



Updated Trend Reports and Positivity Plots

NPS Discovery Webinar Series – Thursday July 11, 2024

Alex J. Krotulski, Ph.D. – Center for Forensic Science Research and Education (CFSRE)



FUNDING DISCLOSURE

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Q2 2024 NPS TREND REPORTS



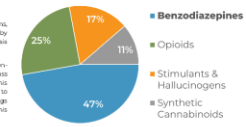
NPS Benzodiazepines in the United States

TREND REPORT Q2 2024

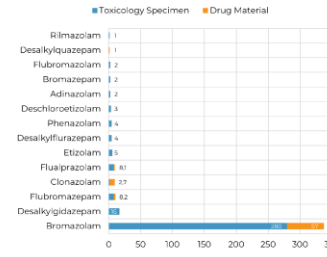
PURPOSE: This report provides up-to-date information regarding the status of NPS benzodiazepine prevalence and positivity in the United States.

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 emergency room admissions, death investigations, and mass intoxication events, and often appear in combination with other illicit opioids (e.g. fentanyl), having maintained a current scope of analyses can be challenging, requiring comprehensive analytical methodologies and reference materials for identification.

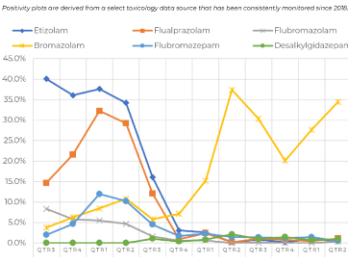
OBJECTIVE: Our laboratory utilizes novel approaches for the analysis of drugs in toxicology specimens and drug materials using comprehensive non-targeted data acquisition by gas chromatography-mass spectrometry (GC-MS) and liquid chromatography-mass spectrometry (LC-MS/MS) and liquid chromatography-mass spectrometry (LC-MS/MS). The scope of analysis contains more than 1200 drugs, including a vast majority of NPS and their metabolites. This approach allows for real-time identification of new benzodiazepines and further data analysis of important trends. Cases and sample types linked to these results originate from recreational drug use, medicolegal death investigations, clinical investigations, and/or driving under the influence of drug investigations, among other circumstances. The results in this report represent the total number of NPS identifications at the CFSRE during this quarter, including those from sample-mining, data-mining, routine testing, and forensic testing.



NPS BENZODIAZEPINES IDENTIFIED



SELECT POSITIVITY: Q3 2021 TO Q2 2024



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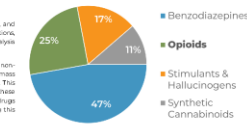
NPS Opioids in the United States

TREND REPORT Q2 2024

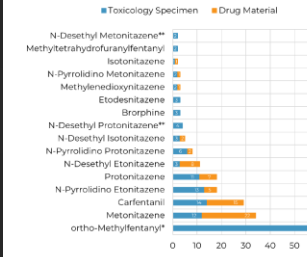
PURPOSE: This report provides up-to-date information regarding the status of NPS opioid prevalence and positivity in the United States.

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, and often appear in combination with other illicit opioids (e.g. fentanyl), having maintained a current scope of analyses can be challenging, requiring comprehensive analytical methodologies and reference materials for identification.

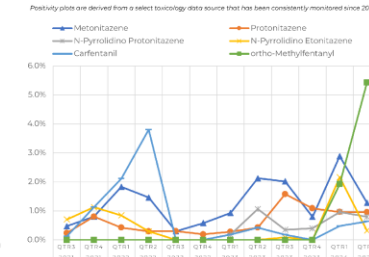
OBJECTIVE: Our laboratory utilizes novel approaches for the analysis of drugs in toxicology specimens and drug materials using comprehensive non-targeted data acquisition by gas chromatography-mass spectrometry (GC-MS) and liquid chromatography-mass spectrometry (LC-MS/MS) and liquid chromatography-mass spectrometry (LC-MS/MS). The scope of analysis contains more than 1200 drugs, including a vast majority of NPS and their metabolites. This approach allows for real-time identification of new opioids and further data analysis of important trends. Cases and sample types linked to these results originate from recreational drug use, medicolegal death investigations, clinical investigations, and/or driving under the influence of drug investigations, among other circumstances. The results in this report represent the total number of NPS identifications at the CFSRE during this quarter, including those from sample-mining, data-mining, routine testing, and forensic testing.



NPS OPIOIDS IDENTIFIED



SELECT POSITIVITY: Q3 2021 TO Q2 2024



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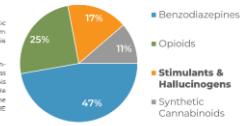
NPS Stimulants & Hallucinogens in the United States

TREND REPORT Q2 2024

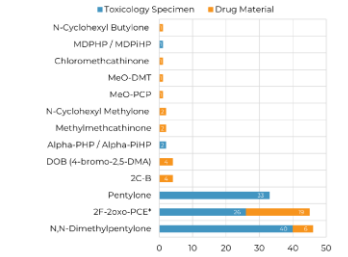
PURPOSE: This report provides up-to-date information regarding the status of NPS stimulant & NPS hallucinogen prevalence and positivity in the United States.

OVERVIEW: Novel psychoactive substances (NPS), including NPS stimulants and NPS hallucinogens, continue to pose great challenges for forensic scientists, clinicians, and public health and safety personnel. NPS stimulants and NPS hallucinogens have been implicated in an increasing number of emergency room admissions, death investigations, and mass intoxication events, and often appear in combination with other illicit opioids (e.g. fentanyl), having maintained a current scope of analyses can be challenging, requiring comprehensive analytical methodologies and reference materials for identification.

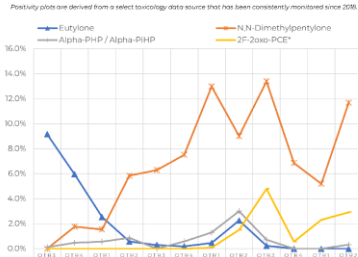
OBJECTIVE: Our laboratory utilizes novel approaches for the analysis of drugs in toxicology specimens and drug materials using comprehensive non-targeted data acquisition by gas chromatography-mass spectrometry (GC-MS) and liquid chromatography-mass spectrometry (LC-MS/MS) and liquid chromatography-mass spectrometry (LC-MS/MS). The scope of analysis contains more than 1200 drugs, including a vast majority of NPS and their metabolites. This approach allows for real-time identification of new stimulants and hallucinogens and further data analysis of important trends. Cases and sample types linked to these results originate from recreational drug use, medicolegal death investigations, clinical investigations, and/or driving under the influence of drug investigations, among other circumstances. The results in this report represent the total number of NPS identifications at the CFSRE during this quarter, including those from sample-mining, data-mining, routine testing, and forensic testing.



