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NPS DISCOVERY

2020 Q1 NPS Opioid Trend Report

Alex J Krotulski, PhD

Research Scientist (CFSRE) and Program Manager (NPS Discovery)

APHL Opioid Community of Practice: Thursday May 7, 2020

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Clinical Intoxications

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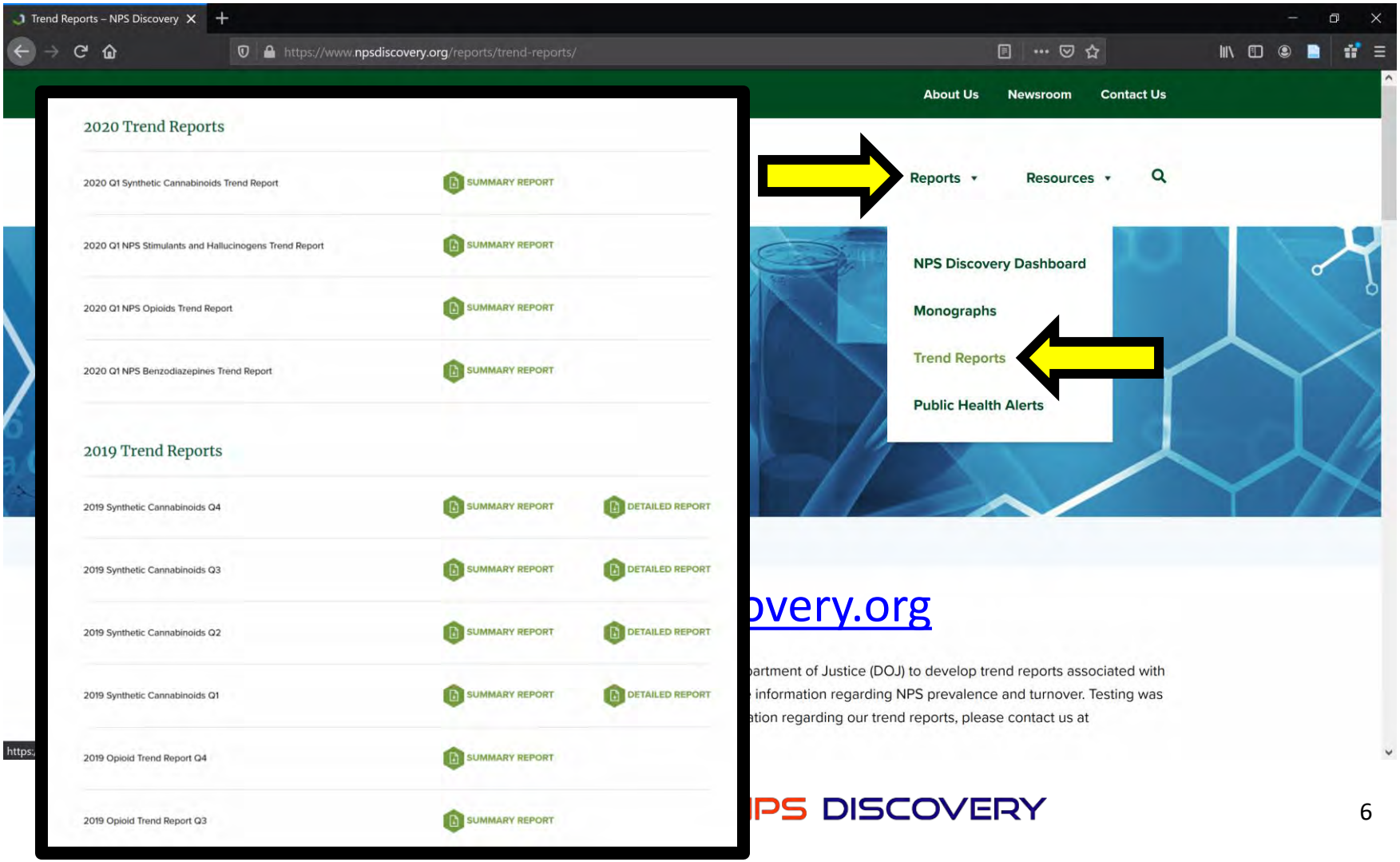
NPS Discovery Trend Reports



Trend Report: Q1 2020

NPS Opioids in the United States

Purpose: This report provides up-to-date information regarding the status of NPS opioid prevalence and positivity within the United States.

Overview: Novel psychoactive substances (NPS), including NPS opioids, continue to pose great challenges for forensic scientists, clinicians, and public health and safety personnel. NPS opioids have been implicated in an increasing number of emergency room admissions, death investigations, and mass intoxication events. Maintaining a current scope of analysis can be challenging, often requiring comprehensive analytical methodologies and reference materials for identifications.

