



Bromazolam – the Most Frequently Identified NPS Benzodiazepine in 2023

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NMS Labs





Introduction

Designer Benzodiazepines

- DBZDs, Novel Benzos, non-FDA Benzos
- EMCDDA monitoring over 33 different DBZDs
- 80% of these detected for 1st time between 2014-2020
 - Etizolam and Flualprazolam placed under international control November 2020
 - Bromazolam emerged & proliferated in replacement due to scheduling efforts
- Novel benzos
 - May be licitly prescribed in certain countries, illicitly supplied to others (NOT bromazolam)
 - Dark web or surface web sales
 - Counterfeit pharmaceuticals
 - Mixed in illicit drug supply
 - “Benzo-dope”



Counterfeit Xanax® tablets containing Flualprazolam.

Source: Papsun DM, Krotulski AJ, Homan J, et al. Flualprazolam blood concentrations in 197 forensic investigation cases. *Journal of Analytical Toxicology*. 2020. 1-7



Isotonitazene and Flualprazolam white powder.

Source: Dr. Alex J Krotulski, CFSRE

Modifications to FDA-Benzodiazepines

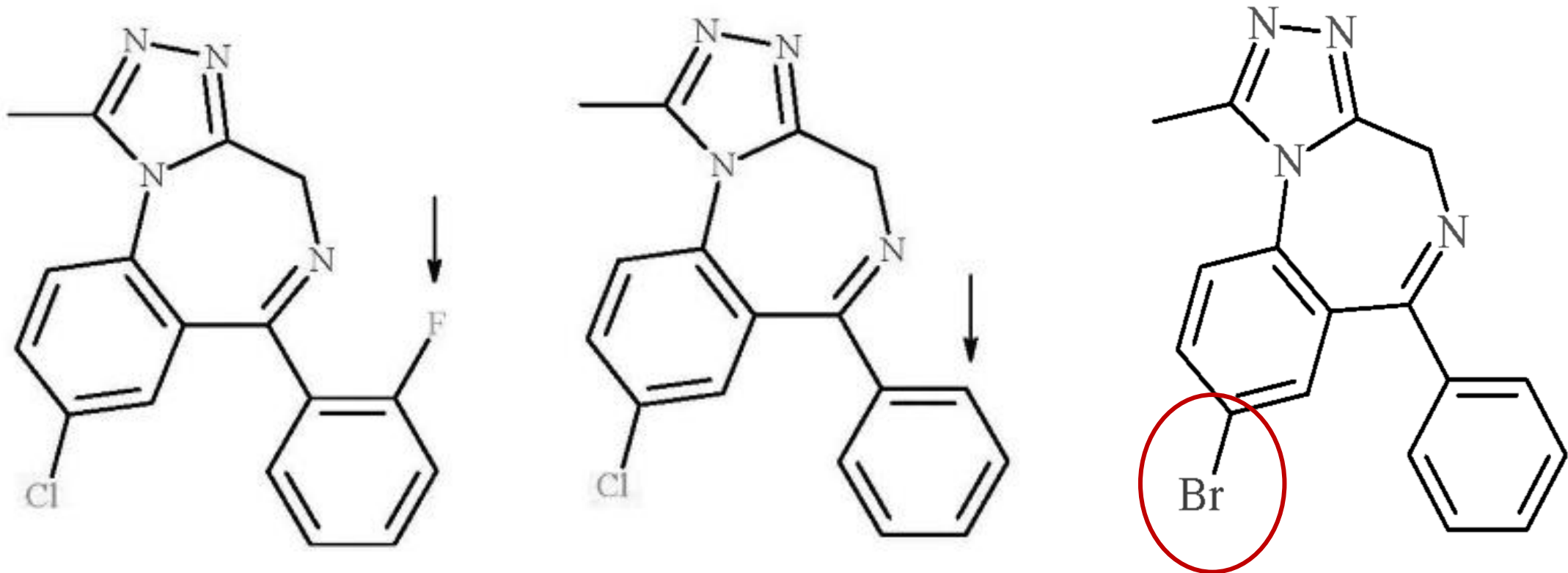


Figure 1. Structure of flualprazolam (left) and alprazolam (right).

Bromazolam

Source: Papsun DM, Krotulski AJ, Homan J, et al. Flualprazolam blood concentrations in 197 forensic investigation cases. *Journal of Analytical Toxicology*. 2020. 1-7

New Benzodiazepines in Europe – a Review: EMCDDA

FIGURE 2

Timeline of benzodiazepines formally notified to the EU Early Warning System for the first time, 2007–2020



Source: New Benzodiazepines in Europe – a Review. European Centre for Drugs and Drugs Addiction. 2021 Luxembourg. Publications Office of the EMCDDA.