NPS STIMULANTS & HALLUCINOGENS IDENTIFIED



SELECT POSITIVITY: Q3 2021 TO Q2 2024



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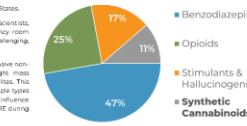
Synthetic Cannabinoids in the United States

TREND REPORT Q2 2024

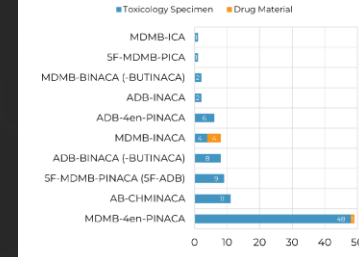
PURPOSE: This report provides up-to-date information regarding the status of synthetic cannabinoid prevalence and positivity in the United States.

OVERVIEW: Novel psychoactive substances (NPS), including synthetic cannabinoids, continue to pose great challenges for forensic scientists, clinicians, and public health and safety personnel. Synthetic cannabinoids have been implicated in an increasing number of emergency room admissions, death investigations, and mass intoxication events, and often appear in combination with other illicit opioids (e.g. fentanyl), having maintained a current scope of analyses can be challenging, requiring comprehensive analytical methodologies and reference materials for identification.

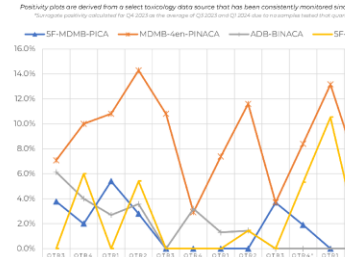
OBJECTIVE: Our laboratory utilizes novel approaches for the analysis of drugs in toxicology specimens and drug materials using comprehensive non-targeted data acquisition by gas chromatography-mass spectrometry (GC-MS) and liquid chromatography-mass spectrometry (LC-MS/MS) and liquid chromatography-mass spectrometry (LC-MS/MS). The scope of analysis contains more than 1200 drugs, including a vast majority of NPS and their metabolites. This approach allows for real-time identification of new synthetic cannabinoids and further data analysis of important trends. Cases and sample types linked to these results originate from recreational drug use, medicolegal death investigations, clinical investigations, and/or driving under the influence of drug investigations, among other circumstances. The results in this report represent the total number of NPS identifications at the CFSRE during this quarter, including those from sample-mining, data-mining, routine testing, and forensic testing.



SYNTHETIC CANNABINOIDS IDENTIFIED



SELECT POSITIVITY: Q3 2021 TO Q2 2024



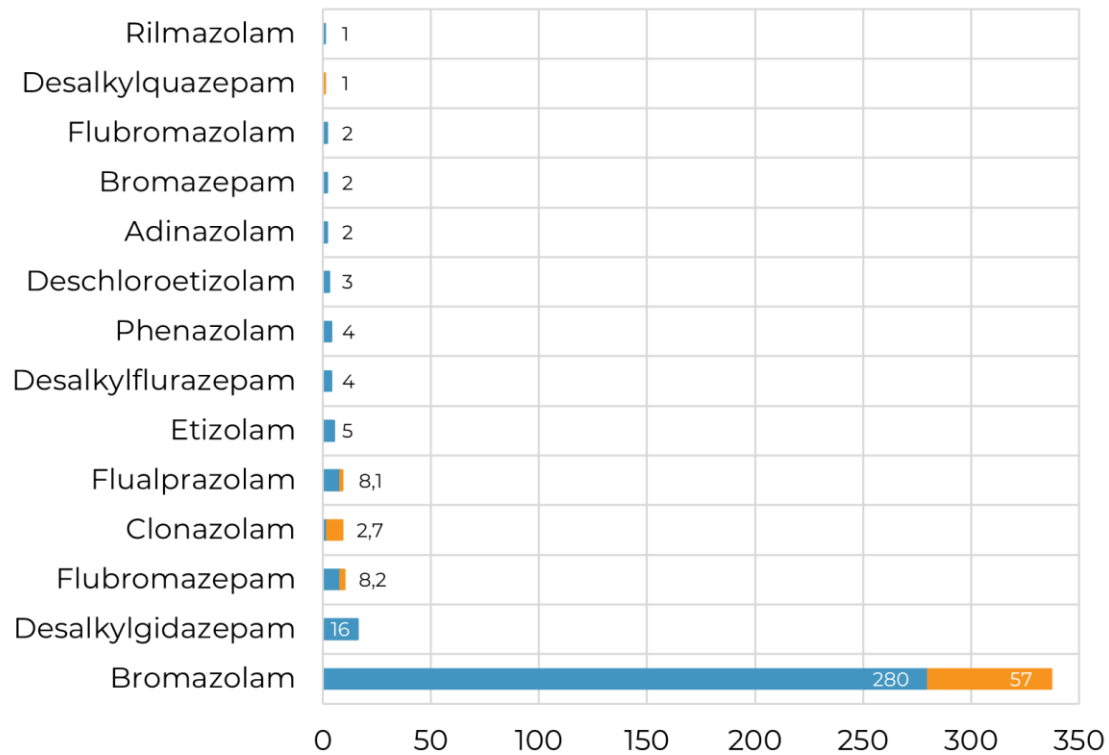
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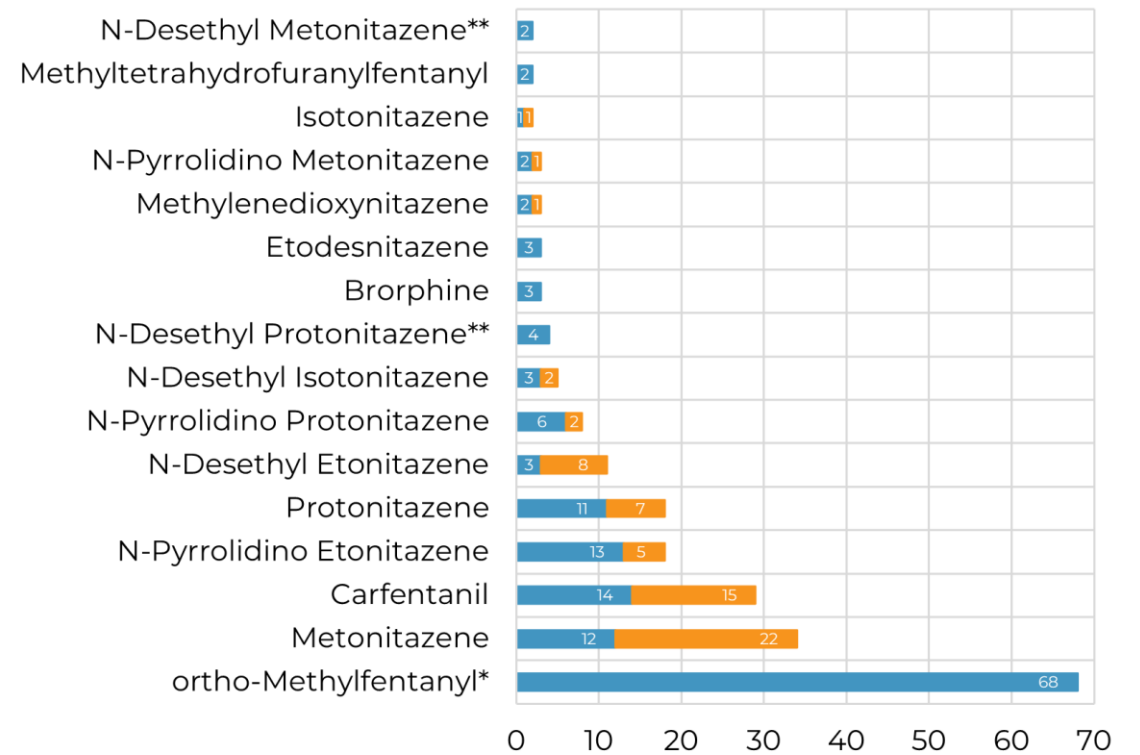


