



**SEVENTY-FOURTH REGULAR SESSION  
December 11-14, 2023  
Washington D.C.**

## **EMERGING SYNTHETIC DRUG TRENDS IN THE UNITED STATES**



# Emerging Synthetic Drug Trends in the United States

Christine A. Herdman, Ph.D.

United States Drug Enforcement Administration

Diversion Control Division

Drug and Chemical Evaluation Section

# United States Fentanyl-Related Substance (FRS) Class Control and Effect of Class Control

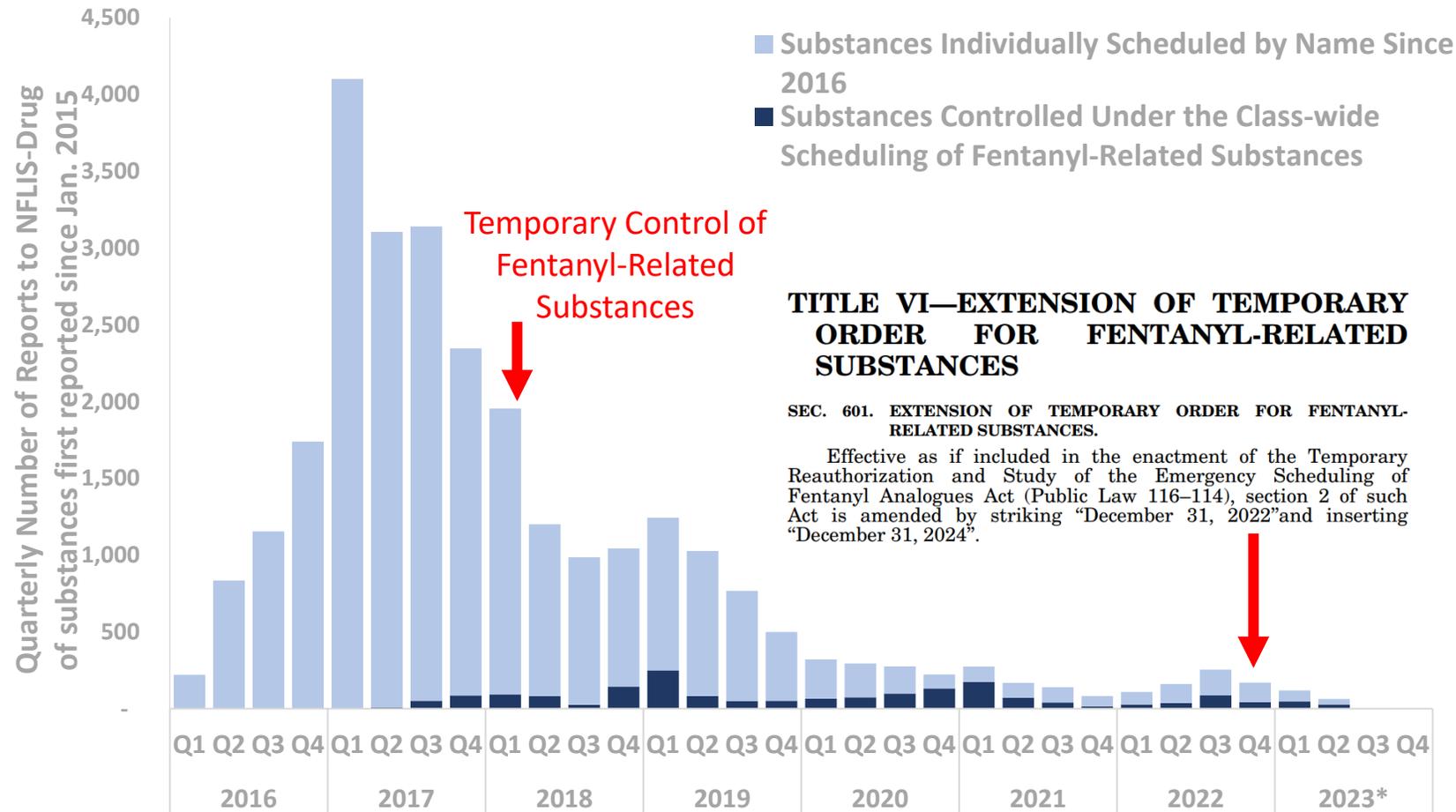


- **2018 (Feb 6):** DEA publishes temporary class control
- **2019 (May 1):** China provides a broader class control
- **Stats**

☐ How many FRS have been encountered to date? **36**

☐ Last new FRS encountered? **February 2022**

☐ How many FRS have been placed under permanent control? **15**



Source: DEA, National Forensic Laboratory Information System (NFLIS-Drug), queried on August 21, 2023. Data excludes substances controlled prior to 2016.

\*Reports still pending for 2023.





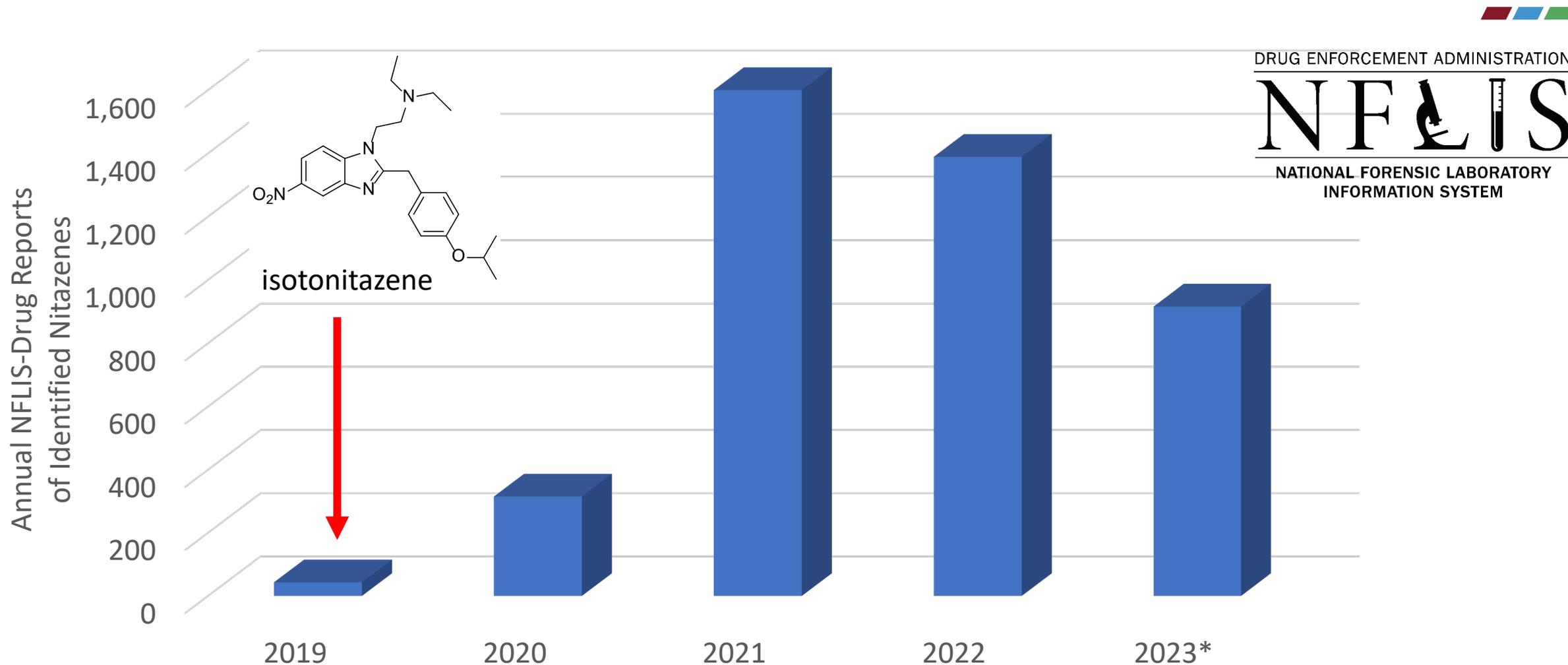
## TOPICS

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- Synthetic Opioids
- Benzodiazepines
- Ketamine
- Poly Drug Use



# Emergence of Nitazenes



NFLIS-Drug Yearly Drug Reports, queried November 13, 2023; \*2023 still reporting

Diversion Control Division  
U.S. Drug Enforcement Administration

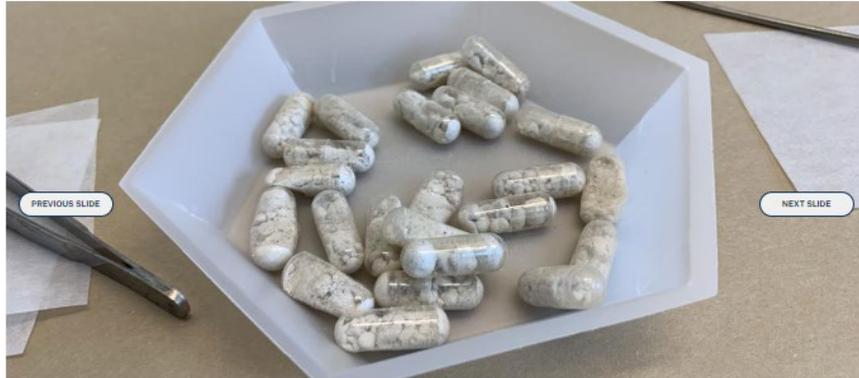


# Nitazenes in the News



## New, Dangerous Synthetic Opioid in D.C., Emerging in Tri-State Area

DEA Washington, DC Division - Public Information Office



● ● ● ● ● ●

The DEA Washington Division is warning area residents of a new drug, emerging in the D.C. metropolitan area that is as dangerous and deadly as fentanyl.