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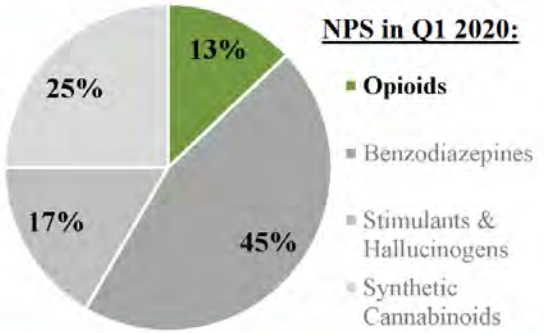
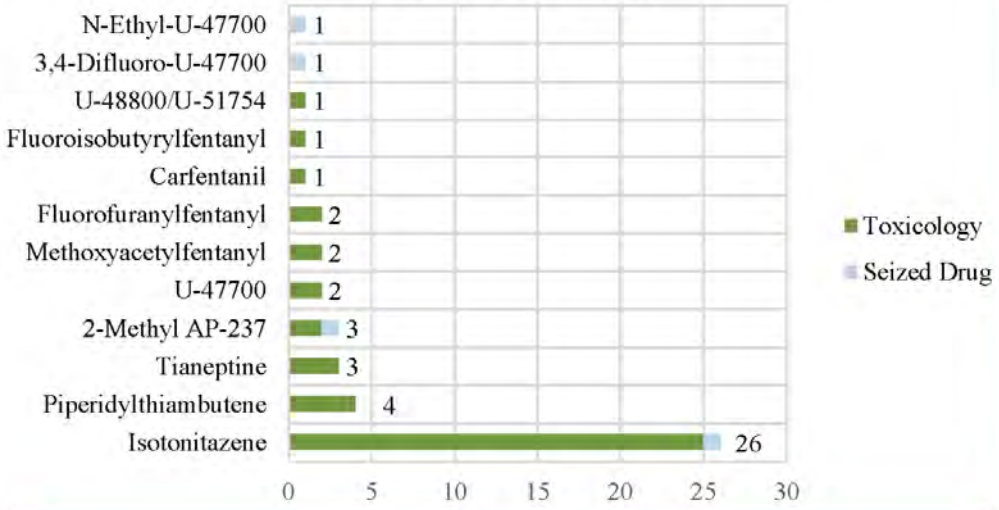


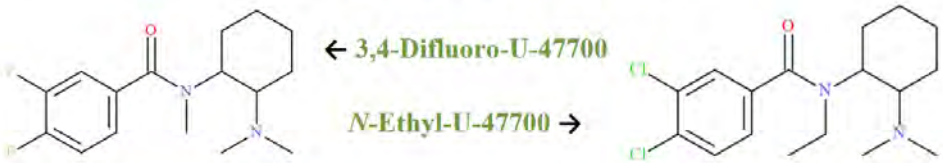
NPS Opioid Positivity



NPS Opioid Combinations

Combination	Frequency
Isotonitazene + Flualprazolam	13
Isotonitazene + Etizolam	10
Isotonitazene + Fentanyl	8
Isotonitazene + Piperidylthiambutene	4

New Discoveries in Q1 2020



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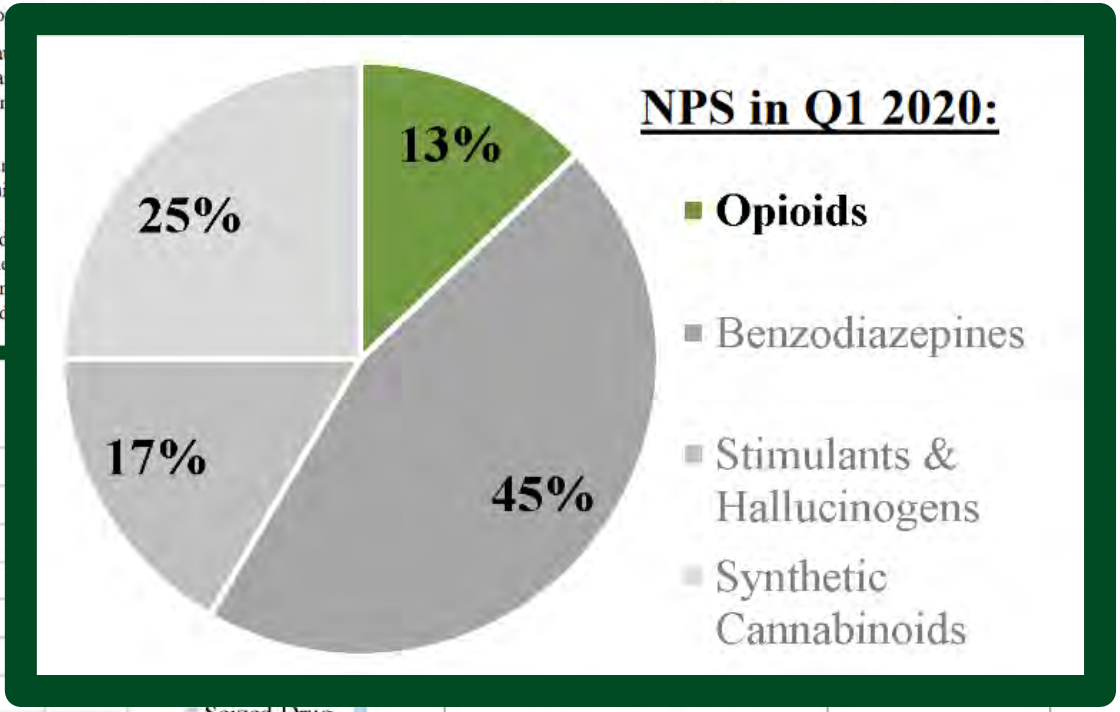