Q2 2024 NPS TREND REPORTS

NPS BENZODIAZEPINES



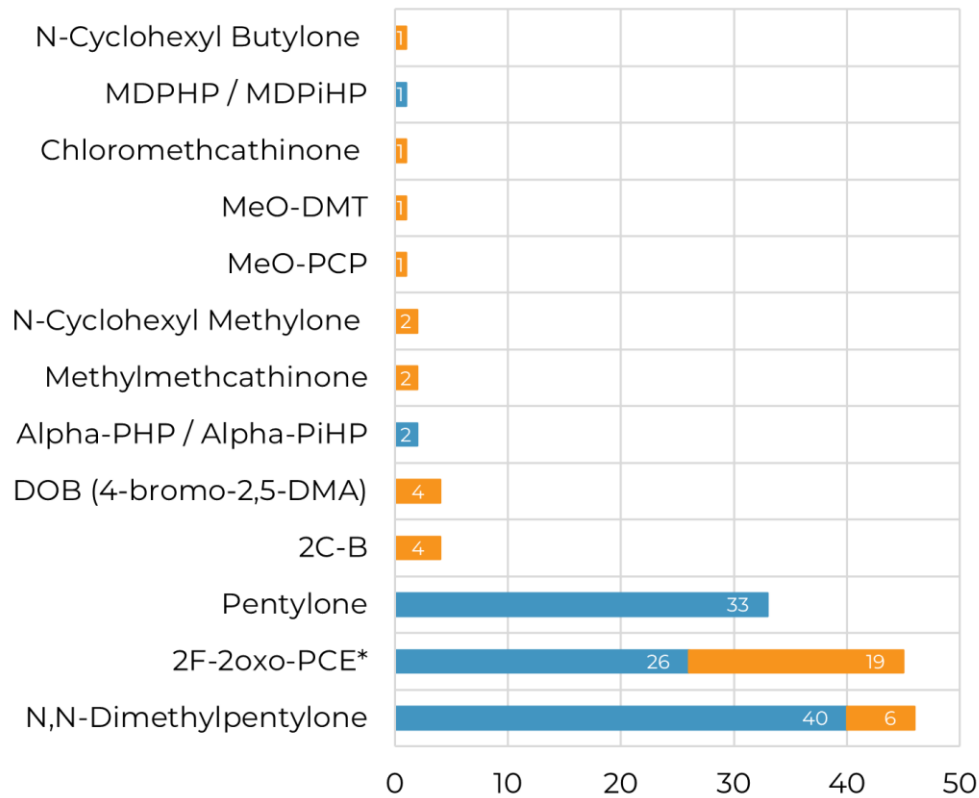
NPS OPIOIDS



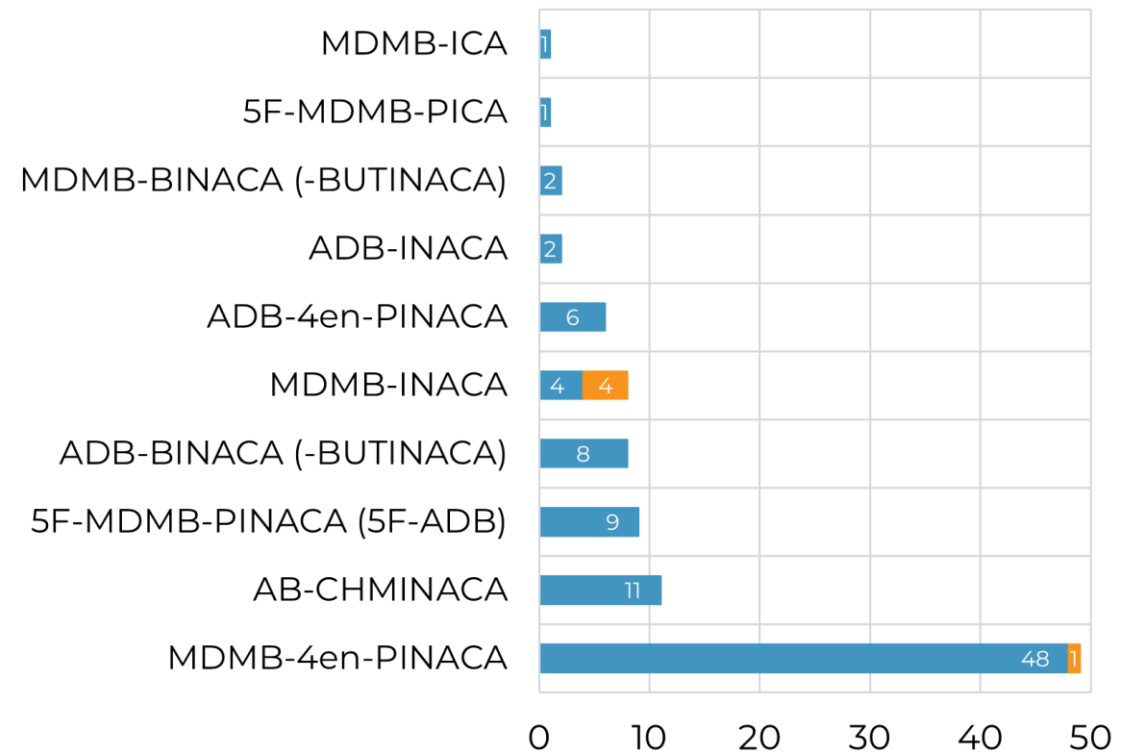
■ Toxicology Specimen ■ Drug Material