This week, the DEA Washington Division brought local news outlets into their regional laboratory to see and discuss a dangerous class of drugs they are seeing emerge in the region--nitazenes. A drug that was never approved for medical use, nitazenes are being sourced from China and being mixed into other drugs.

Isotonitazene (aka nitazene or "ISO") is a particular synthetic opioid the DEA is seeing move into the area. First identified around 2019 in the Midwest, this dangerous drug has moved into the Southern states and, more recently, along the Eastern seaboard. Much more potent than heroin and morphine (similar to fentanyl), ISO is being mixed into and marketed as other drugs to make drugs more potent and cheaper to produce. The major concern: This drug can and has caused deadly overdoses in unsuspecting victims.



**BAY AREA**

## Meth, ISO and cash seized in Santa Rosa drug trafficking bust

by: Alex Baker  
Posted: May 25, 2023 / 10:57 AM PDT  
Updated: May 25, 2023 / 10:59 AM PDT



Photo: Santa Rosa PD

HEALTH

## Surging opioid nitazene could be deadlier than fentanyl, experts warn



The drugs are called nitazenes.

DEA

### Study: Synthetic opioid nitazenes appear more potent than fentanyl, linked to overdose deaths

Sep 02, 2023, 10:35am • Updated on Sep 02, 2023

By: Gillian Neff and Rose Shannon



## There is a new deadly opioid showing up on San Francisco streets

It's poised to push the overdose death toll even higher.

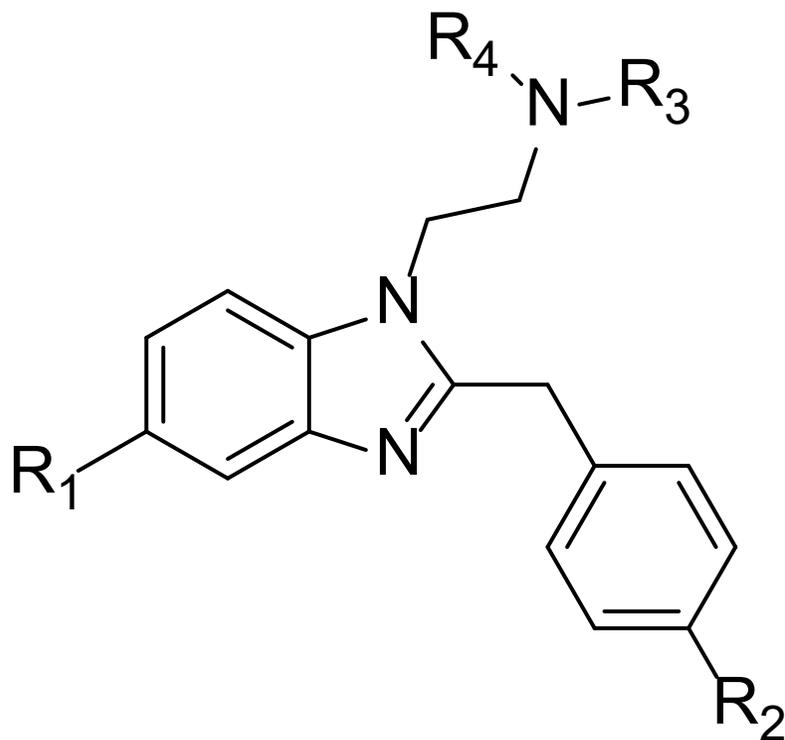
By Tera Campbell  
Wednesday, February 8, 2023



EMBED <> MORE VIDEOS >

A new deadly drug is showing up on the streets of San Francisco and it's poised to push the overdose death toll even higher.

# Encountered Nitazenes - Structural Class Diversification within a Pharmacological Class



Substance	R <sub>1</sub>	R <sub>2</sub>	R <sub>3</sub>	R <sub>4</sub>
Butonitazene	NO <sub>2</sub>	OCH <sub>2</sub> CH <sub>2</sub> CH <sub>2</sub> CH <sub>3</sub>	CH <sub>2</sub> CH <sub>3</sub>	CH <sub>2</sub> CH <sub>3</sub>
Clonitazene	NO <sub>2</sub>	Cl	CH <sub>2</sub> CH <sub>3</sub>	CH <sub>2</sub> CH <sub>3</sub>
Etodesnitazene	H	OCH <sub>2</sub> CH <sub>3</sub>	CH <sub>2</sub> CH <sub>3</sub>	CH <sub>2</sub> CH <sub>3</sub>
Etonitazene	NO <sub>2</sub>	OCH <sub>2</sub> CH <sub>3</sub>	CH <sub>2</sub> CH <sub>3</sub>	CH <sub>2</sub> CH <sub>3</sub>
Ethyleneoxynitazene	NO <sub>2</sub>	-OCH <sub>2</sub> CH <sub>2</sub> -	CH <sub>2</sub> CH <sub>3</sub>	CH <sub>2</sub> CH <sub>3</sub>
Flunitazene	NO <sub>2</sub>	F	CH <sub>2</sub> CH <sub>3</sub>	CH <sub>2</sub> CH <sub>3</sub>
Isotonitazene	NO <sub>2</sub>	OCH(CH <sub>3</sub> ) <sub>2</sub>	CH <sub>2</sub> CH <sub>3</sub>	CH <sub>2</sub> CH <sub>3</sub>
Isotodesnitazene	H	OCH(CH <sub>3</sub> ) <sub>2</sub>	CH <sub>2</sub> CH <sub>3</sub>	CH <sub>2</sub> CH <sub>3</sub>
Menitazene	NO <sub>2</sub>	CH <sub>3</sub>	CH <sub>2</sub> CH <sub>3</sub>	CH <sub>2</sub> CH <sub>3</sub>
Metodesnitazene	H	OCH <sub>3</sub>	CH <sub>2</sub> CH <sub>3</sub>	CH <sub>2</sub> CH <sub>3</sub>
Metonitazene	NO <sub>2</sub>	OCH <sub>3</sub>	CH <sub>2</sub> CH <sub>3</sub>	CH <sub>2</sub> CH <sub>3</sub>
5-Methyl etodesnitazene	CH <sub>3</sub>	OCH <sub>2</sub> CH <sub>3</sub>	CH <sub>2</sub> CH <sub>3</sub>	CH <sub>2</sub> CH <sub>3</sub>
N-Desethyl isotonitazene	NO <sub>2</sub>	OCH(CH <sub>3</sub> ) <sub>2</sub>	CH <sub>2</sub> CH <sub>3</sub>	H
N-Piperidinyl etonitazene	NO <sub>2</sub>	OCH <sub>2</sub> CH <sub>3</sub>	-CH <sub>2</sub> CH <sub>2</sub> CH <sub>2</sub> CH <sub>2</sub> CH <sub>2</sub> -	
N-Piperidinyl isotonitazene	NO <sub>2</sub>	OCH(CH <sub>3</sub> ) <sub>2</sub>	-CH <sub>2</sub> CH <sub>2</sub> CH <sub>2</sub> CH <sub>2</sub> CH <sub>2</sub> -	
N-Pyrrolidino etonitazene	NO <sub>2</sub>	OCH <sub>2</sub> CH <sub>3</sub>	-CH <sub>2</sub> CH <sub>2</sub> CH <sub>2</sub> CH <sub>2</sub> -	
N-Pyrrolidino isotonitazene	NO <sub>2</sub>	OCH(CH <sub>3</sub> ) <sub>2</sub>	-CH <sub>2</sub> CH <sub>2</sub> CH <sub>2</sub> CH <sub>2</sub> -	
N-Pyrrolidino metonitazene	NO <sub>2</sub>	OCH <sub>3</sub>	-CH <sub>2</sub> CH <sub>2</sub> CH <sub>2</sub> CH <sub>2</sub> -	
N-Pyrrolidino protonitazene	NO <sub>2</sub>	OCH <sub>2</sub> CH <sub>2</sub> CH <sub>3</sub>	-CH <sub>2</sub> CH <sub>2</sub> CH <sub>2</sub> CH <sub>2</sub> -	
Protonitazene	NO <sub>2</sub>	OCH <sub>2</sub> CH <sub>2</sub> CH <sub>3</sub>	CH <sub>2</sub> CH <sub>3</sub>	CH <sub>2</sub> CH <sub>3</sub>

Orange = Schedule I controlled substance in U.S.

