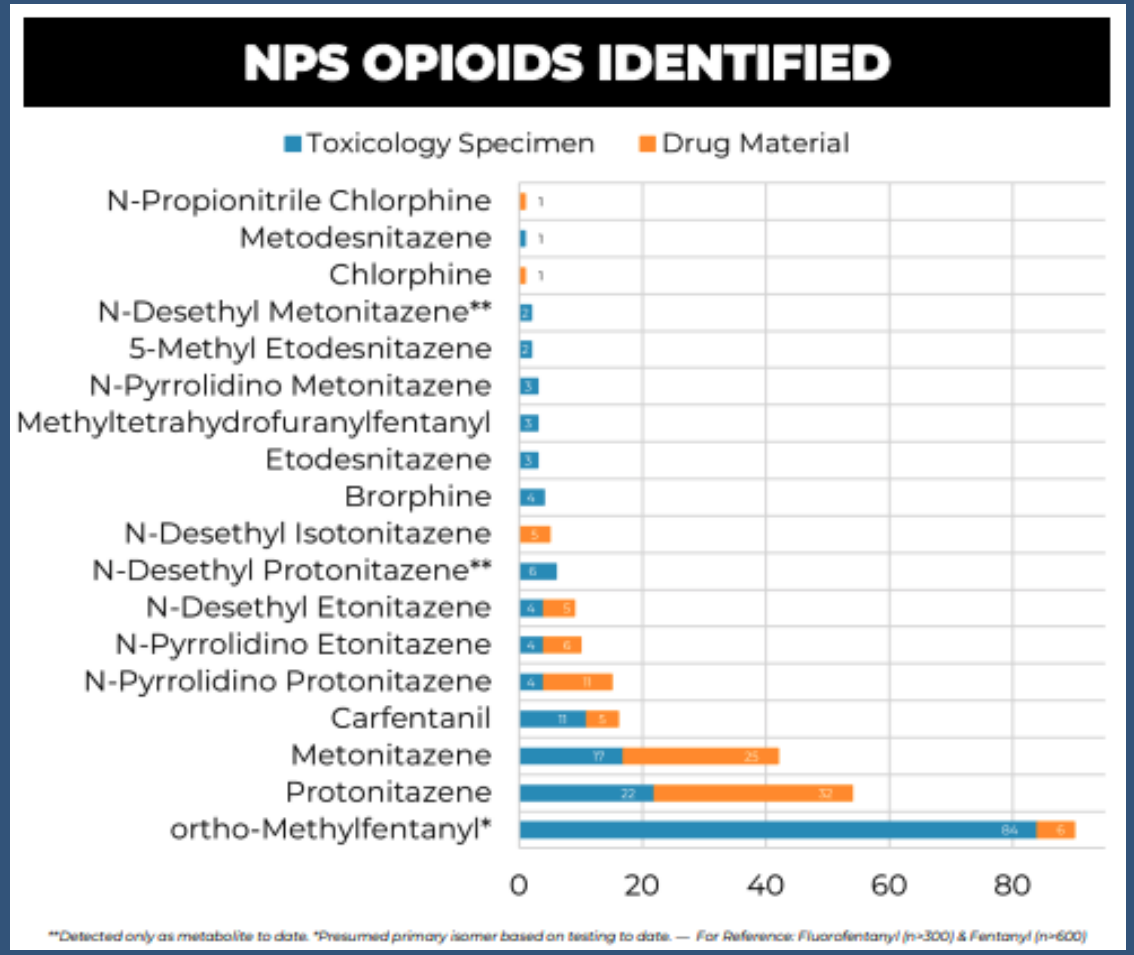


Image Sources: CFSRE

Stimulants and Hallucinogens

- Dimethylpentylone most common stimulant. Internationally scheduled in March 2024.
- 2F-2oxo-PCE most prevalent hallucinogen, often sold as and/or mixed with ketamine
- Watching: N-Isopropyl Butylone, MMC and CMS, 2Cs

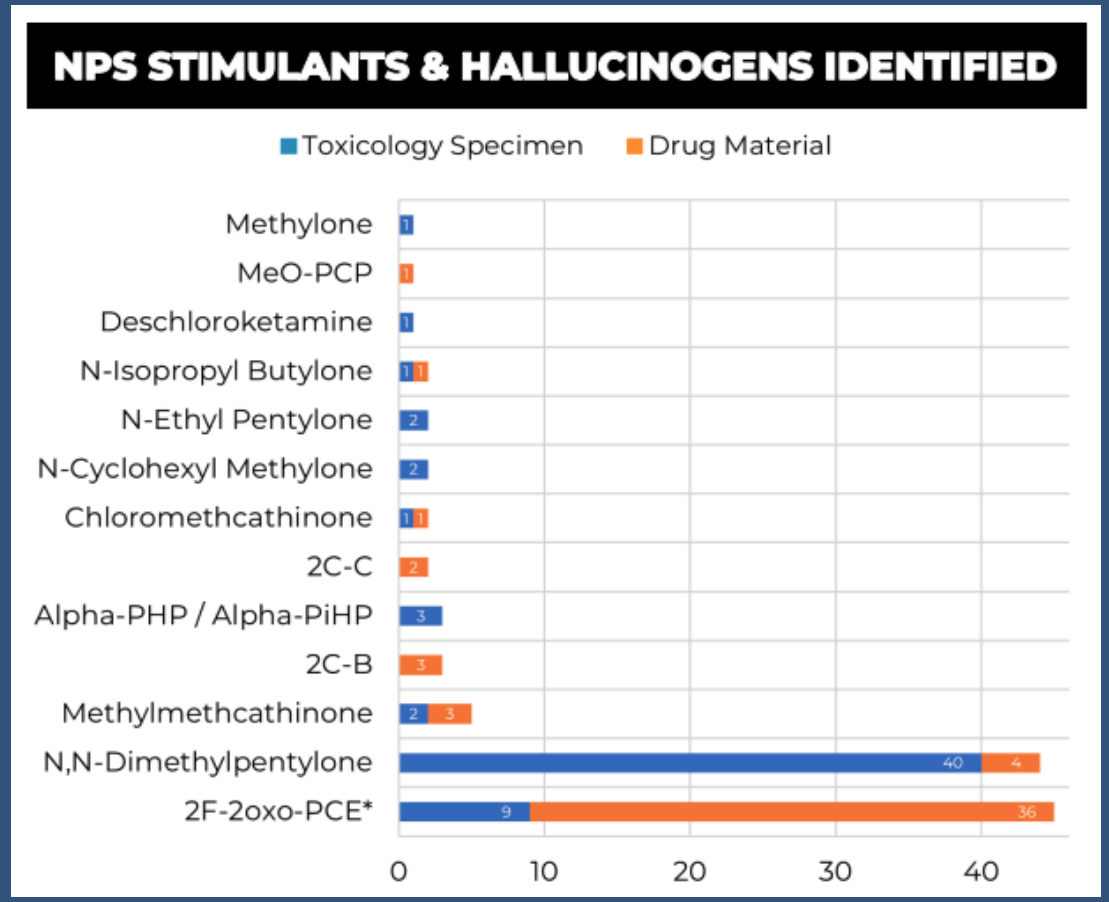


Image Source: CFSRE.org

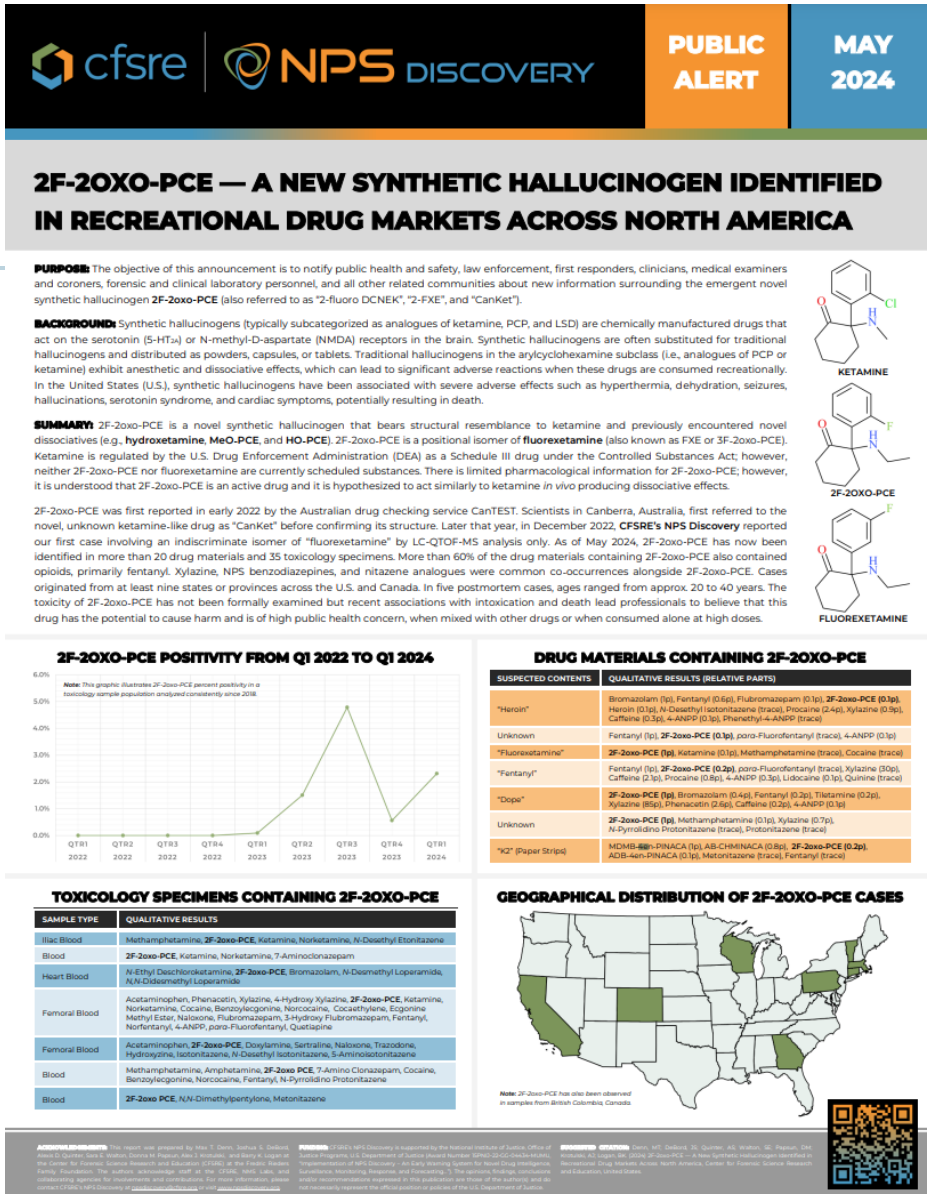
"Tusi" (2-C or 2-CB)

- "Pink cocaine"
- Popular in active night club areas as a "club drug"
- In 2021, “Tusi” was seized five times in NJ; in Q1-Q2 2024 it has been seized 12 times
- Originally a psychedelic phenylethylamine
- Polydrug mixture sold as synthetic cocaine
  - Ketamine and MDMA
  - Methamphetamine, ketamine, and MDMA
  - Cocaine and fentanyl
  - Fentanyl and xylazine
- DEA has seized 960 pink powders since 2020
  - Only four samples were actually 2-C

Image sources: DEA

"CanKet" (2F-2oxo-PCE)

- Synthetic hallucinogen
- Structurally similar to ketamine
- First reported in drug checking program in early 2022 in Australia
- 88+ detections in at least ten states and Canada, including Pennsylvania
- Not scheduled
- More than 60% of samples also contained opioids, primarily fentanyl
- Also with xylazine, other NPS benzodiazepines, nitazene analogues



cfsre | NPS DISCOVERY — PUBLIC ALERT — MAY 2024

2F-2OXO-PCE — A NEW SYNTHETIC HALLUCINOGEN IDENTIFIED IN RECREATIONAL DRUG MARKETS ACROSS NORTH AMERICA

PURPOSE: The objective of this announcement is to notify public health and safety, law enforcement, first responders, clinicians, medical examiners and coroners, forensic and clinical laboratory personnel, and all other related communities about new information surrounding the emergent novel synthetic hallucinogen **2F-2oxo-PCE** (also referred to as "2-fluoro DCNEK", "2-FXE", and "CanKet").