New NPS Benzodiazepines Reported Since 2018



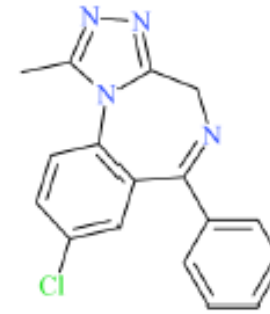
*Only 6 months

June 2022

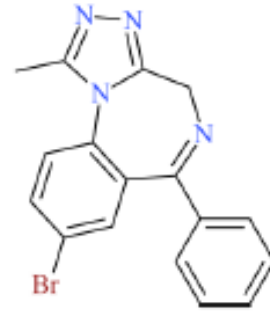
Bromazepam Prevalence Surging Across the United States Driven In Part by Increasing Detections Alongside Fentanyl



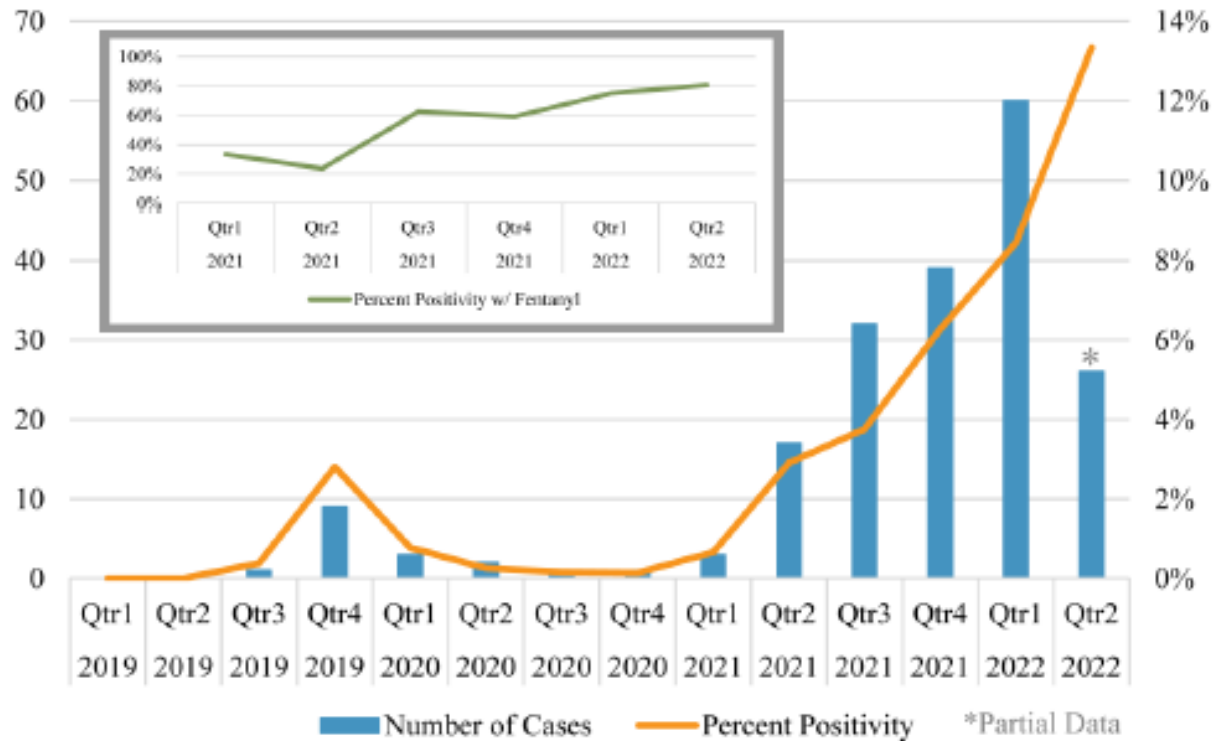
ALPRAZOLAM



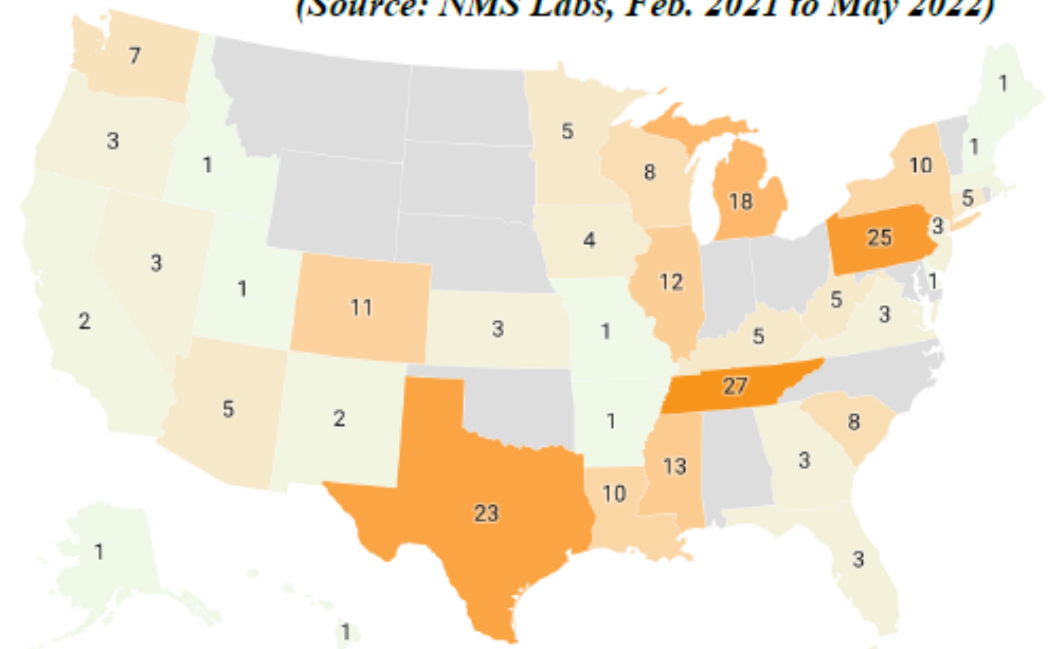
BROMAZOLAM



Bromazepam Cases and Positivity in the U.S. (Source: CFSRE)