Green = Proposed Schedule I control in U.S.

Blue = other identified nitazenes



# TOPICS

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- Synthetic Opioids
- **Benzodiazepines**
- Ketamine
- Poly Drugs Use



# Designer Benzodiazepines



## TOP STORIES

### 'Fake Xanax:' A worry to law enforcement, often mixed with deadly fentanyl; and it's in Fort Wayne

by: [Jamie Duffy](#)  
Posted: Aug 29, 2023 / 05:17 PM EDT  
Updated: Aug 30, 2023 / 03:55 AM EDT



### 'Benzos' Are Rising in Popularity Among Teens and They're Getting Them On Social Media

### Xanax bars in East Dayton testing positive for fentanyl

WYSD | By Mike Frazier  
Published February 13, 2023 at 11:29 AM EST



### 'These are 100% lethal' | Coroner says more people are fatally overdosing on fake benzos

Benzodiazepines, or benzos, are often used to treat anxiety and insomnia. Popular brand names of benzos include Xanax and Valium.



### FBI seizes more than 4,000 pounds of drugs from Garden Grove house operating as lab

By ABC7.com staff  
Friday, March 31, 2023



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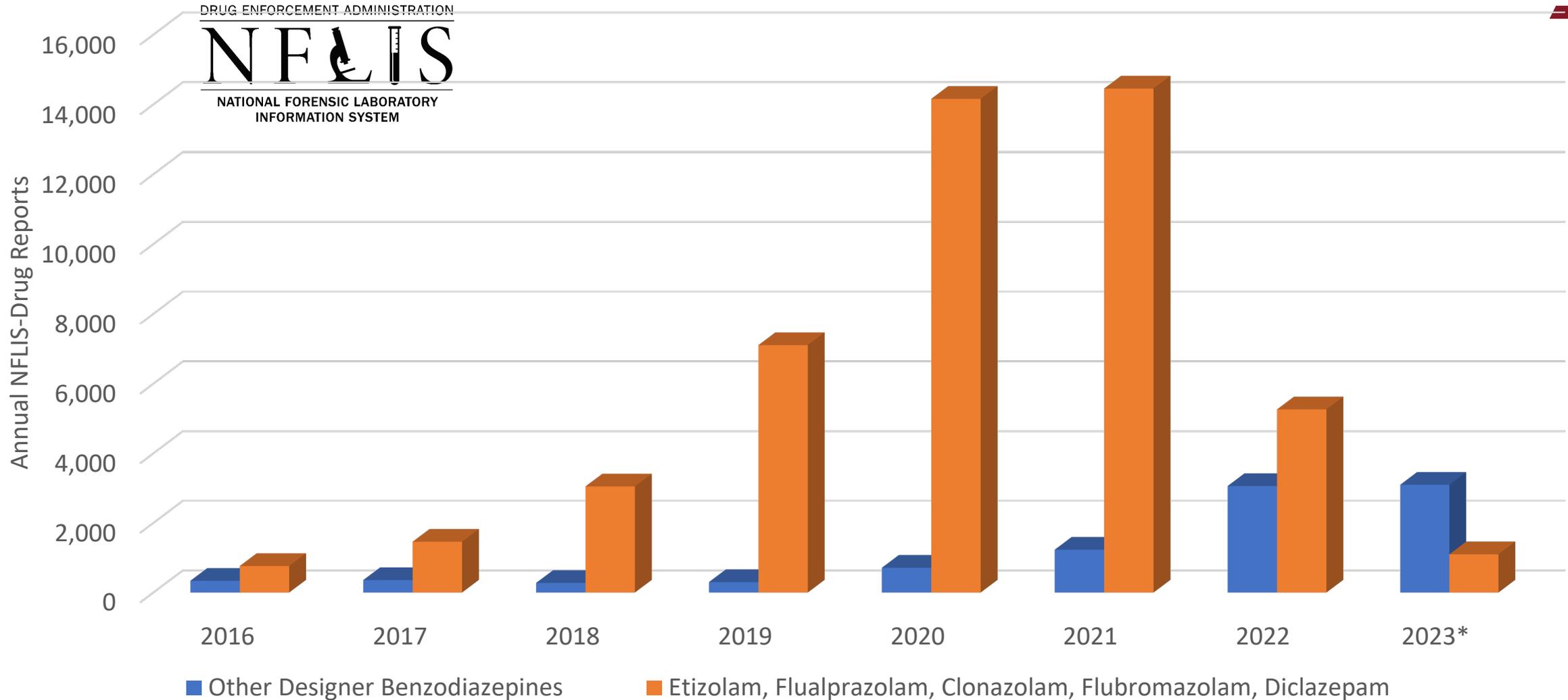
The FBI says more than 4,000 pounds of drugs and ingredients were seized from a Garden Grove home, including methamphetamine, bath salts, and counterfeit Xanax.



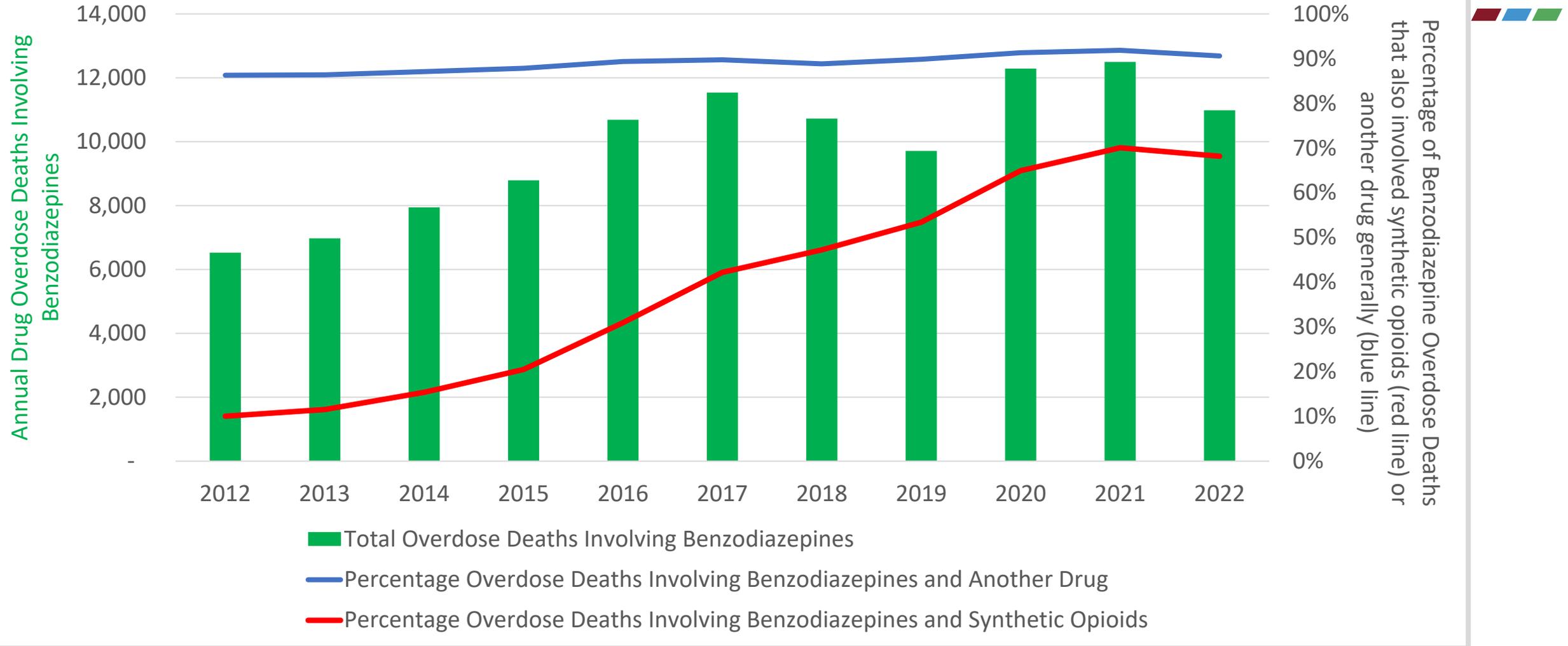
Xanax and Valium. Some Xanax bars in East Dayton tested positive for fentanyl over the weekend.

Yellow Xanax bars testing positive for fentanyl were reported over the weekend on the east side of Dayton. That's according to the local nonprofit The SOAR Initiative.

