

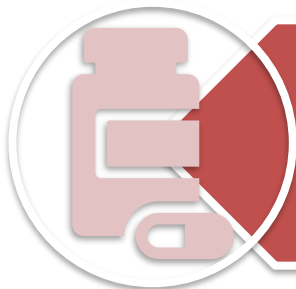
Emerging Drugs

*Impact on Substance Use Disorder and
Behavioral Health Care*

Substance Abuse Prevention and Control



Learning Objectives



Describe

emerging new psychoactive substances (NPS).



Identify

the origin of NPS, how NPS are used, and how NPS affect the body.



Learn

how NPS are becoming more common and who is most at risk.

What are New Psychoactive Substances (NPS)?

Lab-made substances created for research or illicit drug markets

“New” refers to psychoactive substances that have recently become available

Known as “*designer drugs*”, “*legal highs*”, “*herbal highs*” and/or “*bath salts*”

Synthetic substances that mimic the effects of existing drugs (e.g., cocaine, cannabis, LSD*, and heroine)

*Lysergic Acid Diethylamide (LSD)

Sources:

1. <https://nida.nih.gov/research-topics/emerging-drug-trends#new>
2. https://www.unodc.org/documents/drug-prevention-and-treatment/Youth%20Initiative/Fact_Sheet_Myth_10_-_New_Psychoactive_Substances_NPS_are_newly_designed_drugs.pdf
3. <https://www.unodc.org/LSS/Page/NPS>

How widespread are NPS?



Many NPS have been in existence, but the number of NPS is ever expanding.



Between 2009 and 2016, a total of 739 NPS were reported by 106 countries and territories to the UNODC* Early Warning Advisory. The highest number of NPS were reported in Asia, Europe and North America.



A major contributor to this trend has been the internet, which has made drug purchase easier, anonymous and at lower risk.

*United Nations Office on Drugs and Crime (UNODC)

Categories of NPS

Substances	Pronunciation	Common names
Aminoindanes	Uh-mee-noh-in-daynz	MDAI gold
Phencyclidine-type	Fen-sai-kluh-deen	PCP, Angel Dust, Supergrass, Boat, Tic Tac, etc.
Phenethylamines	Fen-eth-il-AM-een	N-bomb, Smiles
Piperazines	Pi-per-uh-zeenz	Pep Pills, Social Tonics, Party Pills, etc.
Plant Based Substances - Kratom - Salvia Divinorum	KRAY-tum and KRAT-um SAL-vee-uh dih-VIN-uh-rum	- Thang, Kakuam, Thom, Ketum, and Biak - Maria Pastora, Sally-D, Salvia
Synthetic Cannabinoids	Sin-THET-ik KAN-uh-buh-noyd	Spice, K2, Kronic, etc.
Synthetic Cathinones	Sin-THET-ik KATH-uh-nones	Pure Ivory, Purple Wave, Ocean Burst, White Lightning, White Dove, Energy, Meow
Tryptamines	Trip-tu-meenz	Foxy-Methoxy, Alpha-O, alpha, and O-DMS

Want to Learn More?

When navigating slides related to the below NPS, you have the option to *click on the image* at the top-right to learn more about the substance.

- Aminoindanes
- Phencyclidine-type
- Phenethylamines
- Synthetic Piperazine Derivatives
- Plant Based Substances
- Synthetic Cannabinoids
- Semi-Synthetic Cathinones
- Tryptamines

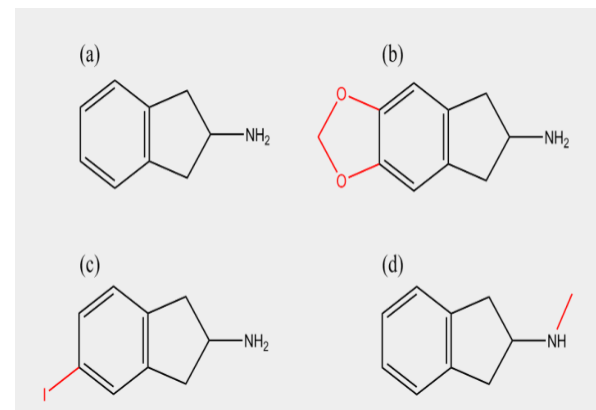
Aminoindanes

Description:

- Act as *stimulants*
- Found in powder form and crystals
- Usually ingested, but snorting is also possible
- Other name: *MDAI gold*

Health Effects:

The effects on humans have not yet been reported

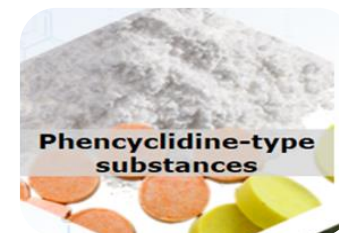


Source: United Nations on Drugs and Crime

Phencyclidine-type

Description:

- Appeared for the first time in Europe as “research chemicals” in 2010
- Act as either *stimulants* or *dissociatives*
- Usually available in capsule or tablet form as a white powder
- Commonly smoked, it can also be snorted or ingested
- Other names: *PCP*, *Angel Dust*, *Supergrass*, *Boat*, *Tic Tac*, etc.



Source: Medscape

Health Effects:

There is very limited information

Sources:

1. <https://www.unodc.org/LSS/SubstanceGroup/Details/6bf165ed-82e7-47e0-9eaa-daacc42d99cd>
2. https://www.unodc.org/pdf/NPS_Report_23_January_2013.pdf

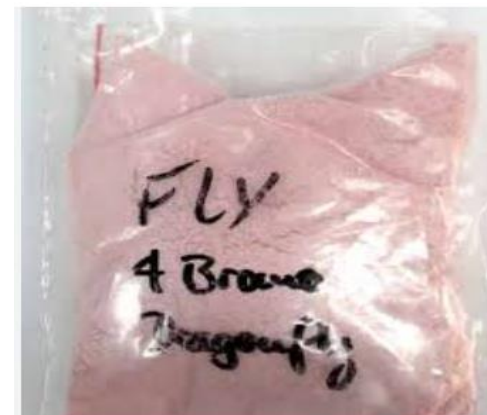
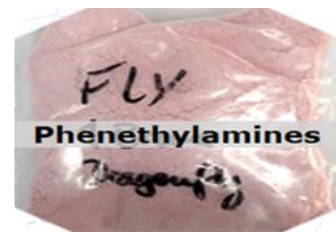
Phenethylamines

Description:

- Bromo-Dragonfly is the most common and potent substance
- Act as *stimulants* or *hallucinogens*
- Sold as pills, powder form, oral doses (on a slip of blotter paper)
- Ingestion is the most common route of administration
- Other names: *N-bomb* and *Smiles*

Health Effects:

- Seizures, cardiac and respiratory arrest, and death



Source: United Nations Office on Drugs and Crime

Sources:

1. <https://www.unodc.org/LSS/SubstanceGroup/Details/275dd468-75a3-4609-9e96-cc5a2f0da467>
2. https://www.deaecom.gov/synthetic_drugs/about-sd.html

Synthetic Piperazine Derivatives

Description:

- Potential therapeutic agents but never marketed
- Frequently sold as “Ecstasy”
- Most popular, Benzylpiperazine (BZP)
- Most act as *stimulants*, but in rare cases act as *opioids*
- Consumed mainly by ingestion, but injection, smoking, and snorting is possible
- Usually available in pill form, capsules, or loose powders, and mainly consumed by ingestion
- Other names: *Pep Pills*, *Social Tonics*, *Party Pills*, etc.

Health Effects:

Toxic effects include agitation, anxiety, cardiac symptoms, and sometimes seizures

Sources:

1. <https://www.unodc.org/LSS/SubstanceGroup/Details/8242b801-355c-4454-9fdc-ba4b7e7689d5>
2. <https://pubmed.ncbi.nlm.nih.gov/21744514/>



Source: <https://www.novarecoverycenter.com/trending-street-drugs/pump-it-powder/>

Plant Based Substances

Kratom

Description:

- Made from a tropical tree native to Southeast Asia
- *Stimulant* effects (low doses) and *opioid* effects (high doses)
- Mostly orally ingested in the form of a tablet, capsule, or extract; also dried or powdered and ingested as a tea, or the kratom leaf may be chewed
- Used to manage drug withdrawal symptoms and cravings, pain, fatigue, anxiety, and depression
- Other names: *Thang*, *Kakuam*, *Thom*, *Ketum*, and *Biak*



Source: Drug Enforcement Administration

Health Effects:

Nausea, constipation, dizziness, drowsiness, confusion, tremors, seizures, high blood pressure, slow breathing, etc.

