



HIDDEN  
DRUGS OF  
ABUSE

Christopher  
Suelzer, MD.

Project Echo

# NEW PSYCHOACTIVE SUBSTANCES (NPS)

- Synthetic Cannabinoids
- Substituted Cathinones
- Phenethylamines
- Synthetic opioids
- Tryptamines
- Designer benzodiazepines
- Others

# EMERGING THREAT REPORT Annual 2020

Drug Enforcement Administration  
Special Testing and Research Laboratory



The Special Testing and Research Laboratory's Emerging Trends Program compiled the data for this report through a query of archived seizure and analysis information from drug evidence analyzed by the Drug Enforcement Administration's laboratory system. This data is representative of drug evidence seized and analyzed in the date ranges annotated. This is not a comprehensive list of all new psychoactive substances and is not representative of all evidence analyzed by DEA. This data is an annual snapshot of the new psychoactive substance market in the United States.

The term new psychoactive substance (NPS) describes a recently emerged drug that may pose a public health threat. This includes synthetic cannabinoids, substituted cathinones, phenethylamines, opioids, tryptamines, benzodiazepines, and a variety of other chemical classes. Due to the increase in seizures over the last several years, fentanyl is also included in this report.

An identification is made when authenticated reference material is available for comparison. When reference material is not available, the drug evidence is identified as "substance unconfirmed" or "inconclusive." A single unit of drug evidence may have multiple sub-units. For the purposes of this document, each unit of drug evidence counts as one identification regardless of the number of sub-units. Some seized drug evidence contains more than one active ingredient; therefore, more than one identification can be made for a single unit.

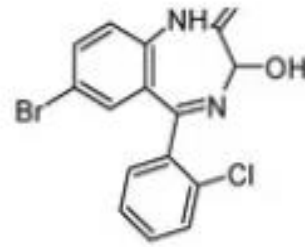
- 17 substances reported for the first time in 2020 (1 new substance every 3 week)

# DESIGNER BENZODIAZEPINES

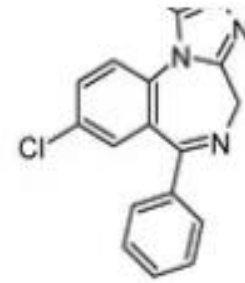
# INTERNET (DESIGNER) BENZODIAZEPINES

- diclazepam, flubromazepam and pyrazolami, clonazolam, deschloroetizolam, flubromazolam, nifoxipam and meclonazepam)
- 30+ have been identified
- Often previously developed by drug companies and research institutions but never approved or deemed appropriate for human use
- Often every little information on the pharmacokinetics, safety profile
- Considered schedule I drugs in some states