# Annual Reports to NFLIS-Drug for Designer Benzodiazepines



# Benzodiazepine Involved Overdose Deaths



# Emergency Scheduling of Five Designer Benzodiazepines



## DEPARTMENT OF JUSTICE

### Drug Enforcement Administration

#### 21 CFR Part 1308

[Docket No. DEA-989]

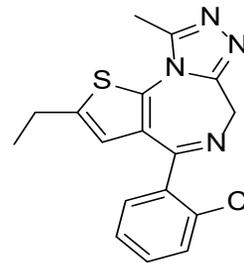
#### Schedules of Controlled Substances: Temporary Placement of Etizolam, Flualprazolam, Clonazolam, Flubromazolam, and Diclazepam in Schedule I

**AGENCY:** Drug Enforcement  
Administration, Department of Justice.

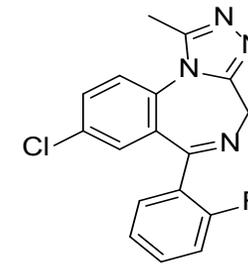
**ACTION:** Temporary amendment;  
temporary scheduling order.

**SUMMARY:** The Administrator of the Drug Enforcement Administration is issuing this temporary order to schedule five synthetic benzodiazepine substances: etizolam, flualprazolam, clonazolam, flubromazolam, and diclazepam, in schedule I of the Controlled Substances Act. This action is based on a finding by the Administrator that the placement of these five substances in schedule I is necessary to avoid imminent hazard to the public safety. As a result of this

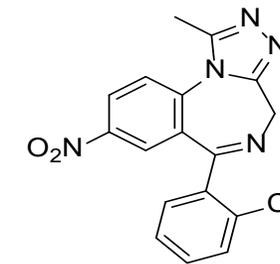
- July 26, 2023 emergency scheduled 5 designer benzodiazepines in schedule I of the Controlled Substances Act
- Based on prevalence in NFLIS-Drug reports and utilized DEA contract pharmacological testing