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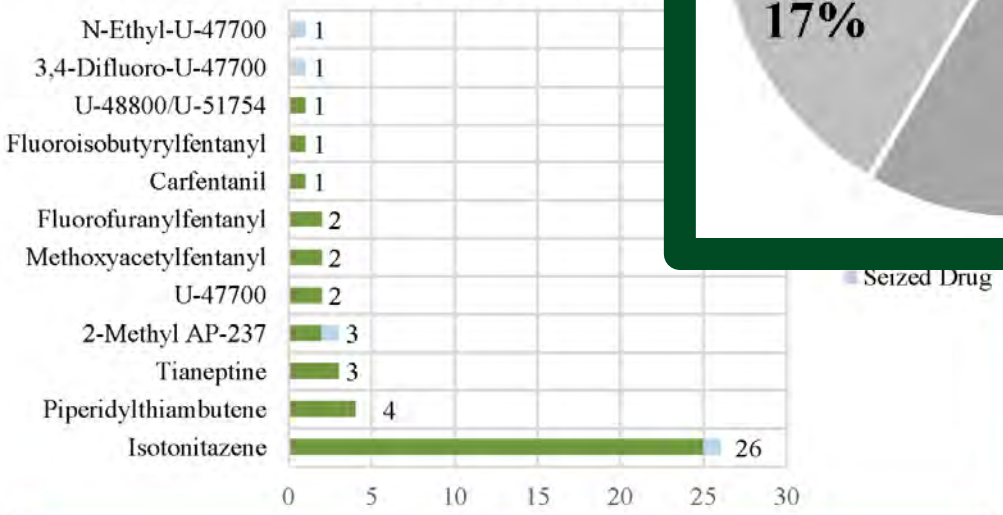

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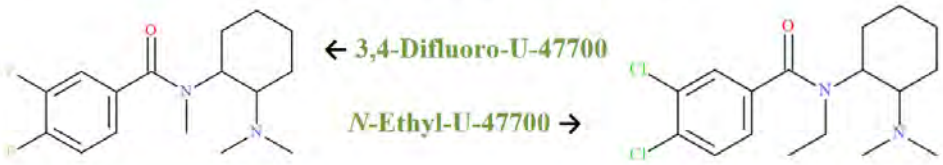

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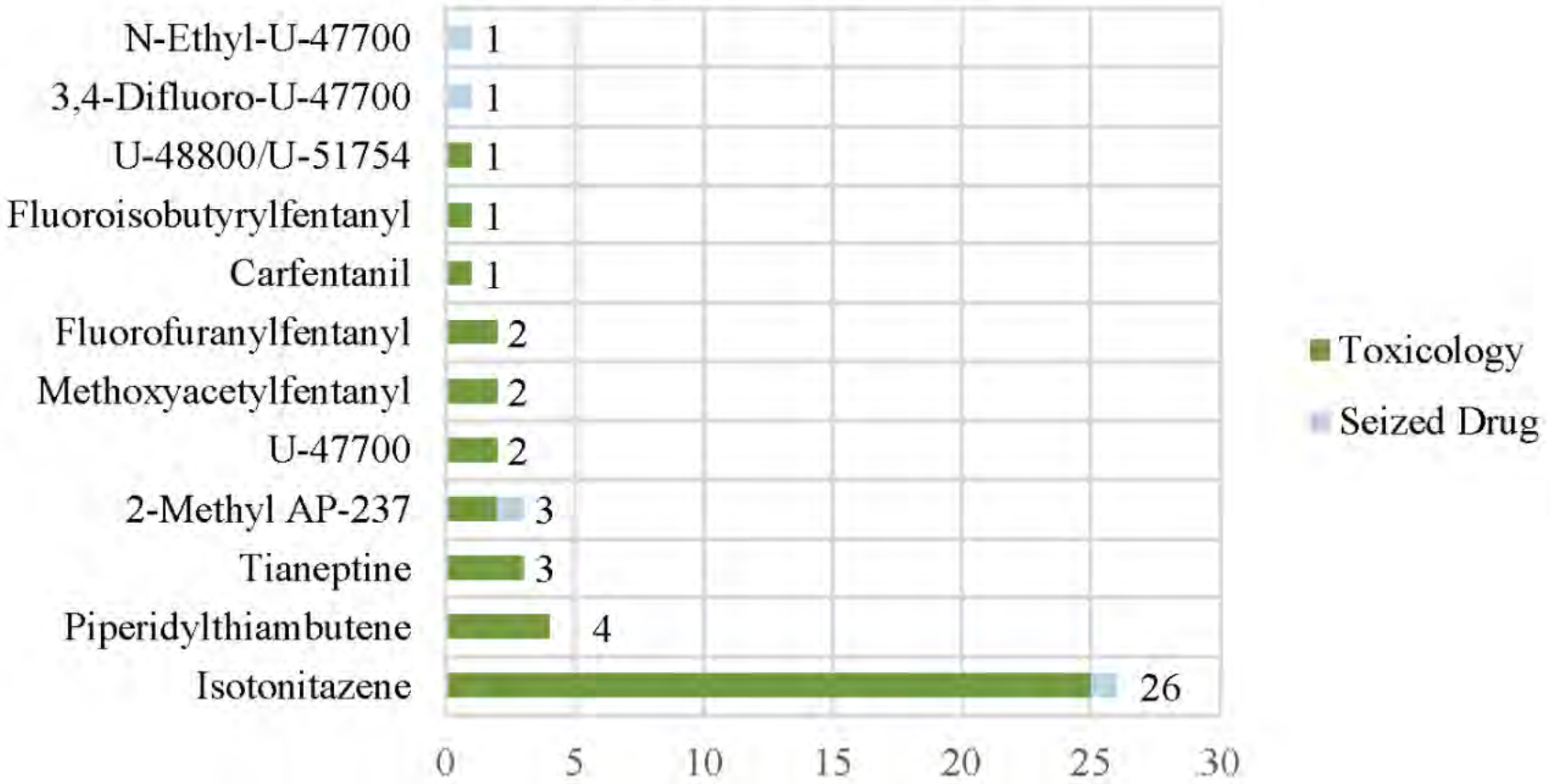
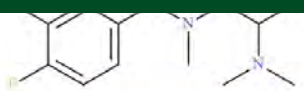
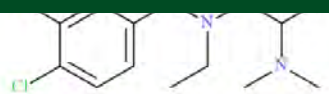