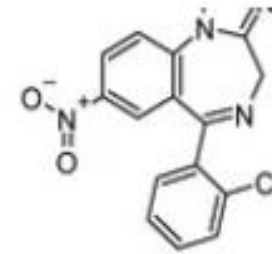
# Chemical structures



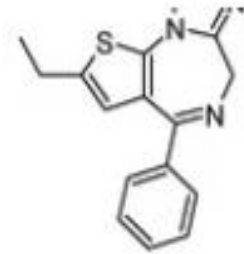
3-Hydroxyphenazepam



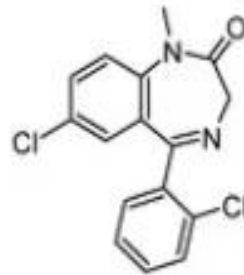
Adinazolam



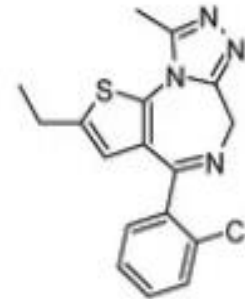
Clonazepam



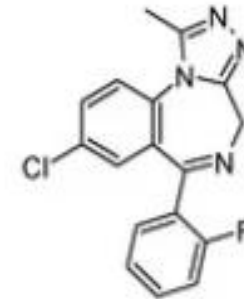
Deschloroetizolam



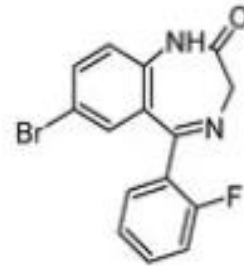
Diclazepam



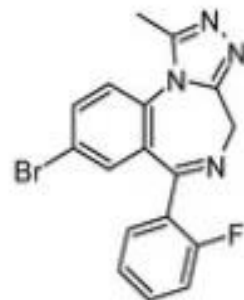
Etizolam



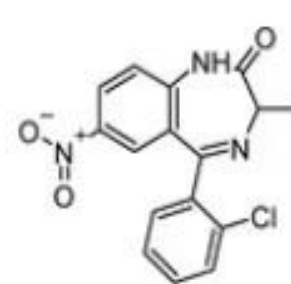
Flualprazolam



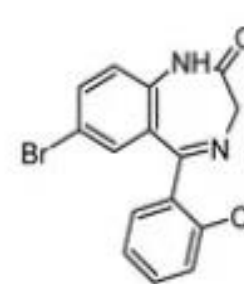
Flubromazepam



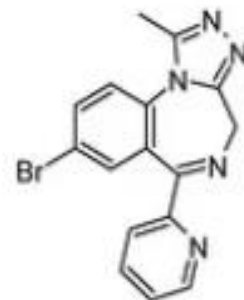
Flubromazolam



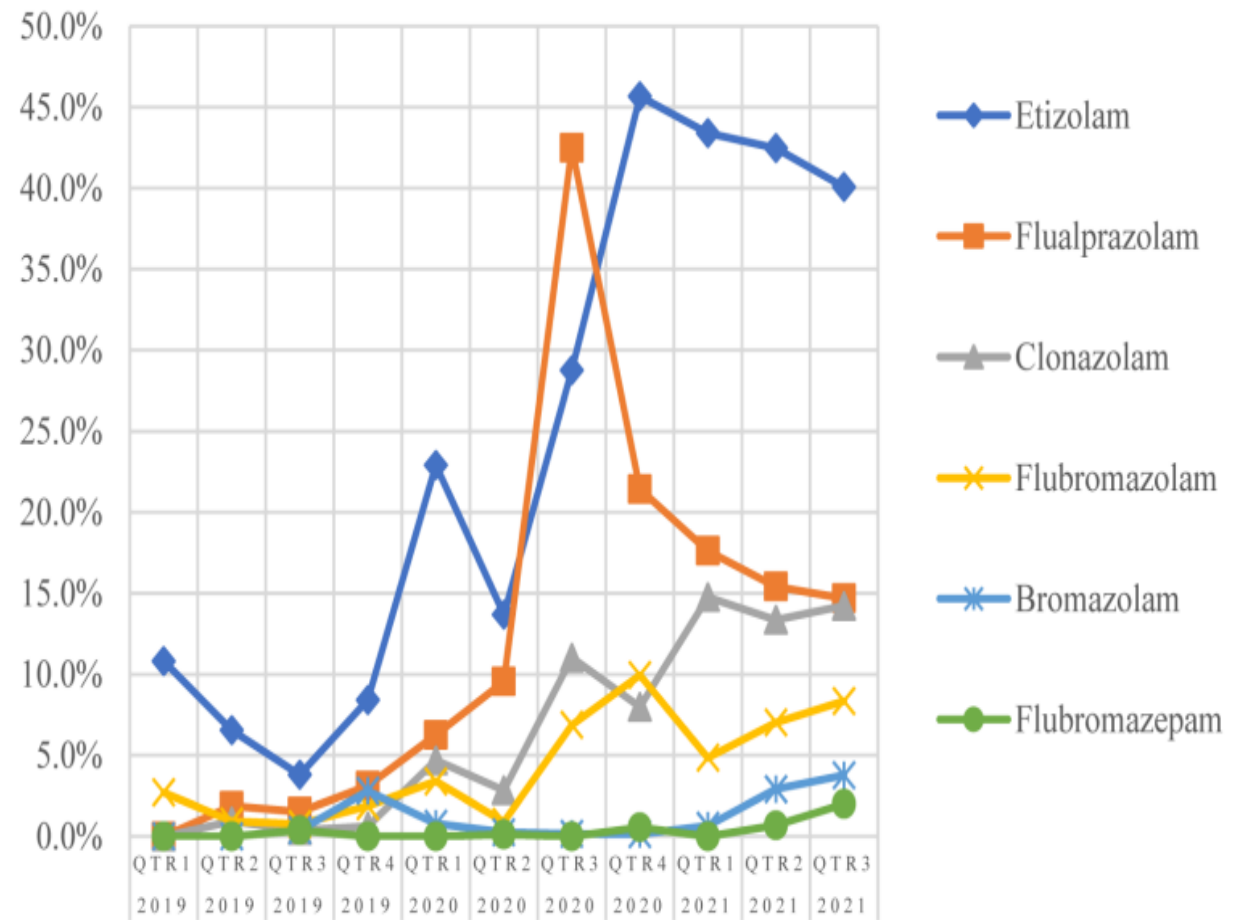
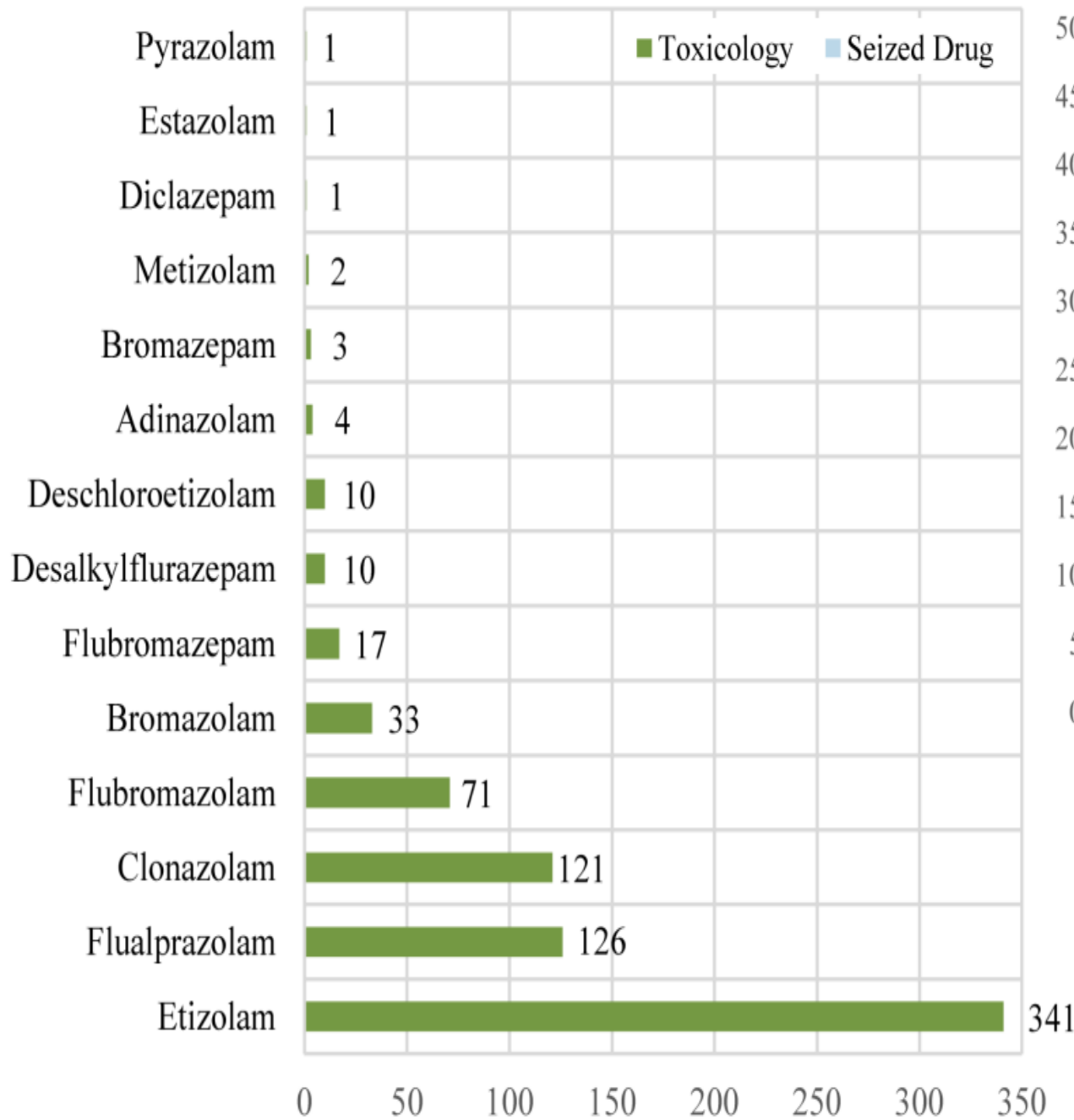
Meclonazepam



Phenazepam



Pyrazolam



**Acknowledgements:** This report was prepared by Alex J. Krotulski, PhD; Sara E. Walton, MS; Amanda L.A. Mohr, MSFS, D-ABFT-FT; and Barry K. Logan, PhD, F-ABFT at the Center for Forensic Science Research and Education (CFSRE) at the Fredric Rieders Family Foundation. NPS Discovery would like to acknowledge scientists at CFSRE and NMS Labs for their involvements and contributions. For more information about our programs and reports, please contact NPS Discovery at [npsdiscovery@cfsre.org](mailto:npsdiscovery@cfsre.org) or visit our website at [www.npsdiscovery.org](http://www.npsdiscovery.org).

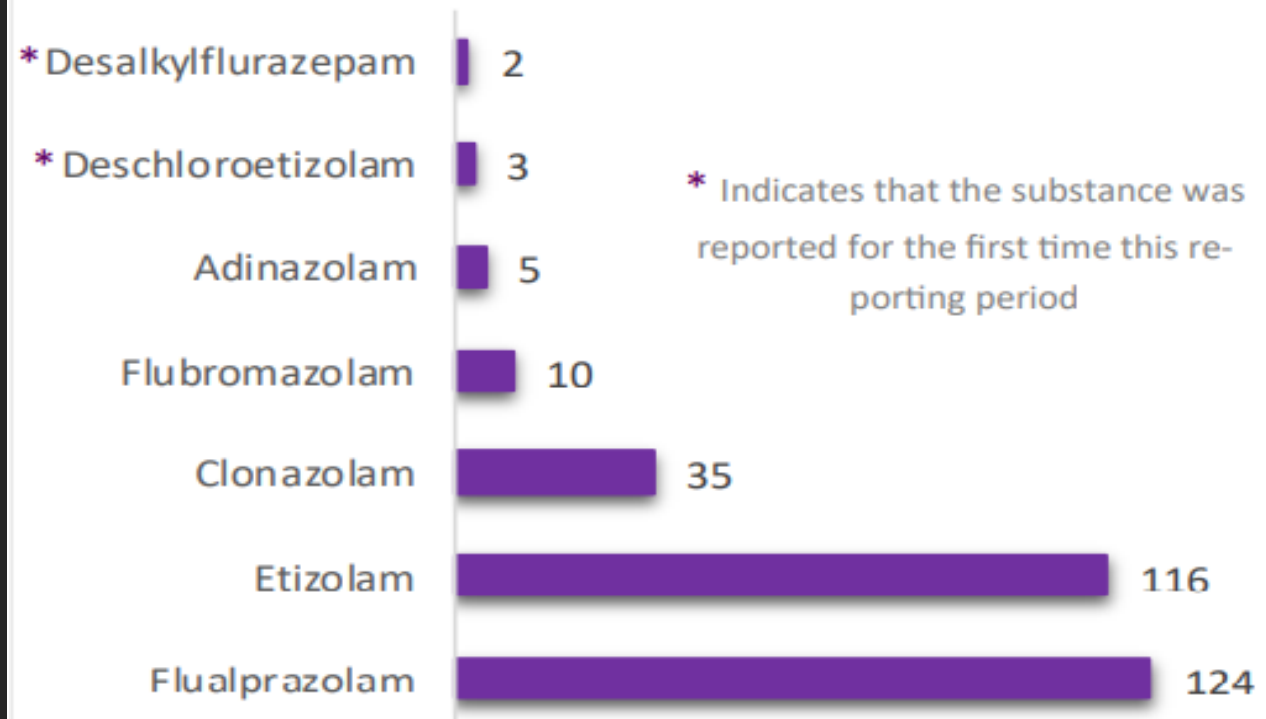
**Funding:** NPS Discovery at the CFSRE is supported in part by the National Institute of Justice, Office of Justice Programs, U.S. Department of Justice (Award Number 2020-DQ-BX-0007, "Real-Time Sample-Mining and Data-Mining Approaches for the Discovery of Novel Psychoactive Substances (NPS)"). The opinions, findings, conclusions and/or recommendations expressed in this publication are those of the author(s) and do not necessarily reflect those of the Department of Justice.