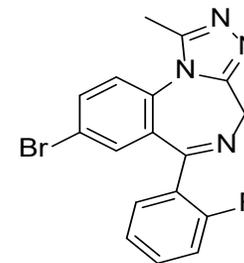
etizolam



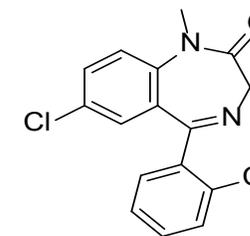
flualprazolam



clonazolam

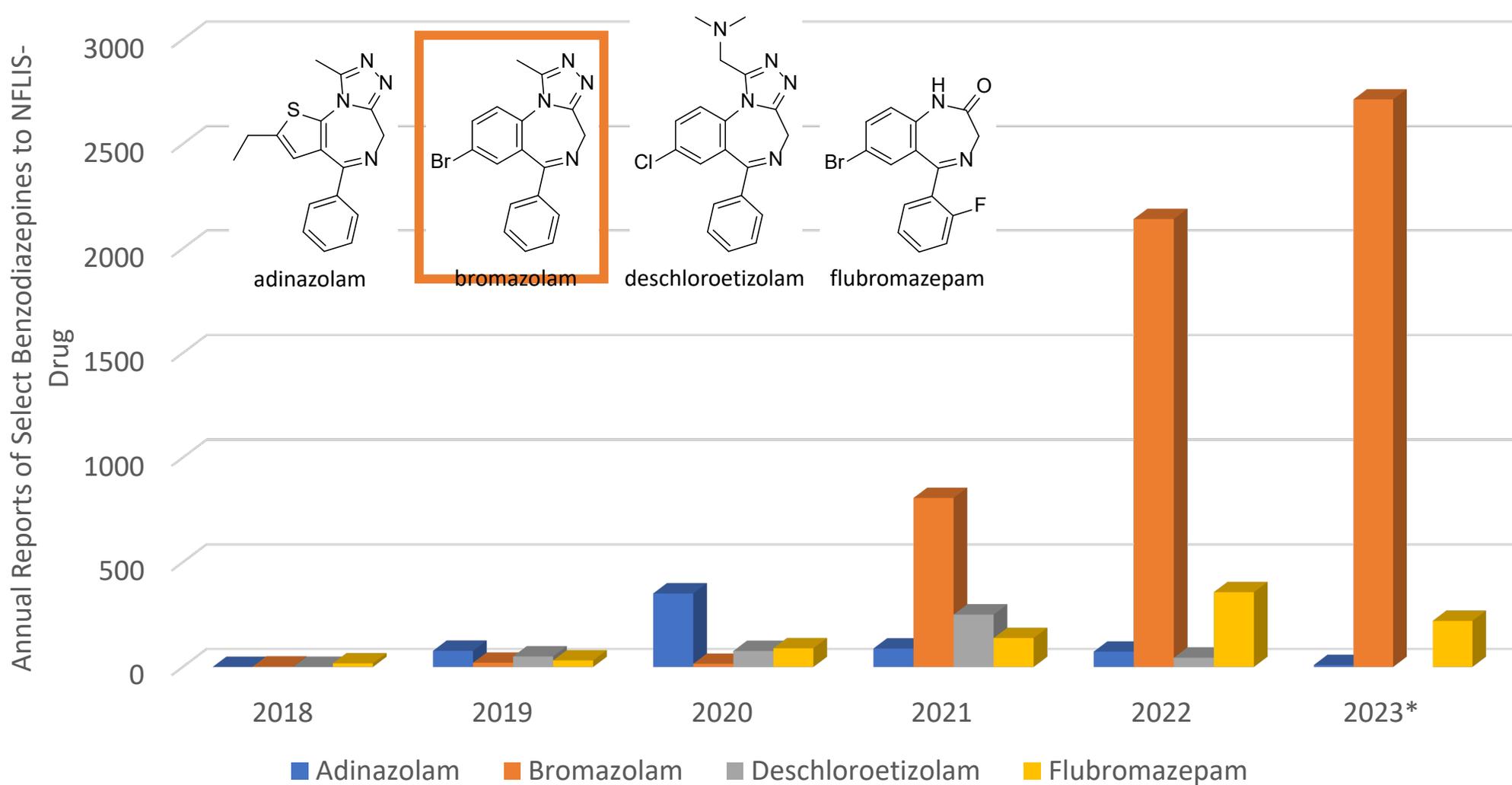


flubromazolam

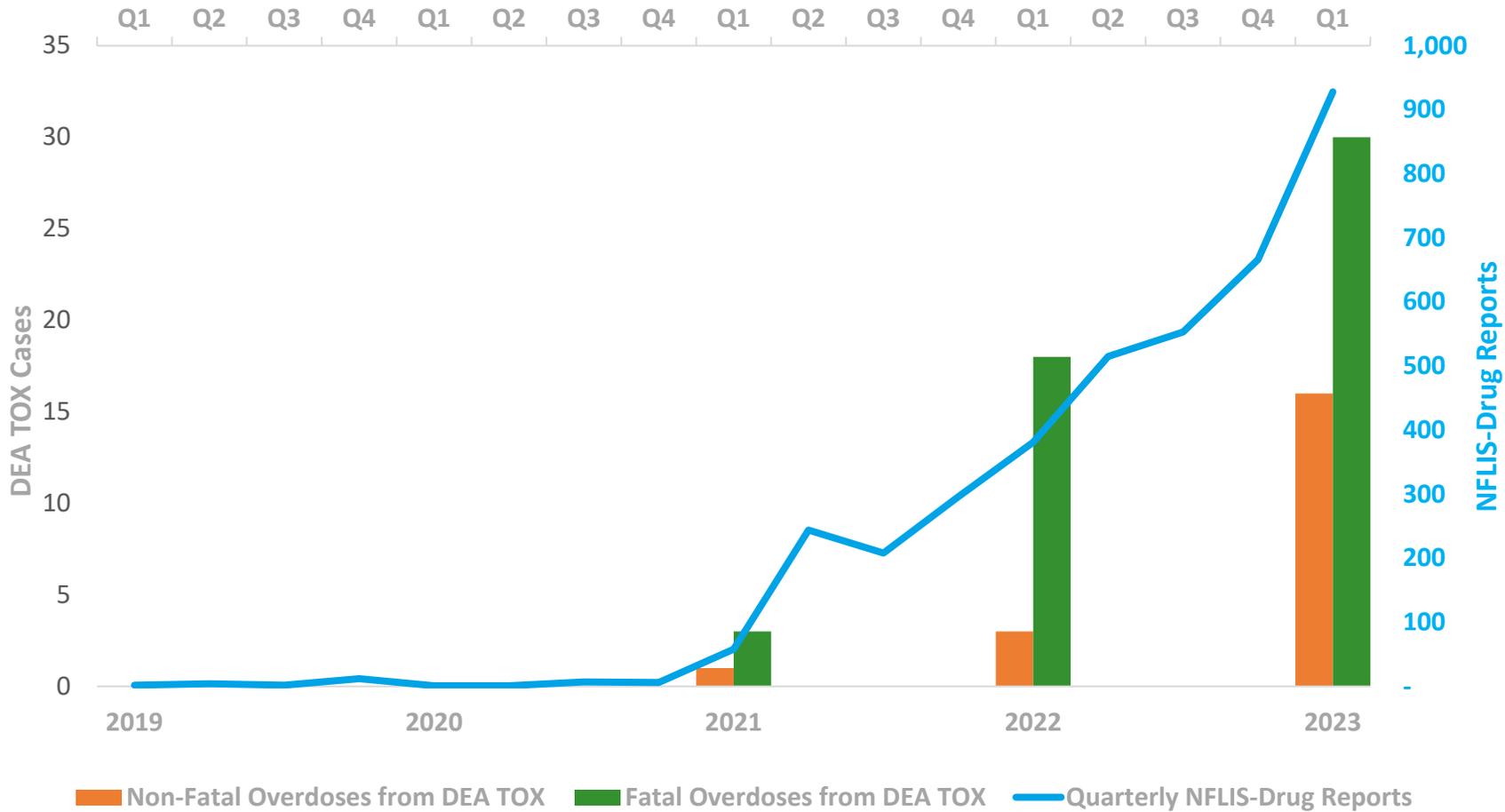


diclazepam

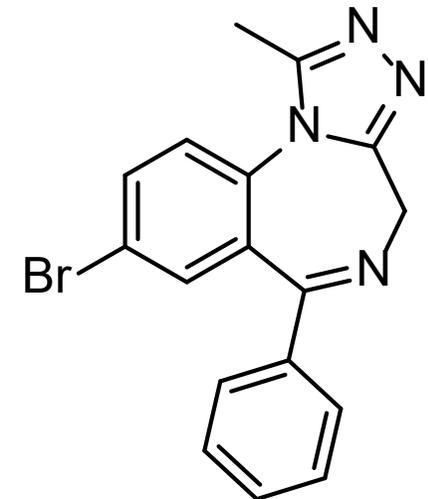
# Emergence of other Designer Benzodiazepines



# Benzodiazepines – Bromazolam Prevalence



DRUG ENFORCEMENT ADMINISTRATION  
**NFLIS**  
 NATIONAL FORENSIC LABORATORY  
 INFORMATION SYSTEM



Sources: DEA, National Forensic Laboratory Information System (NFLIS-Drug), queried on 21 August 2023. \*Reports still pending for 2023.

DEA TOX, queried on 15 August 2023. \*Reports still pending for 2023.



# TOPICS

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- Synthetic Opioids
- Benzodiazepines,
- **Ketamine**
- Poly Drugs Use.



# Ketamine – Prescription products



Cu

Showing 1 to 16 of 16 entries

Mkt. Status	Active Ingredient
RX	KETAMINE HYDROCHL
DISCN	KETAMINE HYDROCHL
DISCN	KETAMINE HYDROCHL
RX	ESKETAMINE HYDROC
RX	KETAMINE HYDROCHL
RX	KETAMINE HYDROCHL
RX	KETAMINE HYDROCHL

## FDA warns patients and health care providers about potential risks associated with compounded ketamine products, including oral formulations, for the treatment of psychiatric disorders

[f Share](#) [X Post](#) [in LinkedIn](#) [✉ Email](#) [🖨 Print](#)

October 10, 2023

approved (s)-  
spray for  
stant depression

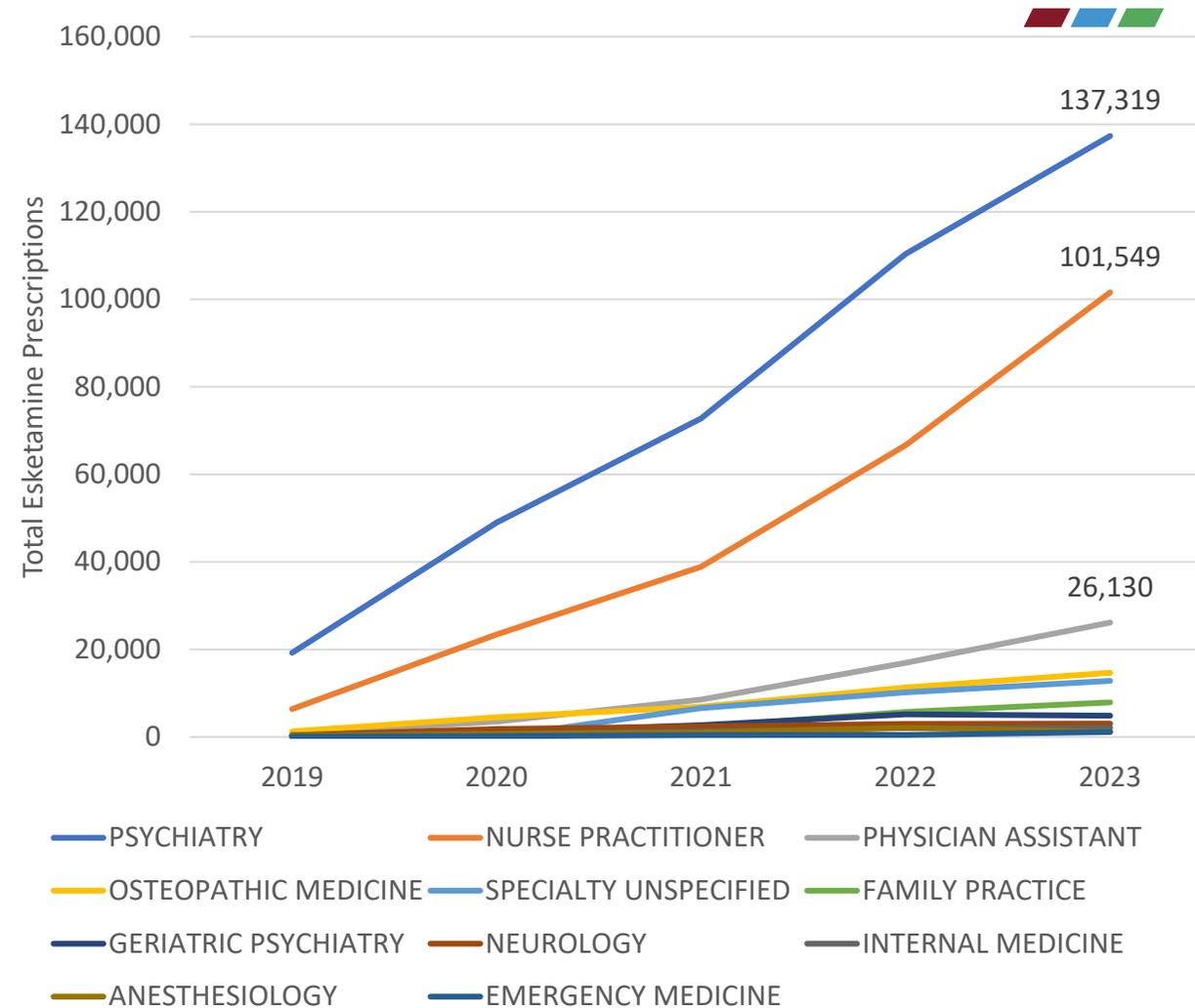
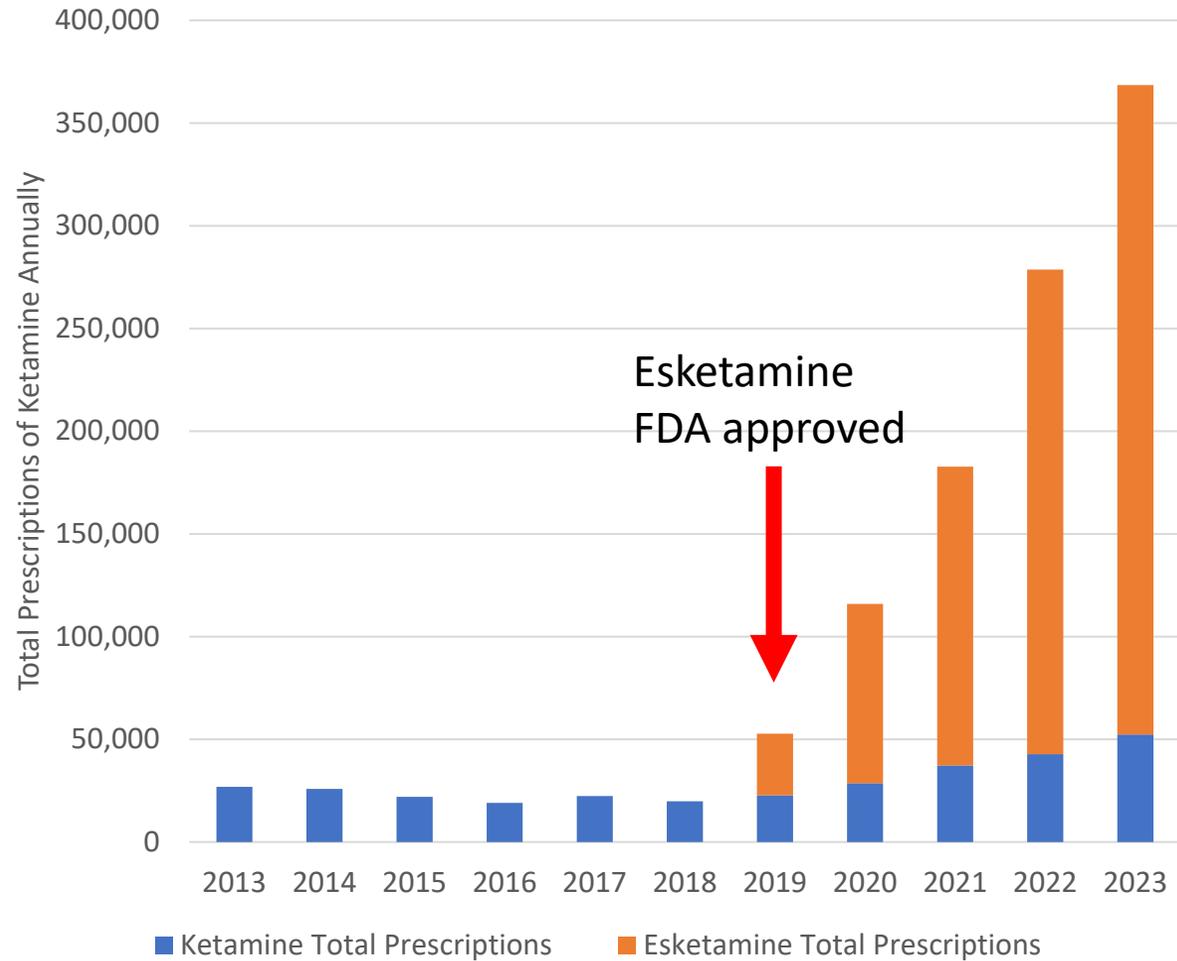
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esics

