

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

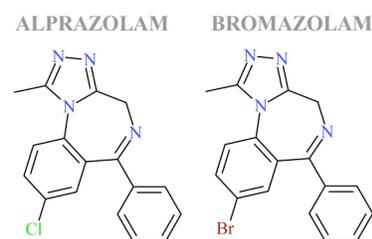


Purpose: The objective of this announcement is to notify public health and safety, law enforcement, first responders, clinicians, medical examiners and coroners, forensic and clinical laboratory personnel, and all other related communities about new information surrounding the emergent benzodiazepine **bromazolam**.

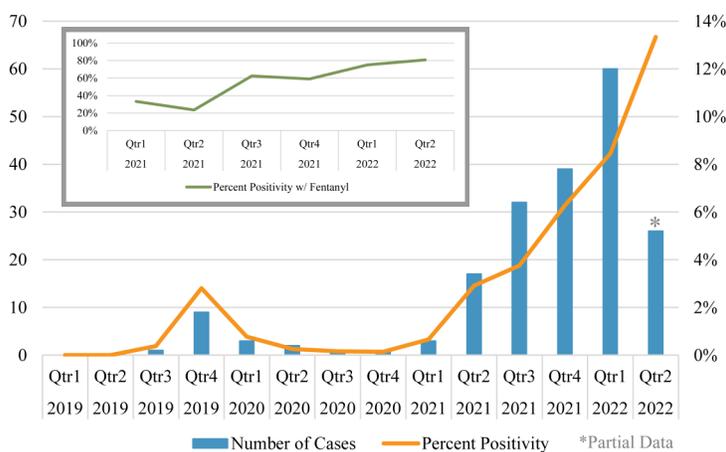
Background: NPS benzodiazepines, referred to as novel or designer benzodiazepines, are synthetically manufactured drugs with unknown biological effects and health risks. NPS benzodiazepines are of public health and safety concern due to the potential for high potency at low doses, producing strong sedation and amnesia. Additional adverse effects include loss of coordination, drowsiness, dizziness, blurred vision, slurred speech, muscle relaxation, respiratory depression, and, in some cases, death. These factors make their presence in forensic cases of high importance, paired with increasing concerns over combinations of benzodiazepines with opioids, colloquially known as “benzo-dope”. NPS benzodiazepines can appear in various drug preparations, including powders, tablets, liquids, and blotters.

Summary: Bromazolam first emerged in the recreational drug supply in 2016 (Europe) and 2019 (United States). Bromazolam was first synthesized during medicinal drug development in the 1970s but never approved for therapeutic use in the United States. Bromazolam is the brominated counterpart to the chlorinated drug alprazolam. Bromazolam has been linked to adverse events resulting in hospitalization and death. Bromazolam is commonly reported in combination with other drugs, including the opioid fentanyl. To date, bromazolam has been identified in more than 250 toxicology cases submitted to **NMS Labs**, including both antemortem and postmortem investigations. Bromazolam has been identified in more than 190 toxicology samples tested at the **Center for Forensic Science Research and Education (CFSRE)**, displaying an increase in positivity from 1% in Q1 2021 to 13% in Q2 2022. More significantly, co-detections with fentanyl have increased in recent months to more than 75% for bromazolam positive samples. Bromazolam has also been confirmed in counterfeit benzodiazepine preparations at the CFSRE.

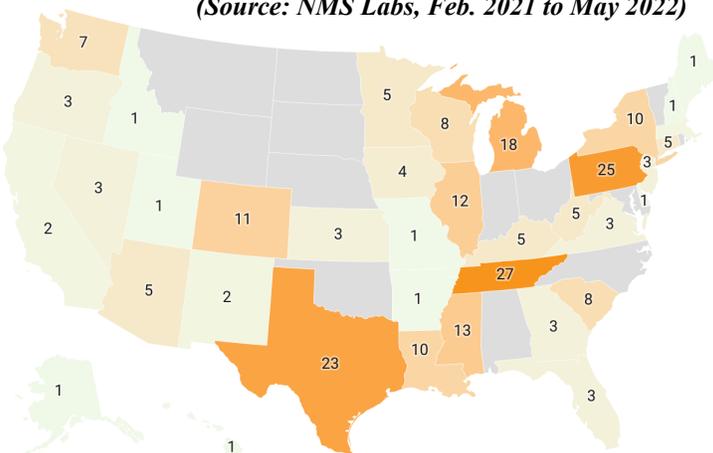
Bromazolam Blood Conc. (ng/mL)	
Postmortem Investigations (n=236)	
Mean (±S.D.)	65 ± 79
Median	35
Range	2.1 - 670
Drug Impaired Driving (n=14)	
Mean (±S.D.)	61 ± 47
Median	56
Range	4.3 - 160



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



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



Recommendations for Public Health

- Implement surveillance for rapid identification of drug use and overdose outbreaks; monitor geographical drug distribution and trends
- Engage local poison centers and clinicians to assist with treatment of affected patients.
- Track demographics and risk factors for people who use benzodiazepines and opioids.
- Raise awareness about the risks and dangers associated with new benzodiazepine use.

Recommendations for MEs & Coroners

- Test for new benzodiazepines and their biomarkers in suspected benzodiazepine-related and opioid-related cases.
- Be aware that ELISA screening for new benzodiazepines may not be specific or specialized for the newest generation of drugs; consider mass spectrometry-based screening.
- Be aware that concentrations of new benzodiazepines in biological specimens can vary and GC-MS sensitivity may not be adequate.

Recommendations for Laboratories

- Utilize analytical data available publicly for the identification of **bromazolam**.
- Utilize non-targeted testing protocols or develop sensitive and up-to-date testing procedures.
- Prioritize testing of drug material samples.
- Share data on benzodiazepine and opioid identifications with local health departments, forensic scientists, and related communities.

Recommendations for Clinicians

- Become familiar with the signs and symptoms of new benzodiazepine use (e.g. sedation, drowsiness, slurred speech, motor incoordination), with and without opioids.
- Be mindful that recreational drugs have limited quality control, containing undeclared substances that impact expected clinical effects or findings.
- Counsel about the potential harms of benzodiazepine products (e.g., counterfeit tablets, pressed “Xanax” bars).

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References and Related Articles:

- Manchester et al. (2018) *The Emergence of New Psychoactive Substance (NPS) Benzodiazepines: A Review. Drug Testing and Analysis, 10* (1), 37-53.
- Waters et al. (2018) *The use of a quantitative structure-activity relationship (QSAR) model to predict GABA-A receptor binding of newly emerging benzodiazepines. Science & Justice, 58* (3), 219-225.
- CFSRE / NPS Discovery: *Bromazolam: New Drug Monograph*

Rapid NPS Testing Available:

If your agency suspects new benzodiazepine toxicity with no identifiable cause or your jurisdiction is noticing an increase in overdose patients requiring analytical testing, contact NPS Discovery at the Center for Forensic Science Research and Education (CFSRE); a non-profit organization in collaboration with local and federal agencies that can provide rapid testing after novel drug outbreaks in the United States.

Website: www.npsdiscovery.org Email: npsdiscovery@cfsre.org