# EMERGING THREAT REPORT 2020

## BENZODIAZEPINES

THERE WERE **295** IDENTIFICATIONS OF DESIGNER BENZODIAZEPINES DURING THIS REPORTING PERIOD. THIS REPRESENTS AN APPROXIMATELY **157%** INCREASE FROM CY2019. FLUALPRAZOLAM AND ETIZOLAM WERE THE MOST REPORTED DESIGNER BENZODIAZEPINES ACCOUNTING FOR APPROXIMATELY **81%** OF THE IDENTIFICATIONS.





## ***Notes from the Field:* Illicit Benzodiazepines Detected in Patients Evaluated in Emergency Departments for Suspected Opioid Overdose — Four States, October 6, 2020–March 9, 2021**

[Kim Aldy](#), DO,<sup>1,2</sup> [Desiree Mustaquim](#), PhD,<sup>3</sup> [Sharan Campleman](#), PhD,<sup>1</sup> [Alison Meyn](#), MPH,<sup>1</sup> [Stephanie Abston](#),<sup>1</sup> [Alex Krotulski](#), PhD,<sup>4</sup> [Barry Logan](#), PhD,<sup>4,5</sup> [Matthew R. Gladden](#), PhD,<sup>3</sup> [Adrienne Hughes](#), MD,<sup>6</sup> [Alexandra Amaducci](#), DO,<sup>7</sup> [Joshua Shulman](#), MD,<sup>8</sup> [Evan Schwarz](#), MD,<sup>9</sup> [Paul Wax](#), MD,<sup>1,2</sup> [Jeffrey Brent](#), MD, PhD,<sup>10</sup> [Alex Manini](#), MD,<sup>11</sup> and the Toxicology Investigators Consortium Fentalog Study Group

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- Oct 6, 2020- March 9 2021
- 141 samples from 5 clinical sites (Missouri, Oregon, NY and Penn)
- Patients were treated in emergency rooms for suspected opioid overdose
- 21 (14.9%) had an illicit benzodiazepine
  - 11 clonazepam
  - 10 etizolam
  - 2 flubromazepam

Mean age 39

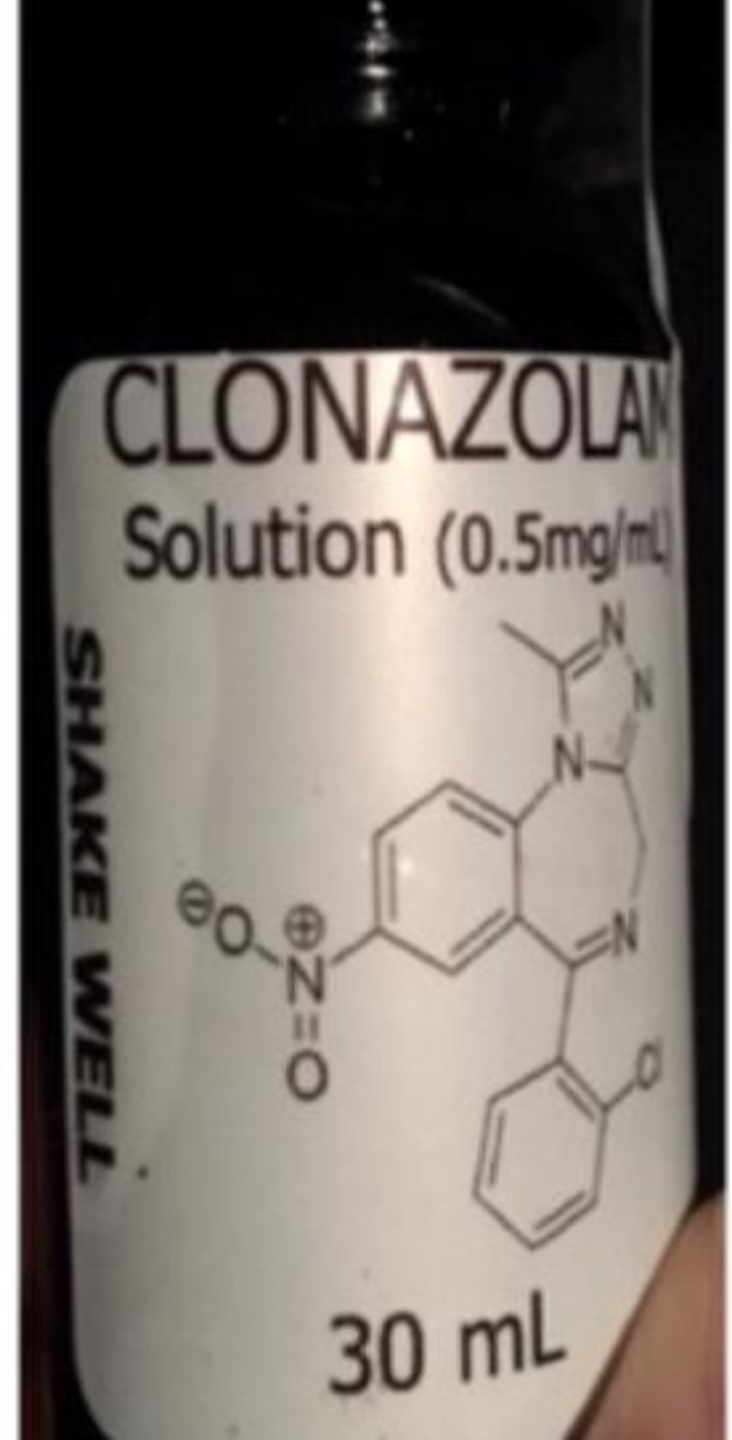
# Clonazolam

- Clonazepam + Alprazolam (2 most recognized prescription benzo)
- First synthesized in 1971
- Sold on the internet as research chemicals “not for human consumption”, typically European sources
- Sold as pills and liquid



# Presentation

- Lethargy and somnolence
- Walking amnesia , respiratory depression
- Overdose does not respond to Narcan
- Duration of effect (2-24hr) , typically 8-24
- Very potent, profound sedation at 0.5mg
- Hepatically metabolized and excreted in the urine
- Will trigger a positive screen but negative confirmation
- High variation in dosing of pills ( 0.7-8.3mg)



# Presentation

- Usually co occurring drug use (opioids)
- Patients may be on prescribed benzos but feel they need more or higher doses
- Patients may have a hx of benzo use but are cut off and seek alternatives
- May present like benzo withdrawal that persists or is out of proportion to the level of benzos they report
- If patient appears to be under influence of benzo have high suspicion
- Can be reversed with flumazenil



Etilozam  
- short acting  
- similar in potency to Xanax  
- prescribed in far East

## Etiduo 2 MG Etizolam - A Premium Etizolam Brand by ...



<https://buyetizolam.com/product/etiduo-2-mg-buyetizolam-premium-brand> ▼

Jun 16, 2020 · ETIDUO 2 MG. Etiduo 2mg tablets are regarded as one of the most efficient medications to be based on the popular central nervous system (CNS) drug **Etizolam**. This is despite being identical to other formulations in Etiduo's chemical makeup.