N-Ethyl-U-47700 →



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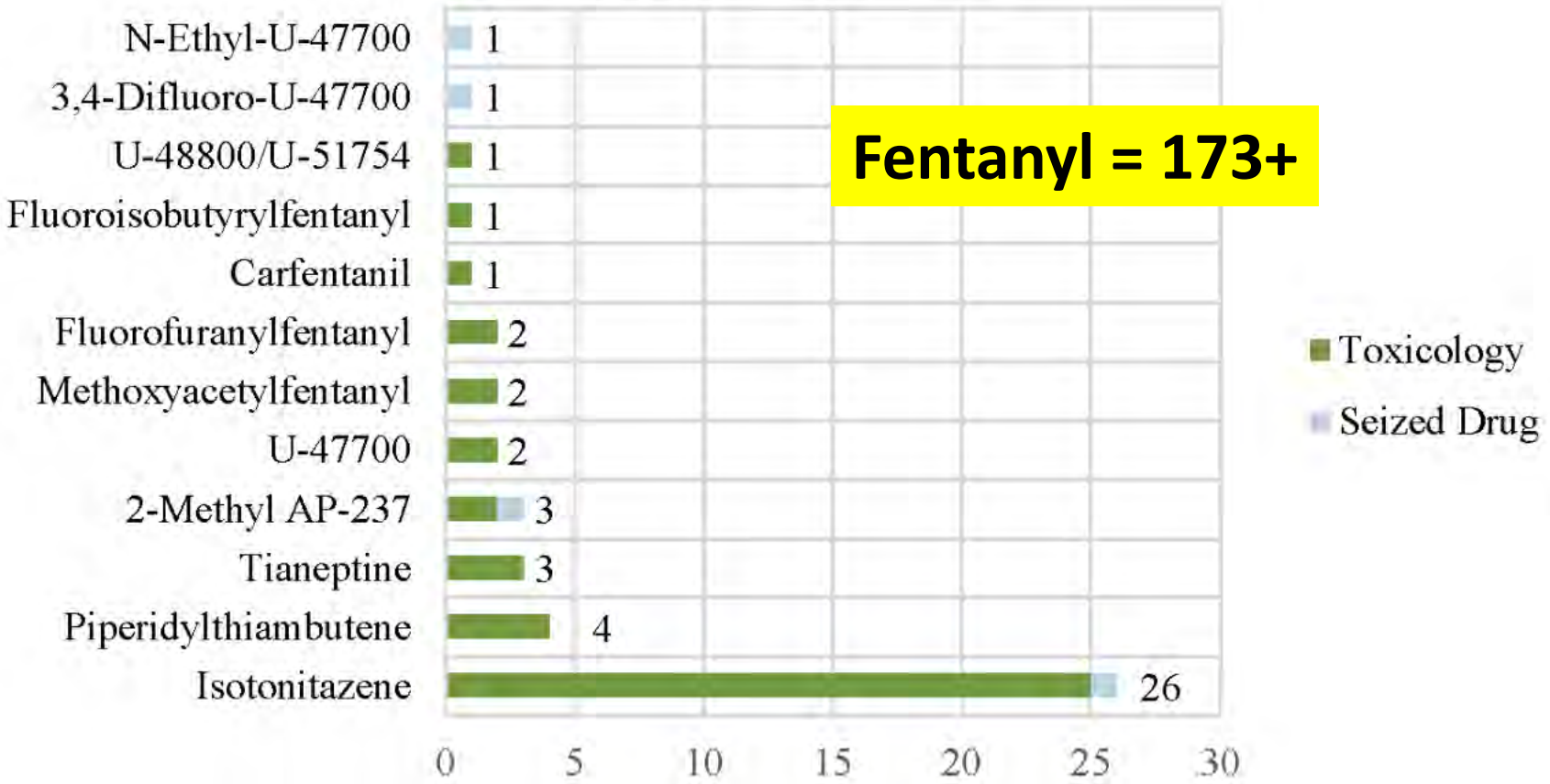
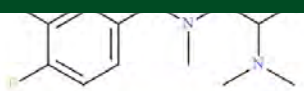


Fentanyl = 173+



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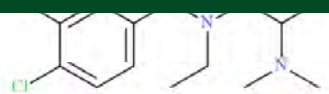

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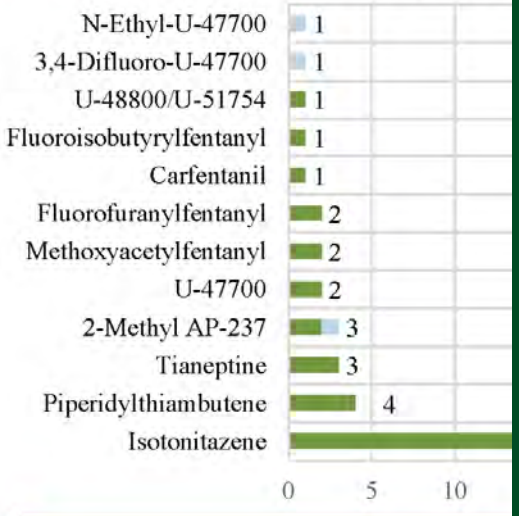
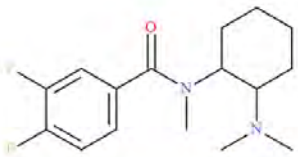
NPS in Q1 2020:

NPS Opioid F



New Discoverie



← 3,4-Difluor

N-Ethyl-U-4

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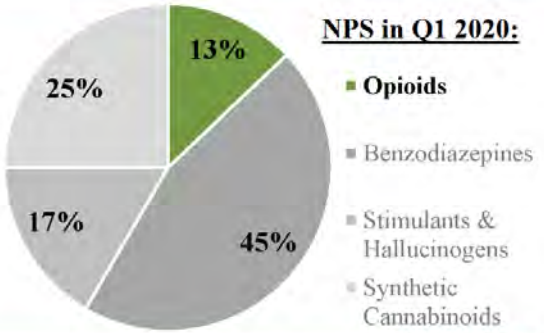

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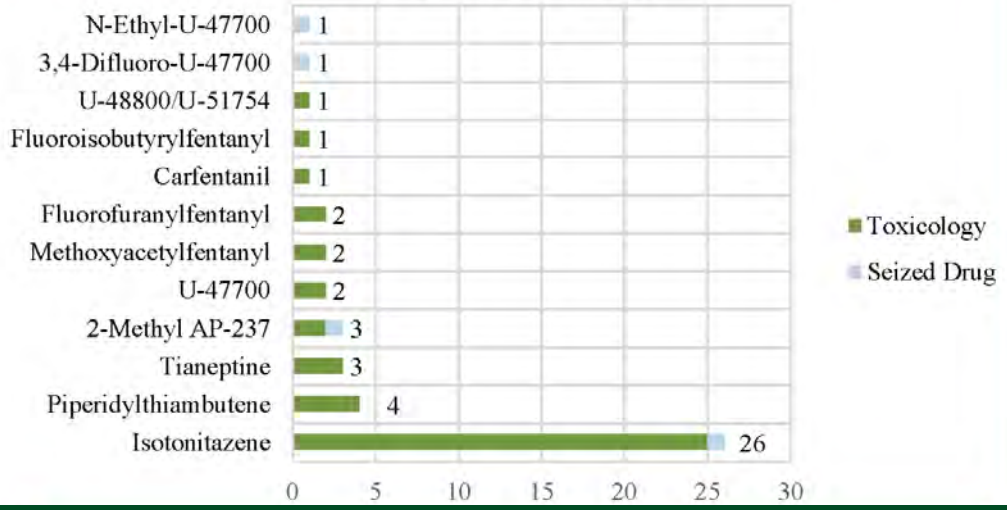

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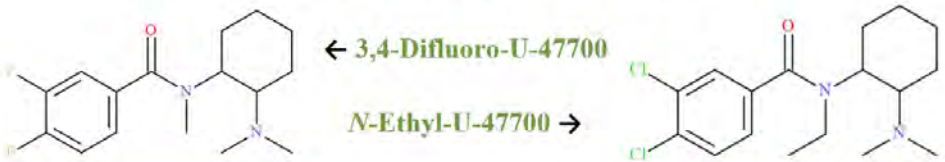

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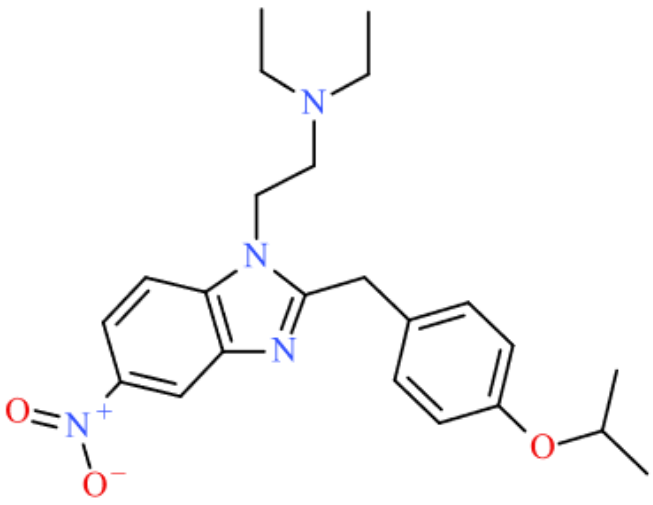
NPS DISCOVERY

Isotonitazene

- Synthetic opioid
- Patented in the 1950's
- High potency and efficacy
- Several other potent analogues
  - E.g. Etonitazene