Q2 2024 NPS TREND REPORTS

NPS STIMULANTS & HALLUCINOGENS



SYNTHETIC CANNABINOIDS



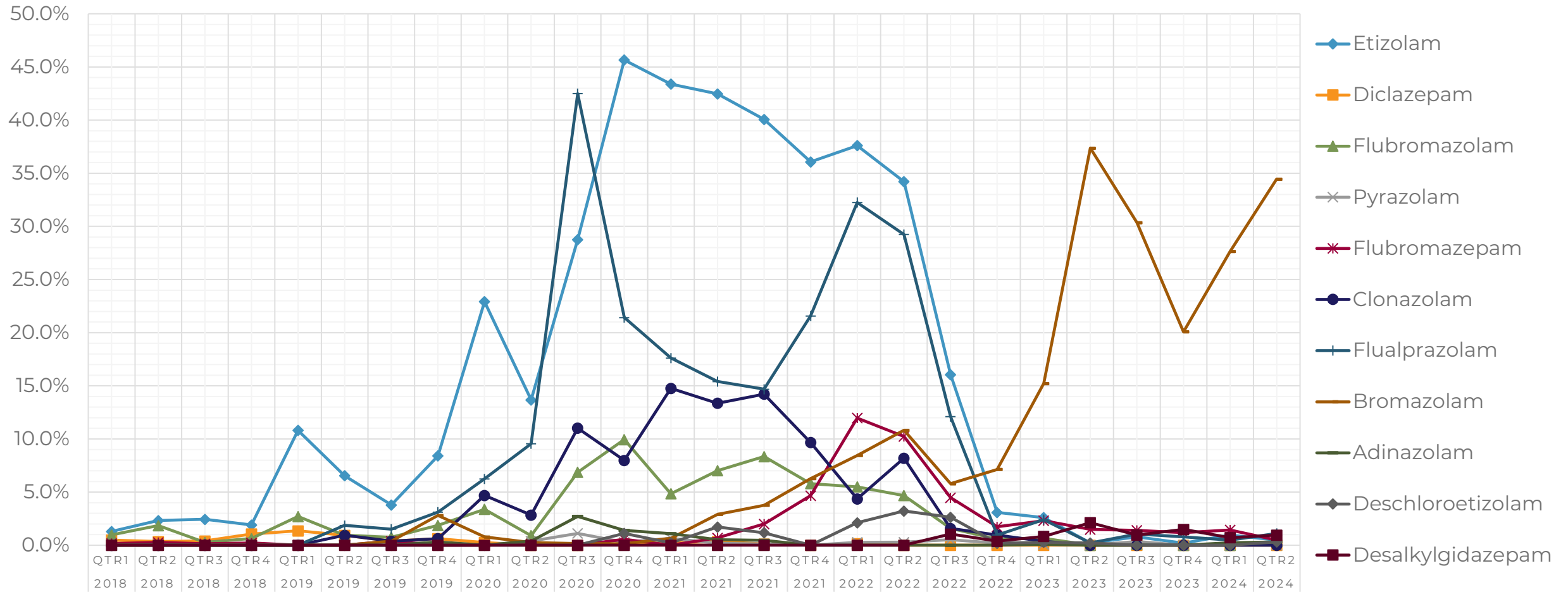
■ Toxicology Specimen ■ Drug Material



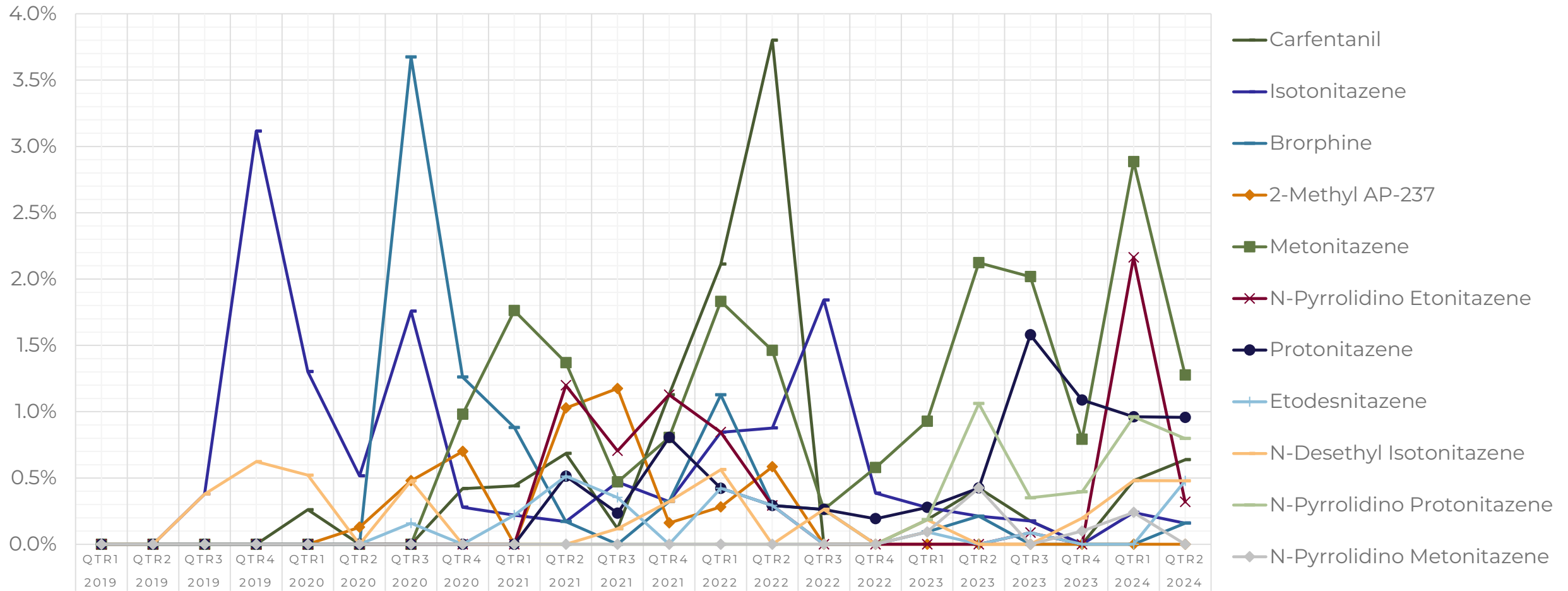