5/5 ★★★★★ (6)

Offer Count: 5

Price Range: \$130 - \$450    Availability: Out of stock

## Buy Etizolam Online - Trusted Etizolam Vendor 2021



<https://etizoco.com/buy-etizolam-online> ▼

Apr 01, 2020 · **Etizolam** generally comes packaged, in either 1 or 2-milligram tablets, but some vendors do sell it outside of the packaging. Theoretically, it can also be bought in powder form, although this does not seem to be the best option for consumers unless they are absolutely sure of the source that they are obtaining it from.

## Buy Etizolam - Trusted Worldwide Etizolam Vendor



<https://buyetizolam.com> ▼

Oct 01, 2021 · Buy **Etizolam** Online Today From a Trusted Vendor Stocking Etilaam, Etizest & Etizex. USA, UK & EU Delivery. Payment Options Mastercard, Visa and Bitcoin. ALERT: DHL replaced as primary carrier by Singapore Post - 11/22/2021. ALERT: LOGISTICS DELAYS DHL SINGAPORE - 10/1/2021 ...

# Flualprazolam      the counterfeit Xanax

**Figure 56. Illicit Counterfeit Alprazolam Bar Tablets Containing Flualprazolam**



Source: DEA

HAS ANYONE SEEN A PATIENT WHO USED  
THESE?



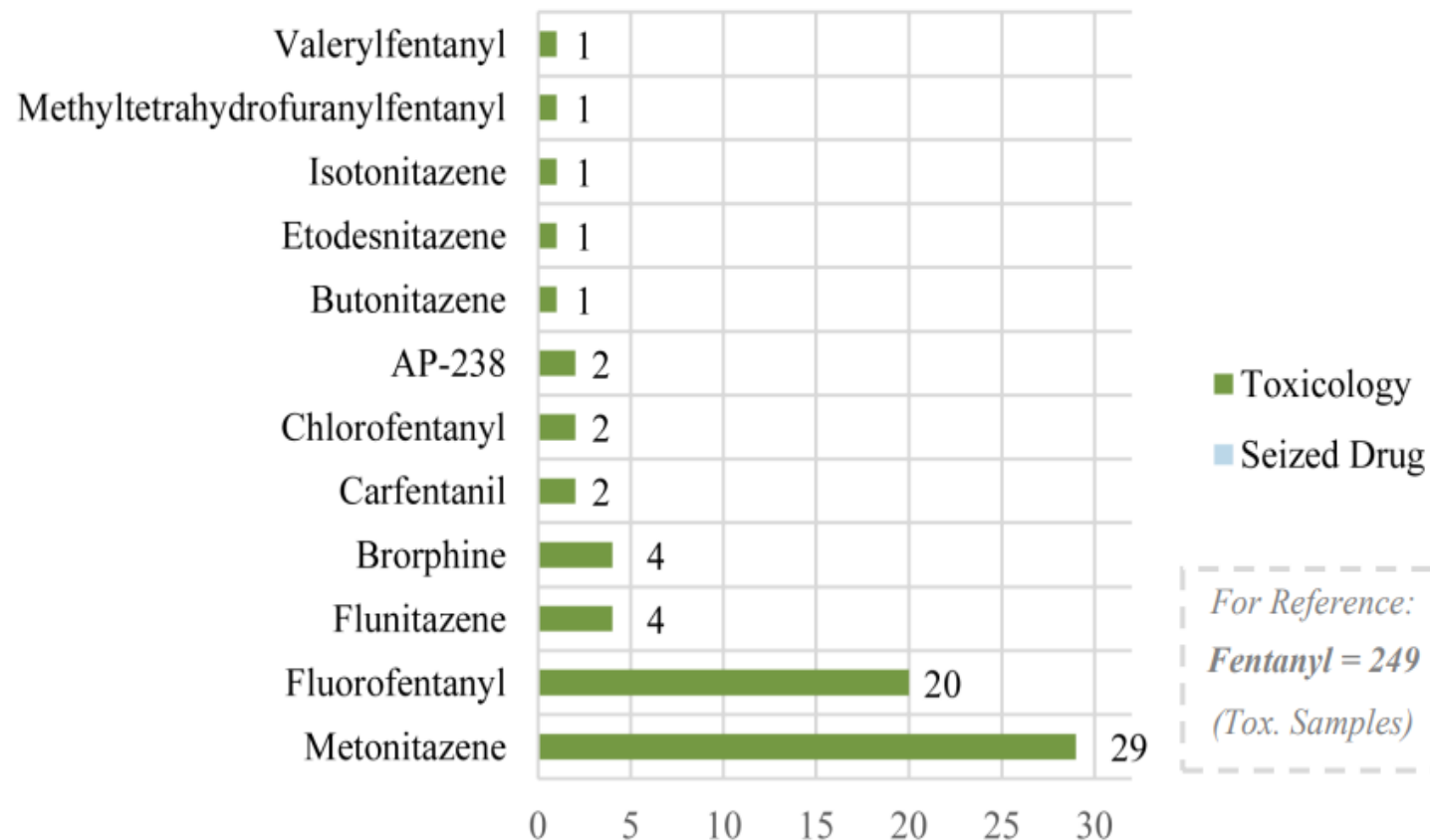
# NPS OPIOIDS

- Etonitazene Schedule I- developed in the 1950s
- Clonitazene Schedule I
- Metonitazene
- Flunitazene
- Isonitazene
- Etodesnitazene
- Metodesnitazene

Etonitazene has 1000 fold greater affinity for mu receptor (in mice), probably 60 times more potent than morphine

Never approved due to respiratory depression so severe

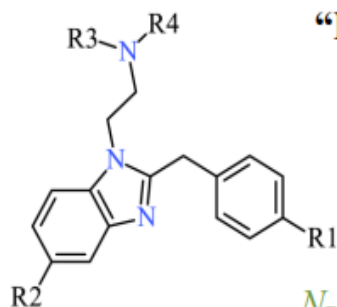
## NPS Opioid Positivity



## NPS Opioid Combinations

Combination	Frequency
Fluorofentanyl + Fentanyl	18
Fluorofentanyl + NPS Benzodiazepine(s) <i>(e.g., Etizolam, Flualprazolam)</i>	16
Metonitazene + NPS Benzodiazepine(s) <i>(e.g., Clonazolam, Flualprazolam)</i>	13
Metonitazene + Fentanyl	12
Metonitazene + Flunitazene	4