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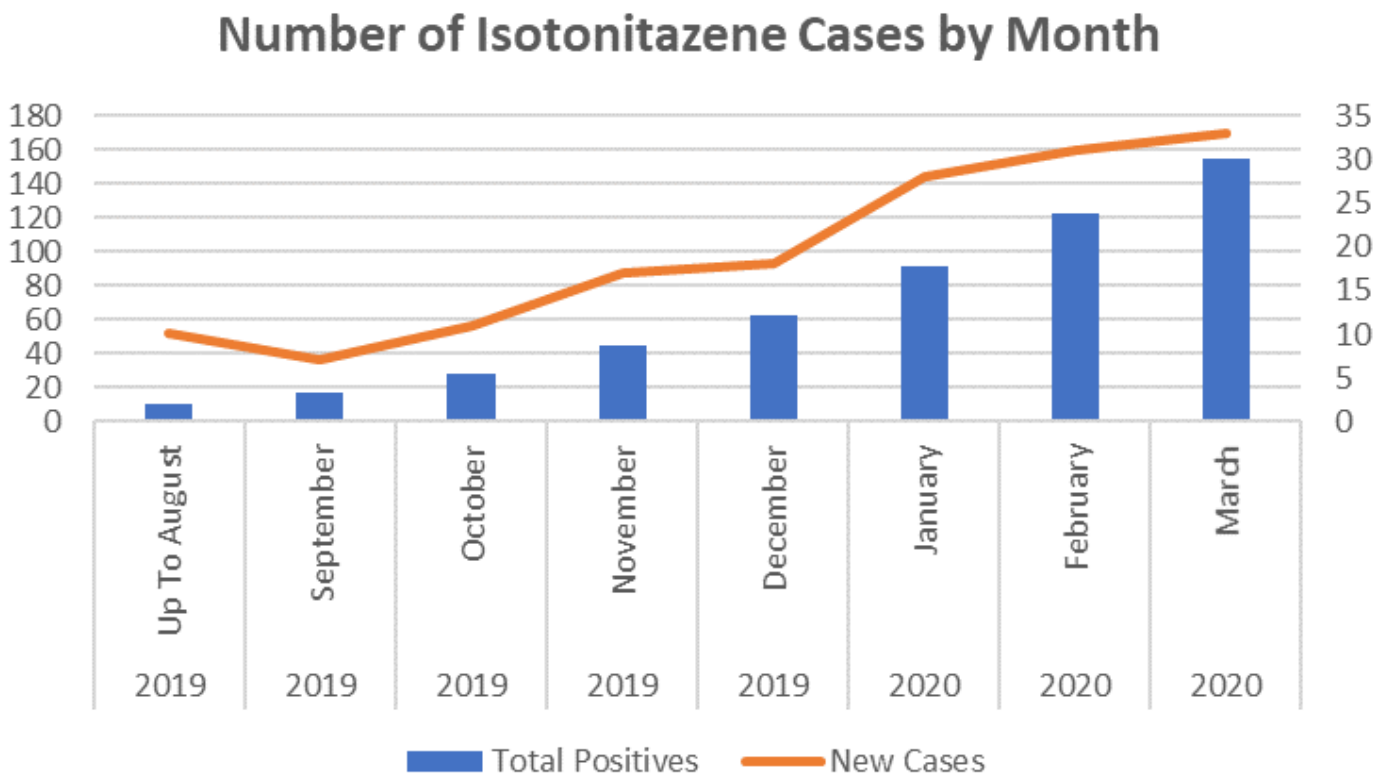
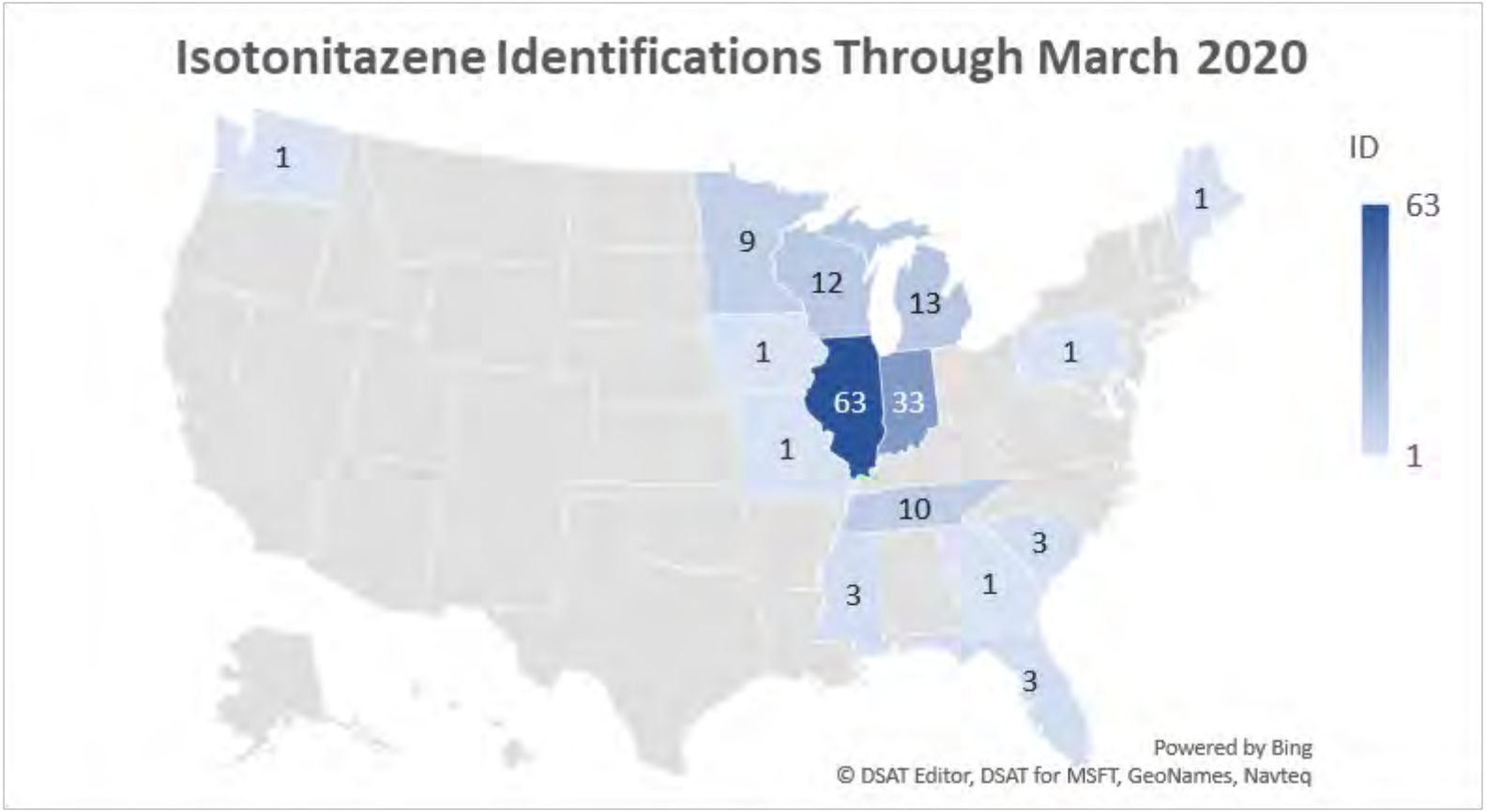
Isotonitazene Prevalence



