

Eutylone (bk-EBDB) and Benzylone (BMDP): Increasing Prevalence of New Synthetic Stimulants in the United States



Purpose: The objective of this public announcement is to notify public health and public safety, law enforcement, clinicians, medical examiners and coroners, laboratory personnel, drug treatment providers, and other related communities about new information surrounding the emergent synthetic stimulants **Eutylone** and **Benzylone**.

Background: Synthetic stimulants are chemically manufactured drugs with sub-classifications based on their structural relation to amphetamine or cathinone. Synthetic stimulants, including substituted cathinone analogues (e.g. eutylone and benzylone), can retain both stimulant and hallucinogenic properties, and can cause associated health risks. Synthetic stimulants are often prepared and distributed in powder, capsule, or pressed tablet form, and may be sold as “Ecstasy,” “Molly,” or 3,4-methylenedioxyamphetamine (“MDMA”) on illicit drug markets. In the United States, synthetic stimulants have been associated with mortality and linked to cardiac effects resulting in death. Adverse effects can include hyperthermia, dehydration, arrhythmias, hallucinations, and serotonin syndrome.

Summary: Between 2017 and 2019, the substituted cathinone *N*-ethyl pentylone (ephylone) was the most commonly encountered emergent synthetic stimulant to appear in forensic casework. Due to its prevalence and contributions to mortality, *N*-ethyl pentylone was federally scheduled by the United States Drug Enforcement Administration (DEA) in August 2019. This statute created a shift in the NPS drug market, noted by proliferation of two new synthetic stimulants: **Eutylone** and **Benzylone**. Eutylone was first identified in seized drug casework in the United States in Q2 2019, however, its popularity did not increase until the end of 2019, around the time when it was first reported in toxicology casework by [NPS Discovery](#) (September 2019). Similarly, benzylone was first identified in seized drug casework in the United States in Q2 2019, however, its positivity remained fairly low and stable in seized drug exhibits throughout 2019. To date in the United States, benzylone has been identified primarily in seized drug casework, whereas eutylone has been identified with higher frequency in forensic toxicology casework, including postmortem cases and driving under the influence of drugs (DUID) investigations.

Eutylone

Prevalence:

- More than 50 cases

Case Type:

- Postmortem Cases
- DUID Investigations

Date Range:

- Sept. 2019 to Mar. 2020

Benzylone

Prevalence:

- More than 50 cases

Case Type:

- Seized Drug Testing
- Postmortem Cases

Date Range:

- May 2019 to Mar. 2020

Recommendations for Public Health

- Implement surveillance for rapid identification of drug overdose outbreaks.
- Track and monitor geographical drug distribution and trends.
- Raise awareness about the risks and dangers associated with stimulant/hallucinogen use.

Recommendations for Clinicians

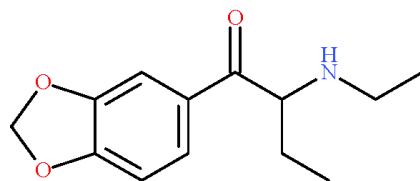
- Become familiar with the signs and symptoms of synthetic stimulant use (e.g. agitation, hallucinations, excitement, elevated pulse, arrhythmias, serotonin syndrome).
- Be mindful that illicit drugs may contain undeclared and/or adulterating substances that impact the expected clinical effects or findings.
- Counsel patients about the dangers of Ecstasy, Molly, and MDMA use.

Recommendations for MEs & Coroners

- Test for new synthetic stimulants and their biomarkers in suspected stimulant-related or excited delirium death cases.
- Be aware that typical immunoassay screening for stimulants may not detect the most current emergent stimulants; consider mass spectrometry-based screening.

Recommendations for Forensic Laboratories

- Review analytical data for eutylone and benzylone available from [NPS Discovery](#).
- Prioritize analysis of seized drug samples taken from drug overdose investigations.
- Share data on synthetic stimulant drug seizures with local health departments, medical examiners, and coroners.



Eutylone (bk-EBDB)

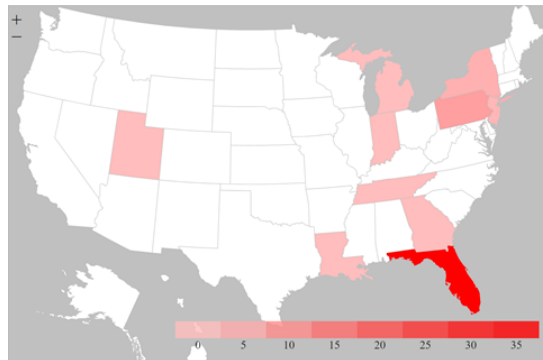


Figure: Geographical Distribution of Eutylone Positivity In Toxicology Cases Based On Location of Submitting Agency

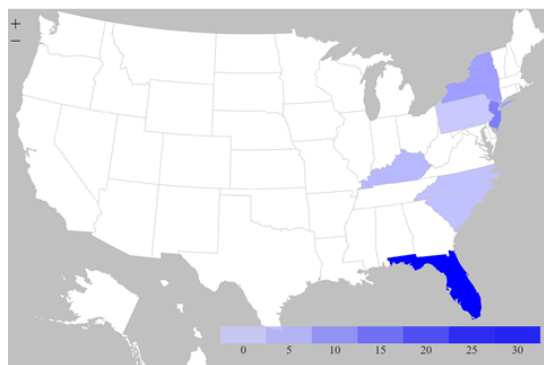
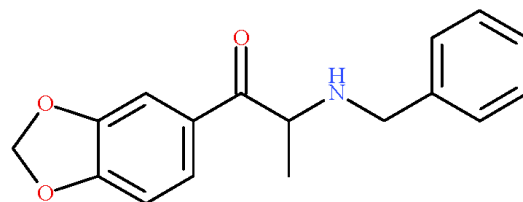


Figure: Geographical Distribution of Benzylone Positivity In Seized Drug Cases Based On Intended Shipping Destination



Benzylone (BMDP)

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References and Related Articles:

- [Eutylone](#) and [Benzylone](#) New Drug Monographs
- Krotulski, AJ; Mohr, ALA; Fogarty, MF; Logan, BK. (2018) [The Detection of Novel Stimulants in Oral Fluid from Users Reporting Ecstasy, Molly and MDMA Ingestion](#). *Journal of Analytical Toxicology*, 42, 544-553.
- NIDA: [Synthetic Cathinones \(“Bath Salts”\)](#)

Rapid NPS Testing Now Available:

If your agency suspects synthetic stimulant toxicity with no identifiable cause of death 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; a non-profit organization in collaboration with DOJ and CDC which has received funding to provide rapid testing of novel drug outbreaks in the United States.

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