Bromazepam Geographical Distribution in the U.S. (Source: NMS Labs, Feb. 2021 to May 2022)

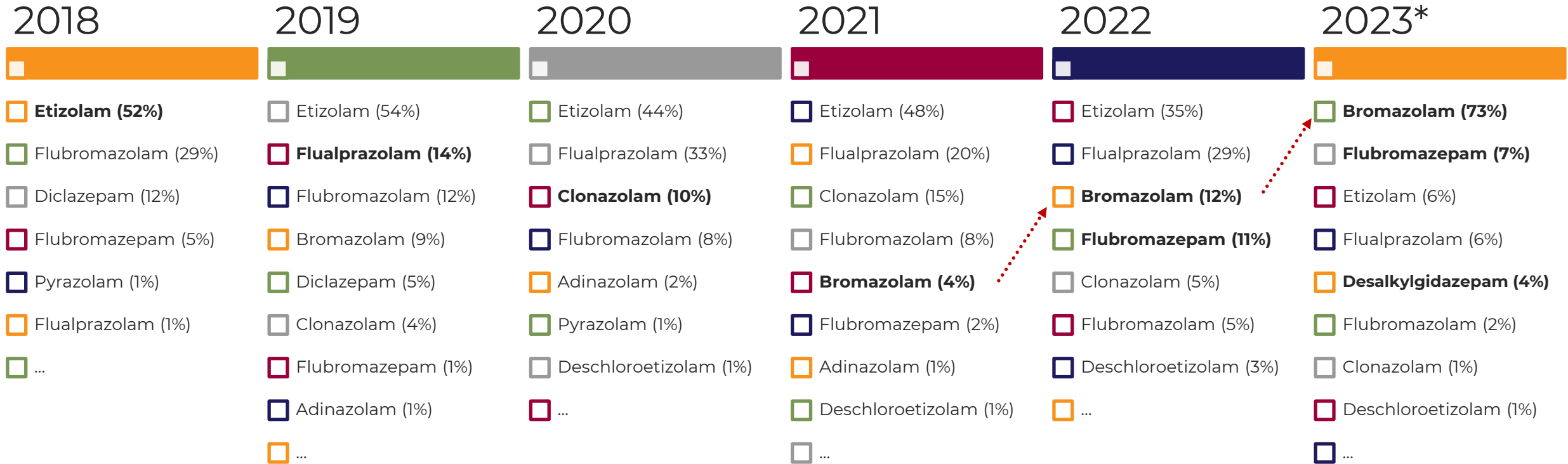


[Public-Alert Bromazepam NPS-Discovery_061522.pdf \(cfsre.org\)](https://www.cfsre.org/Public-Alert_Bromazepam_NPS-Discovery_061522.pdf)



DBZD Trends

NPS Benzodiazepines



% = of class, *Only 6 months

NPS Benzodiazepine Prevalence Analyzed at the CFSRE



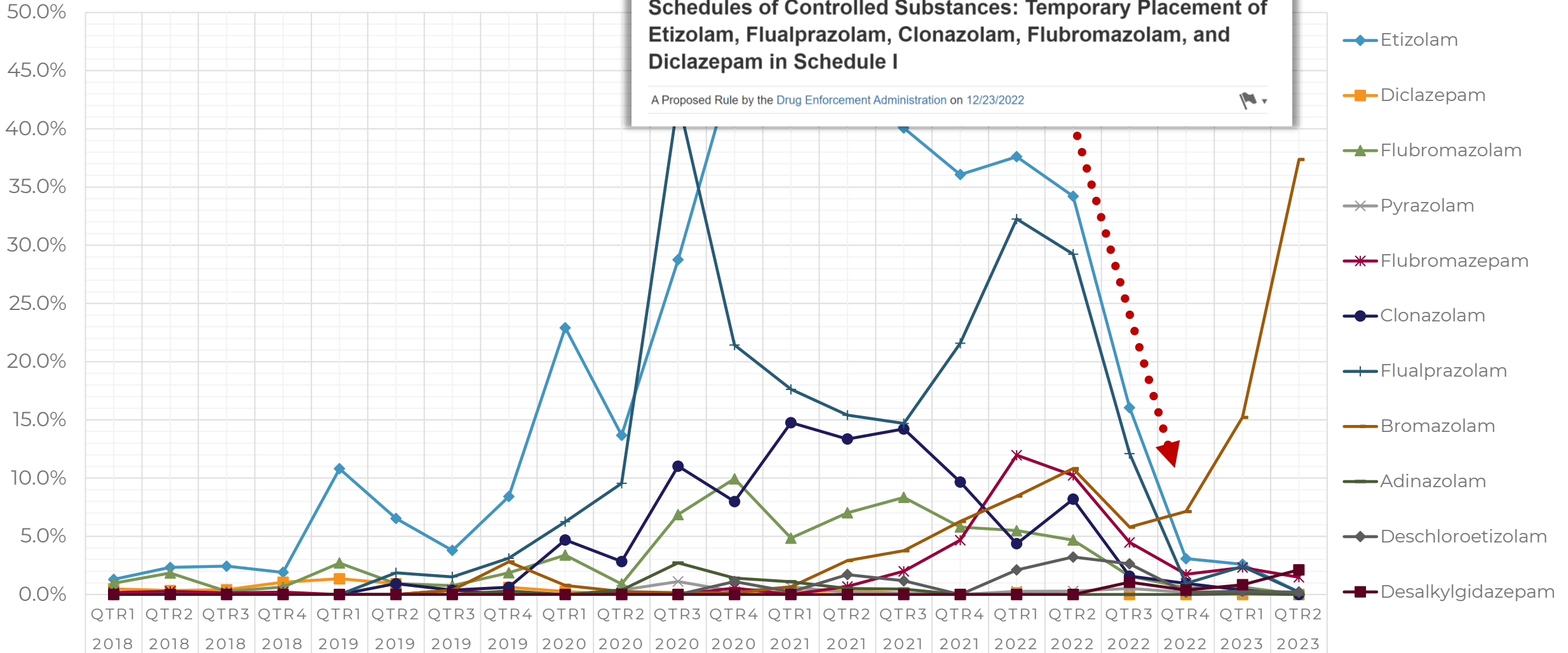
FEDERAL REGISTER
The Daily Journal of the United States Government