BACKGROUND: Synthetic hallucinogens (typically subcategorized as analogues of ketamine, PCP, and LSD) are chemically manufactured drugs that act on the serotonin (5-HT_{2A}) or N-methyl-D-aspartate (NMDA) receptors in the brain. Synthetic hallucinogens are often substituted for traditional hallucinogens and distributed as powders, capsules, or tablets. Traditional hallucinogens in the arylcyclohexamine subclass (i.e., analogues of PCP or ketamine) exhibit anesthetic and dissociative effects, which can lead to significant adverse reactions when these drugs are consumed recreationally. In the United States (U.S.), synthetic hallucinogens have been associated with severe adverse effects such as hyperthermia, dehydration, seizures, hallucinations, serotonin syndrome, and cardiac symptoms, potentially resulting in death.

SUMMARY: 2F-2oxo-PCE is a novel synthetic hallucinogen that bears structural resemblance to ketamine and previously encountered novel dissociatives (e.g., **hydroxetamine**, **MeO-PCE**, and **HO-PCE**). 2F-2oxo-PCE is a positional isomer of **fluorexetamine** (also known as FXE or 3F-2oxo-PCE). Ketamine is regulated by the U.S. Drug Enforcement Administration (DEA) as a Schedule III drug under the Controlled Substances Act; however, neither 2F-2oxo-PCE nor fluorexetamine are currently scheduled substances. There is limited pharmacological information for 2F-2oxo-PCE; however, it is understood that 2F-2oxo-PCE is an active drug and it is hypothesized to act similarly to ketamine *in vivo* producing dissociative effects.

2F-2oxo-PCE was first reported in early 2022 by the Australian drug checking service CanTEST. Scientists in Canberra, Australia, first referred to the novel, unknown ketamine-like drug as "CanKet" before confirming its structure. Later that year, in December 2022, **CFSRE's NPS Discovery** reported our first case involving an indiscriminate isomer of "fluorexetamine" by LC-QTOF-MS analysis only. As of May 2024, 2F-2oxo-PCE has now been identified in more than 20 drug materials and 35 toxicology specimens. More than 60% of the drug materials containing 2F-2oxo-PCE also contained opioids, primarily fentanyl. Xylazine, NPS benzodiazepines, and nitazene analogues were common co-occurrences alongside 2F-2oxo-PCE. Cases originated from at least nine states or provinces across the U.S. and Canada. In five postmortem cases, ages ranged from approx. 20 to 40 years. The toxicity of 2F-2oxo-PCE has not been formally examined but recent associations with intoxication and death lead professionals to believe that this drug has the potential to cause harm and is of high public health concern, when mixed with other drugs or when consumed alone at high doses.

KETAMINE

2F-2OXO-PCE

FLUOREXETAMINE

2F-2OXO-PCE POSITIVITY FROM Q1 2022 TO Q1 2024

DRUG MATERIALS CONTAINING 2F-2OXO-PCE

SUSPECTED CONTENTS	QUALITATIVE RESULTS (RELATIVE PARTS)
"Heroin"	Bromazolam (1p), Fentanyl (0.6p), Flubromazepam (0.1p), **2F-2oxo-PCE (0.3p)**, Heroin (0.1p), *N*-Desethyl Isotonitazene (trace), Procaine (2.4p), Xylazine (0.9p), Caffeine (0.3p), 4-ANPP (0.1p), Phenethyl-4-ANPP (trace)
Unknown	Fentanyl (1p), **2F-2oxo-PCE (0.3p)**, *para*-Fluorofentanyl (trace), 4-ANPP (0.1p)
"Fluorexetamine"	**2F-2oxo-PCE (1p)**, Ketamine (0.1p), Methamphetamine (trace), Cocaine (trace)
"Fentanyl"	Fentanyl (1p), **2F-2oxo-PCE (0.2p)**, *para*-Fluorofentanyl (trace), Xylazine (30p), Caffeine (2.1p), Procaine (0.8p), 4-ANPP (0.3p), Lidocaine (0.1p), Quinine (trace)
"Dope"	**2F-2oxo-PCE (1p)**, Bromazolam (0.4p), Fentanyl (0.2p), Tiletamine (0.2p), Xylazine (85p), Phenacetin (2.6p), Caffeine (0.2p), 4-ANPP (0.1p)
Unknown	**2F-2oxo-PCE (1p)**, Methamphetamine (0.1p), Xylazine (0.7p), *N*-Pyrrolidino Protonitazene (trace), Protonitazene (trace)
"K2" (Paper Strips)	MDMB-4en-PINACA (1p), AB-CHMINACA (0.8p), **2F-2oxo-PCE (0.2p)**, ADB-4en-PINACA (0.1p), Metonitazene (trace), Fentanyl (trace)

TOXICOLOGY SPECIMENS CONTAINING 2F-2OXO-PCE

SAMPLE TYPE	QUALITATIVE RESULTS
Iliac Blood	Methamphetamine, **2F-2oxo-PCE**, Ketamine, Norketamine, *N*-Desethyl Etonitazene
Blood	**2F-2oxo-PCE**, Ketamine, Norketamine, 7-Aminoclonazepam
Heart Blood	*N*-Ethyl Deschloroketamine, **2F-2oxo-PCE**, Bromazolam, *N*-Desmethyl Loperamide, *N,N*-Didesmethyl Loperamide
Femoral Blood	Acetaminophen, Phenacetin, Xylazine, 4-Hydroxy Xylazine, **2F-2oxo-PCE**, Ketamine, Norketamine, Cocaine, Benzoylecgonine, Norcocaine, Cocaethylene, Ecgonine Methyl Ester, Naloxone, Flubromazepam, 3-Hydroxy Flubromazepam, Fentanyl, Norfentanyl, 4-ANPP, *para*-Fluorofentanyl, Quetiapine
Femoral Blood	Acetaminophen, **2F-2oxo-PCE**, Doxylamine, Sertraline, Naloxone, Trazodone, Hydroxyzine, Isotonitazene, *N*-Desethyl Isotonitazene, 5-Aminoisotonitazene
Blood	Methamphetamine, Amphetamine, **2F-2oxo PCE**, 7-Amino Clonazepam, Cocaine, Benzoylecgonine, Norcocaine, Fentanyl, *N*-Pyrrolidino Protonitazene
Blood	**2F-2oxo PCE**, *N,N*-Dimethylpentylone, Metonitazene

GEOGRAPHICAL DISTRIBUTION OF 2F-2OXO-PCE CASES

Image source: CFSRE.org

Xylazine

Xylazine Timeline

- 2001
  - First detection in Puerto Rico
- 2006
  - First detection in Philadelphia
- 2018-2019
  - Dramatic increase in xylazine detections in drug overdose deaths in Pennsylvania
- 2023
  - FDA has Customs and Border Patrol increase surveillance and seizure
  - Akorn Pharmaceutical files for bankruptcy
  - Subsequent shift from liquid to powder
  - June: Xylazine scheduled in Pennsylvania
  - July: National Xylazine Response Plan released

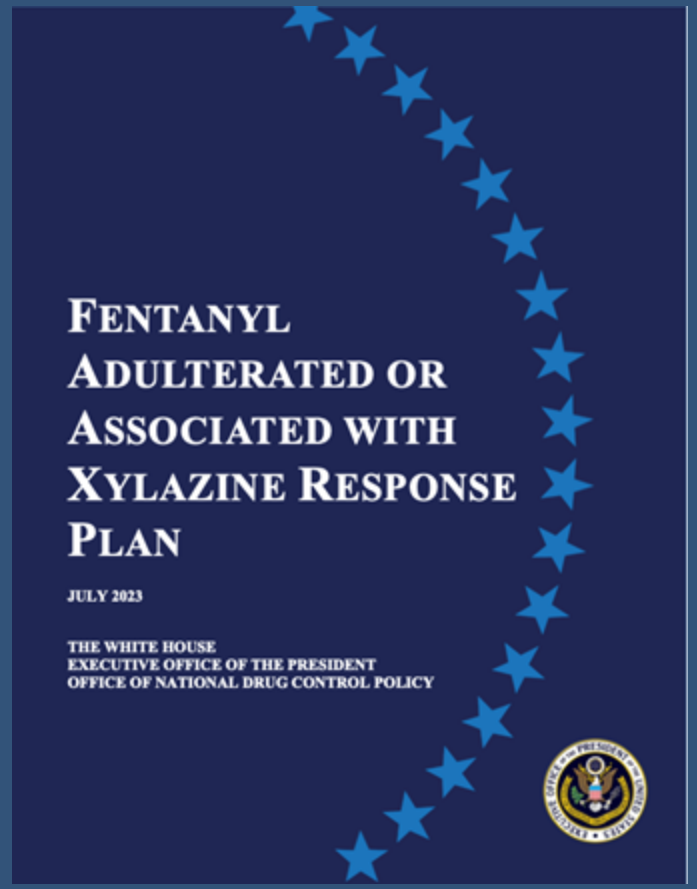
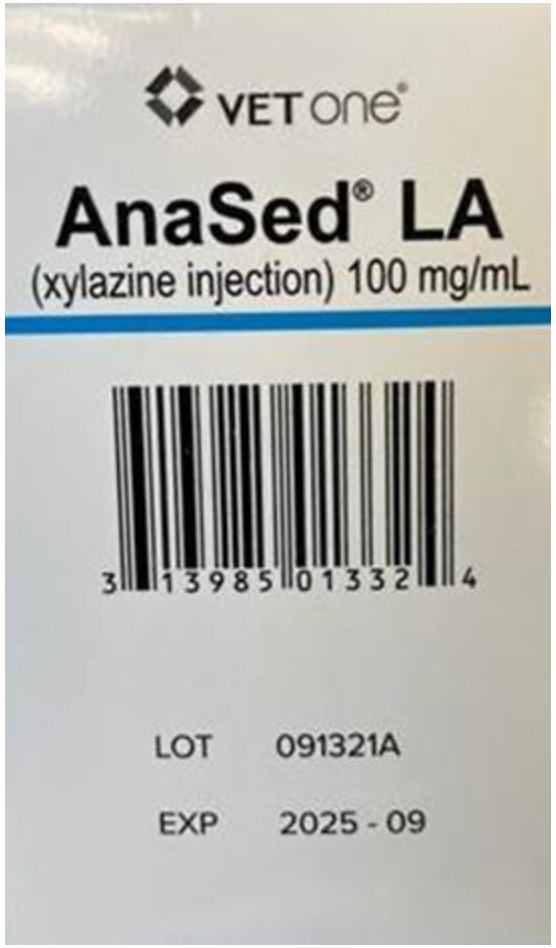


Image source: https://www.whitehouse.gov [1]

Liquid Xylazine

Image Source: PA State Police [4]



Drug Mill House

Image Source: PA State Police [4]

NPS Discovery
Drug Checking Project

- Philadelphia Department of Public Health (PDPH) and Center for Forensic Science Research and Education (CFSRE)
- 219 Samples May – Sept 2022 (Q3)
- 91% of "Dope" included *both* fentanyl and xylazine
- Average xylazine purity/concentration was 33.8% (range <1 to 64.8%)


QUARTERLY REPORT — PHILADELPHIA, PA

DRUG CHECKING Q3 2022

cfsre NPS DISCOVERY

Department of Public Health CITY OF PHILADELPHIA

136

49

10

24

Summary and Key Findings:

- 219 samples were tested between May and September 2022
- Fentanyl/xylazine (tranq-dope) proportions varied greatly
- The average fentanyl purity was 11.7% (range: 0.3-34.8%)
- The average xylazine purity was 33.8% (range: 0-64.8%)
- Most dope samples (91%) contained fentanyl and xylazine
- Synthetic cannabinoids remain dynamic and unpredictable
- Counterfeit Xanax tablets tested positive for clonazolam
- Cocaine purity varied greatly (average: 37.8%, range: 0.2-81.8%)

