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**NPS**  
**DISCOVERY**

# NPS Opioid and Benzodiazepine Combinations – Occurrence, Distribution, and Interpretive Challenges

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*A New Realm of NPS Opioids and NPS Benzodiazepines – Analytical and Interpretive Considerations*

# Disclosure

- I have no conflicts of interest to disclose.
- I am a scientist and employee of FRFF / CFSRE, a 501(c)(3) non-profit research and educational facility.

# Poly-Drug Use

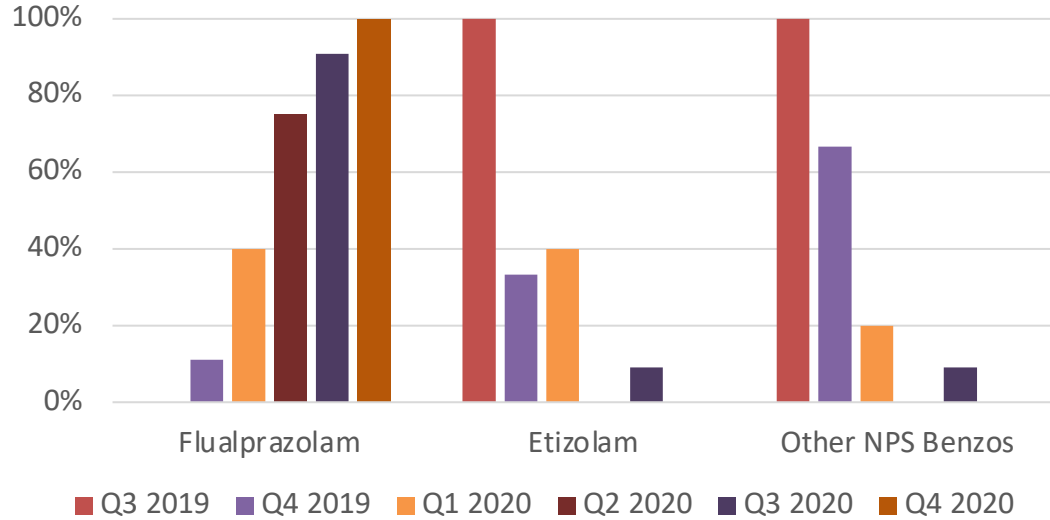


# Isotonitazene

- Isotonitazene was commonly found in combination with NPS benzos
- Increasingly, **flualprazolam** overtime
- Linked to raw drug material



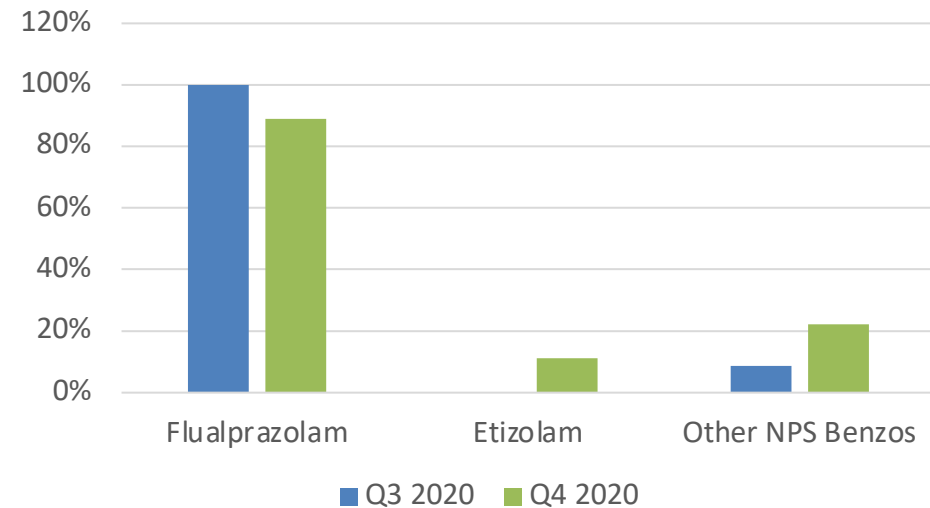
- **Isotonitazene + NPS Benzodiazepine**