Sources:

1. <https://nida.nih.gov/research-topics/kratom>
2. https://www.dea.gov/sites/default/files/2020-06/Kratom-2020_0.pdf

Salvia Divinorum

Description:

- Herb in the mint family native to certain areas of the Sierra Mazateca region of Oaxaca, Mexico
- It is abused for its *hallucinogenic* effects
- Sold as seeds, plant cuttings, whole plants, fresh and dried leaves, extract-enhanced leaves of various strengths and liquid extracts
- Can be chewed, smoked, or vaporized
- Other names: *Maria Pastora*, *Sally-D*, *Salvia*



Source: Drug Enforcement Administration

Health Effects:

Intense hallucinations, impaired judgment, disrupted sensory and cognitive functions, etc.

Sources:

1. <https://www.dea.gov/factsheets/salvia-divinorum>
2. https://www.deadiversion.usdoj.gov/drug_chem_info/salvia.pdf

Synthetic Cannabinoids

Description:

- Made in the 1970s to try and create medicines with similar effects to cannabis
- Similar to THC found in the cannabis plant and has *psychoactive* properties
- Sold in liquid and powder form; as “herbal incense” or “potpourri”
- Usually smoked, added to liquid cartridges used in vaping devices, or ingested through food, drinks, or edibles (gummies, lollipops), etc.
- Other names: *Spice*, *K2*, *Kronic*, etc.



Health Effects:

- Hallucinations, psychosis, suicidal thoughts
- Heart attack, high blood pressure, stroke, and seizures

Source: <https://www.delawarepublic.org/npr-headlines/2024-03-14/d>

Sources:

1. <https://nida.nih.gov/research-topics/synthetic-cannabinoids>
2. <https://www.unodc.org/LSS/SubstanceGroup/Details/ae45ce06-6d33-4f5f-916a-e873f07bde02>
3. https://archive.cdc.gov/www_cdc.gov/nceh/hsb/envepi/outbreaks/sc/About.html
4. <https://www.dea.gov/factsheets/spice-k2-synthetic-marijuana>
5. <https://adf.org.au/drug-facts/synthetic-cannabinoids/>

Semi-Synthetic Cathinones

Description:

- Chemically related to substances in the khat plant
- Also known as “Bath Salts”
- Acts as a *stimulant*
- Sold in tablet, capsule, or powder form
- Use includes sniffing/snorting, orally, smoked, or put into a solution and injected
- Other names: *Pure Ivory, Purple Wave, Ocean Burst, White Lightning, White Dove, Energy, Meow*

Health Effects:

- Nausea, vomiting, paranoia, suicidal thoughts, seizures, chest pains, increased blood pressure and heart rate, and violent outbursts
- These drugs have also resulted in overdose deaths



Source: US Drug Enforcement Administration

Sources:

1. <https://nida.nih.gov/research-topics/synthetic-cathinones-bath-salts>
2. <https://www.dea.gov/factsheets/bath-salts>
3. https://www.deaecom.gov/synthetic_drugs/about-sd.html

Tryptamines

Description:

- Synthetic tryptamines appeared on illicit drug markets throughout the 1990s
- Act as *hallucinogens*
- Sold in capsule, tablet, powder, or liquid form
- Generally swallowed, sniffed, smoked, or injected
- Other names: *Foxy-Methoxy*, *Alpha-O*, *Alpha*, and *O-DMS*

Health Effects:

- There is very limited information.
- Related to the use of “*foxy methoxy*” include restlessness, agitations, gastrointestinal distress, and muscle tension



Source: National Drug Intelligence Center

Other Substances:

7-OH

Ketamine

Nitazenes

Tianeptine

7-OH

Description:

- 7-Hydroxymitragynine, or 7-OH, is a chemical found naturally in the kratom plant, but only in very small amounts.
- Some products use concentrated or man-made 7-OH, which is much stronger than natural kratom. Even a tiny amount of concentrated 7-OH can have powerful effects on the brain.
- 7-OH binds strongly to the brain's opioid receptors and can produce intense opioid-like effects, including euphoria and heavy sedation. 7-OH can be up to thirteen times stronger than morphine.

Health Effects:

- Intense euphoria and heavy sedation.
- It may slow breathing, which can be life-threatening, and carries a risk of addiction or dependence.