Date	Suspected	Drugs Identified
9/13/2022	Dope	Fentanyl (18.4%), Xylazine (26.9%), 4-ANPP (10.6%)
9/21/2022	Dope	Fentanyl (6.6%), Xylazine (40.5%), 4-ANPP (1.0%), Procaine, Caffeine
9/21/2022	Dope	Fentanyl (7.7%), Xylazine (32.4%), para-Fluorofentanyl (0.3%), 4-ANPP (0.7%)
9/21/2022	Dope	Fentanyl (7.8%), Xylazine (26.6%), 4-ANPP (1.5%)
9/21/2022	Dope	Fentanyl (8.2%), Xylazine (58.4%), 4-ANPP (0.6%)
9/21/2022	Dope	Fentanyl (8.3%), Xylazine (26.3%), 4-ANPP (1.6%)
9/21/2022	Dope	Fentanyl (8.8%), Xylazine (30.1%), 4-ANPP (1.7%)
9/21/2022	Dope	Fentanyl (10.0%), Xylazine (36.8%), 4-ANPP (1.7%)
9/21/2022	Dope	Fentanyl (11.2%), Xylazine (43.7%), 4-ANPP (1.7%)
9/21/2022	Dope	Fentanyl (11.9%), Xylazine (38.0%), 4-ANPP (3.0%)
9/21/2022	Dope	Fentanyl (13.2%), Xylazine (64.8%), 4-ANPP (2.0%)
9/21/2022	Dope	Fentanyl (14.3%), Xylazine (21.6%), 4-ANPP (7.7%)
9/21/2022	Dope	Fentanyl (21.1%), Xylazine (40.2%), 4-ANPP (4.1%)
9/21/2022	Dope	Fentanyl (18.2%), Xylazine (27.5%), 4-ANPP (8.8%)
9/21/2022	Dope	Fentanyl (16.8%), Xylazine (54.4%), 4-ANPP (2.4%)
9/21/2022	Dope	Fentanyl (16.5%), Xylazine (47.3%), 4-ANPP (2.0%)
9/21/2022	Dope	Fentanyl (16.4%), Xylazine (6.8%), para-Fluorofentanyl (2.4%), 4-ANPP (5.3%), Heroin (trace), Caffeine
9/28/2022	Dope	Fentanyl (9.7%), Xylazine (60.1%), 4-ANPP (4.8%)
9/28/2022	Dope	Fentanyl (11.2%), Xylazine (47.5%), 4-ANPP (1.6%)
9/28/2022	Dope	Fentanyl (13.3%), Xylazine (52.6%), para-Fluorofentanyl (2.4%), 4-ANPP (3.1%)
9/28/2022	Dope	Fentanyl (13.7%), Xylazine (36.0%), 4-ANPP (2.5%)
9/28/2022	Dope	Fentanyl (14.3%), Xylazine (19.9%), 4-ANPP (3.9%), Quetiapine
9/28/2022	Dope	Fentanyl (14.8%), Xylazine (31.0%), 4-ANPP (3.4%), Quetiapine

--- ADDITIONAL QUANTITATIVE DATA FOR DOPE SAMPLES ON PAGE 4 & BEYOND ---

Page 1 of 7

Image Source: www.cfsre.org [5]

NPS Discovery Drug Checking Project

- 344 Samples January – June 2023 (Q1 and Q2)
- 99% of "Dope" included *both* fentanyl and xylazine
- Average xylazine purity/ concentration increased to 46.1%
- Stimulant samples contained fentanyl (n=10)
- Bromazolam detected *without* opioids (n=2) in "dope" samples

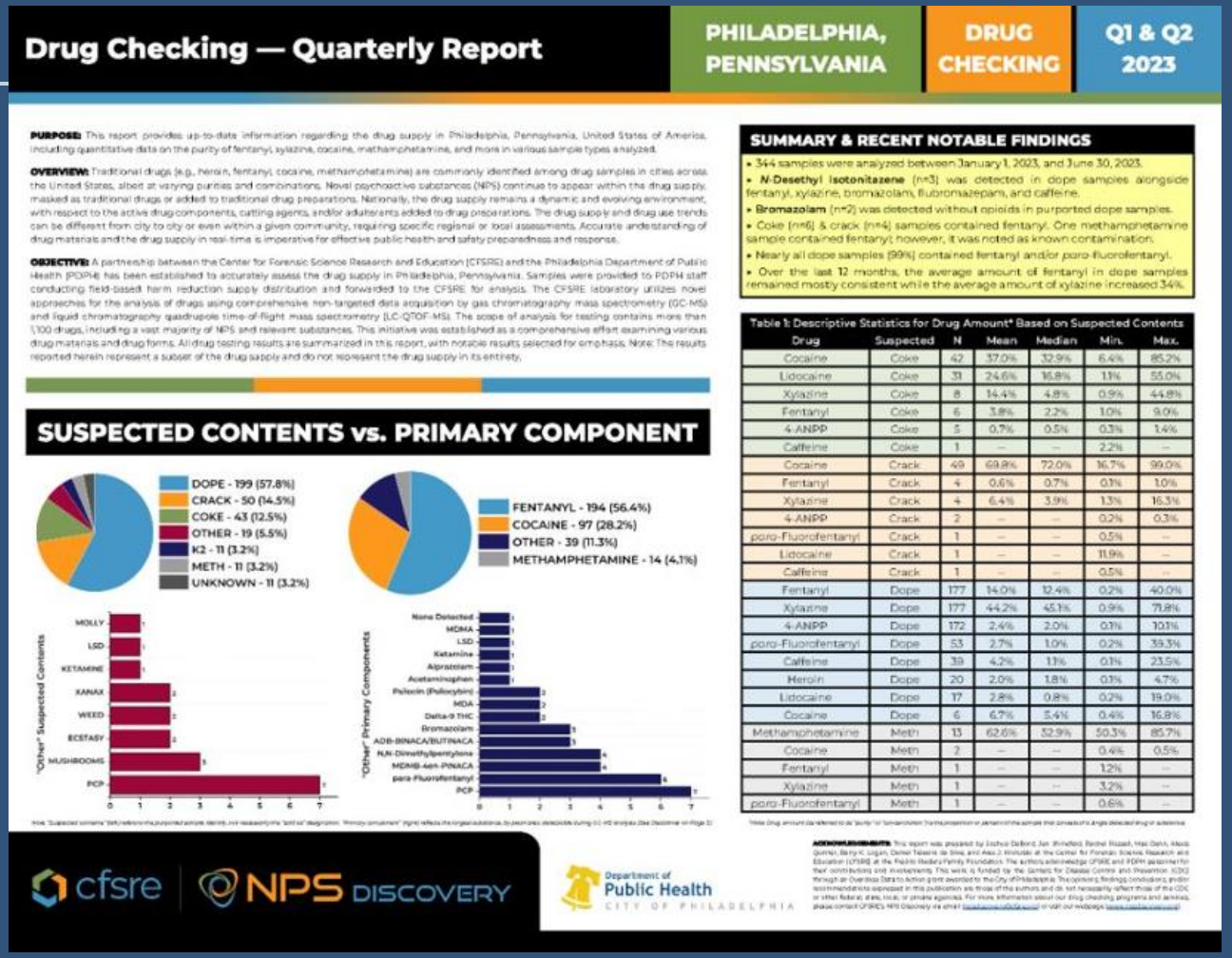
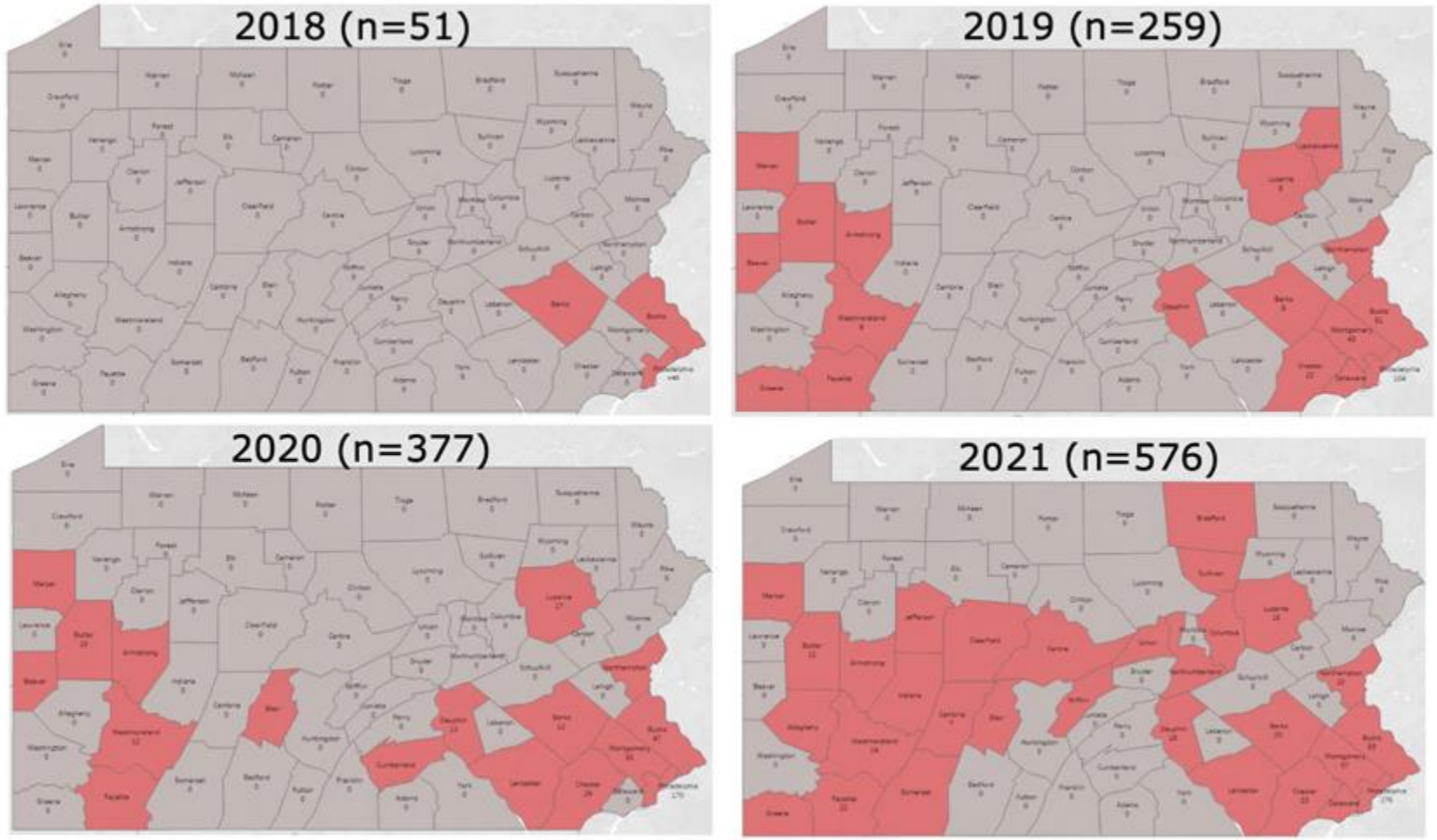


Image Source: www.cfsre.org [5]