(s)-ketamine



# Ketamine – Supply and Demand





# Ketamine Clinics

## How We Can Help



Treatment-Resistant Depression

[More Information](#)



Generalized Anxiety Disorder

[More Information](#)



Post Traumatic Stress Disorder

[More Information](#)



Suicidal Ideations

[More Information](#)



Chronic Headaches

[More Information](#)



Spravato® Esketamine

[More Information](#)



Chronic Pain Syndromes

[More Information](#)



Obsessive-Compulsive Disorder

[More Information](#)



Ketamine Infusion Therapy

**MindPeace Clinics (Physicians Specializing in Ketamine Therapeutics for Depression and Suicidal Ideations)**

4.8 (22)  
Medical clinic · 1600 Wilson Blvd Suite 320  
**Closed** · Opens 9 AM · (703) 340-1454

**NOVA Health Recovery Ketamine Infusion Center**

4.7 (17)  
Mental health service · 8101 Hinson Farm Rd Ste 201 Suite 201  
**Closed** · Opens 8 AM · (703) 844-0184

**Virginia Premier Ketamine**

5.0 (2)  
Mental health clinic · 7918 Jones Branch Dr 4th Floor  
**Closed** · Opens 8:30 AM · (202) 240-9013

**Avesta Ketamine and Wellness**

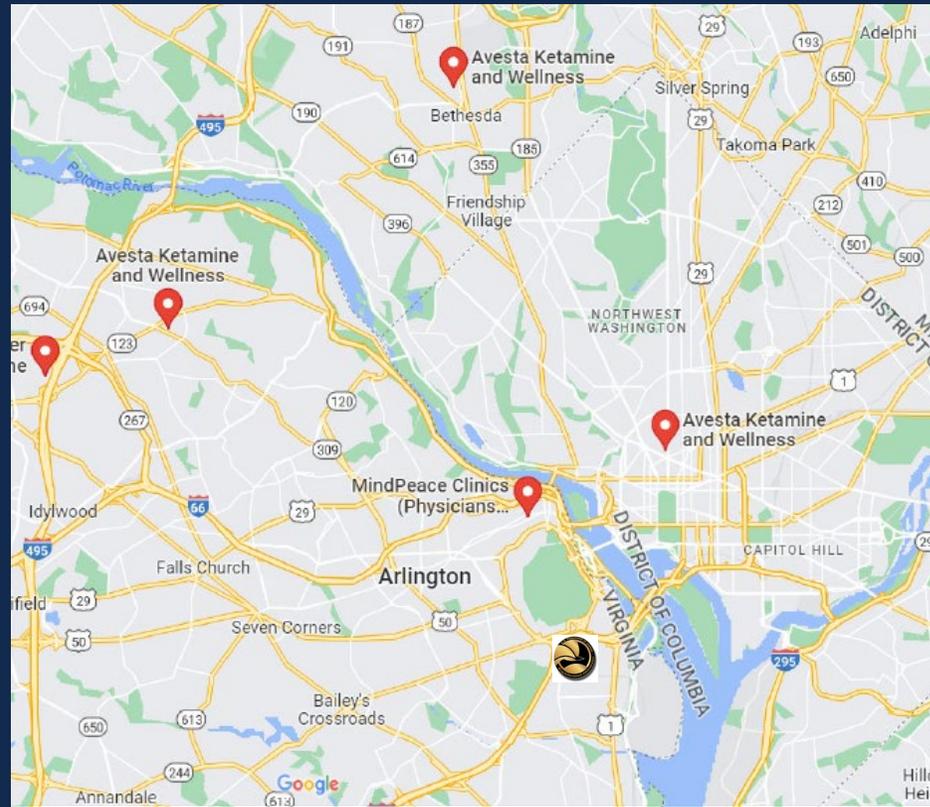
4.9 (17)  
Medical clinic · 1400 16th St NW Suite 101  
**Closed** · Opens 9 AM · (202) 410-5123

**Avesta Ketamine and Wellness**

4.8 (57)  
Medical clinic · 6861 Elm St Suite 3E  
**Closed** · Opens 9 AM · (703) 570-1346

**Care Clinic Mental Health and Ketamine Therapy**

4.4 (23)  
Mental health clinic · 4017 Williamsburg Ct Suite 100  
**Closed** · Opens 9 AM · (571) 418-8141



## Elon Musk Microdoses Ketamine for Depression, Takes Full Doses at Parties, According to WSJ

Sarah Rumpf | Jun 27th, 2023, 1:27 pm

202 comments

[Tweet](#) [Share](#) [reddit](#)



MINDSPA



# TOPICS

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- Synthetic Opioids
- Benzodiazepines
- Ketamine
- **Poly Drugs Use**





**Medical Examiner**  
@mkemedexamine · Follow

Of the 604 confirmed OD deaths in Milwaukee County in 2021, 146 involved para-fluorofentanyl and 21 involved metonitazene. Additional cases still pending further toxicology. #fentanyl

**CDUHR @CDUHR\_NYC**

Two powerful drugs now adding to US overdose crisis - para-fluorofentanyl & metonitazene  
apnews.com/article/corona...

2:56 PM · Jan 28, 2022

View post

19 Reply Share

Read 5 replies

### Most common drug combinations in San Francisco overdose deaths

Percentages reflect suspected accidental overdoses in 2022

Fentanyl and methamphetamine

40.0%

Fentanyl and cocaine

26.0%

Fentanyl and ethanol

12.0%

Methamphetamine and cocaine

11.4%

Fentanyl, methamphetamine and cocaine

10.1%

Combinations can include drugs other than the one conclude.

Chart: Christian Leonard / The Chronicle · Source: San Fra

## Boston warns of surge in overdoses linked to cocaine laced with fentanyl

February 24, 2023

By [Martha Bebinger](#)

Diversion Control Division  
U.S. Drug Enforcement Administration



### DEA Washington Warns of Deadly Counterfeit Drugs on Social Media Counterfeit Xanax, OxyContin and Adderall are Being Sold to Kids DEA Washington, DC Division - Public Information Office



Counterfeit Adderall

Today, Jarod Forget, Special Agent in Charge (SAC) of the DEA Washington Division issued a warning that drug dealers are marketing to teenagers through popular social media apps, selling drugs that look like prescription medication, and delivering counterfeit pills to kids and young adults in our area. Law enforcement officials across the District of Columbia, Maryland, and Virginia are reporting these counterfeit pills causing tragic overdose deaths across the region.

Embraced by drug dealers, and buyers, for its simplicity and global reach (especially after pandemic lockdowns) the internet has become the marketing tool of choice. While large drug trading websites like Dream Market or Silk Road have been shut down, social media has emerged as a flourishing new marketplace made up of thousands of small-time dealers who sell both large and small amounts of drugs to individual users in local communities.

This issue has become such a problem in the D.C.-metropolitan area and surrounding states, the DEA Washington Division has worked with area partners and launched a summer awareness campaign specifically targeting the deadly counterfeit pills they are seeing kids, teens, and young adults ordering online.