POSITIVITY PLOTS SINCE 2018



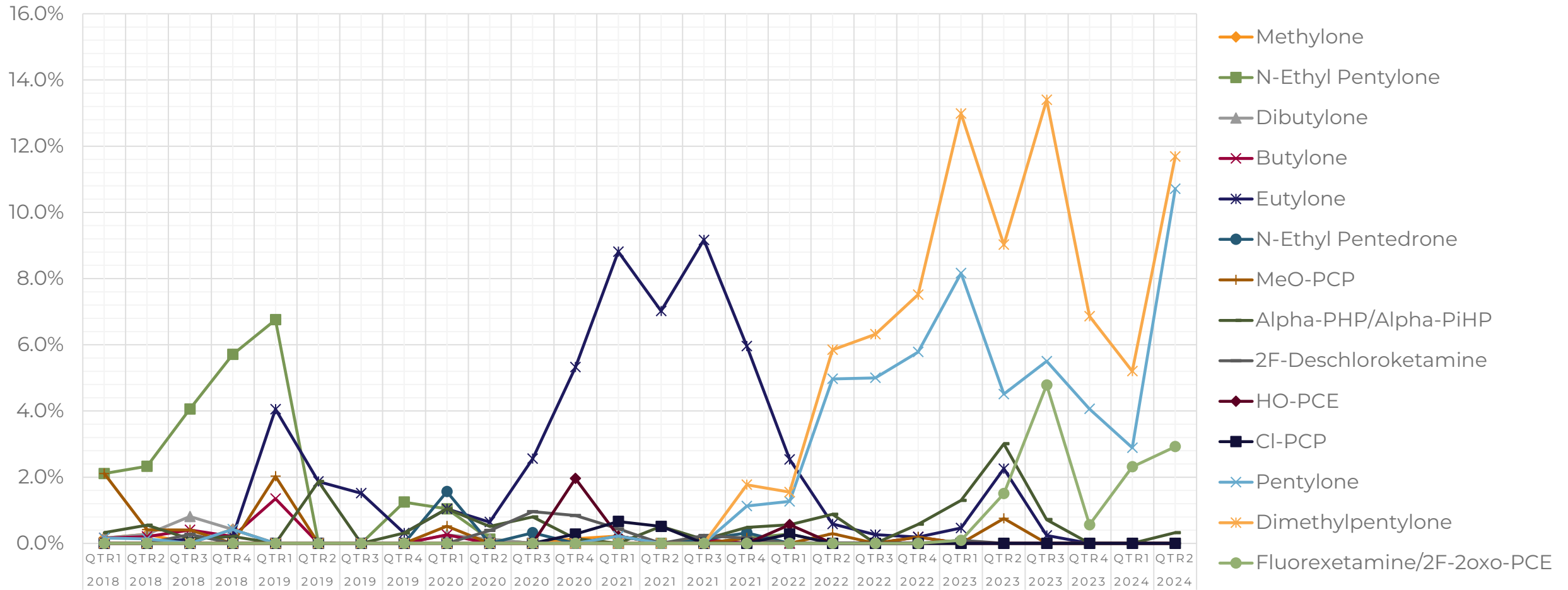
NPS BENZODIAZEPINES



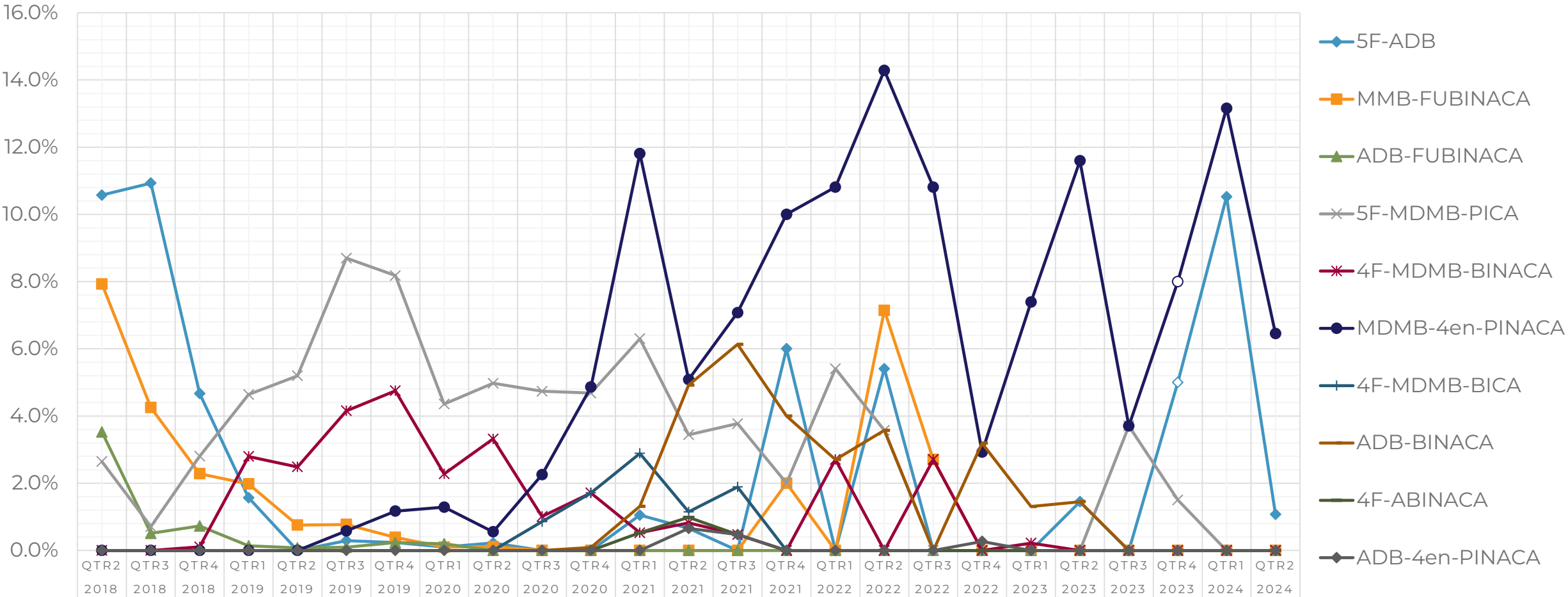
NPS OPIOIDS (NEWER GENERATIONS)