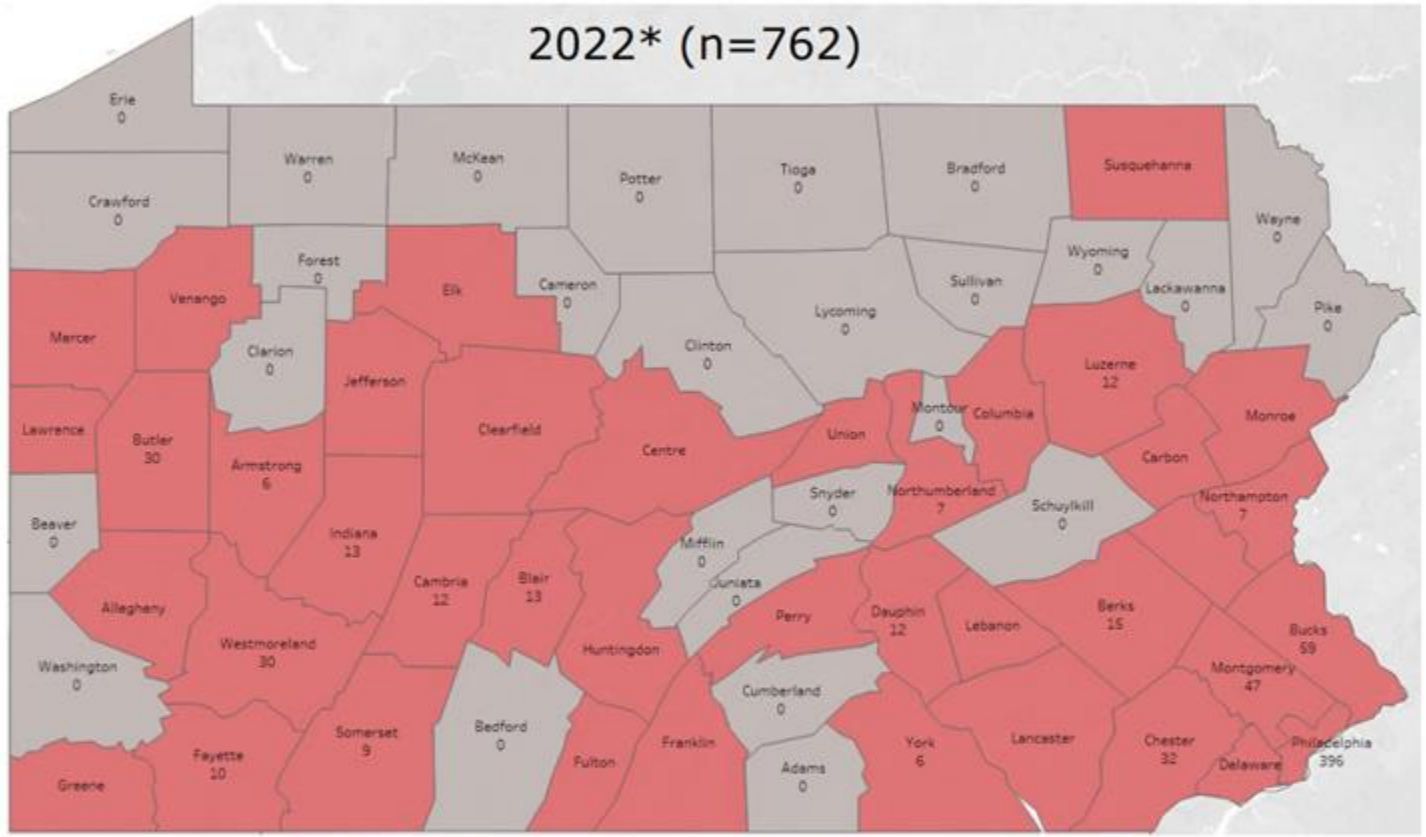
Emerging Fatal Overdose Trends: Xylazine in Pennsylvania
(n=count where xylazine noted as contributing to death)



Please note that not all counties participate in our Enhanced Drug Overdose Death Surveillance efforts. A county that is indicated in grey does not necessarily mean that xylazine has not been detected. Counts between 1 and 5 are suppressed.

pennsylvania
DEPARTMENT OF HEALTH

Emerging Fatal Overdose Trends: Xylazine in Pennsylvania
(n=count where xylazine noted as contributing to death)



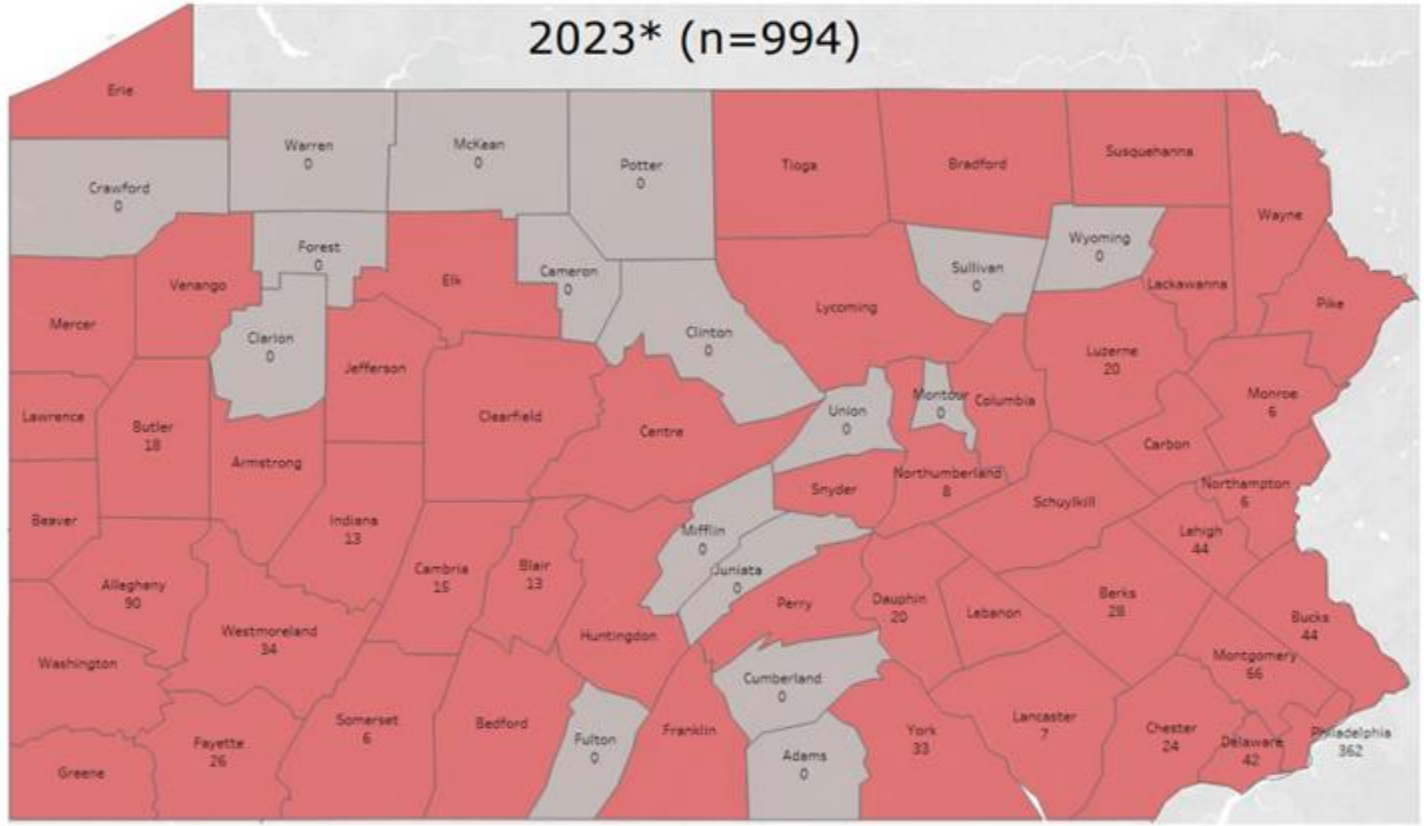
Xylazine Noted as Contributing to Death

*2022 death data is preliminary, based on death record data as of March 2024. Please note that death records for overdose deaths are often delayed by 3-6 months and counts may change. Counts do not include suicides or homicides where someone intended to harm another person by poisoning.
As of March 2024, ~2% of 2022 overdose deaths are missing drug specificity. Previous years are missing ≤5%.

Please note that not all counties participate in our Enhanced Drug Overdose Death Surveillance efforts. A county that is indicated in grey does not necessarily mean that xylazine has not been detected. Counts between 1 and 5 are suppressed.

pennsylvania
DEPARTMENT OF HEALTH

Emerging Fatal Overdose Trends: Xylazine in Pennsylvania (n=count where xylazine noted as contributing to death)



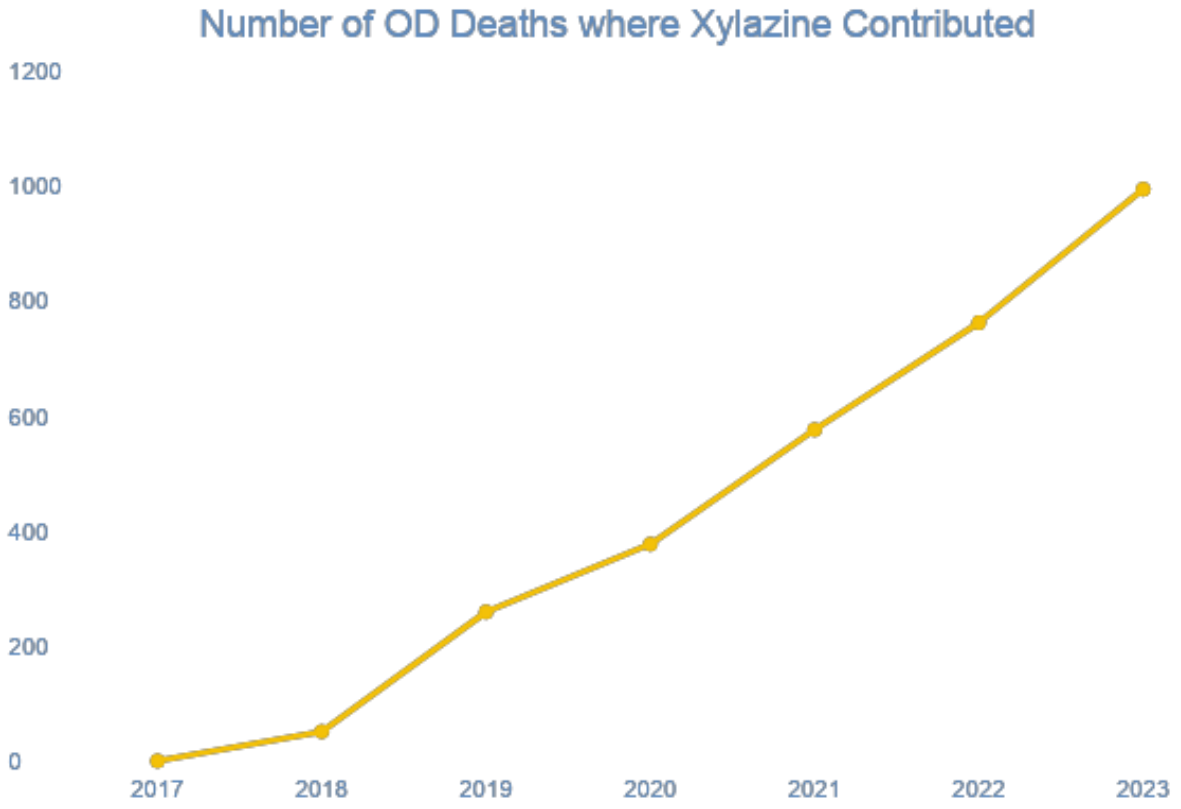
Xylazine Noted as Contributing to Death

*2023 death data is preliminary, based on death record data as of March 2024. Please note that death records for overdose deaths are often delayed by 3-6 months and counts may change. Counts do not include suicides or homicides where someone intended to harm another person by poisoning.
As of March 2024, ~6% of 2023 overdose deaths are missing drug specificity. Previous years are missing ≤5%.

