

The importance of testing for novel psychoactive substances (NPS)

NPS can be more potent and harder to detect than traditional drugs[1,2]

NPS are an emerging public health issue

Over the past decade, there has been a significant increase in the consumption of novel psychoactive substances (NPS) and they've been implicated in overdose and mass poisoning events.[1] There are over 1,000 different NPS reported worldwide,[3] sold mainly online and from street retailers, which increases opportunity and access. Assessing the presence of NPS in patients is critical for public health and patient management.

What are NPS?

NPS, also known as designer or synthetic drugs, are designed to mimic the effect of controlled substances and/or illicit drugs, while circumventing national and international drug scheduling laws.[2,3]

NPS have the potential to supplant the traditional drugs of abuse

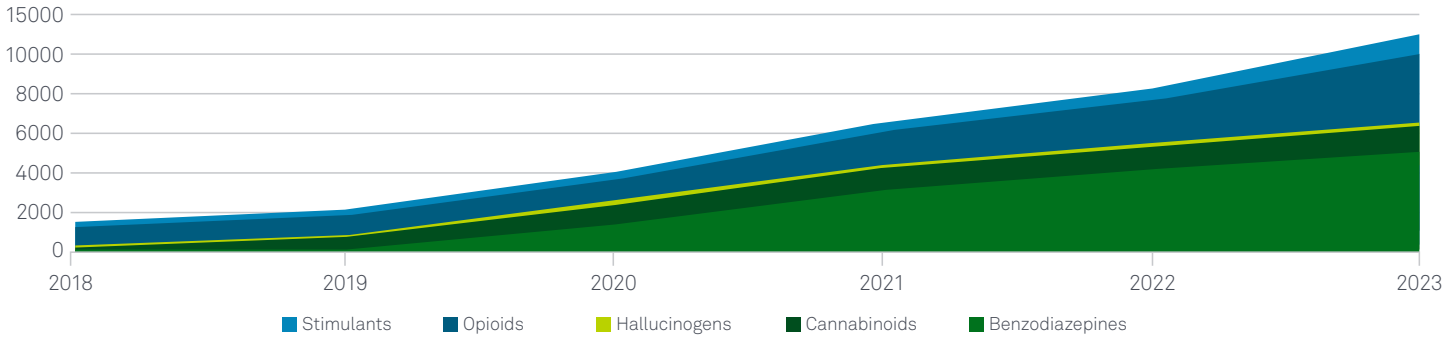
New compounds are appearing relentlessly on the drug market. Information regarding their potential toxicity is scarce, and the number of emergencies related to their use is increasing. Key concerns include that NPS:

- Can be present in counterfeit drugs
- Are often found in combination with other substances
- Can cause more severe drug-to-drug interactions
- Are often consumed unknowingly

Widespread prevalence of NPS—and how Quest Diagnostics is addressing it

The NPS Discovery Program—an open-access drug early warning system from The Center for Forensic Science Research & Education—**has observed a dramatic increase in NPS in the US**.[4]

Cumulative number of NPS detections since 2018



Quest recently conducted a national NPS surveillance study,[5] retesting nearly 4,000 specimens and identifying:

13.1%
overall positivity rates of **new NPS that were not originally tested for**

42%
of all positive samples had **more than 1 NPS present**

60%
Xylazine positivity; other compounds comprised 40% of NPS-positive samples—**Xylazine is not the only NPS concern**

Traditional testing may miss NPS; definitive testing is critical

New NPS compounds are appearing persistently on the drug market. Their composition varies and changes frequently, making NPS challenging to detect using traditional immunoassay or point-of-care testing. Signs and symptoms can vary based on the type of designer drug, and the perceived legality, affordability, and novelty of NPS can put certain individuals at high risk for misuse.[6]

Individuals suitable for testing include persons:

- Exhibiting signs or symptoms of NPS poisoning (eg, drug-induced psychosis, especially those identified as high risk)
- Showing positive presumptive immunoassay results for known benzodiazepines, opioids, and/or fentanyl but negative confirmatory, definitive LC-MS/MS results
- Being considered for opioid therapy or a change in treatment
- Recovering from substance abuse disorders
- Needing advocacy to verify their abstinence

Quest Diagnostics offers definitive NPS testing

The Drug Monitoring, NPS panel from Quest simultaneously identifies NPS classes using definitive liquid chromatography-tandem mass spectrometry (LC-MS/MS)-based testing and reports out at the class level to help identify misuse.