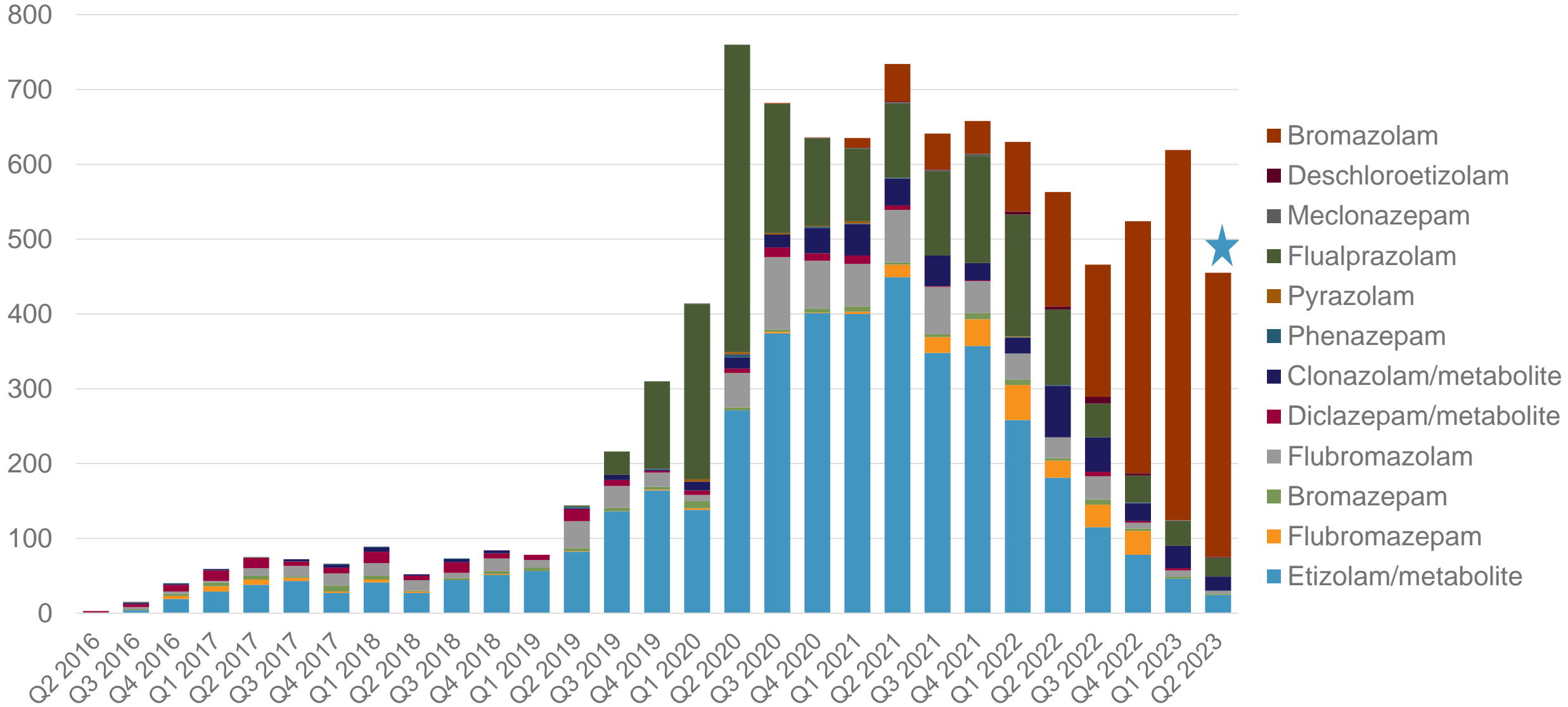
PR Proposed Rule

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

A Proposed Rule by the Drug Enforcement Administration on 12/23/2022



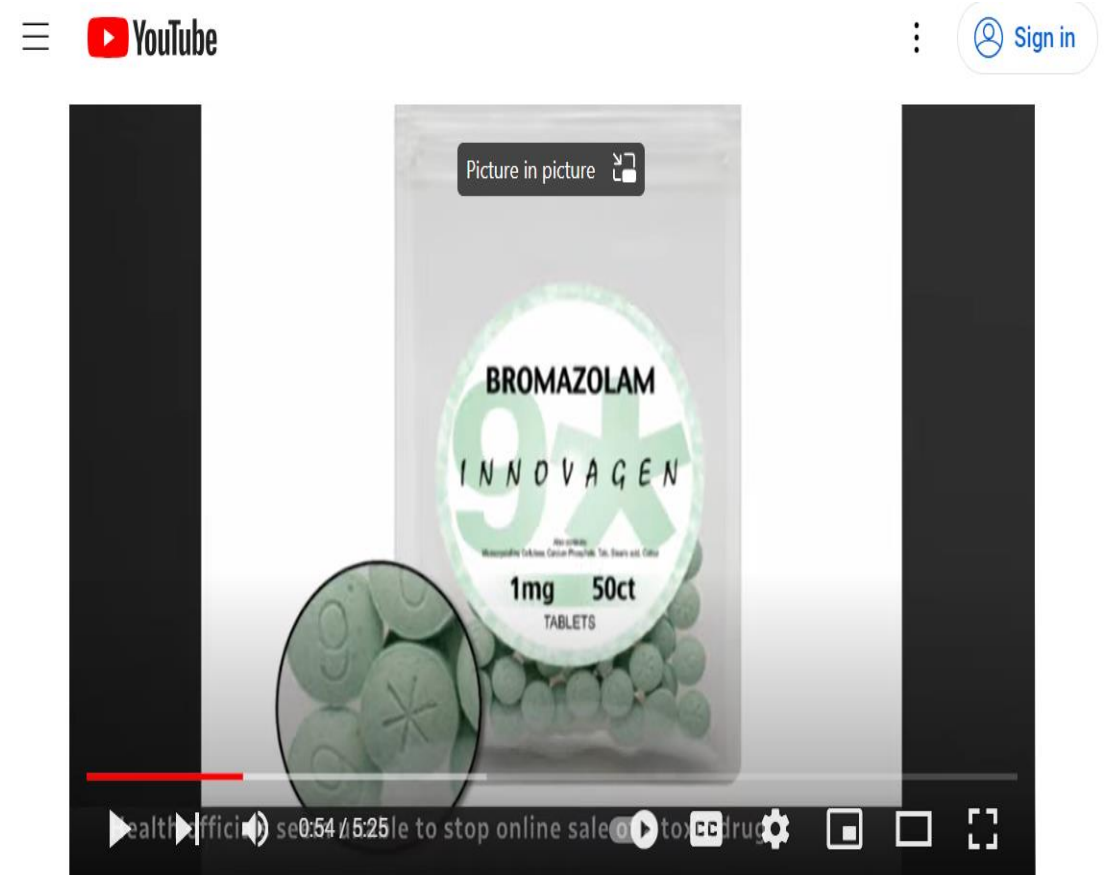
Reported DBZD in Blood 2016-Q2 2023 – NMS Labs