Please note that not all counties participate in our Enhanced Drug Overdose Death Surveillance efforts. A county that is indicated in grey does not necessarily mean that xylazine has not been detected. Counts between 1 and 5 are suppressed.

pennsylvania
DEPARTMENT OF HEALTH

Rapid Increase in Xylazine-Related Deaths



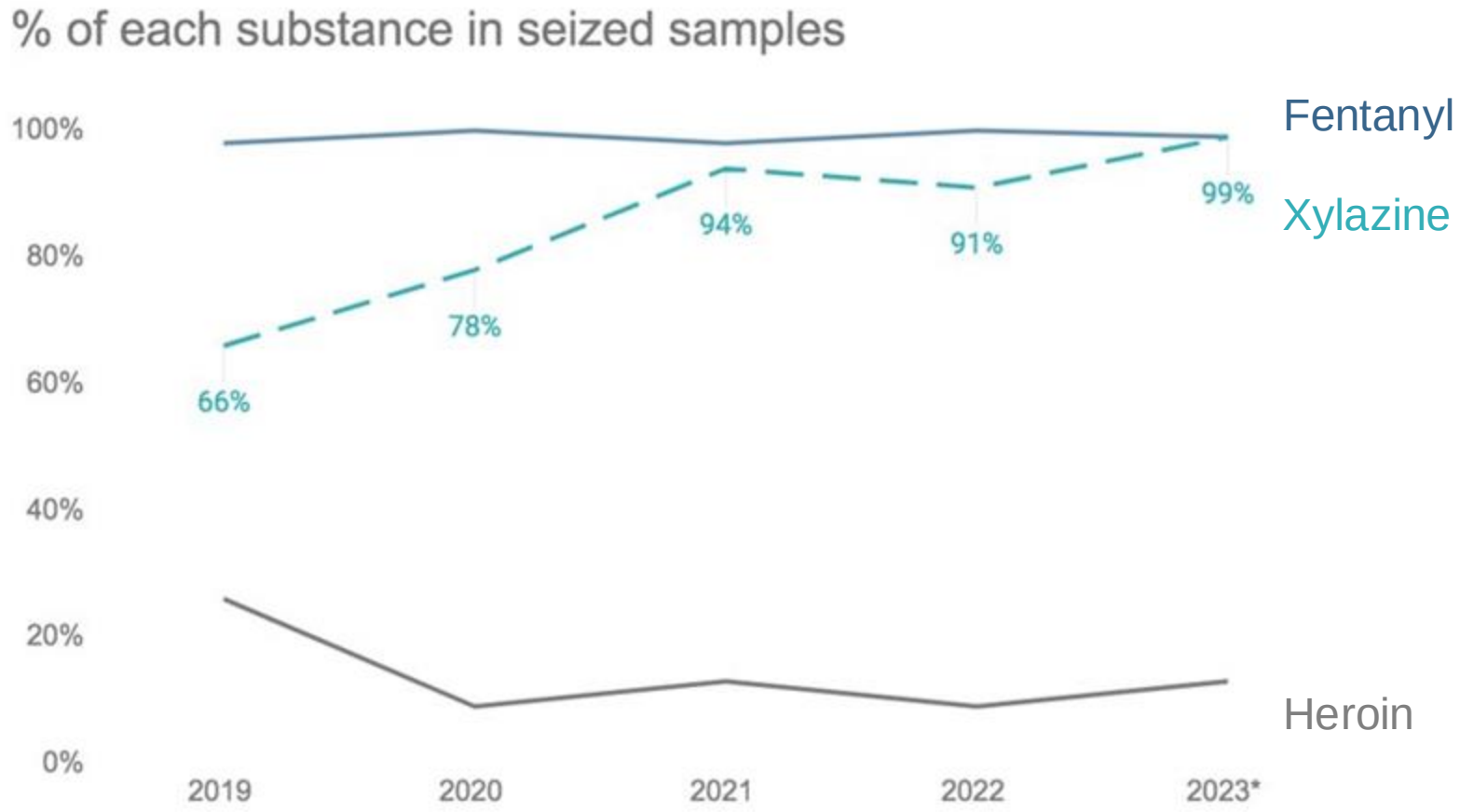
Year	Number of Overdose **Deaths** where Xylazine Contributed to Death	Number of **Counties** where Xylazine Contributed to Death
2017	0	0
2018	51	3
2019	259	17
2020	377	17
2021	576	30
2022*	762	40
2023*	994	50

*2022/2023 death data is preliminary, based on death record data as of March 2024. Please note that death records for overdose deaths are often delayed by 3-6 months and counts may change. Counts do not include suicides or homicides where someone intended to harm another person by poisoning.

†As of March 2024, ~2% of 2022 and ~6% of 2023 overdose deaths are missing drug specificity. Previous years are missing ≤5%.

Source: Pennsylvania Department of Health

PA Opioid Samples Seized by Law Enforcement 2019-2023



99% of suspected opioid samples tested in 2023 contained xylazine

Almost all samples contained a combination of fentanyl and xylazine

Less than 15% have contained heroin since 2020

Xylazine Across the United States

Percentage of total drug reports identified as xylazine

DEA/NFLIS

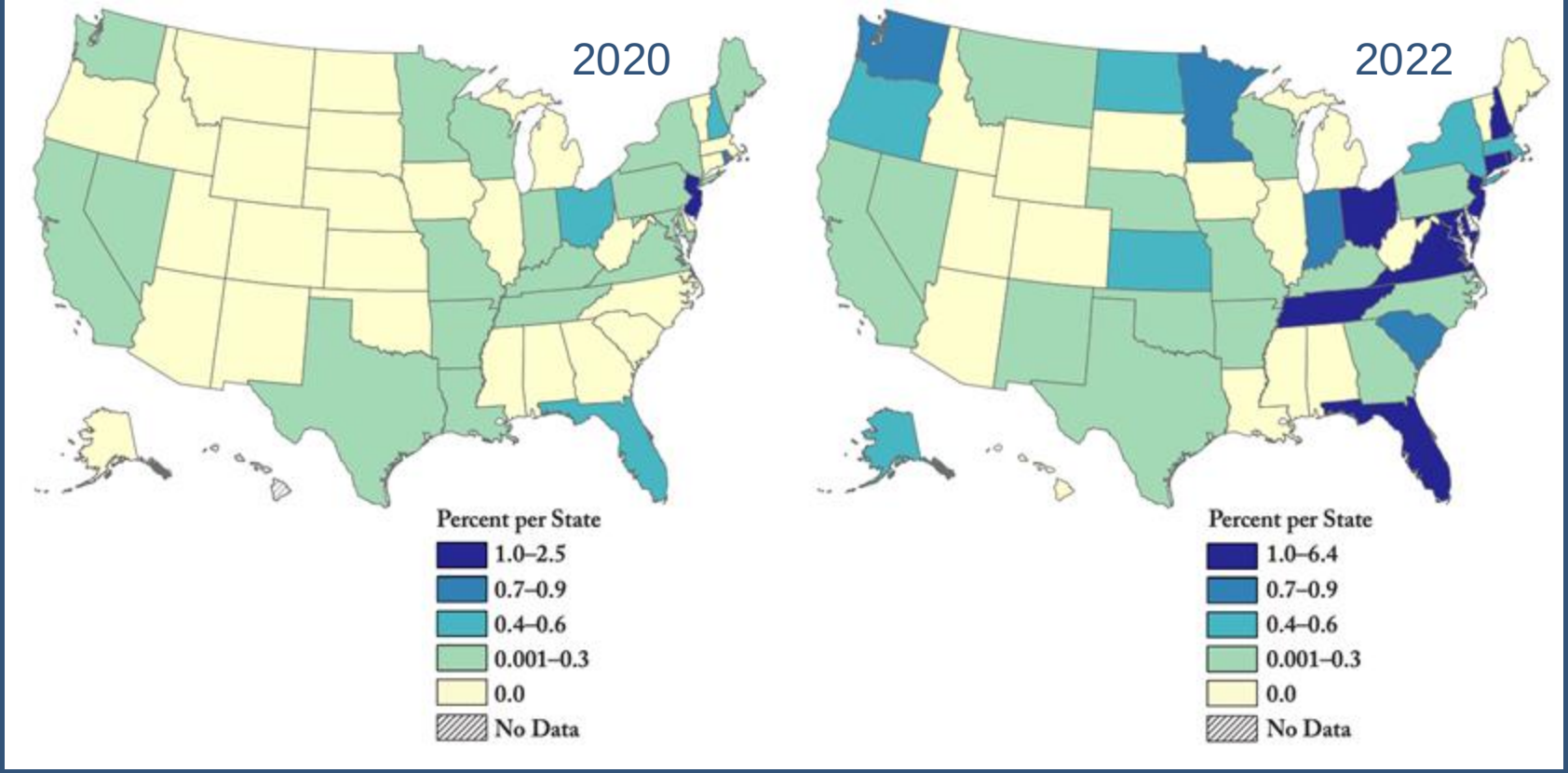


Image Source: NFLIS [6]

Polysubstance Use

More Questions than Answers

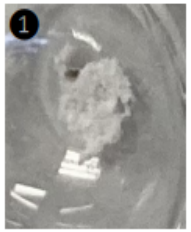
- What we know: Polysubstance use is the norm
- Questions:
  - Are people consuming multiple substances knowingly, on purpose?
  - Are people intentionally using multiple substances concurrently or at different times and/or for different reasons?
  - If dealers are intentionally mixing substances, at what retail level, why?
  - Which substances are present because of contamination?

Lab Testing Shows that Street Drugs Increasingly Complex

Drug Checking — Q2 2022

Philadelphia, P

cfsre NPS DISCOVERY Depa Pu CIT



Date	Suspected	Drugs Identified
3/31/2022	Dope	Fentanyl (1p), Xylazine (3p) *[Fentanyl Byproducts]*
4/14/2022	Dope	Fentanyl (1p), Xylazine (14p)
4/14/2022	Dope	Fentanyl (1p), Xylazine (2p) *[Fentanyl Byproducts]* ← ❶
4/14/2022	Dope	Fentanyl (1p), Xylazine (4p)
4/14/2022	Dope	Fentanyl, Xylazine *[Residue]*
4/14/2022	Dope	Fentanyl (1p), Xylazine (4p)
4/14/2022	Dope	Fentanyl (1p), Xylazine (4p) → ①
4/14/2022	Dope	Fentanyl (1p), Lidocaine (4p), Xylazine (50p)
4/14/2022	Dope	Fentanyl (1p), Xylazine (5p)
4/14/2022	Dope	Fentanyl (1p), Xylazine (5p)

STREET CHECK COMMUNITY DRUG CHECKING

Fentanyl (10)
Tadalafil (trace)
Cocaine (trace)
Protonitazene (trace)
Metonitazene QTOF (trace)
BTMPS (Tinuvin 770) (5)
4-ANPP (1)
Phenethyl-4-ANPP (1)
Xylazine (1)
Caffeine (trace)
Lidocaine (trace)
Despropionyl ortho-Methylfentanyl (trace)
Diphenhydramine (trace)
Benzocaine (trace)

September 2024

"Fentanyl" sample

Image Sources: CFSRE, Streetcheck.org

Drug Recognition Expert (DRE) Training

Participants recruited in Kensington (word of mouth)

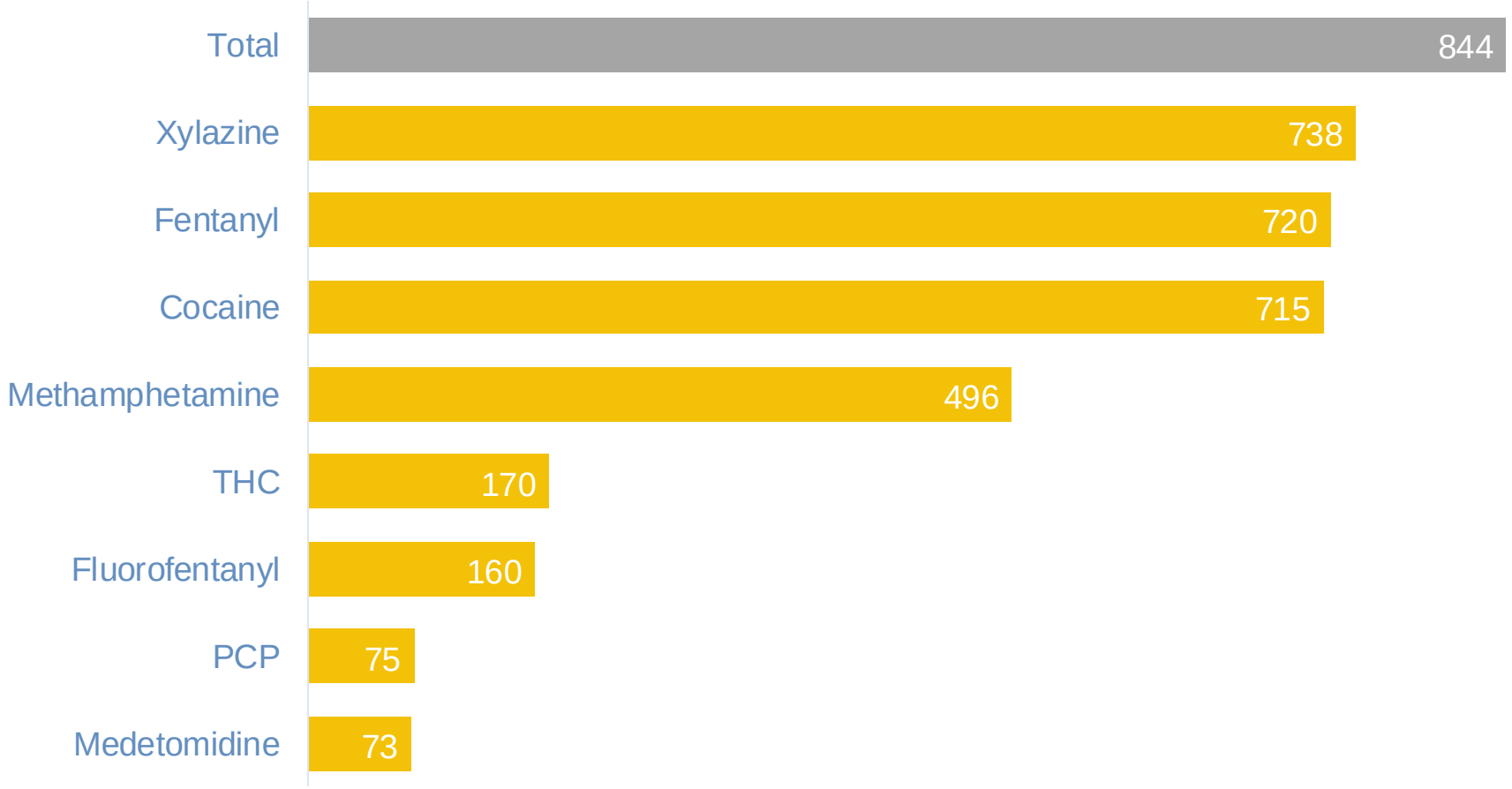
Data Collected:
- Reported use
- Cheek swab