Ordering information:

Test code

13086

Test name

Drug Monitoring, Novel Psychoactive Substances (NPS), Qualitative, Urine Panel

Specimen type

Standard urine specimen collection

Panel covers 6 of the major NPS classes

1 | Synthetic stimulants
2 | Synthetic cannabinoids
3 | Designer benzodiazepines
4 | Designer opioids
5 | Fentanyl analogs
6 | Other illicit additives including xylazine and tianeptine

Since the list of NPS rapidly evolves, Quest has updated the substances tested with this panel, without changing test codes and requiring EHR updates.

Updates to the NPS panel include:

- 26 analytes added to the 6 different NPS classes
- Removal of parent drugs in Synthetic Cannabinoid Class
- Individual class order codes available
  - (13793) Designer Benzodiazepines[a]
  - (13794) Designer Fentanyl Analogs
  - (13795) Designer Opioids
  - (13796) Designer Stimulants
  - (13797) Synthetic Cannabinoids
  - (13798) Other illicit additives



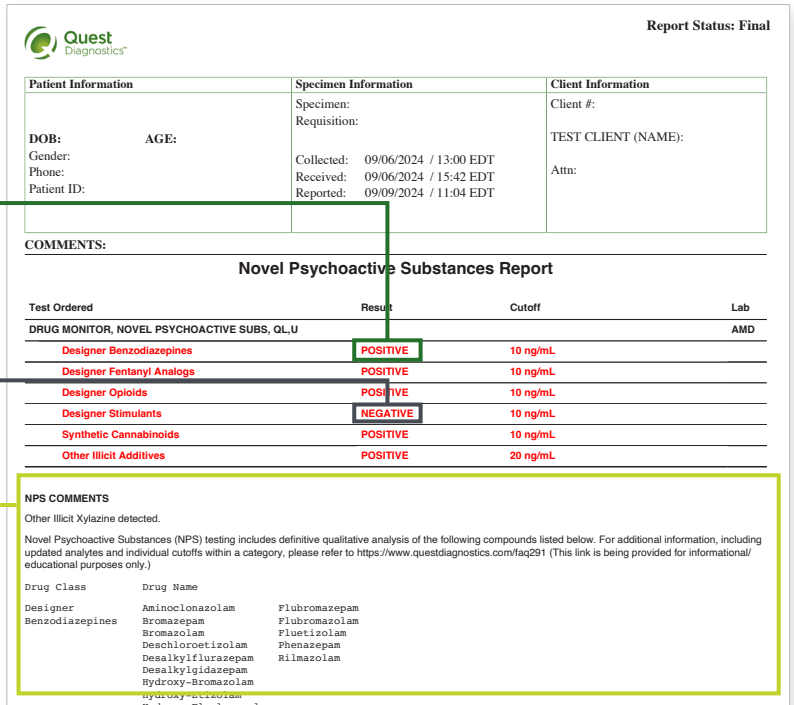
[a] Note that there has been a CPT® code change for Designer Benzodiazepines.

Definitive class reporting: "positive" or "negative"

A **"positive"** result for a drug class indicates that at least 1 drug or its metabolite has been definitively detected at, or above, the cutoff value (for that drug or metabolite).

A **"negative"** result for a drug class indicates that no drugs or metabolites were detected at levels above the cutoff value (for those drugs or metabolites).

Additional **alert messaging capabilities**—a class positive driven by xylazine and/or its metabolite has a "xylazine detected" message added to the end of the report in the notes and comments section. Additional alerts will be added in the future as needed.