# Brorphine

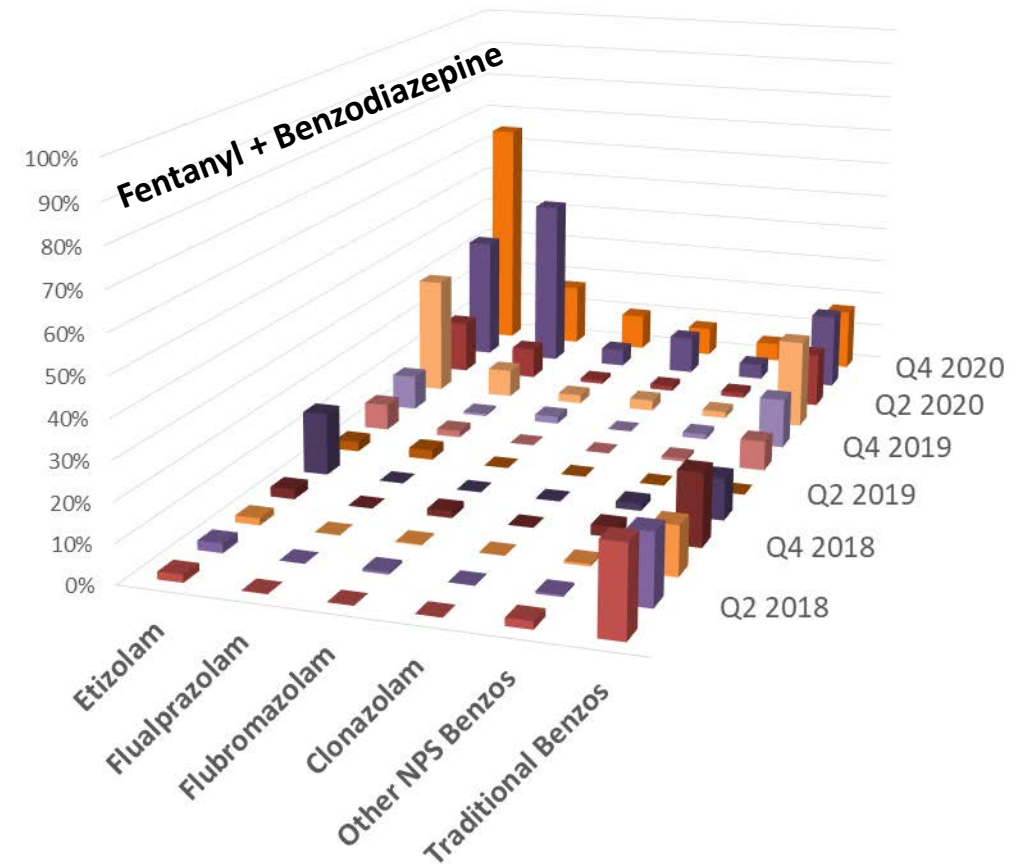
- Brorphine is/was commonly found in combination with NPS benzos
- Primarily, **flualprazolam**
- Replacement to isotonitazene in the raw drug material?