800+ samples April 2023-date

Possible duplication of participants

SUBJECT REPORTED USE	TOX RESULTS
FENT/TRANQ 15 MIN	Amphetamine, Methamphetamine, Xylazine, Cocaine, Fentanyl, Fluorofentanyl
METH/DOPE 30 MIN	Amphetamine, Methamphetamine, Xylazine, Cocaine, Fentanyl, Fluorofentanyl
DOPE 30 MIN	Methamphetamine, Xylazine, Cocaine, Fentanyl, Fluorofentanyl
DOPE JUST NOW	Methamphetamine, Xylazine, Cocaine, Fentanyl
DOPE JUST NOW	Methamphetamine, Xylazine, Tramadol, Cocaine, Fentanyl
HEROIN 30 MIN	Amphetamine, Methamphetamine, Xylazine, Cocaine, Fentanyl
FENT HOUR AGO	Methamphetamine, Xylazine, Diphenhydramine, Cocaine, Methadone, Fentanyl, Fluorofentanyl
COKE/FENT 25 MIN	Amphetamine, Methamphetamine, Xylazine, Cocaine, Fentanyl, Fluorofentanyl
HEROIN 20 MIN	Amphetamine, Methamphetamine, Xylazine, Cocaine, Fentanyl, Fluorofentanyl

Substances Identified in DRE Samples



87% of samples contained xylazine

85% each Cocaine and Fentanyl

Mean and mode = four substances/ participant

Medetomidine first appeared in September 2024, in 67% of samples

Other Emerging Substances

Medetomidine

- Synthetic alpha-2 agonist, like xylazine and clonidine - estimated to be up to 200 times stronger
- Recent mass overdose outbreaks in **Philadelphia**, **Pittsburgh**, **Chicago**
- Severe adverse effects, including heightened sedation and profound bradycardia (low heart rate)
- Human and veterinary use variations
- Sometimes called "Rhino tranq" by people who use drugs

PDPH Bulletin: https://bit.ly/3wZRURF

Image Sources: HIDTA

Medetomidine in PA

225

Drug Samples Seized
in Philadelphia
May-September 2024

Contributed to

11

Deaths in PA so far in 2024

Does NOT respond to naloxone (because it is not an opioid), but commonly detected with fentanyl so...

naloxone + rescue breathing recommended

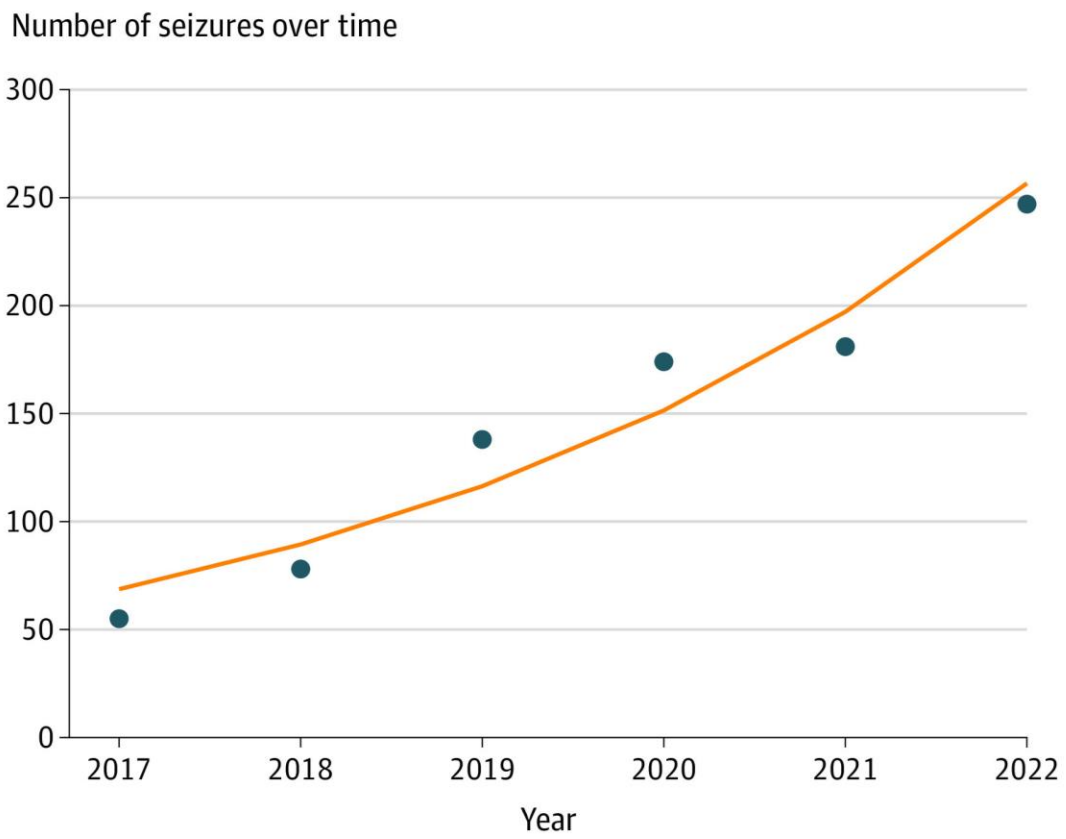
Ketamine

- Dissociative anesthetic with possible hallucinogenic effects
- Federally Schedule III - Can be used therapeutically under supervision
- Symptoms: distortion of perceptions, amnesia, temporary paralysis, dangerously slows breathing, potentially shuts down body systems leading to cardiac arrest or respiratory failure

- Noteworthy law enforcement seizures:
  - 2021: 2+ kilos of fentanyl mixed with ketamine.
    First observation of this mixture in PA.
  - 2021: 13 pounds in metal tubes destined for Massachusetts
  - 2023: 22 kilos of candles stuffed with ketamine from Austria
  - 2023: 7 kilos of ketamine hidden in an ottoman

Image source: Customs and Border Patrol

Drug Seizures - Nationwide - Ketamine



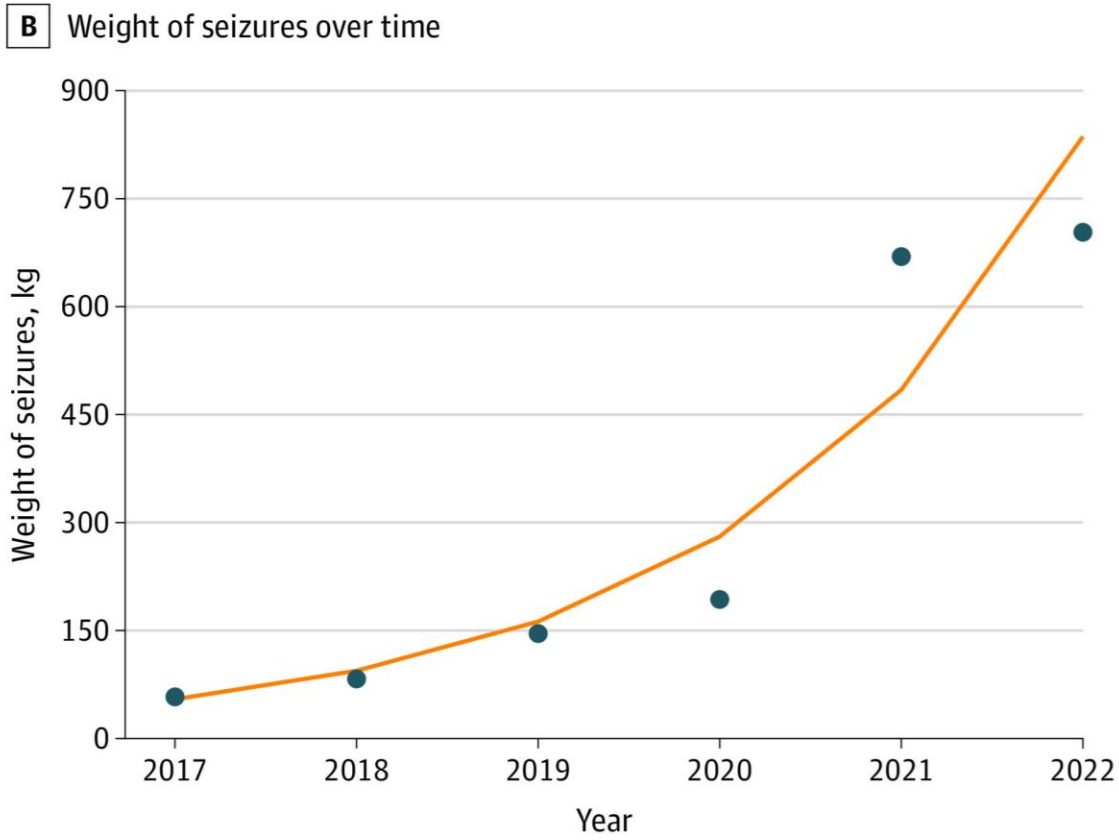


Image source: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10209822/

BTMPS ("Bee-Temps")

- bis(2,2,6,6-tetramethyl-4-piperidyl) sebacate
- Widespread across the country (at least 14 states)
- Brand: Tinuvin, industrial, added to plastic as UV protectant
- Identified in mid-June 2024 by FTIR drug checking harm reduction programs on the west coast.
- People Who Use Drugs (PWUD) say that it's awful, smells bad, makes them feel sick immediately
- Found in pressed pills and powder
- No psychoactive properties
- Likely added intentionally by dealers (not accidental contamination)

Image sources: Philadelphia Department of Public Health, The Grand Rapids Red Project

Myths

- Fentanyl laced marijuana / vapes
  - No cases confirmed by toxicology
- Overdose from touching fentanyl
  - No cases confirmed by toxicology
- Naloxone-resistant opioids
  - Opioids respond to naloxone
  - Non-opioids (like xylazine) do not
- Higher doses of naloxone are better
  - Lower doses plus rescue breathing are best, repeat as necessary
- "Rainbow Fentanyl" or fentanyl targeted at children
  - Colorful products appeal to adults too, and help differentiate from competition

Image source: DEA

Challenges – Current Drug Trends

- Inconsistent reporting, despite legislation
- No centralized repository or standards for seizure or toxicology data
  - Kilos vs. pounds vs. dosage units
  - Liquids vs. Pills
- Lags in toxicology results
- Scheduling --> changes in drug supply
    - Example: Xylazine --> Medetomidine
- Intentionality and timing often unknown