NPS STIMULANTS AND HALLUCINOGENS

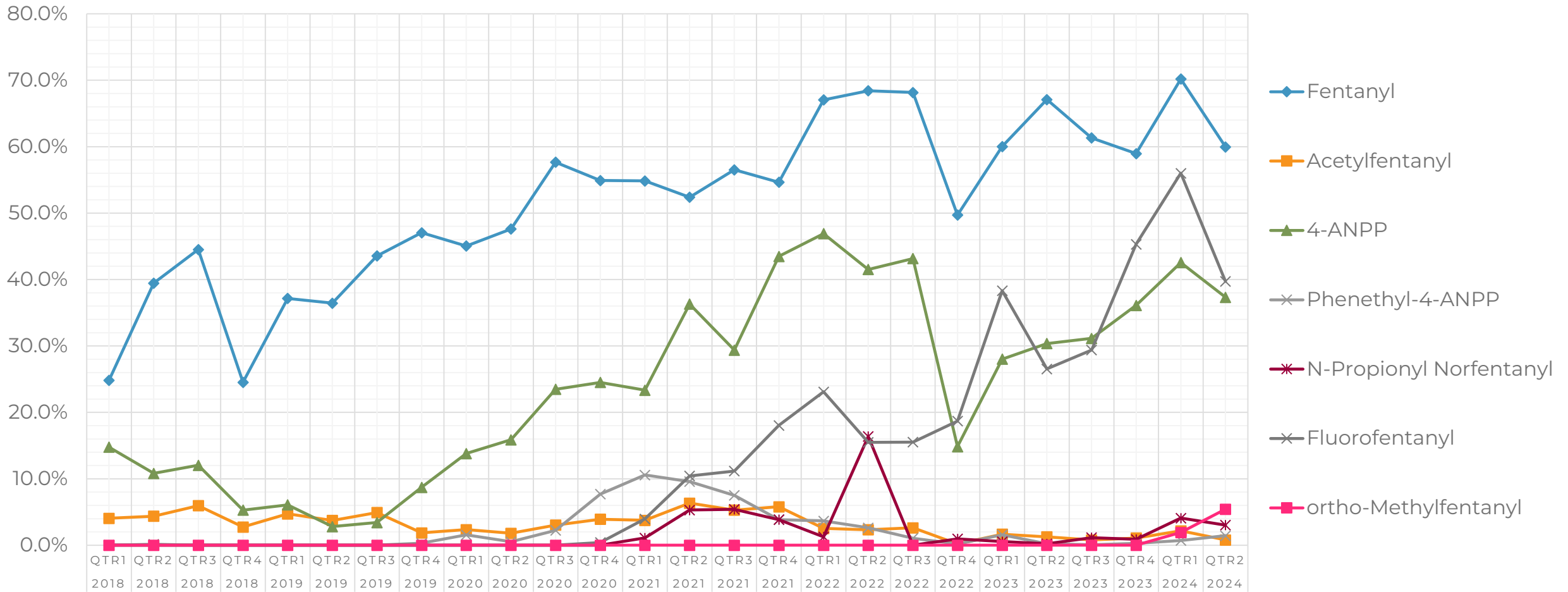


SYNTHETIC CANNABINOIDS

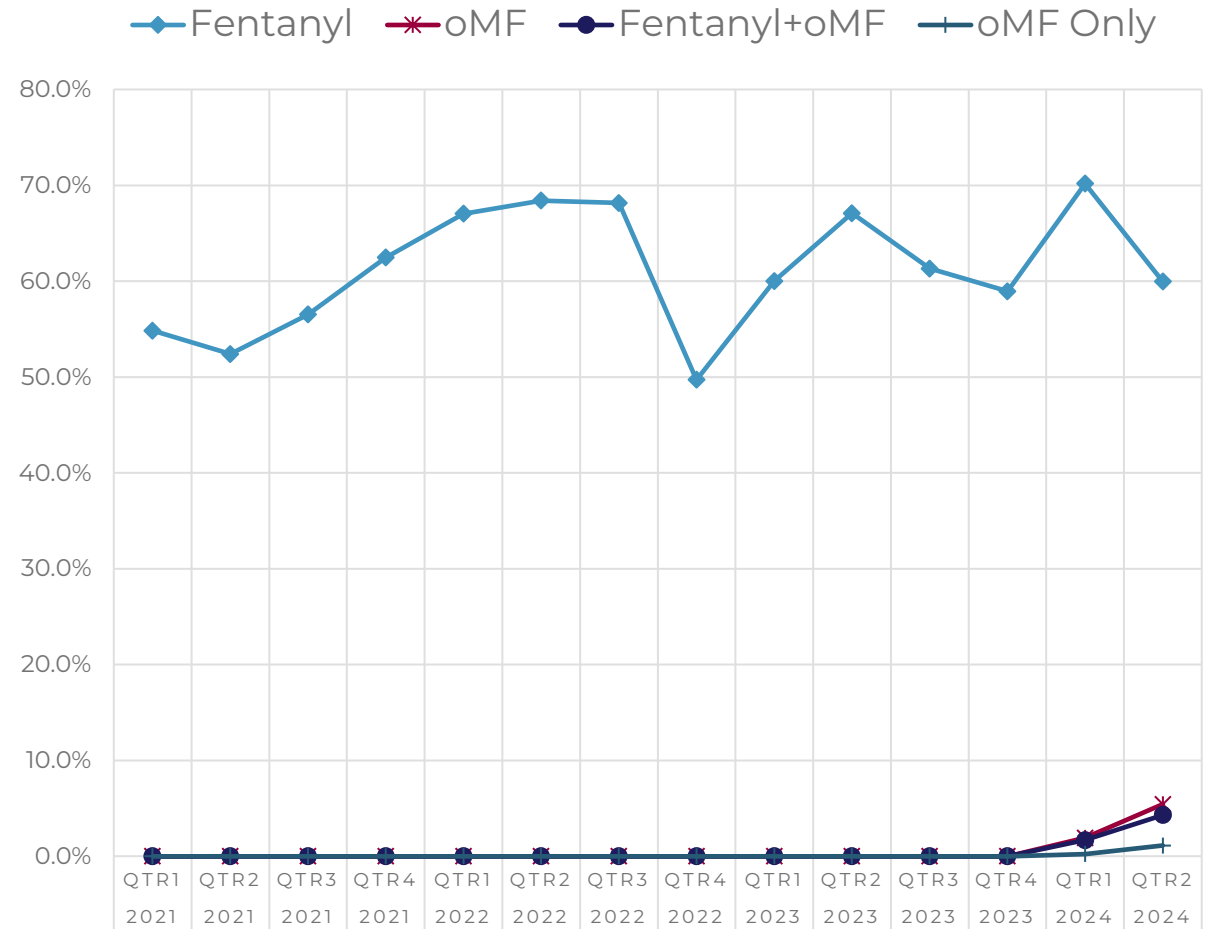
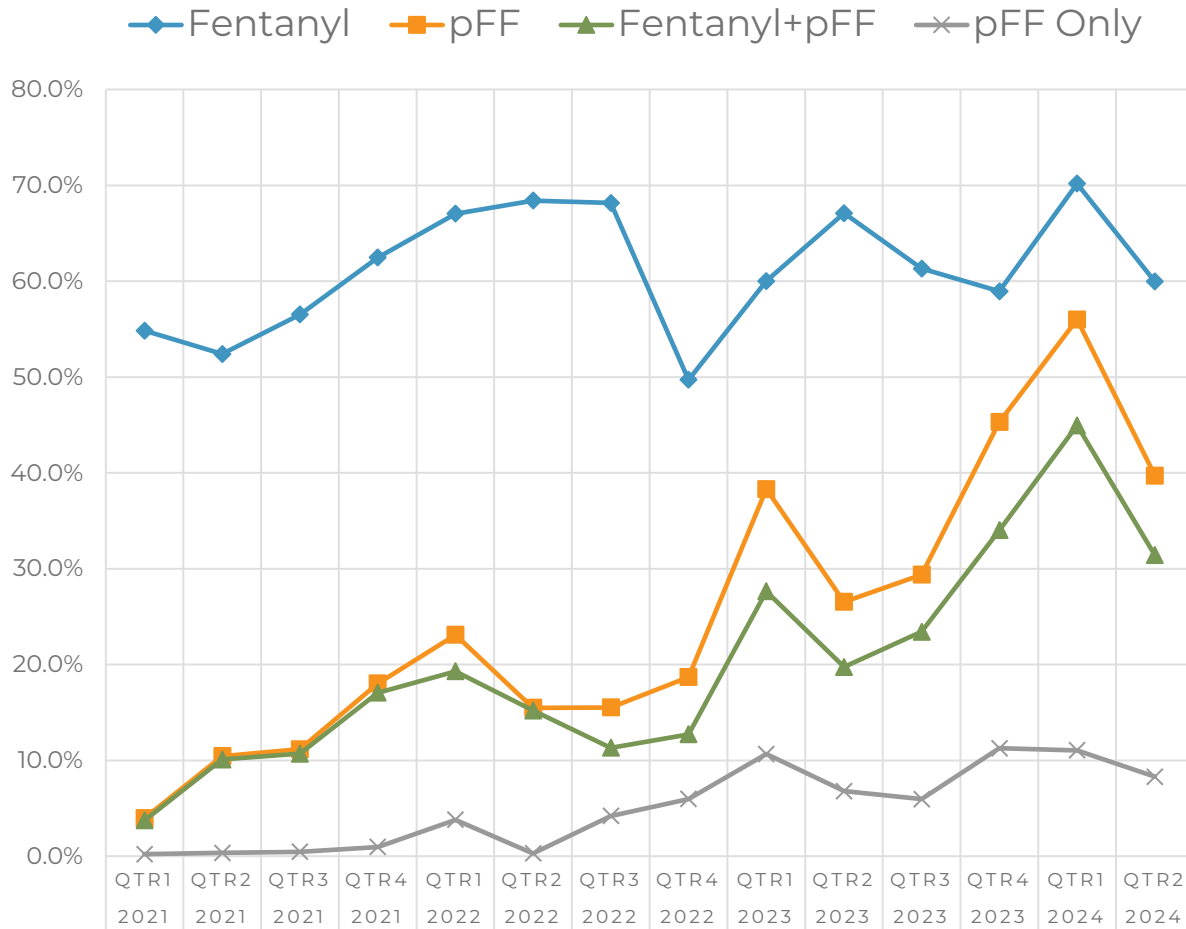


Note: Data in some recent quarters may be skewed due to low sample volumes (e.g., no data for Q4 2023).

FENTANYL, ANALOGUES, & SYNTHESIS PRODUCTS



FENTANYL & ANALOGUE CO-POSITIVITY



WEBSITE ► WWW.NPSDISCOVERY.ORG



The screenshot shows the homepage of the NPS Discovery website. At the top, there is a navigation bar with links for RESOURCES, ABOUT, OUR LAB, CONTACT, and a DONATE button. The main header features the cfsre logo and the text "The Center for Forensic Science Research & Education" and "A PROGRAM OF THE FREDRIC RIEDERS FAMILY FOUNDATION". Below the header is a secondary navigation bar with tabs for EDUCATION, RESEARCH, and NPS DISCOVERY, along with a SEARCH icon. The main content area has a large image of a laboratory with the text "NPS DISCOVERY" overlaid. Below this is the NPS DISCOVERY logo and a paragraph describing the program as an open-access drug early warning system (EWS) operating in the United States. A second paragraph explains the collaboration with forensic science, public health, emergency medicine, and criminal justice agencies. A final paragraph mentions an email listserve for stakeholders.

RESOURCES ABOUT OUR LAB CONTACT DONATE

cfsre The Center for Forensic Science Research & Education

A PROGRAM OF THE FREDRIC RIEDERS FAMILY FOUNDATION

EDUCATION RESEARCH NPS DISCOVERY SEARCH

NPS DISCOVERY

NPS DISCOVERY

The CFSRE's NPS Discovery program is an open-access drug early warning system (EWS) operating in the United States. Our evidence-based approach leads the development of high impact reports for real-time action among public health and safety stakeholders.

We are working in collaboration with forensic science, public health, emergency medicine, and criminal justice agencies to rapidly identify emerging drugs, also known as Novel Psychoactive Substances (NPS), associated with intoxications and adverse events. Our data and results are consolidated into reports and resources to allow for the rapid dissemination of information to colleagues and affected communities.

Stakeholders interested in receiving up-to-date information and notifications can join our [email listserve](#) (be sure to select the NPS Discovery check box at the bottom).