Quest Diagnostics

Report Status: Final

Patient Information	Specimen Information	Client Information
DOB: AGE: Gender: Phone: Patient ID:	Specimen: Requisition: Collected: 09/06/2024 / 13:00 EDT Received: 09/06/2024 / 15:42 EDT Reported: 09/09/2024 / 11:04 EDT	Client #: TEST CLIENT (NAME): Attn:

COMMENTS:

Novel Psychoactive Substances Report

Test Ordered	Result	Cutoff	Lab
DRUG MONITOR, NOVEL PSYCHOACTIVE SUBS, QL,U			AMD
Designer Benzodiazepines	POSITIVE	10 ng/mL	
Designer Fentanyl Analogs	POSITIVE	10 ng/mL	
Designer Opioids	POSITIVE	10 ng/mL	
Designer Stimulants	NEGATIVE	10 ng/mL	
Synthetic Cannabinoids	POSITIVE	10 ng/mL	
Other Illicit Additives	POSITIVE	20 ng/mL	

NPS COMMENTS

Other Illicit Xylazine detected.

Novel Psychoactive Substances (NPS) testing includes definitive qualitative analysis of the following compounds listed below. For additional information, including updated analytes and individual cutoffs within a category, please refer to https://www.questdiagnostics.com/faq291 (This link is being provided for informational/educational purposes only.)

Drug Class	Drug Name	
Designer Benzodiazepines	Aminoclonazolam	Flubromazepam
	Bromazepam	Flubromazolam
	Bromazolam	Fluetizolam
	Deschloroetizolam	Phenazepam
	Desalkylflurazepam	Rilmazolam
	Desalkylgidazepam	
	Hydroxy-Bromazolam	

Quest Diagnostics for Clinical Drug Monitoring

An industry leader committed to responsible drug testing

Quest is committed to providing the services, results, and insights you need to protect your practice and your patients.

Comprehensive test menu—Prescription drugs used in the treatment of chronic pain, anxiety, depression, and substance use disorder, plus other controlled medications, and illicit drugs/substances of abuse. Diagnostic services for infectious diseases, cardiovascular, women's health, neurology, and oncology

Performance testing—High-sensitivity, low cut-off levels designed to detect drugs at typical dosage levels. Urine, oral fluid, and blood testing options to meet any of your sample requirements

Reporting and data—Optional medMATCH® result interpretation: "inconsistent" when results do not match prescriptions provided by clinician. Quarterly local/practice-level data and analytics utilizing our industry-leading database

Convenience with connectivity—Nationwide logistics services. Efficiency that aligns with your workflow, with connectivity to nearly 850 EHR systems

Service and expert support—Toxicology experts available to answer questions on test selection and results interpretation at 1.877.40.RXTOX (1.877.407.9869)

The right price—In-network for 90% of lives nationwide[b] and preferred lab network status with major health plans

[b] This is directional data. It is based on 2020 HealthLeaders membership data of private third-party payers at the Managed Care Organization (MCO) level, as well as Quest internal data. Information is believed to be accurate as of January 1, 2020; however, it is subject to change.



To learn more, contact your Quest sales representative or visit
QuestDiagnostics.com/NovelPsychoactiveSubstances

References
1. Iwersen-Bergmann S, Lehmann S, Heinemann A, et al. Mass poisoning with NPS: 2C-E and Bromo-DragonFly. *Int J Legal Med* 2019;133(1):123-129. doi:10.1007/s00414-018-1882-9
2. Peacock A, Bruno R, Gisev N, et al. New psychoactive substances: challenges for drug surveillance, control, and public health responses. *Lancet.* 2019;394(10209):1668-1684. doi:10.1016/s0140-6736(19)32231-7
3. Mohr ALA, Logan BK, Fogarty MF, et al. Reports of adverse events associated with use of novel psychoactive substances, 2017–2020: a review. *J Anal Toxicol*. 2022;46(6):e116-e185. doi:10.1093/jat/bkac023
4. The Center for Forensic Science Research & Education. Trend reports. 2023. Accessed November 6, 2024. https://www.cfsre.org/nps-discovery/trend-reports
5. Data on file. National NPS Surveillance Study. Quest Diagnostics; 2023.
6. Peacock A, Bruno R, Gisev N, et al. New psychoactive substances: challenges for drug surveillance, control, and public health responses. *Lancet*. 2019;394(10209):1668-1684. doi:10.1016/s0140-6736(19)32231-7

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CPT® codes are based on American Medical Association guidelines and mentioned for informational purposes only. CPT coding is the sole responsibility of the billing party. Please direct any questions regarding coding to the payer being billed.

Test codes may vary by location. Please contact your local laboratory for more information.

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