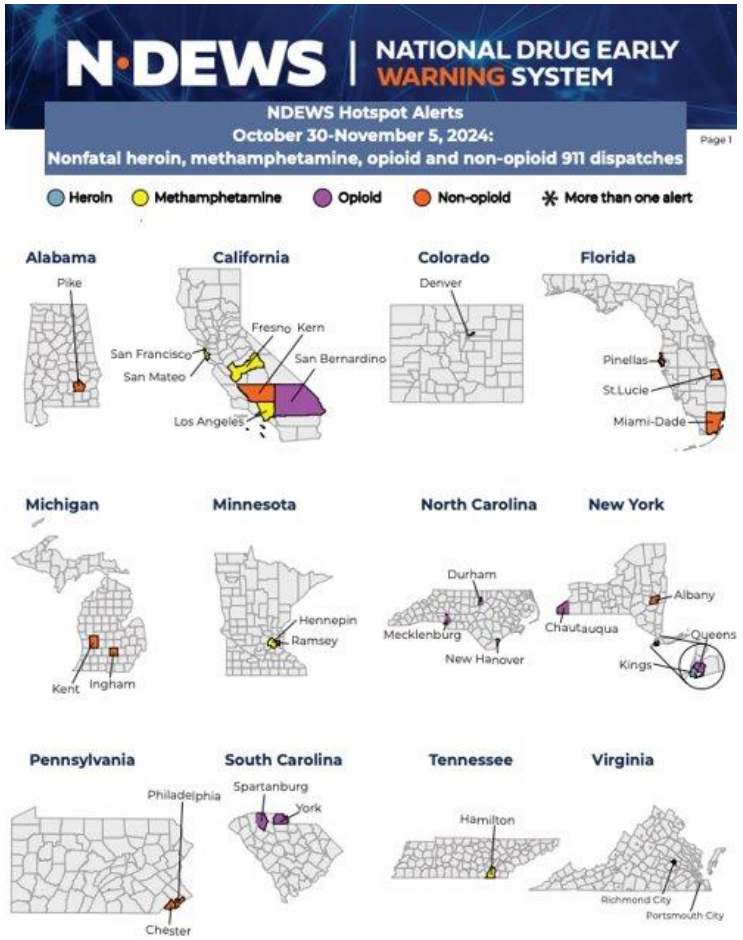
Possible Public Health Responses

- Train health professionals
  - Overdose response
  - Withdrawal management
  - Wound/symptom ID and care
  - Compassion/stigma
- Language matters: Avoid words like "zombie drug" and "flesh eating". Instead use drug names and clinical language.
- Remove barriers to accessing treatment
- Messaging for the public/people who use drugs
  - Naloxone, rescue breathing, rescue position – almost always found with opioids
  - Notify of presence of new substances with recommendations and resources
  - Offer self-care and self-advocacy education including wound care kits, hygiene products, etc.
- Collaborate and communicate with public safety partners about what you're seeing
- Drug checking programs

Possible Public Safety Responses

- Test for novel substances - Use paraphernalia laws and make direct requests to labs for comprehensive testing
- Monitor incoming shipments for illicit substances
- More controlled deliveries to identify drug trafficking organizations
- Update protocols, train first responders to look for respiration
- Avoid excessive amounts of naloxone – can cause precipitated withdrawal
- Schedule drugs carefully – anticipate replacement substances and increased rates of overdose, at least temporarily
- Monitor for safety issues for officers/staff as well as people who use drugs
- Notify public health partners when there are changes

Emerging Trend Resources - National



Opioid Data Lab

Welcome to the Street Drug Analysis Lab @ UNC, a public service of the University of North Carolina at Chapel Hill. We provide analytical chemistry services and information for public health.

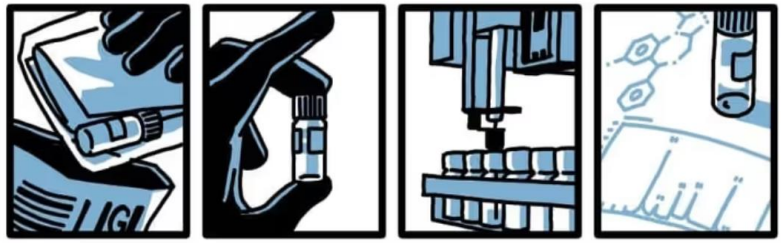
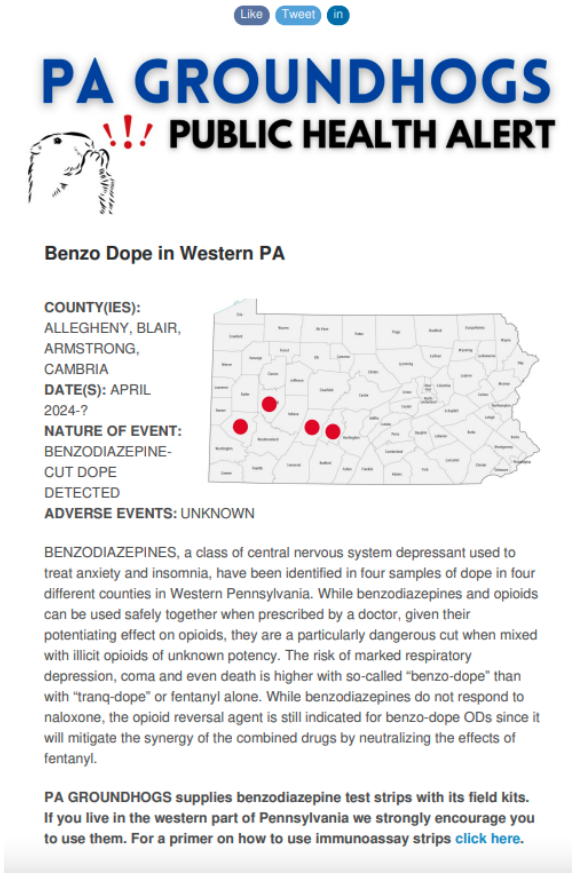


Image sources: NDEWS.org, streetcheck.org, opioiddatalab.ghost.io/

Emerging Trends Resources – Pennsylvania Specific



Like Tweet in

PA GROUNDHOGS

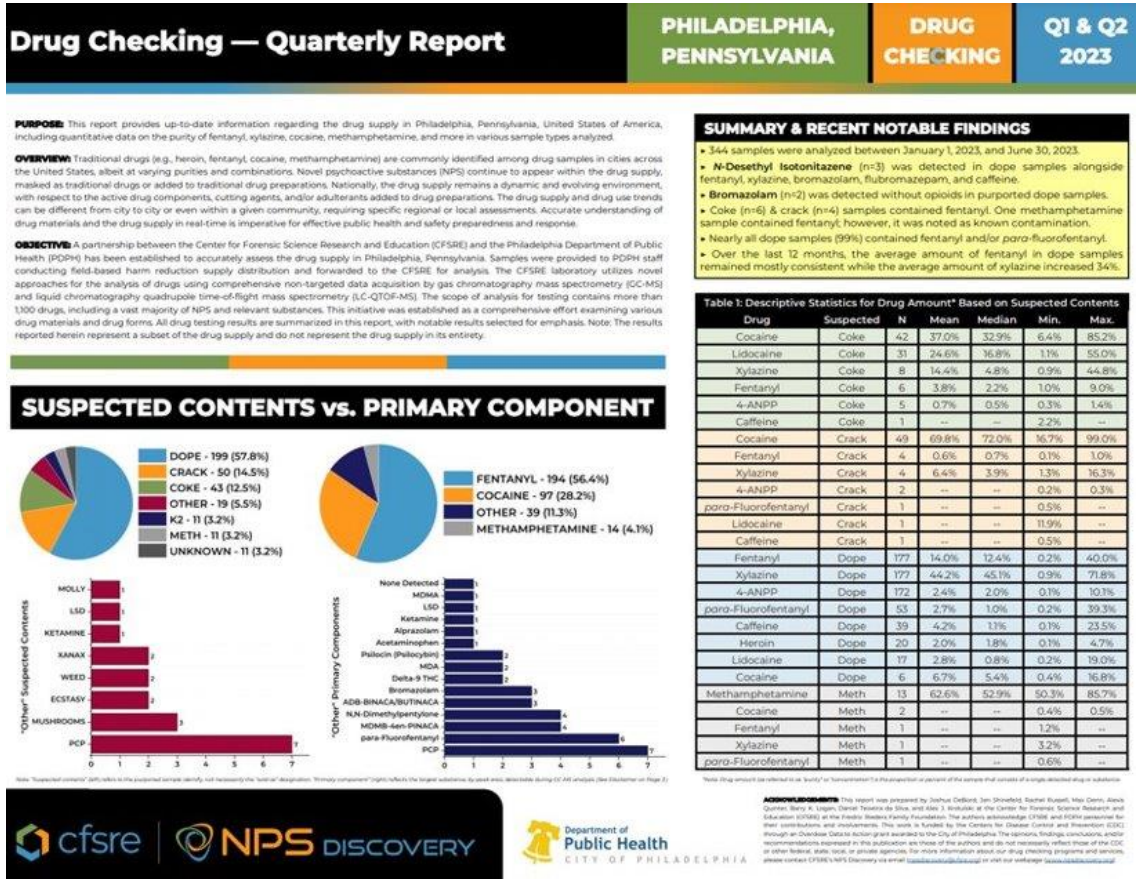
!!! PUBLIC HEALTH ALERT

Benzo Dope in Western PA

COUNTY(IES): ALLEGHENY, BLAIR, ARMSTRONG, CAMBRIA
DATE(S): APRIL 2024-?
NATURE OF EVENT: BENZODIAZEPINE-CUT DOPE DETECTED
ADVERSE EVENTS: UNKNOWN

BENZODIAZEPINES, a class of central nervous system depressant used to treat anxiety and insomnia, have been identified in four samples of dope in four different counties in Western Pennsylvania. While benzodiazepines and opioids can be used safely together when prescribed by a doctor, given their potentiating effect on opioids, they are a particularly dangerous cut when mixed with illicit opioids of unknown potency. The risk of marked respiratory depression, coma and even death is higher with so-called "benzo-dope" than with "tranq-dope" or fentanyl alone. While benzodiazepines do not respond to naloxone, the opioid reversal agent is still indicated for benzo-dope ODs since it will mitigate the synergy of the combined drugs by neutralizing the effects of fentanyl.

PA GROUNDHOGS supplies benzodiazepine test strips with its field kits. If you live in the western part of Pennsylvania we strongly encourage you to use them. For a primer on how to use immunoassay strips click here.



Drug Checking — Quarterly Report | PHILADELPHIA, PENNSYLVANIA | DRUG CHECKING | Q1 & Q2 2023

PURPOSE: This report provides up-to-date information regarding the drug supply in Philadelphia, Pennsylvania, United States of America, including quantitative data on the purity of fentanyl, xylazine, cocaine, methamphetamine, and more in various sample types analyzed.

OVERVIEW: Traditional drugs (e.g., heroin, fentanyl, cocaine, methamphetamine) are commonly identified among drug samples in cities across the United States, albeit at varying purities and combinations. Novel psychoactive substances (NPS) continue to appear within the drug supply, masked as traditional drugs or added to traditional drug preparations. Nationally, the drug supply remains a dynamic and evolving environment, with respect to the active drug components, cutting agents, and/or adulterants added to drug preparations. The drug supply and drug use trends can be different from city to city or even within a given community, requiring specific regional or local assessments. Accurate understanding of drug materials and the drug supply in real-time is imperative for effective public health and safety preparedness and response.

OBJECTIVE: A partnership between the Center for Forensic Science Research and Education (CFSRE) and the Philadelphia Department of Public Health (PDPH) has been established to accurately assess the drug supply in Philadelphia, Pennsylvania. Samples were provided to PDPH staff conducting field-based harm reduction supply distribution and forwarded to the CFSRE for analysis. The CFSRE laboratory utilizes novel approaches for the analysis of drugs using comprehensive non-targeted data acquisition by gas chromatography mass spectrometry (GC-MS) and liquid chromatography quadrupole time-of-flight mass spectrometry (LC-QTOF-MS). The scope of analysis for testing contains more than 1,100 drugs, including a vast majority of NPS and relevant substances. This initiative was established as a comprehensive effort examining various drug materials and drug forms. All drug testing results are summarized in this report, with notable results selected for emphasis. Note: The results reported herein represent a subset of the drug supply and do not represent the drug supply in its entirety.