Bromazolam

Reported Findings

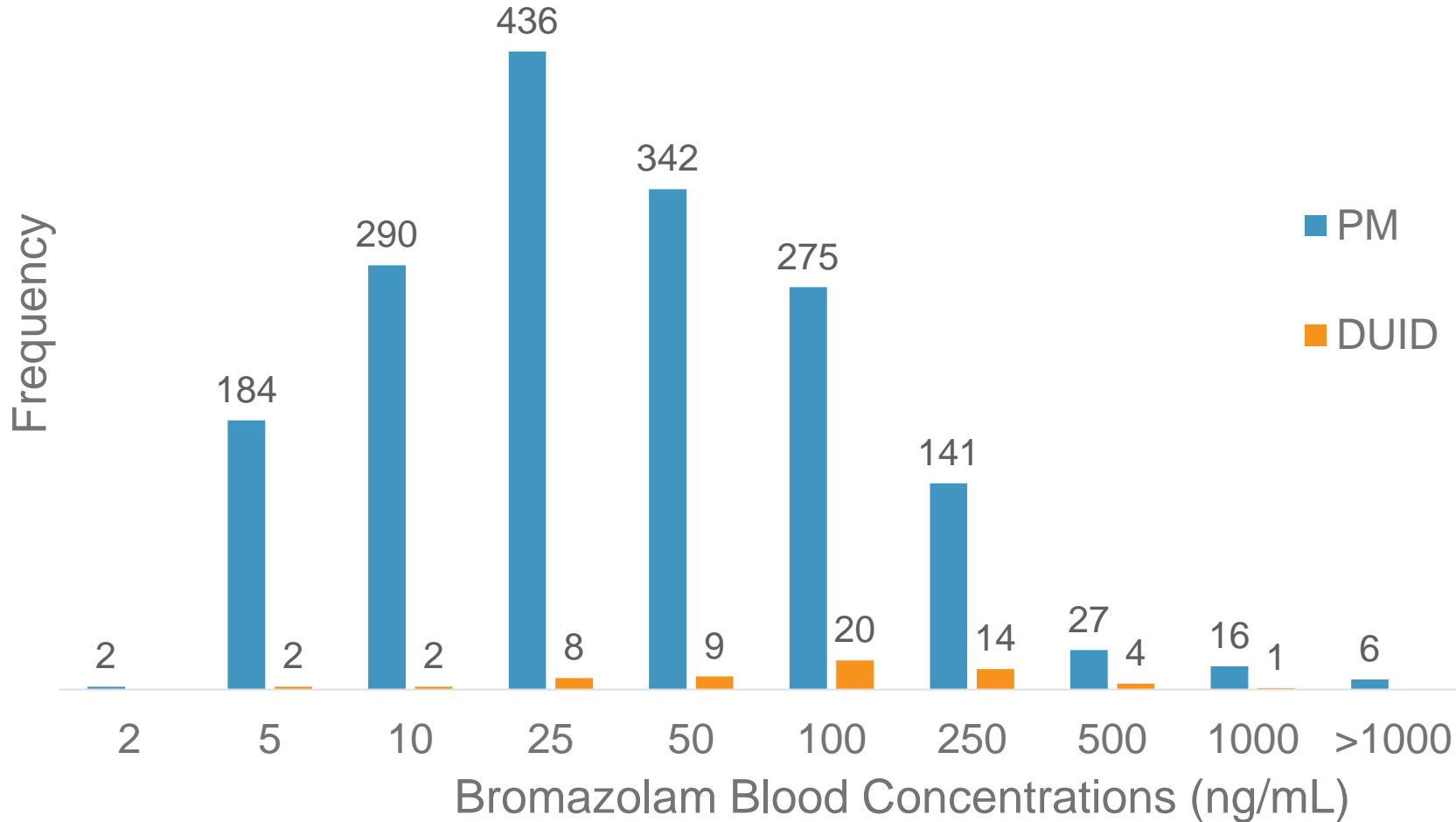
- First reported by NPS Discovery in May 2020
- First toxicology cases reported by NMS Labs were from samples collected in September 2020
- Through end of Q2 2023, total of 1791 blood samples reported for bromazolam (*5 qualitatively*)
- Postmortem Bloods (n=1719)