## Continued Emergence of New Opioid “Nitazene” Analogues



### “Nitazene” Analogues Reported:

Isotonitazene: 11/19/2019

Metonitazene: 07/30/2020

Butonitazene: 01/15/2021

Etodesnitazene: 02/23/2021

Flunitazene: 03/26/2021

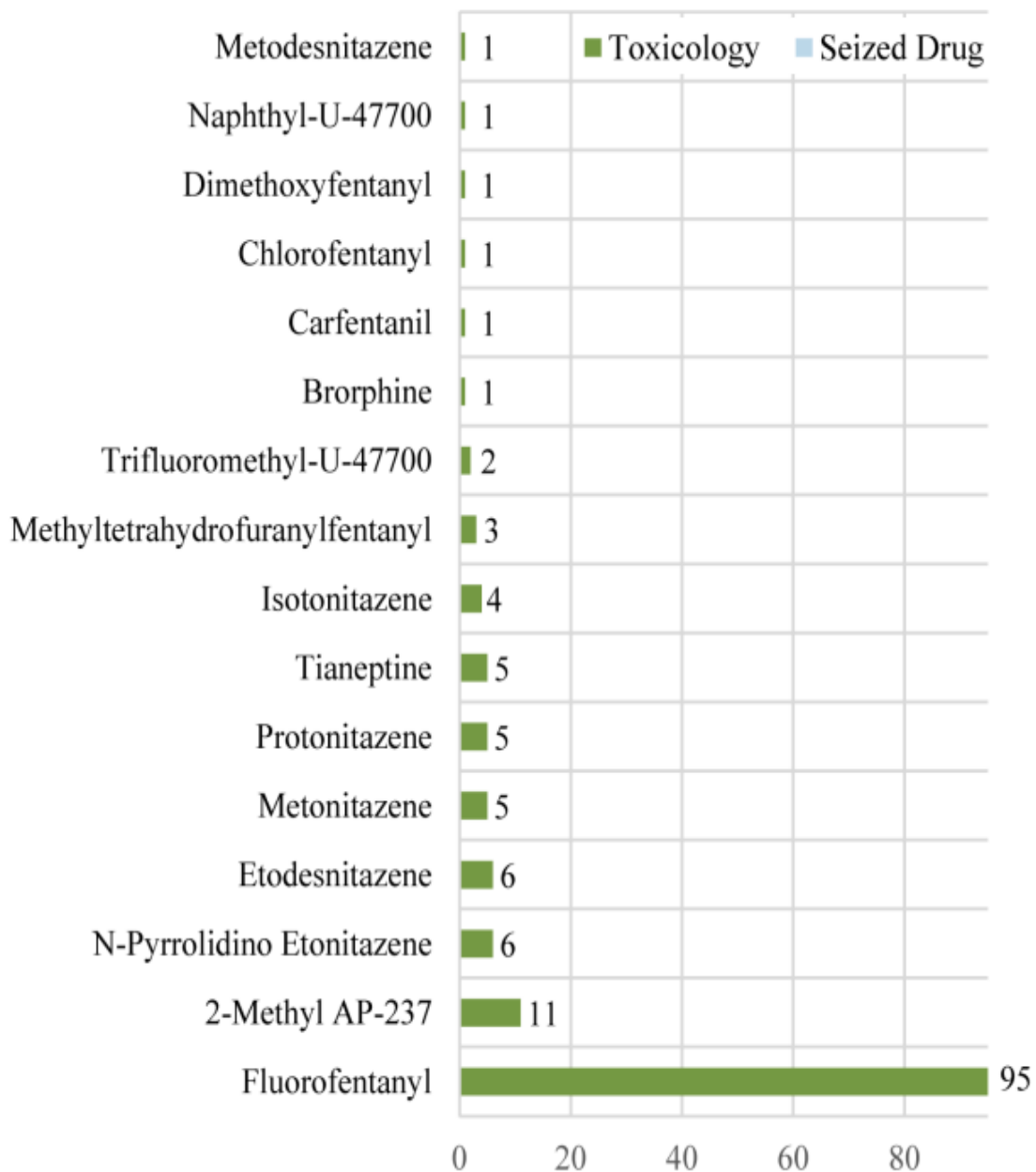
*N-Pyrrolidino Etonitazene (Pending)*

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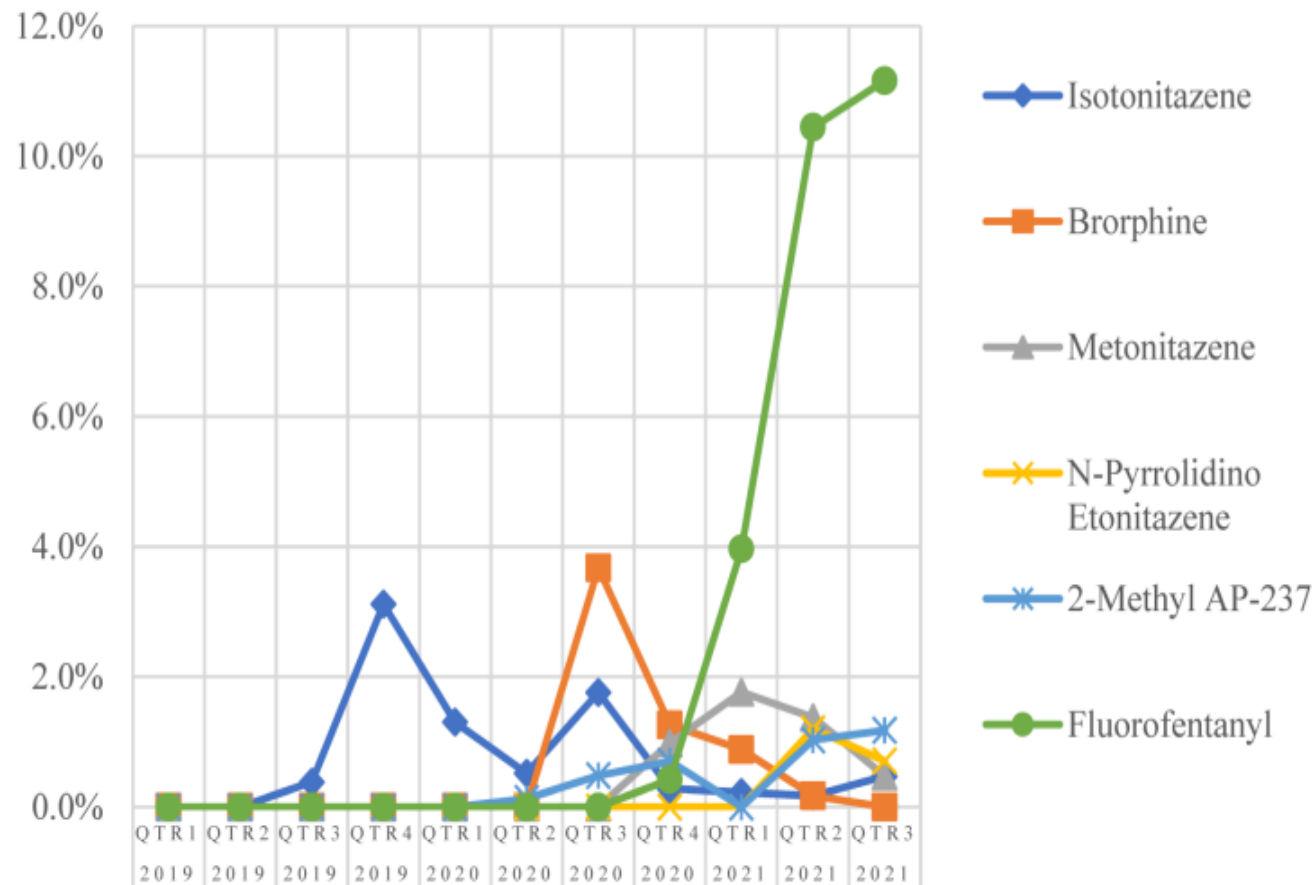
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## NPS OPIOIDS IDENTIFIED



## SELECT POSITIVITY SINCE Q1 2019



*For Reference:*  
**Fentanyl = 481**  
*(Tox. Samples)*

**Acknowledgements:** This report was prepared by Alex J. Krotulski, PhD; Sara E. Walton, MS; Amanda L.A. Mohr, MSFS, D-ABFT-FT; and Barry K. Logan, PhD, F-ABFT at the Center for Forensic Science Research and Education (CFSRE) at the Fredric Rieders Family Foundation. NPS Discovery would like to acknowledge scientists at CFSRE and NMS Labs for their involvements and contributions. For more information about our programs and reports, please contact NPS Discovery at [npsdiscovery@cfsre.org](mailto:npsdiscovery@cfsre.org) or visit our website at [www.npsdiscovery.org](http://www.npsdiscovery.org).

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## Buy Isotonitazene Online



\$350.00 — \$7,000.00

Quantity

Choose an option ▾

1

Add to cart

♡ Add to Wishlist

SKU: N/A Category: OPIOIDS



<https://www.reddit.com> › [opiates](#) › [comments](#) › [ejohwy](#) ⋮

## Anyone smoked Isonitazine? Dosage : r/opiates - Reddit

Jan 4, 2020 — It is incredibly sedating, it is not harsh and has almost zero taste, I have vaped it at 2mg/mL and at 5mg/mL in PG, the duration of the ...