JOIN OUR LISTSERV & NEWSLETTER



DON'T MISS THE LATEST FROM NPS DISCOVERY SUBSCRIBE TO OUR E-NEWSLETTER TODAY

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The Center for Forensic Science Research & Education

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I'm signing up on behalf of a company or organization

First Name Last Name

Email

Remember me so that I can use FastAction next time.

Profession

Please choose the closest match, so we can keep you up to date on relevant content from the CFSRE!

- Crime Lab Directors
- Forensic Biology
- Forensic Chemistry
- Forensic Toxicology
- Law Enforcement
- Legal Professional
- Medical Professional
- Student

What Newsletter would you like to sign up for?

- CFSRE Weekly Newsletter
- NPS Discovery Newsletter

COLLABORATE WITH OUR TEAM

- We accept toxicology samples and drug materials for NPS testing
- Contact Alex Krotulski for more information ► alex.krotulski@cfsre.org

BENEFITS OF TOXICOLOGY TESTING AT THE CFSRE:

- ☠ Perform routine testing for all NPS subclasses, including opioids, benzodiazepines, stimulants, hallucinogens, and cannabinoids.
- ☠ Assist medical examiners and coroners with determining cause of death when prior toxicology testing is negative or inconclusive.
- ☠ Analysis by state-of-the-art instrumentation and methodologies.
- ☠ Regularly updated, comprehensive in-house library database containing more than 1,000 drugs.
- ☠ Sample handling and analysis performed under chain of custody.
- ☠ Forensic quality data and individual reports generated per case.
- ☠ World-leading forensic toxicologists, chemists, and scientists.
- ☠ Laboratory follows forensic toxicology industry best practices.

TESTING CATALOG

NPS Opioids

Fentanyl Analogues, Nitazene Analogues, U-Series, AP-Series, Other Novel Opioids

NPS Benzodiazepines

Etizolam, Flualprazolam, Flubromazepam, Clonazolam, Bromazolam, Flubromazolam

NPS Stimulants

Empathogens, Cathinones, Amphetamines, Phenethylamines, Pyrrolidines

NPS Hallucinogens

Psychedelics, Dissociatives, PCP Analogues, Ketamine Analogues, LSD Analogues

Synthetic Cannabinoids

Classical, Indoles, Indazoles, Miscellaneous, Newly Emergent, & Many More!

ACKNOWLEDGEMENTS

- **CFSRE Team**

- Barry Logan
- MJ Menendez
- Alex Krotulski
- Sara Walton
- Josh DeBord
- Mandi Mohr
- Melissa Fogarty
- Alyssa Reyes
- Brianna Stang
- Alexis Quinter
- Max Denn
- Many others!

- **NMS Labs**

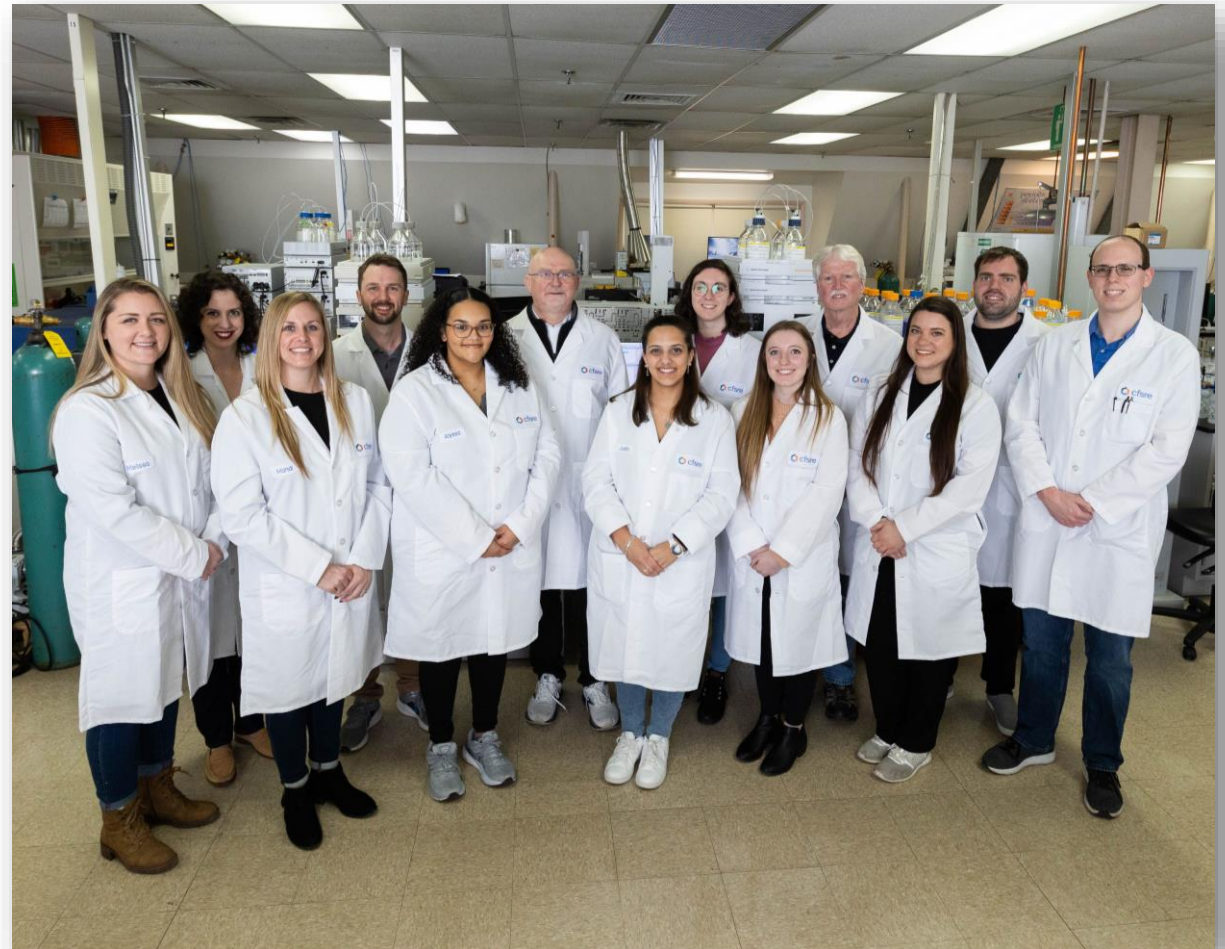
- Donna Papsun

- **Funding Agencies**

- National Institute of Justice (NIJ)

- **Collaborators & Partners**

- Forensic
- Clinical
- Medical Examiner
- Coroner
- Public Health





THANK YOU! **QUESTIONS?**

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