 - Identified from MEs/coroners, PM test codes, and/or sample source
 - Average & Median: 61 ± 236 ng/mL; 23 ng/mL
 - Range: 2-5900 ng/mL
- Impaired Driving (n=60)
 - Average & Median: 109 ± 144 ng/mL; 67 ng/mL
 - Range: 4.3-990 ng/mL



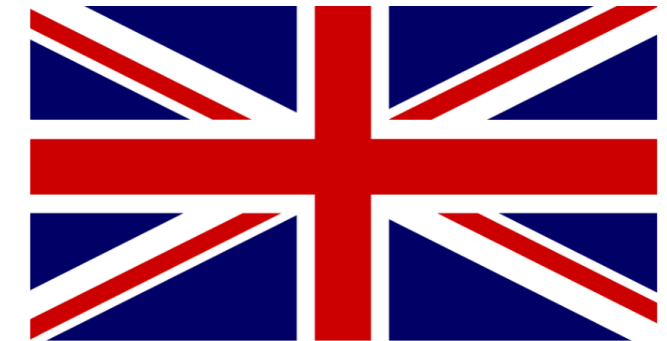
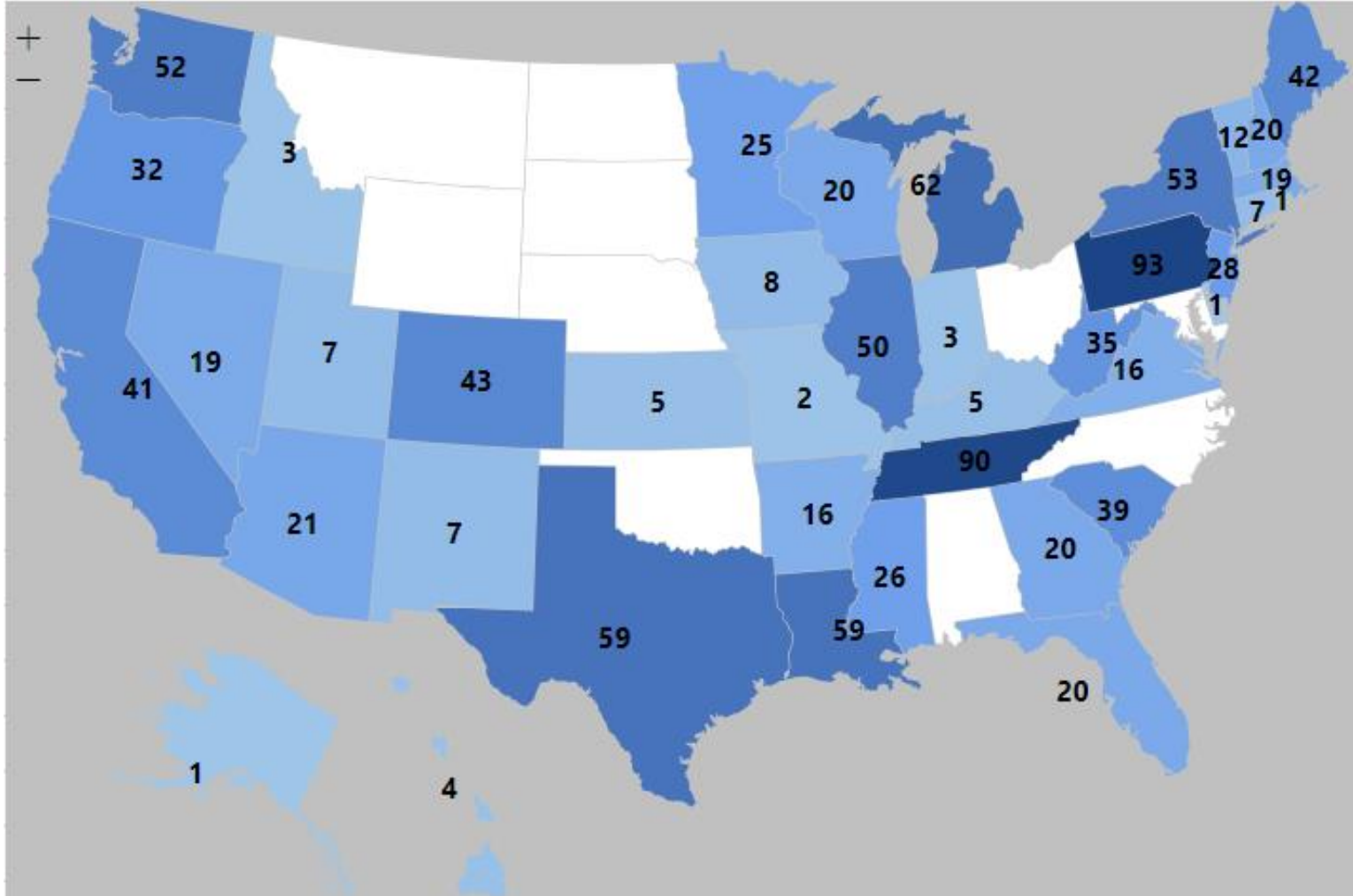
CBC/Radio-Canada is a Canadian public broadcast service. [Wikipedia](#)