[LEGAL US OPIOID ANALOGUES 2021 : r/Opioid\\_RCs - Reddit](#) Jan 10, 2021

[Plug claimed these were real M30s. Definitely not as strong as ...](#) Mar 12, 2021

[So I took a pressed 30. Overdosed, and had to be given 3 hits ...](#) Jun 4, 2020

[Just copped 7 m30s! : r/OpiateChurch - Reddit](#) Oct 14, 2021

[More results from www.reddit.com](#)

<https://www.drugbuyersguide.net> › [14083-isotonitazene](#) ⋮

## Isotonitazene - Who offers it? How Much? - Drug Buyers ...

Feb 24, 2020 — I'm hoping to see some analogue of **Isonitazine**/Metonitazene/Etonitazene etc.. soon. The benzimidazole are an interesting class due to the ...

# Isotonitazine (ISO)

- Seizure of 1900 pressed pills in Nova Scotia to look like dilaudid
- Data from the Ohio Bureau of Criminal Investigation finds that isotonitazene has been identified in the state at least 11 times since the start of 2020.



# Isotonitazine (ISO)

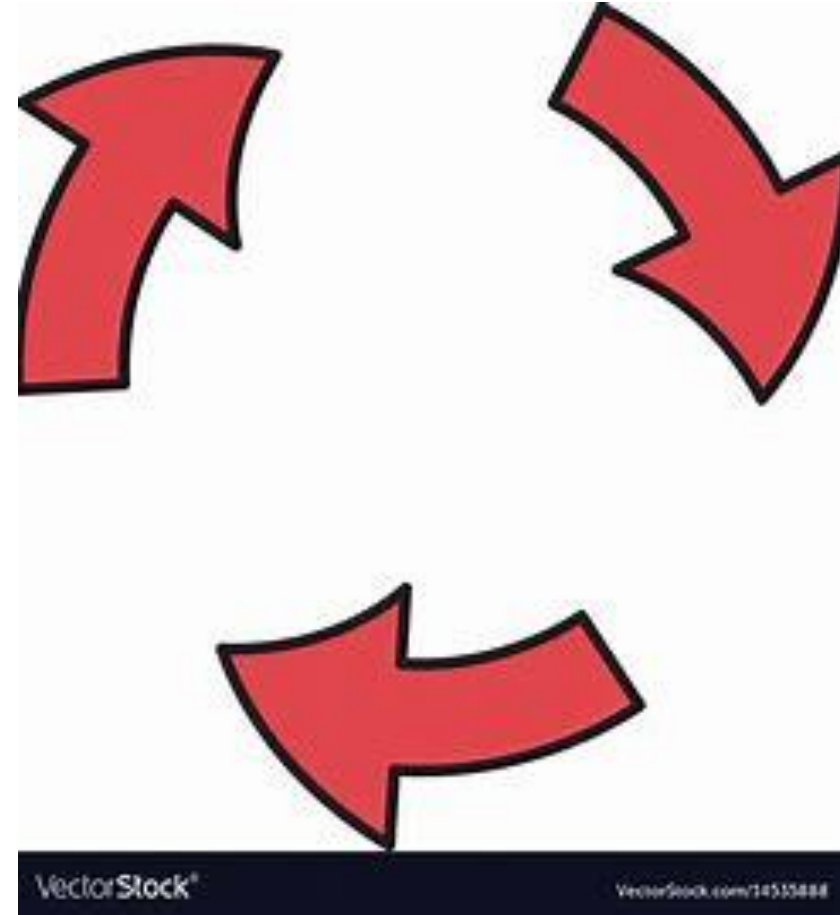
- First appeared on line 2018
- Chinese crack down on lab production of fentanyl (put to death a fentanyl manufacturer) 11/2018
- First reported in US in 2019
- Case of overdose deaths in Peoria Illinois
- 7 known cases of overdose in Indiana 2020

# Isotonitazine (ISO)

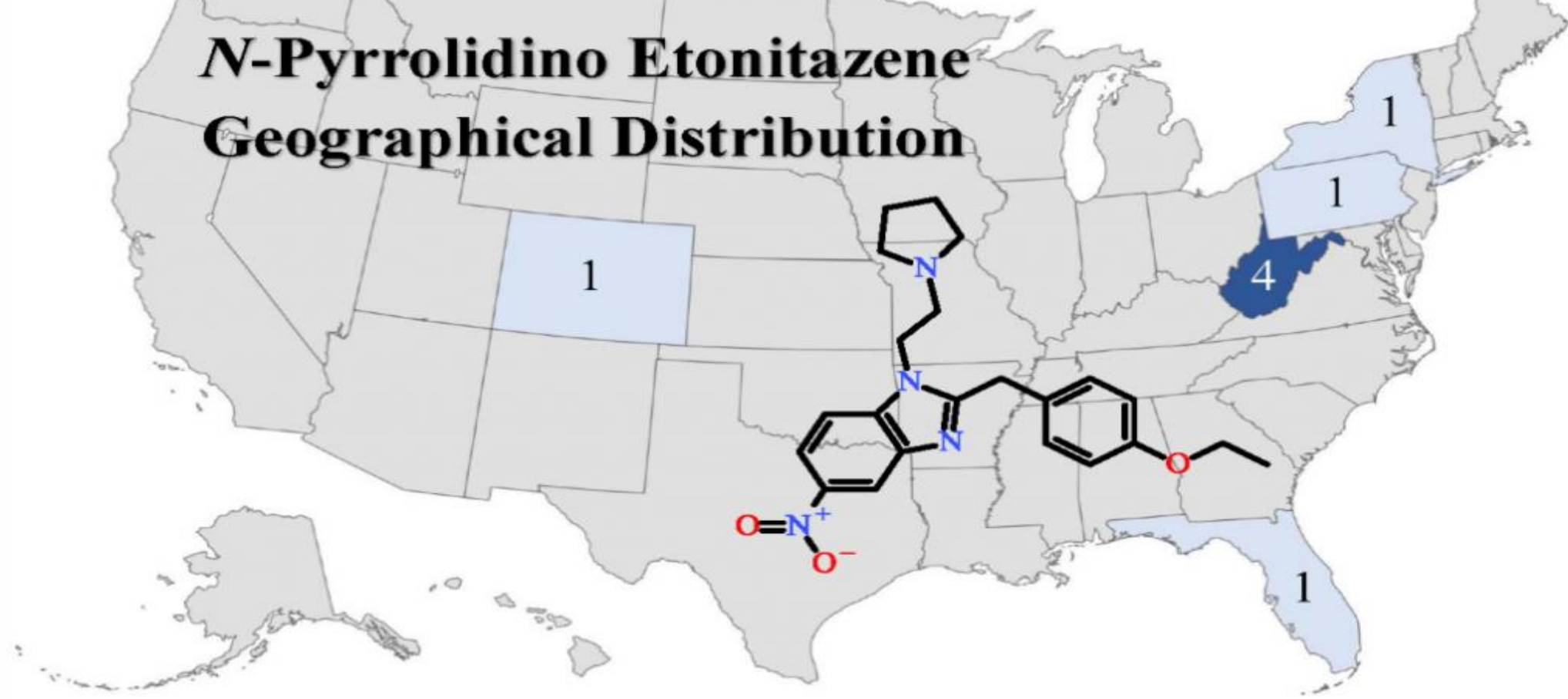
- Even more potent than fentanyl (slightly)
- Like fentanyl the patient may not be aware what they are taking (in Indiana found in conjunction with cocaine use)
- Not well studied, post mortem data mostly
- Will not show up in urine drug screens



- Typical cycle for NPS opioids
  - drug is first synthesized and is unscheduled
  - drug is sold on line
  - drug is detected by forensic labs (NPS discovery)
  - drug is restricted at state levels then DEA
  - in about 6-12 months use declines
- Unlikely these NPS opioids will replace fentanyl and its derivatives



# N-Pyrrolidino Etonitazene Geographical Distribution



## New High Potency Synthetic Opioid N-Pyrrolidino Etonitazene (Etonitazepyne) Linked to Overdoses Across United States

**June 17, 2021**

N-Pyrrolidino etonitazene (etonitazepyne) is a new high potency synthetic opioid bearing structural resemblance to etonitazene, a synthetic opioid that is nationally and internationally controlled. N-Pyrrolidino etonitazene is dissimilar in structure...