Isotonitazene Proliferation



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Isotonitazene Cases

- **Identifications:**
  - More than 150
- **Confirmations:**
  - About 60
- **Quantifications:**
  - 20+
- **Concentrations: (!)**
  - Mean: 2.2 ± 3.1 ng/mL
  - Median: 1.1 ng/mL
  - Min: 0.2 ng/mL
  - Max: 17 ng/mL

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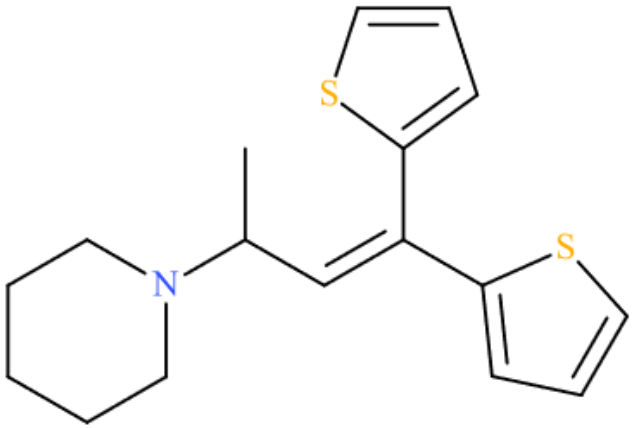
Piperidylthiambutene

- Synthetic opioid
- Studied 1950's
- Potency similar to morphine



- Found in combination with isotonitazene
- Concentrations: ~ 0.3 ng/mL

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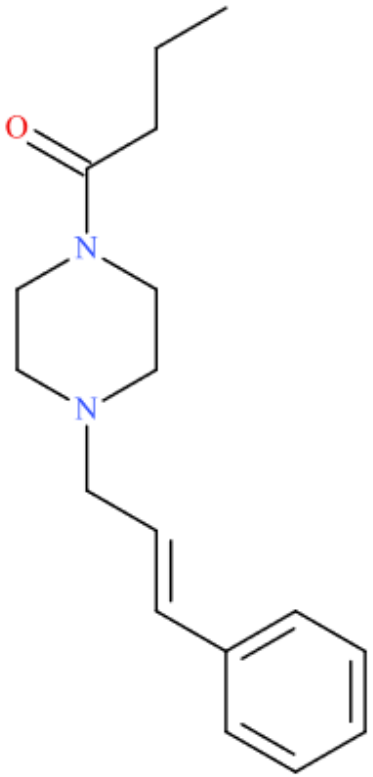
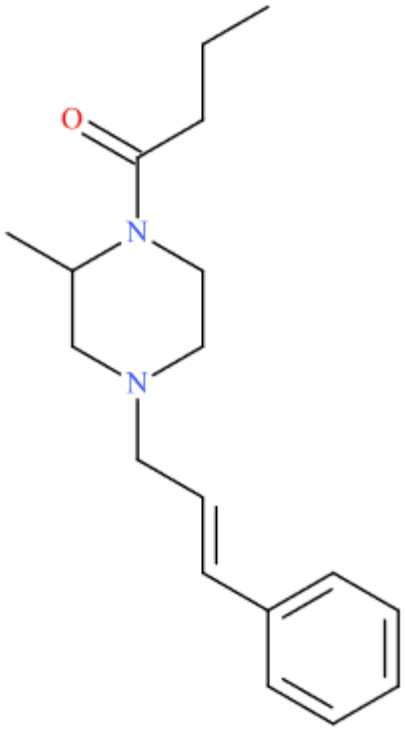
AP-237 Analogues

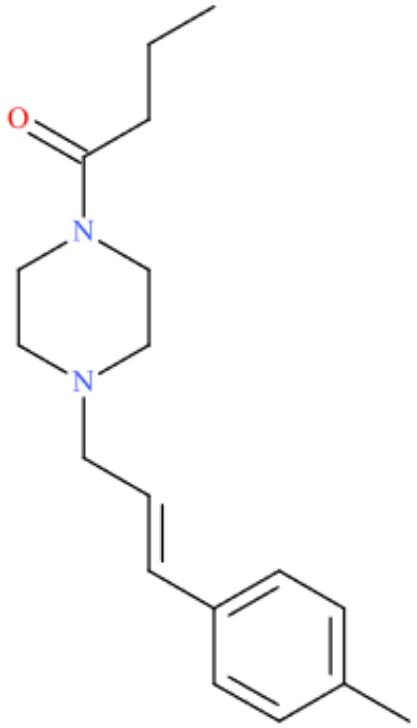
AP-237



2-Methyl AP-237



***para*-Methyl AP-237**



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NPS Benzodiazepines in the United States

Purpose: This report provides up-to-date information regarding the status of NPS benzodiazepine prevalence and positivity within the United States.

Overview: Novel psychoactive substances (NPS), including NPS benzodiazepines, continue to pose great challenges for forensic scientists, clinicians, and public health and safety personnel. NPS benzodiazepines have been implicated in an increasing number of adverse event scenarios and death investigations, especially in combination with opioids. Maintaining a current scope of analysis can be challenging, often requiring comprehensive analytical methodologies and reference materials for identifications.