- **Brorphine + NPS Benzodiazepine**



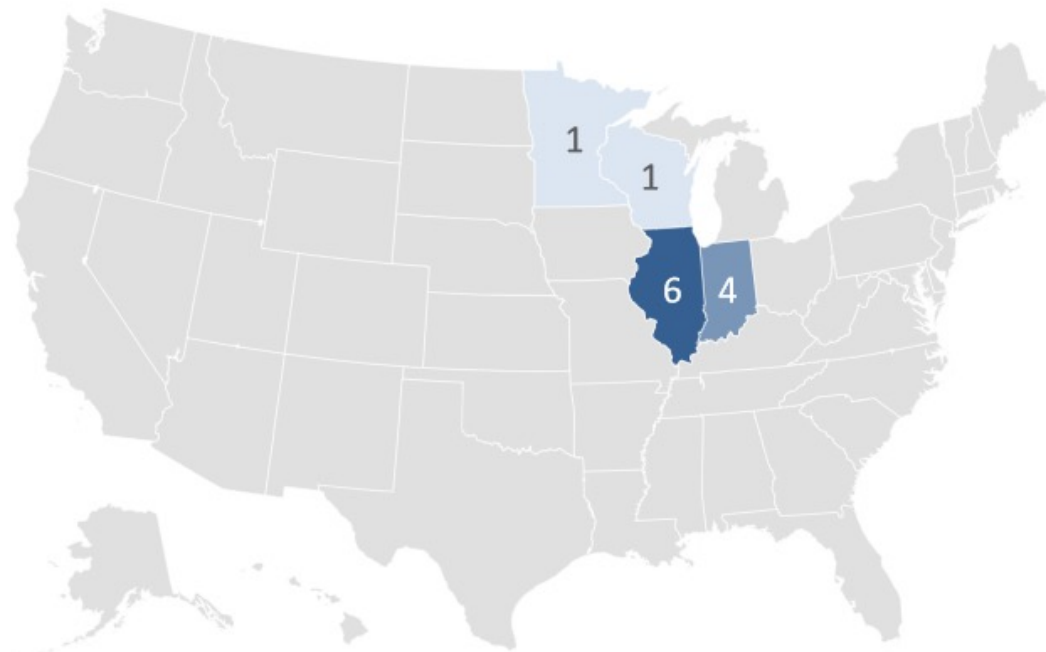
# NPS Benzos and Fentanyl

- NPS benzodiazepines are increasingly being found in combination with fentanyl
  - As fentanyl positivity continues to increase
- Mostly, **etizolam** and **flualprazolam**
- In Q4 2020, **64%** of fentanyl positive cases also contained etizolam
  - Compared to roughly >10% in 2019