# Cathinones (Bath salts)

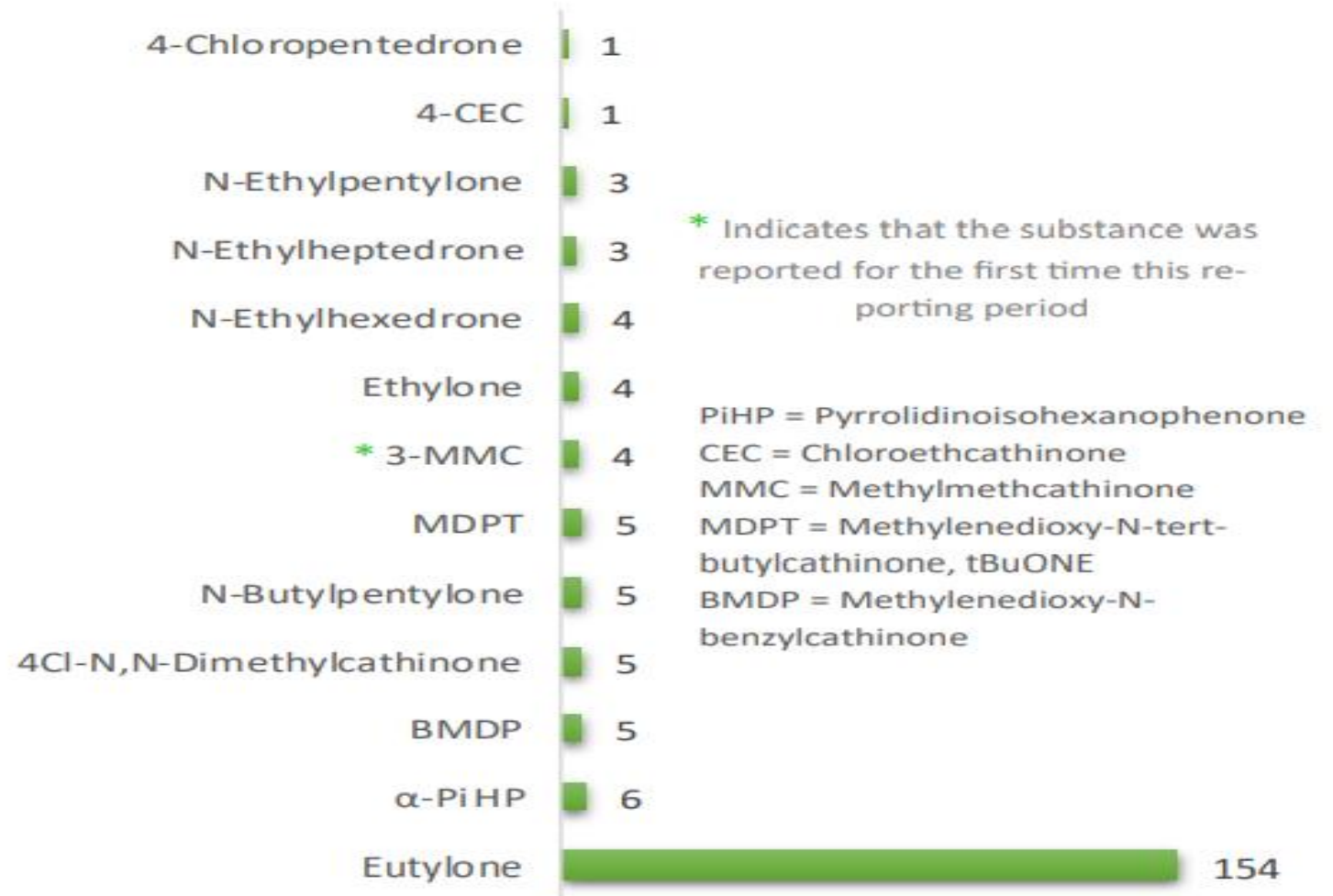
- Natural occurring cathinone (Khat)
- Chewed as a mild stimulant



# Cathinones

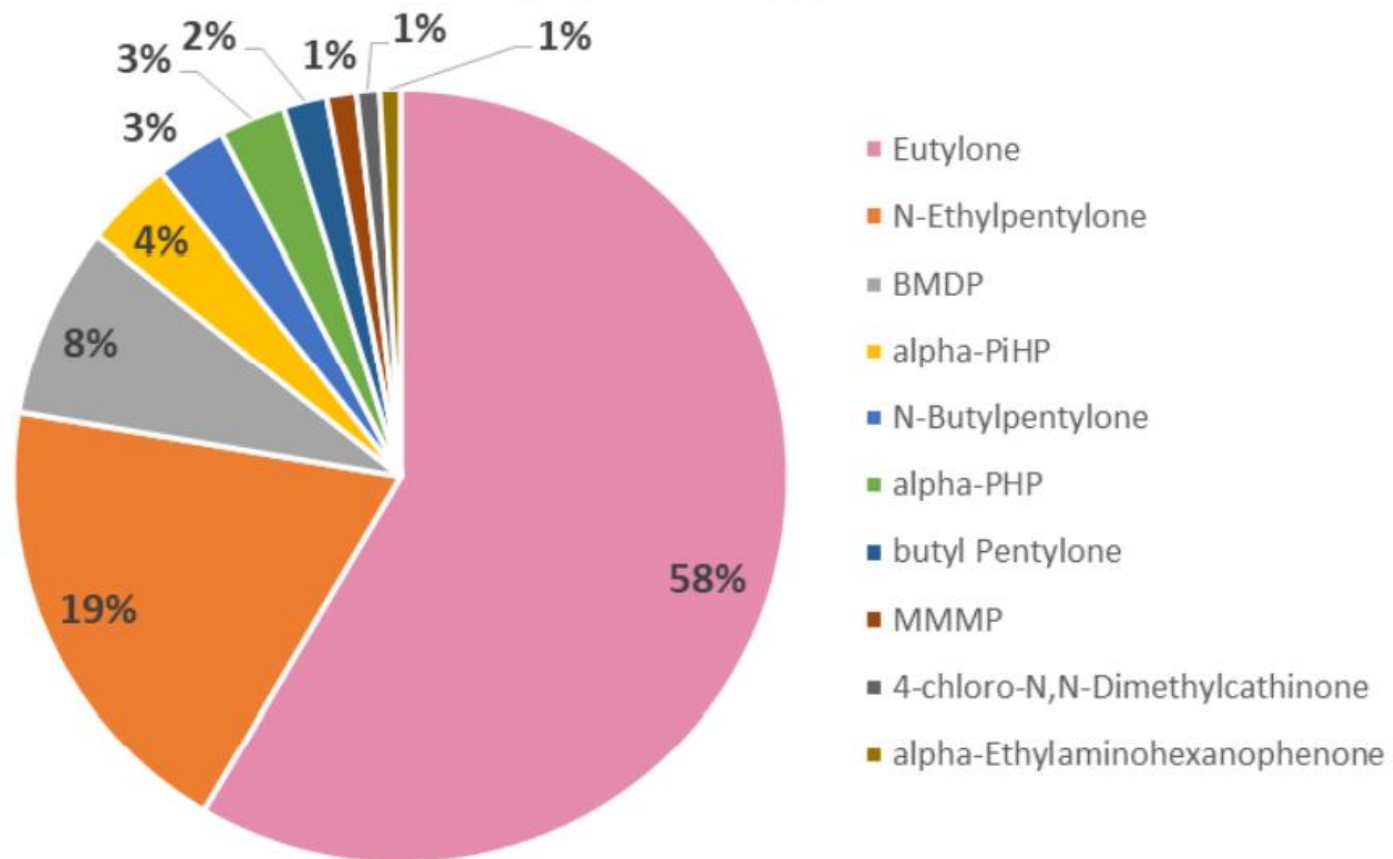
- Eutylone

THERE WERE **200** CATHINONE IDENTIFICATIONS THIS REPORTING PERIOD. THIS REPRESENTS AN APPROXIMATELY **9%** INCREASE FROM CY2019. EUTYLONE WAS THE MOST REPORTED CATHINONE, ACCOUNTING FOR APPROXIMATELY **77%** OF THE IDENTIFICATIONS.