SAC Jarod Forget says these sales often involve young people who use apps like Snapchat and Instagram to connect with dealers and order pills they think are safe, but oftentimes prove deadly.

"These cartels are marketing to our children, to young adult kids in our area. With every pill that slips through the cracks, more lives are lost," SAC Forget said. "Only one life lost - of our children, our family members, our neighbors - is one too many. We're dedicated to educating the public about what's going on and helping keep our area residents and families safe."

The DEA Washington Division has confiscated thousands of counterfeit pills over the past few months and laboratory tests have found over one in every four pills (26%) to contain a deadly amount of fentanyl. These fake pills, loaded with the synthetic opioid fentanyl, and made to look exactly like actual pharmaceuticals, are flooding into the District of Columbia, Maryland, and Virginia via Mexican cartels.



Front view of counterfeit Xanax (on left) vs real Xanax (right)

heroin or cocaine. This miscoincide appear.



Counterfeit M30 Oxycodone laced with Fentanyl

### 'Euphoria' star Angus Cloud accidentally overdosed on meth, cocaine, fentanyl, coroner says

Sept. 21, 2022 at 10:25 am | Updated Sept. 21, 2022 at 10:25 am



FILE - Angus Cloud arrives at the Vanity Fair Oscar Party on March 27, 2022, in Beverly Hills. (AP Photo/Chris Wedel) (AP Photo/Chris Wedel)

Cloud's cause of death was "acute intoxication" due to the "combined effects of methamphetamine, cocaine, fentanyl and benzodiazepines," the Alameda County Coroner's Bureau said. The office confirmed the overdose was an accident.

# Poly-Drug Combinations in Toxicology



## DEA TOX DRUG ENFORCEMENT ADMINISTRATION TOXICOLOGY TESTING PROGRAM

SUBSTANCE	DRUG CLASS
Norfentanyl	Metabolite of fentanyl
<i>N,N</i> -dimethylpentylone	Stimulant
Pentylone	Stimulant
Fentanyl	Opioid
4-ANPP	Precursor of fentanyl
Morphine	Opioid
Benzoyllecgonine	Metabolite of cocaine
Beta hydroxy fentanyl	Metabolite of fentanyl
4-Anilinopiperidine (4-AP)	Precursor of fentanyl
<i>para</i> -Fluorofentanyl	Opioid
Xylazine	Depressant
6-Acetylmorphine	Metabolite of heroin
Codeine	Opioid
Methamphetamine	Stimulant
Despropionyl <i>para</i> -fluorofentanyl	Metabolite of <i>para</i> -fluorofentanyl
Cocaine	Stimulant
Acetylfentanyl	Opioid
Cyclobenzaprine	Muscle relaxant
Diphenhydramine	Antihistamine
Doxylamine	Antihistamine

SUBSTANCE	DRUG CLASS	CONCENTRATION	SAMPLE TYPE
Benzoyllecgonine	Metabolite of cocaine	48.6 ng/mL	Whole blood
<i>N</i> -Pyrrolidino etonitazene	Opioid	8.8 ng/mL	Whole blood
Cocaine	Stimulant	0.3 ng/mL	Whole blood

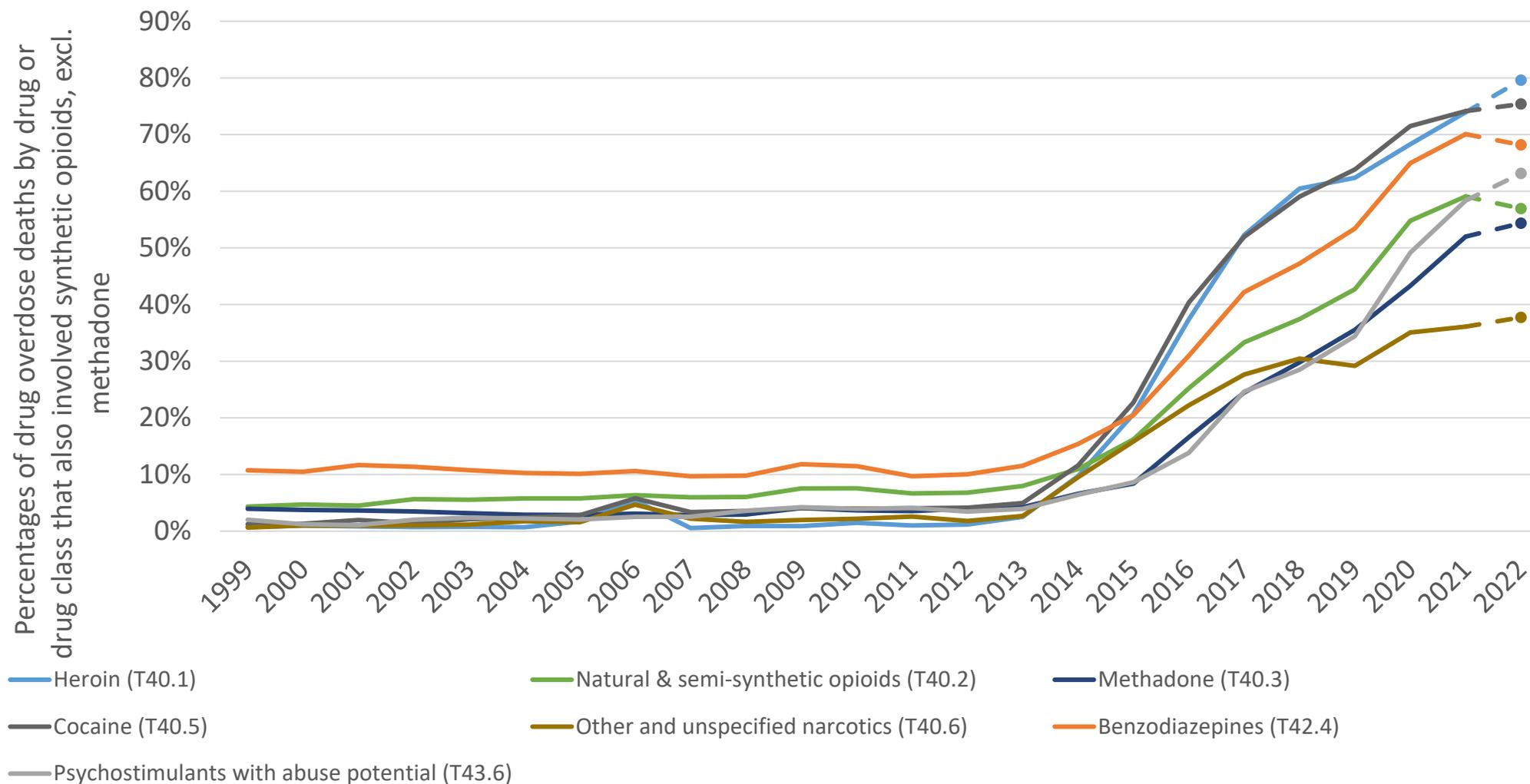
SUBSTANCE	DRUG CLASS	CONCENTRATION	SAMPLE TYPE
<i>N,N</i> -dimethylpentylone	Stimulant	45.3 ng/mL	Whole blood
Furanyl UF-17	Opioid	38.4 ng/mL	Whole blood
PCP	Hallucinogen	22.2 ng/mL	Whole blood
Fentanyl	Opioid	13.2 ng/mL	Whole blood
Pentylone	Stimulant	4.5 ng/mL	Whole blood
Haloperidol	Antipsychotic	Detected	Whole blood
Mirtazapine	Antidepressant	Detected	Whole blood
Naloxone	Opioid antagonist	Detected	Whole blood
Risperidone	Antipsychotic	Detected	Whole blood