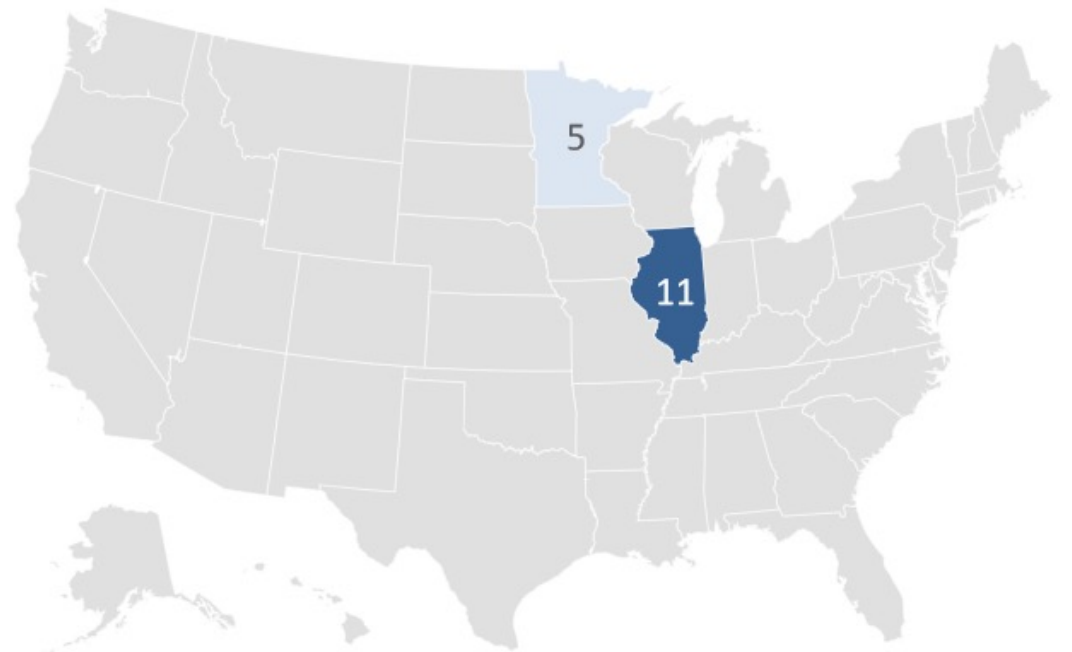


# Geographical Distribution

## Isotonitazene + Flualprazolam



## Brorophine + Flualprazolam



*\*Data provided by CFSRE*

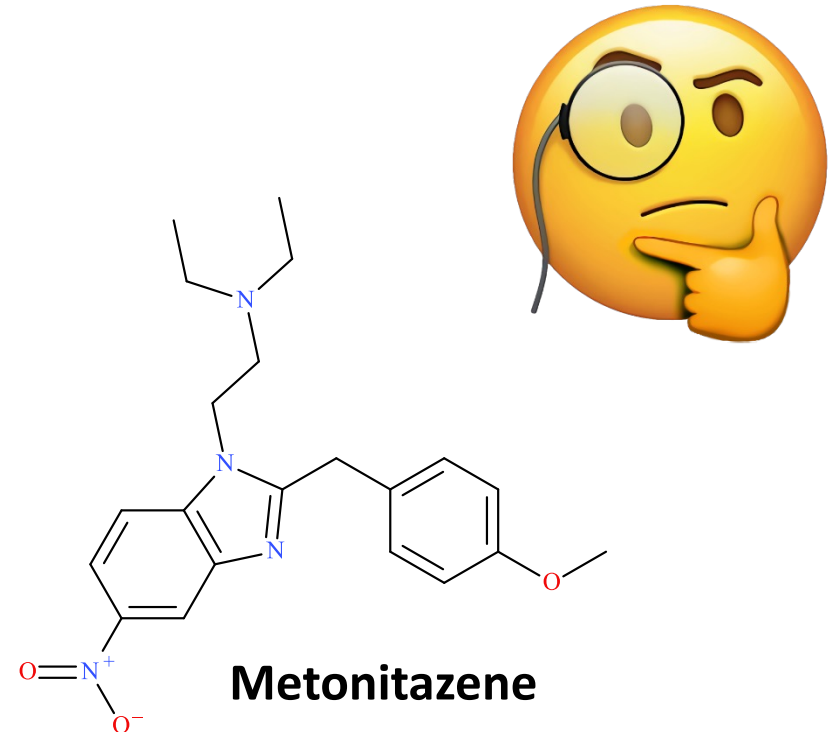
# Interpretive Challenges

- **Medicolegal Death Investigation**
- **Case 1:**
  - Suspected drug overdose, pulmonary edema
  - **Isotonitazene: 0.4 ng/mL**
  - Flualprazolam: 4 ng/mL
  - Other Findings: Naloxone, Hydroxyzine
- **Case 3:**
  - Suspected drug overdose
  - **Brorphine: 1 ng/mL (blood)**
  - Flualprazolam: 2.5 ng/mL
  - Other Findings: Fentanyl (5 ng/mL), THC (0.6 ng/mL), Tramadol (33 ng/mL)
- **Drug Impaired Driving (DUID)**
- **Case 2:**
  - Single vehicle crash, slurred speech, low movements, constricted pupils, etc.
  - **Isotonitazene: 3 ng/mL (& metab.)**
  - Flualprazolam: Positive (qual. only)
  - Other Findings: Clonazepam, Carboxy-THC
- **Case 4:**
  - Emergency department admission (survived)
  - **Brorphine: 69 ng/mL (serum)**
  - Flualprazolam: Negative
  - Other Findings: N/A



# Metonitazene

- Following isotonitazene and brorphine?
- Does not appear so... for now...
- **Metonitazene combinations (n=8):**
  - Flualprazolam: 1
  - Etizolam: 1
  - Fentanyl: 6
  - 3-HO-PCE: 4
  - N-ethyl pentedrone: 1
  - Brorphine: 1
  - Isotonitazene: 0



# Acknowledgements

- **Center for Forensic Science Research & Education (CFSRE)**

- Dr. Barry Logan
- Judith Rodriguez-Salas
- Sara Walton

- **Forensic partners**

- **NMS Labs**

- Donna Papsun
- Department Staff



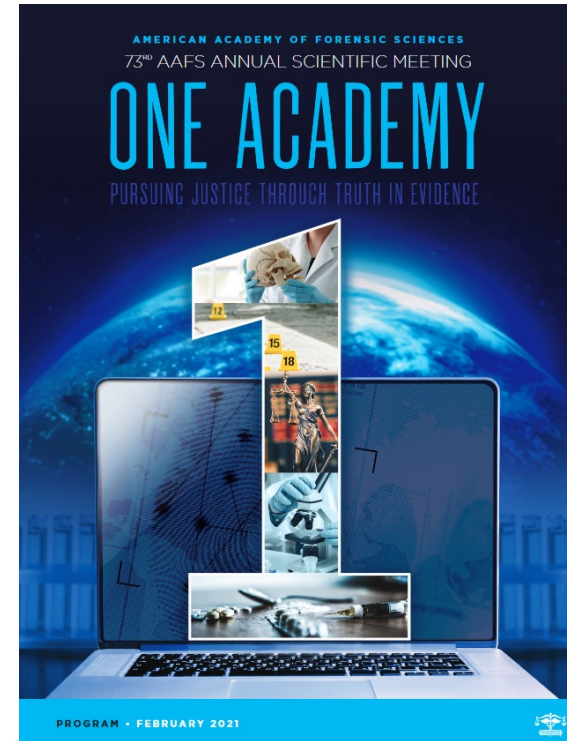
- **Federal, state, and local partners**

- **... It takes an army**



# Acknowledgements

- **Workshop 11: A New Realm of NPS Opioids and NPS Benzodiazepines – Analytical and Interpretive Considerations**
  - Co-Chair Dani Mata – Orange County Crime Lab
  - Madeleine Gates – Sam Houston State University
  - Melissa Fogarty – CFSRE
  - Barry Logan – NMS Labs
  - Svante Vikingsson – RTI International
  - Szabolcs Sofalvi – CCMEO/CCRFSL





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# Thank You!

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