Deadly drug just 'a click away,' warns grieving Ontario family

Bromazepam Blood Concentrations – NMS Labs through June 2023



Bromazepam Reported in Blood 2021-June 2023: US States



- Results reported from samples submitted to NMS Laboratories and in which bromazepam testing was added and confirmed positive.



Highlights



 [r/researchchemicals](#) · Posted by [u/definitely_a_user](#) 2 days ago



19



Bromazolam Experience Report

Picked up a 5mg/ml solution of Bromazolam. Couldn't find many solid experience reports so I decided to throw mine out there. For background, I have experience with benzos but I don't take a lot and hadn't had any for around 3 months before this so my tolerance is very low.

I did some quick mafs and came to the conclusion that 4 drops would be around 1mg. Completely unverifiable and slightly bartarded move, but from the few experience reports I found that math lines up.

5:33 4 drops taken, tastes mildly like 1,3-BDO (GHB prodrug) did

6:17 euphoria and sleepiness have been growing the past hour or so. Time's moving a lot faster than normal.

6:21 my balance is a tiny bit off, as is my hand eye coordination

6:33 smokin weed

8:27 very relaxing night so far

8:42 definitely some amnesic effects from this one but at this dose it's not unbearable. I can still remember stuff but nowhere near as easily. 3 hours in and I still feel some mild euphoria.

[om/r/researchchemicals/](#) (2g) kratom i took earlier though.



[Just_Learned_This](#) 🍷 +2 · 2 days ago

It's practically the go-to benzo after the etizolam ban.



4



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[alpacasb4llamas](#) · 1 day ago

What happened to etiz?? I just picked up a gram of powder easy



1



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[Just_Learned_This](#) 🍷 +2 · 1 day ago

It was banned in a few of the countries that used to supply it. India being the one of note, I believe. I too can find etiz easy but sources aren't as plentiful as they were in 2020.