SUMMARY & RECENT NOTABLE FINDINGS

- 344 samples were analyzed between January 1, 2023, and June 30, 2023.
- ***N*-Desethyl Isotonitazene** (n=3) was detected in dope samples alongside fentanyl, xylazine, bromazolam, flubromazepam, and caffeine.
- **Bromazolam** (n=2) was detected without opioids in purported dope samples.
- Coke (n=6) & crack (n=4) samples contained fentanyl. One methamphetamine sample contained fentanyl; however, it was noted as known contamination.
- Nearly all dope samples (99%) contained fentanyl and/or *para*-fluorofentanyl.
- Over the last 12 months, the average amount of fentanyl in dope samples remained mostly consistent while the average amount of xylazine increased 34%.

SUSPECTED CONTENTS vs. PRIMARY COMPONENT

DOPE - 199 (57.8%)
CRACK - 50 (14.5%)
COKE - 43 (12.5%)
OTHER - 19 (5.5%)
K2 - 11 (3.2%)
METH - 11 (3.2%)
UNKNOWN - 11 (3.2%)

FENTANYL - 194 (56.4%)
COCAINE - 97 (28.2%)
OTHER - 39 (11.3%)
METHAMPHETAMINE - 14 (4.1%)

"Other" Suspected Contents: MOLLY, LSD, KETAMINE, XANAX, WEED, ECSTASY, MUSHROOMS, PCP

"Other" Primary Components: None Detected, MDMA, LSD, Ketamine, Alprazolam, Acetaminophen, Psilocin (Psilocybin), MDA, Delta-9 THC, Bromazolam, ADB-BINACA/BUTINACA, N,N-Dimethylpentylone, MDMB-4en-PINACA, para-Fluorofentanyl, PCP

Table 1: Descriptive Statistics for Drug Amount* Based on Suspected Contents

Drug	Suspected	N	Mean	Median	Min.	Max.
Cocaine	Coke	42	37.0%	32.9%	6.4%	85.2%
Lidocaine	Coke	31	24.6%	16.8%	1.1%	55.0%
Xylazine	Coke	8	14.4%	4.8%	0.9%	44.8%
Fentanyl	Coke	6	3.8%	2.2%	1.0%	9.0%
4-ANPP	Coke	5	0.7%	0.5%	0.3%	1.4%
Caffeine	Coke	1	--	--	2.2%	--
Cocaine	Crack	49	69.8%	72.0%	16.7%	99.0%
Fentanyl	Crack	4	0.6%	0.7%	0.1%	1.0%
Xylazine	Crack	4	6.4%	3.9%	1.3%	16.3%
4-ANPP	Crack	2	--	--	0.2%	0.3%
para-Fluorofentanyl	Crack	1	--	--	0.5%	--
Lidocaine	Crack	1	--	--	11.9%	--
Caffeine	Crack	1	--	--	0.5%	--
Fentanyl	Dope	177	14.0%	12.4%	0.2%	40.0%
Xylazine	Dope	177	44.2%	45.1%	0.9%	71.8%
4-ANPP	Dope	172	2.4%	2.0%	0.1%	10.1%
para-Fluorofentanyl	Dope	53	2.7%	1.0%	0.2%	39.3%
Caffeine	Dope	39	4.2%	1.1%	0.1%	23.5%
Heroin	Dope	20	2.0%	1.8%	0.1%	4.7%
Lidocaine	Dope	17	2.8%	0.8%	0.2%	19.0%
Cocaine	Dope	6	6.7%	5.4%	0.4%	16.8%
Methamphetamine	Meth	13	62.6%	52.9%	50.3%	85.7%
Cocaine	Meth	2	--	--	0.4%	0.5%
Fentanyl	Meth	1	--	--	1.2%	--
Xylazine	Meth	1	--	--	3.2%	--
para-Fluorofentanyl	Meth	1	--	--	0.6%	--

cfsre | NPS DISCOVERY

Department of Public Health CITY OF PHILADELPHIA

Image sources: pagroundhogs.org, cfsre.org

HIDTA Threat Assessment

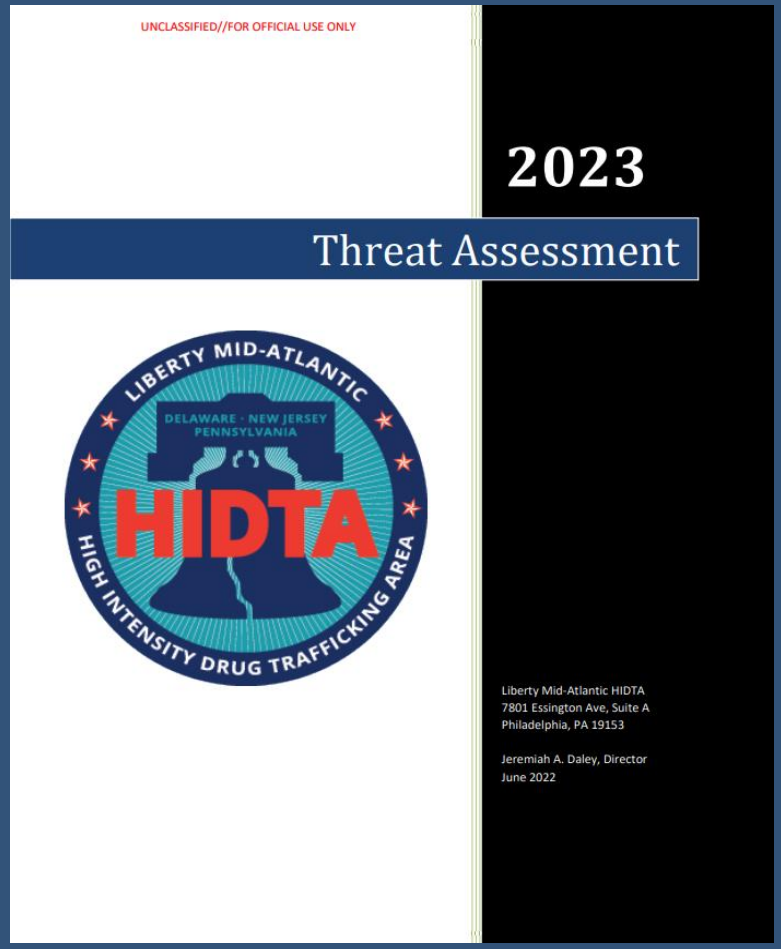


Image Source: LMA HIDTA

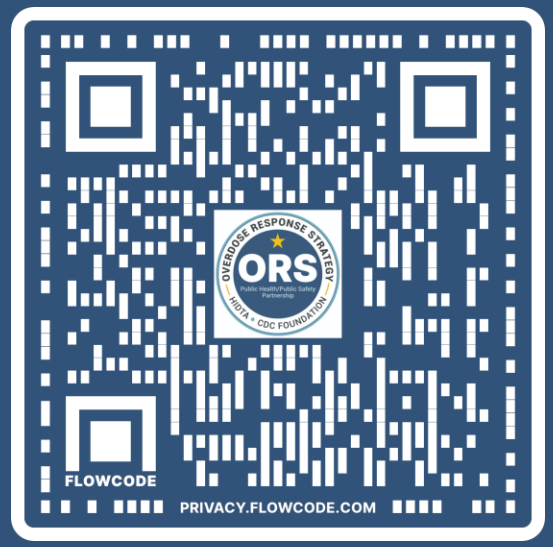
Contact

Tamar Wallace
Wallacet@lmahidta.org

Van Jackson
Jacksonv@lmahidta.org

www.lmahidta.org
www.orsprogram.org

Use your mobile phone's camera to scan the QR code below,



or visit us at www.orsprogram.org.

Emerging Trend Resource Links

- https://pagroundhogs.org/
- https://www.cfsre.org/nps-discovery
- https://ndews.org/
- https://www.info.streetcheck.org/

Xylazine Resources

Shared at the Rx and Illicit Drug Summit from Brandeis University, Substance Abuse and Mental Health Administration (SAMHSA), Thomas Jefferson University and Police Assisted Addiction and Recovery Initiative (PAARI), Jason Bienert RN CWCN

Image Sources

National Xylazine Response Plan
[1] https://www.whitehouse.gov/ondcp/briefing-room/2023/04/12/biden-harris-administration-designates-fentanyl-combined-with-xylazine-as-an-emerging-threat-to-the-united-states/

Philadelphia Air Bridge
[2] https://www.inquirer.com/philly/news/20161120_Philly_begins_to_look_into_the_dumping_of_Puerto_Rican_addicts.html
[3] https://www.inquirer.com/news/inq/puerto-ricos-solution-heroin-crisis-one-way-tickets-philly-20161117.html

Crime Scene Images
[4] Philadelphia Police Department, personal communication

NMS Labs/CFSRE Reports
[5] https://www.cfsre.org/nps-discovery/drug-checking/drug-checking-q3-2022-philadelphia-pennsylvania-usa

Nationwide Drug Seizures and Xylazine-Related OD Deaths
[6] https://www.nflis.deadiversion.usdoj.gov:8443/nflisdata/docs/13654NFLISAR2022.pdf#search=xylazine
[7] Cano M, Daniulaitye R, Marsiglia F. Xylazine in Drug Seizure Reports and Overdose Deaths in the US, 2018-2022. [Preprint]. 2023 Aug

Wound Care Kits
[8] Personal communication, Office of Drug Surveillance and Misuse Prevention, Pennsylvania Department of Health

Other Resources

https://www.phila.gov/media/20231002090544/CHARTv8e3.pdf
https://www.ccsa.ca/sites/default/files/2022-03/CCSA-CCENDU-Drug-Alert-Nitazenes-2022-en_0.pdf
https://legislativeanalysis.org/wp-content/uploads/2023/09/Nitazenes-Fact-Sheet-FINAL.pdf
https://www.dea.gov/sites/default/files/2023-10/FINAL_Operation%20ChemKong%20Press%20Conference%20Remarks%20as%20Delivered.pdf
https://hip.phila.gov/document/3203/PDPH-HAN_Alert_2_NitazeneAnalogs_12.21.2022.pdf/
https://aldianews.com/en/politics/policy/puerto-ricos-air-bridge
https://www.cfsre.org/nps-discovery/drug-checking/drug-checking-quarterly-report-q1-and-q2-2023-philadelphia-pa-usa
https://www.nmslabs.com/sites/default/files/2023-11/SOFT-poster-2023-Papsun-100623.pdf
https://aldianews.com/en/politics/policy/puerto-ricos-air-bridge
https://www.nbcphiladelphia.com/news/local/what-to-do-about-the-heroin-air-bridge-public-hearing-held-in-philly/12278/
https://harmreductionjournal.biomedcentral.com/articles/10.1186/s12954-023-00867-x

Generation Addicted:
https://media.nbcnewyork.com/assets/editorial/national/legacy/national/2016/PHI/addiction/index.html

Caring for Individuals with Xylazine Associated Wounds, Philadelphia Department of Public Health, Jan 2024:
https://static1.squarespace.com/static/6386664d01197028e20ce9e1/t/65a975737ac9c41ea8eabc2f/1705604468670/Recommendations_for_Caring_for_People_with_Xylazine-Associated_Wounds_1.12.24.pdf

Other Resources

Ketamine:
https://www.dea.gov/factsheets/ketamine
https://www.cbp.gov/newsroom/local-media-release/philadelphia-cbp-discovers-dangerous-ketamine-inside-ottoman-destined
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10209822/

Marijuana
https://www.health.pa.gov/topics/Documents/Programs/Medical%20Marijuana/MMAB%20Program%20Update%20Data--May%2022,%202024.pdf
https://www.health.pa.gov/topics/programs/Medical%20Marijuana/Pages/Medical%20Marijuana.aspx

Emerging Drug Trends Resources:
https://pagroundhogs.org/
https://www.cfsre.org/nps-discovery
https://ndews.org/
https://www.info.streetcheck.org