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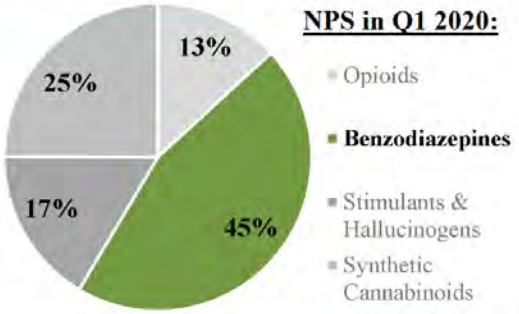
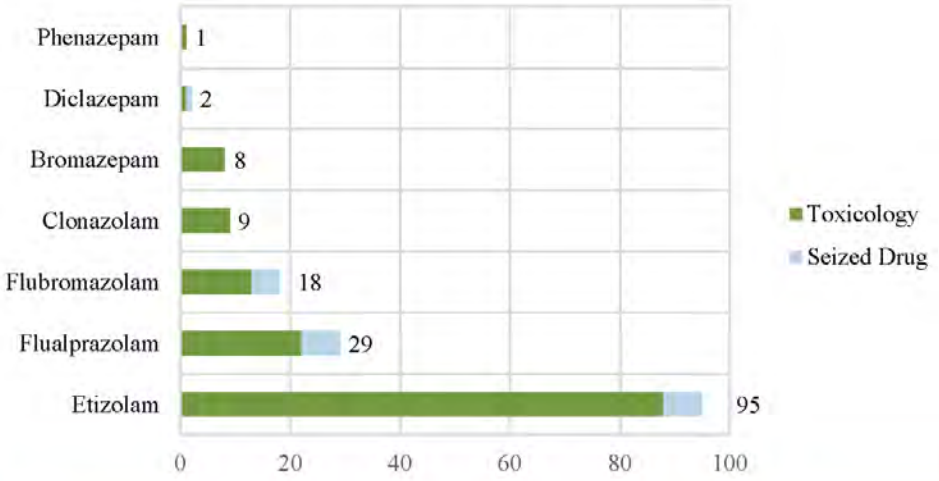


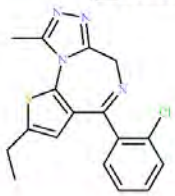
NPS Benzodiazepine Positivity



NPS Benzodiazepine Combinations

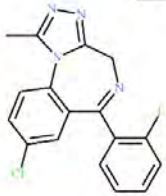
Common Combinations	Frequency
Etizolam + Fentanyl	55
Etizolam + Stimulant *(Cocaine or Methamphetamine)*	32
Etizolam + Traditional Benzodiazepine *(Alprazolam or Diazepam)*	22
Flualprazolam + Fentanyl	11
Etizolam + NPS Benzodiazepine *(Clonazolam, Flualprazolam, and Flubromazolam)*	9

Most Prevalent



Etizolam was the most prevalent NPS benzodiazepine identified; a common trend since 2016.

Trending



The prevalence of **Flualprazolam** continues to increase, impacting jurisdictions in most states.

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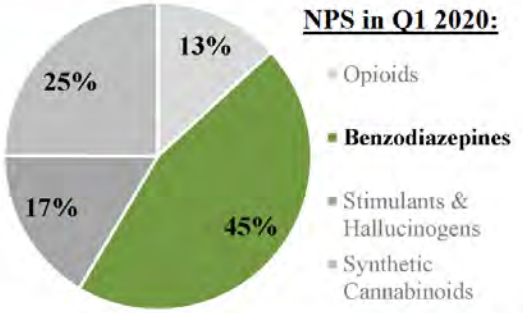

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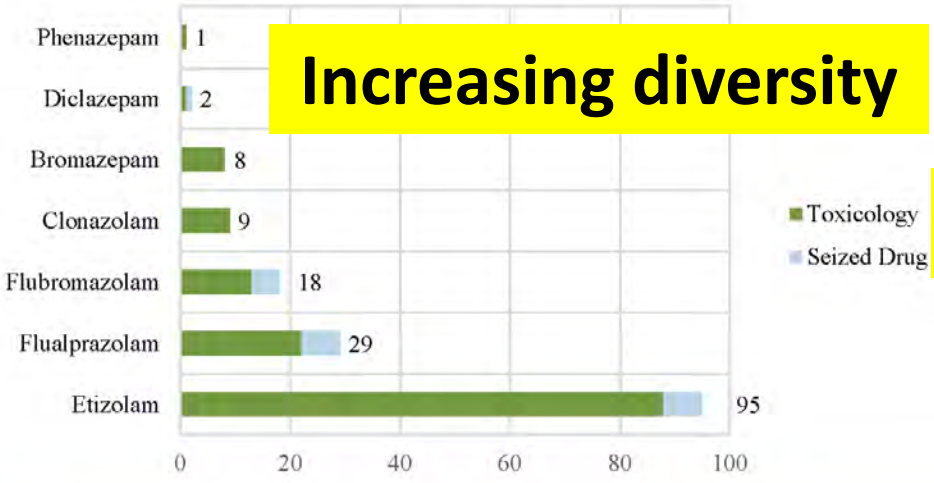

Increasing diversity

Combination with opioids

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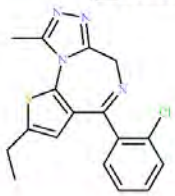
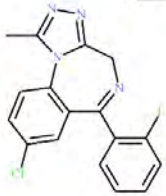


Etizolam was the most prevalent NPS benzodiazepine identified; a common trend since 2016.

Trending



The prevalence of **Flualprazolam** continues to increase, impacting jurisdictions in most states.

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