Diversion Control Division

U.S. Drug Enforcement Administration

DEA TOX Monthly Case Summary August 2023, October 2023, and November 2023

# Synthetic Opioids Drive Overdose Deaths

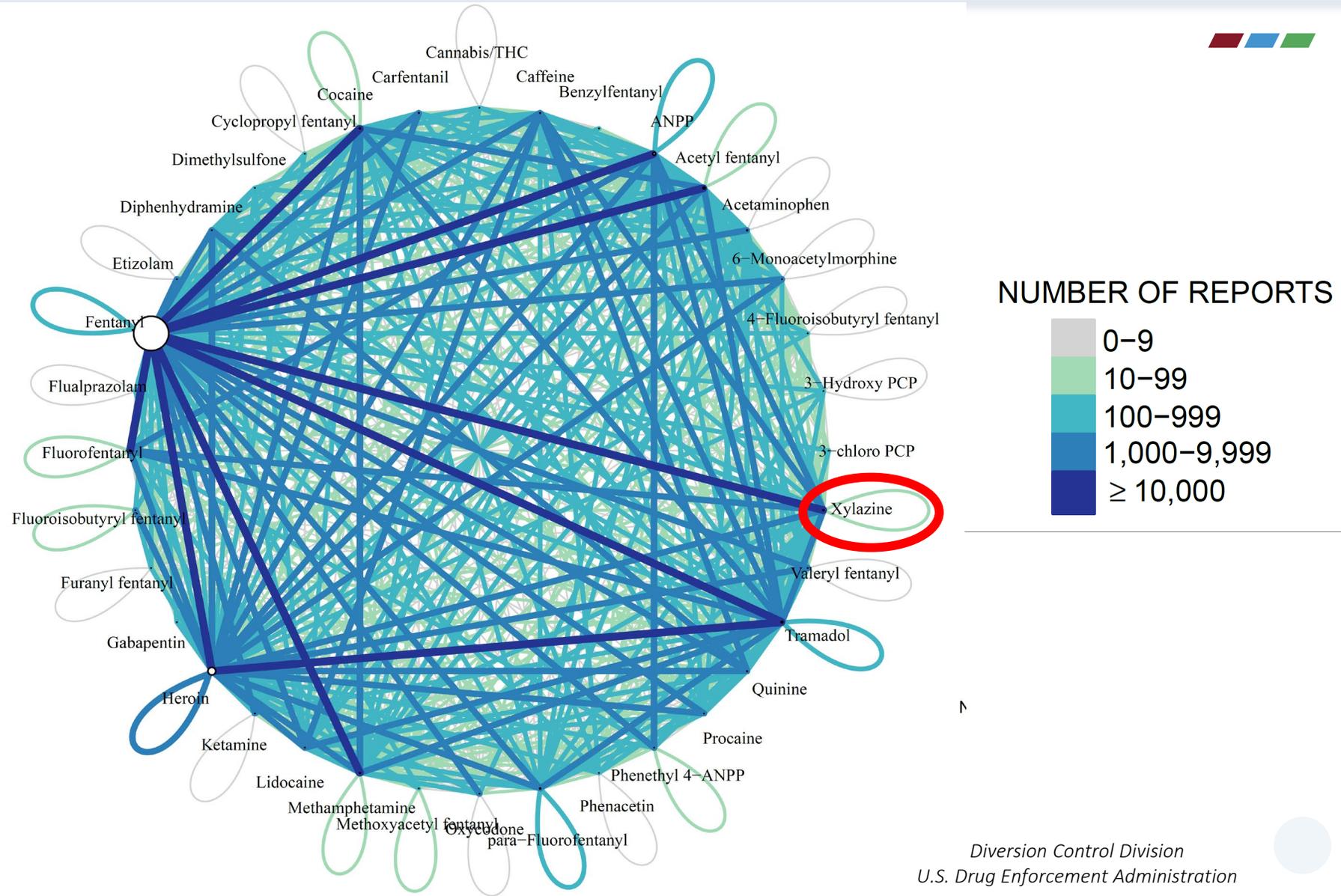


Centers for Disease Control and Prevention, National Center for Health Statistics. National Vital Statistics System, Provisional Mortality on CDC WONDER Online Database. Data are from the final Multiple Cause of Death Files, 2018-2021, and from provisional data for years 2022-2023, as compiled from data provided by the 57 vital statistics jurisdictions through the Vital Statistics Cooperative Program. Accessed at <http://wonder.cdc.gov/mcd-icd10-provisional.html> on August 21, 2023. Centers for Disease Control and Prevention, National Center for Health Statistics. National Vital Statistics System, Mortality 1999-2020 on CDC WONDER Online Database, released in 2021. Data are from the Multiple Cause of Death Files, 1999-2020, as compiled from data provided by the 57 vital statistics jurisdictions through the Vital Statistics Cooperative Program. Accessed at <http://wonder.cdc.gov/mcd-icd10.html> on May 11, 2022.

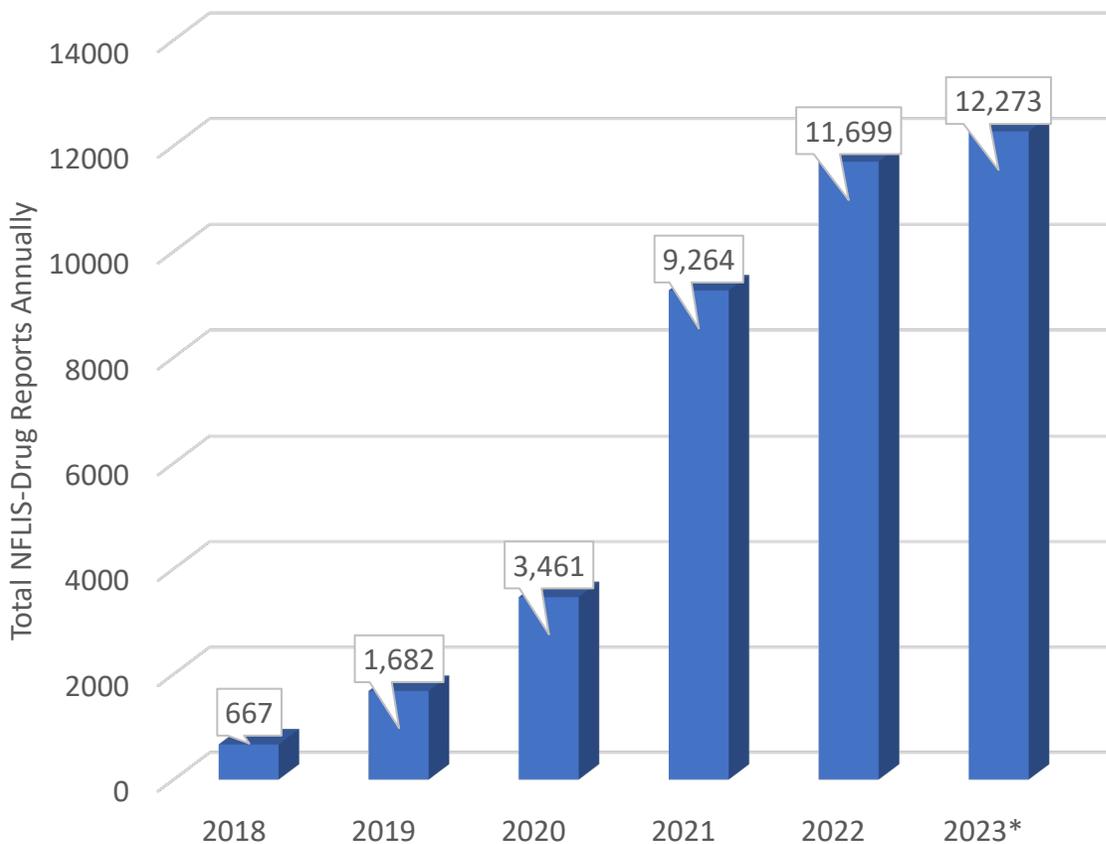
# Substances Co-Reported with Fentanyl



If the presence of illicit fentanyl alone is not bad enough - other substances are being either mixed with fentanyl or misused with fentanyl



Source: DEA, NFLIS-Drug.  
Accessed at <https://www.nflis.deadiversion.usdoj.gov/> on October 13, 2022.



Source: DEA, NFLIS-Drug.  
Accessed at <https://www.nflis.deadiversion.usdoj.gov/> on  
November 29, 2023.

NPR

## Xylazine causes open wounds, making the illegal drug supply even more dangerous

The fentanyl-additive Xylazine causes open wounds, making the illegal drug supply even more dangerous and treatment more complicated.

2 weeks ago

Firstpost

## US doctors alarmed at rapid spread of Zombie Drug 'Xylazine' in New York

The flesh-eating 'zombie drug' is causing alarm on the US streets, literally rotting people's bodies, and medical professionals appear to be...

The Economist

## [How dangerous is tranqu, the new drug sweeping America?](#)

It comes with grim side-effects and there is no antidote | The Economist explains.





Morbidity and Mortality Weekly Report ([MMWR](#))

## Biden-Harris Administration Designates Fentanyl Combined with Xylazine as an Emerging Threat to the United States

APRIL 12, 2023 • PRESS RELEASES

Xylazine's growing role in overdose deaths nationwide prompts Administration to make this designation for the first time in U.S. history  
ATLANTA, GA – Today, Dr. Rahul Gupta, Director of the White House Office of National Drug Control Policy (ONDCP), has officially designated fentanyl adulterated or associated with xylazine as an emerging threat to the United...

Illicitly Manufactured  
Xylazine — United States

Weekly / June 30, 2023 / 72(26);721–723

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What is added by this report?

Among 21 jurisdictions, the percentage of IMF-involved deaths increased from 2.9% in 2019 (2.9%) to June 2022 (10.9%) across jurisdictions.

Of the 144 reports from  
DEA TOX, 125 also  
(87%), all other reports  
at least 2 other substances

Jun 29, 2023



se

animal



**Drug Enforcement Administration  
Diversion Control Division  
Drug & Chemical Evaluation Section**

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