2



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Case Examples

Postmortem Cases

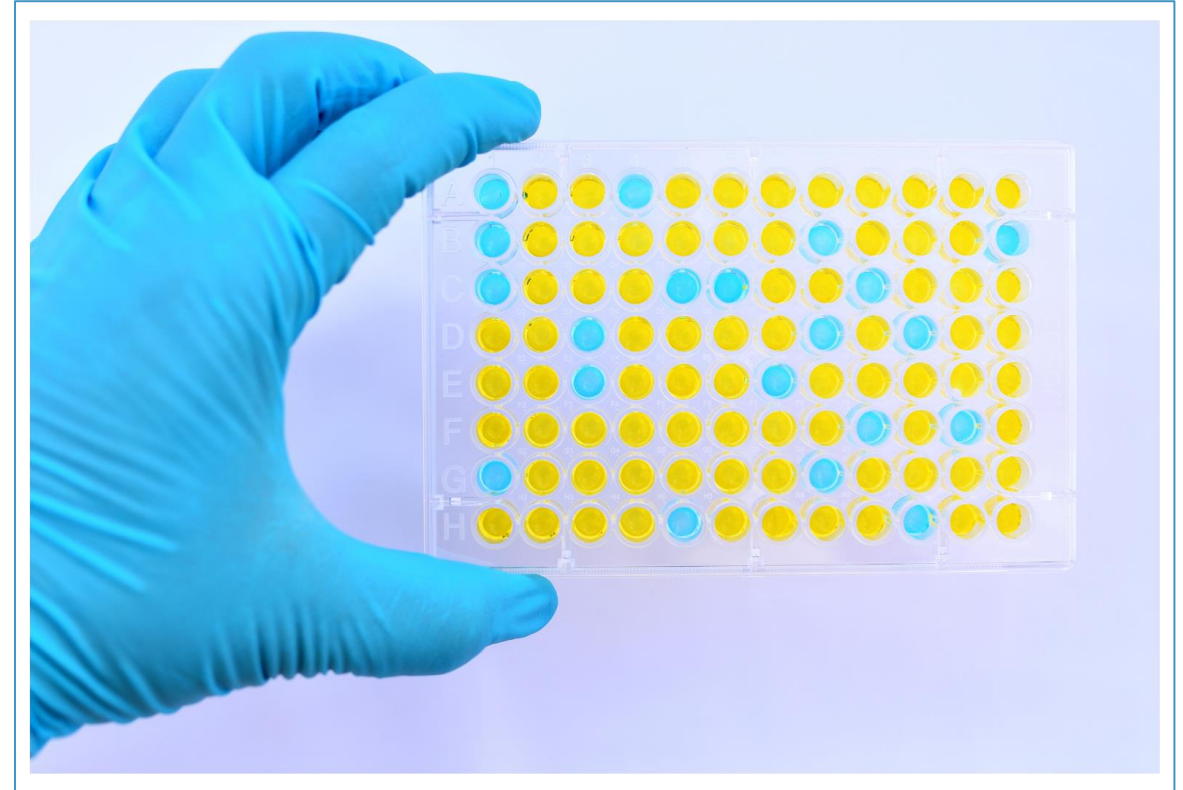
- **Case 1:** 31 y/o M
- Case History: known heavy alcohol use and drug use, possible drugs (Benzo's) through overseas ordering
- Toxicology – Central Blood
 - Ethanol 222 mg/dL
 - Caffeine
 - Delta-9 THC 0.92 ng/mL
 - **Bromazolam 1800 ng/mL**
- **Case 2:** 22 y/o F
- Case History: Suspected polysubstance intoxication, autopsy findings included pulmonary edema and cerebral edema
- Toxicology – Blood
 - Caffeine, Cotinine, Nicotine, Naloxone
 - Alprazolam 5.1 ng/mL
 - Benzoyllecgonine 120 ng/mL
 - Methadone 85 ng/mL
 - Buprenorphine – 2.2 ng/mL
 - Norbuprenorphine – 1.4 ng/mL
 - **Bromazolam 1400 ng/mL**

DUID Cases

- **Case 1:** 33 y/o M
- Case History: Traffic crash in which defendant hit parked car, causing car to roll over. Refused SFSTs or DRE evaluation. Movements were characterized as lethargic, and speech was slow and thick.
- Toxicology:
 - Amphetamine 130 ng/mL
 - Bupropion 22 ng/mL
 - Hydroxybupropion 210 ng/mL
 - **Bromazolam 160 ng/mL**
- **Case 2:** 57 y/o M
- Case History: Individual was observed falling asleep while eating breakfast at a restaurant. Vehicle was stopped after failing to stop at a stop sign and following too close to another vehicle. Delayed response to traffic stop. Slurred speech and glassy eyes were noted. Poor performance in SFSTs (unsteadiness, uncoordinated, etc)
- Toxicology:
 - **Bromazolam 990 ng/mL**

Toxicology Testing for DBZD

- Many laboratories perform quick and cost-effective screening using immunoassay
- DBZD can trigger positive benzodiazepine immunoassay screens due to cross-reactivity
- Most routine benzodiazepine confirmations do NOT include DBZD
- Pay attention to unconfirmed benzodiazepine immunoassay screens
- Time of Flight (TOF) screening protocols helpful in data-mining for new compounds, like bromazolam (be wary of bromazolam metabolite alpha-hydroxybromazolam triggering Flubromazolam in TOF)



Summary

- Bromazolam replaced etizolam as predominant designer benzodiazepine, likely in response to global scheduling efforts
 - Likely to stay that way (for now)
 - Critical Review Report by WHO Expert Committee on Drug Dependence October 2022
- Bromazolam seem often with fentanyl
 - In 1051 bromazolam bloods reported between Jan-June 2023, fentanyl positive ~83%
 - “Benzo-dope” street formulations, however, also could be due to prevalence
- Likely underreported (potentially significantly)
 - Variable testing protocols
 - Other findings in cases, so may not seek further testing
- Still a threat to public health & public safety
 - Mixed in illicit drug supply
 - Can exacerbate CNS depression with combo opioids/benzos

Acknowledgements

- CFSRE
 - Alex Krotulski, PhD
 - Sara Walton, MS
- NPS Strategy Team at NMS Labs
- NMS Lab staff
- Jolene Bierly, MSFS, D-ABFT-FT

References

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r/researchchemicals · Posted by u/[deleted] 1 year ago

Bromazolam is the benzo I've been searching for all my life

64 upvotes 136 comments 0 awards



r/researchchemicals · Posted by u/the_mega_monster 3 months ago

Bromazolam is ducking potent

24 upvotes 40 comments 0 awards



Thank you!

Questions?

CFSRE's NPS Discovery – Webinar
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