**Figure 55. Ten Most Frequently Reported Synthetic Cathinones to NFLIS-Drug by Percentage, 2019**



Source: National Forensic Laboratory Information System-Drug – Retrieved July 10, 2020

# Synthetic cathinones

- Stimulant and empathogenic
- powder
- Sold in small packets as bath salts, plant food, cleaner...
- Often found in produces sold as Molly (MDMA or Ecstasy)
- Can be swallowed, snorted , smoked
- Increase dopamine, serotonin and norepinephrine levels

# Eutylone

- Sold in pills as MDMA (ectasy) or “Red bull, Blue Playboy”
- Produces a weaker effect than Ecstasy so the user takes more leading to the toxicity
- 11/5- DEA seizes 3 kg of Eutylone in Virginia

# PRESENTATION

- Stimulant
- Paranoia
- Hallucinations
- Excited delirium
- Panic attacks
- Increased sexual activity
- Agitated delirium
- Dilated pupils, hypertension, tachycardia
- Increased locomotor activity (bruxism, repetitive movements)



# Cathinone Withdrawal

- Similar to stimulant withdrawal
- Anhedonia and depression
- Insomnia
- Anxiety

# URINE DRUG TESTING

May show up as amphetamine at high doses but cross reactivity is generally poor

- ANY EXPERIENCES WITH BATH SALTS IN YOUR PATIENTS

# SYNTHETIC CANNABOIDS LIST



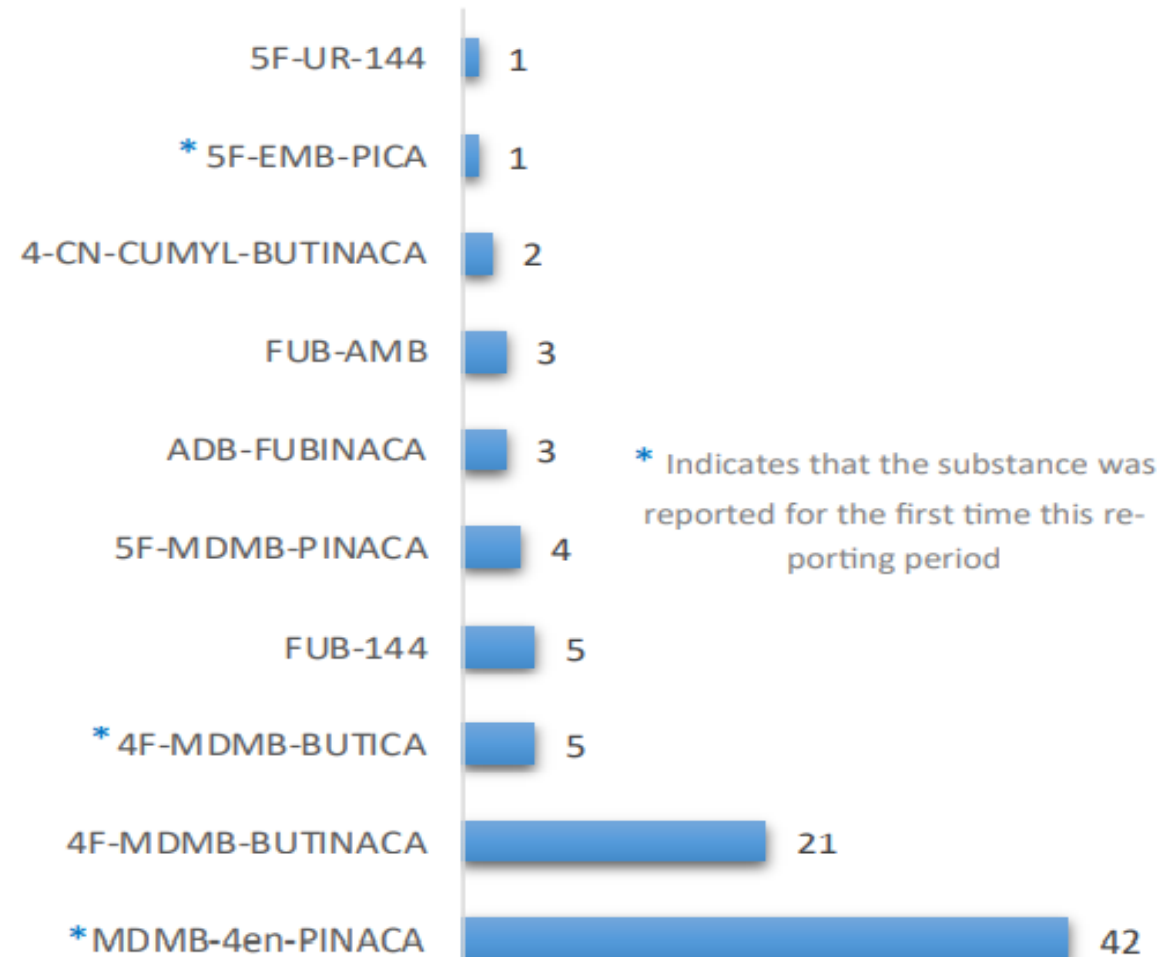
Compound	Type
HU-210	<b>Classic cannabinoid</b>
AM-694	<b>Benzoylindone</b>
RCS-4	<b>Benzoylindone</b>
WIN 48,098	<b>Benzoylindone</b>
CP-47,497	<b>Cyclohexylphenol</b>
JWH-018	<b>Naphthoylindole</b>
JWH-019	<b>Naphthoylindole</b>
JWH-073	<b>Naphthoylindole</b>
JWH-081	<b>Naphthoylindole</b>
JWH-122	<b>Naphthoylindole</b>
JWH-210	<b>Naphthoylindole</b>
AM-2201	<b>Naphthoylindole</b>
JWH-203	<b>Phenylacetylindole</b>
JWH-250	<b>Phenylacetylindole</b>
RCS-8	<b>Phenylacetylindole</b>

# NPS 2021 Q2

## SYNTHETIC CANNABINOIDS

THERE WERE **134** SYNTHETIC CANNABINOID IDENTIFICATIONS IN

CY2020. THIS REPRESENTS AN APPROXIMATELY **23%** DECREASE FROM CY2019. 5F-MDMB-PICA AND MDMB-4EN-PINACA WERE THE MOST COMMONLY REPORTED SYNTHETIC CANNABINOIDS ACCOUNTING FOR APPROXIMATELY **66%** OF THE IDENTIFICATIONS.



# Synthetic Cannabinoids

- Generally sprayed on some plant material for smoking
- Vaping products now, impregnated paper
- Very potent binders to the cannabinoid receptor (CB1)
- Bind to the cannabinoid receptor but with stronger affinity
- Significant variation between products and within a product
- Lack the CBD component which is protective against psychosis

- To avoid positive urine drug screens but want to smoke THC
- Still easily obtained on line
- Low cost
- Seen in poorer socioeconomic groups (can buy some with \$2-\$5)

# PRESENTATION OF SYNTHETIC CANNABIS

- Can vary greatly
- Feeling relaxed and mild changes in perception
- Confusion, disorganized thought,
- Agitation , restlessness
- Anxiety, irritability
- Paranoia, perception distortion, delusions, hallucinations
- Tachycardia, hypertension



# SYNTHETIC CANNABIS WITHDRAWAL

- Peak earlier (1-2 days) than THC and more severe
- Can see psychosis and seizures unlike THC