Source: <https://flic.kr/p/2rfidJ3>



Source: <https://flic.kr/p/2rfgZgX>

Sources:

1. https://www.dea.gov/sites/default/files/2020-06/Kratom-2020_0.pdf
2. <http://www.fda.gov/news-events/public-health-focus/fda-and-kratom>
3. <https://www.fda.gov/drugs/information-consumers-and-patients-drugs/hiding-plain-sight-7-oh-product>

Ketamine

Description:

- Since the 1970s, marketed in the US as an injectable anesthetic
- A *dissociative anesthetic* that has some hallucinogenic effects
- Illicit ketamine is sold as a liquid or powder
- Usually sold at raves, nightclubs, and private parties
- Used by injection, but also snorted or smoked
- Other names: *Special K, Vitamin K, Cat Valium, Kit Kat*, etc.

Health Effects:

- Hallucinations
- Agitation, depression, cognitive difficulties, unconsciousness, and amnesia



Source: Legislative Analysis and Public Policy Association

Sources:

1. <https://www.dea.gov/factsheets/ketamine>
2. <https://www.dea.gov/sites/default/files/2020-06/Ketamine-2020.pdf>
3. <https://legislativeanalysis.org/wp-content/uploads/2023/06/Ketamine-Fact-Sheet-FINAL.pdf>

Nitazenes

Description:

- In the 1950s, they were developed in research labs as potential pain relievers but never marketed
- Extremely potent synthetic opioid
- May be as powerful or more powerful than fentanyl
- Most often sold as a white powder or tablets
- Commonly used forms include vaping and nasal inhalation
- Other names: unknown

Health Effects:

Slow breathing, blood pressure, and heart rate to dangerously low levels, potentially contributing to overdose



Source: The National News Desk

Sources:

1. [Emerging Drug Trends | National Institute on Drug Abuse \(NIDA\)](#)
2. <https://www.unodc.org/LSS/SubstanceGroup/Details/6ae0ca-aafd-452c-a534-c16aa3a2e507>

Tianeptine

Description:

- Not approved by the U.S. Food and Drug Administration for any medical use
- Taken in dietary supplements as cognitive enhancers or nootropics; often marketed as Stablon and Coaxil
- Acts as an *opioid*
- Sold as powder and pill form
- Common use is orally, intravenous, and inhalation
- Other names: Gas Station Heroin, *Tianaa*, *Zaza*, *Neptune's Fix*, *Pegasus*, and *TD Red*

Health Effects:

- Dangerous drops in blood pressure, heart rate, or breathing rate
- Brain, heart, and digestive function issues



Source: CHI St. Gabriel's Health



Source: Wikipedia

Sources:

1. <https://nida.nih.gov/research-topics/emerging-drug-trends#tianeptine>
2. https://www.deadiversion.usdoj.gov/drug_chem_info/tianeptine.pdf
3. <https://www.fda.gov/consumers/health-fraud-scams/new-gas-station-heroin-tianeptine-product-trend#:~:text=Tianeptine%20is%20frequently%20available%20at,in%20labeled%20foreign%20drug%20products.>
4. [https://recoverycentersofamerica.com/substance-guide/tianeptine-abuse-addiction/#:~:text=When%20prescribed%2C%20tianeptine%20is%20typically,%2C%20and%20insufflation%20\(inhalation\).](https://recoverycentersofamerica.com/substance-guide/tianeptine-abuse-addiction/#:~:text=When%20prescribed%2C%20tianeptine%20is%20typically,%2C%20and%20insufflation%20(inhalation).)

In 2024, the Center for Forensic Science Research and Education (CFSRE) observed more than **5,200** total NPS detections within examined sample populations (Figure 5), a portion of nearly **20,000** total NPS detections since the program launched in 2018 (Figure 6).

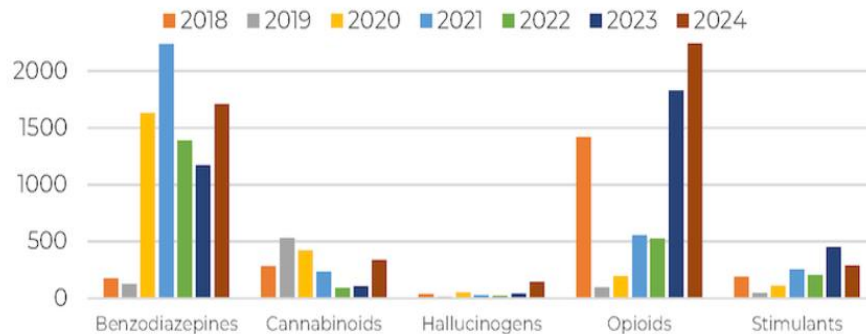


Figure 5: Total number of NPS detections by year among samples analyzed since 2018.

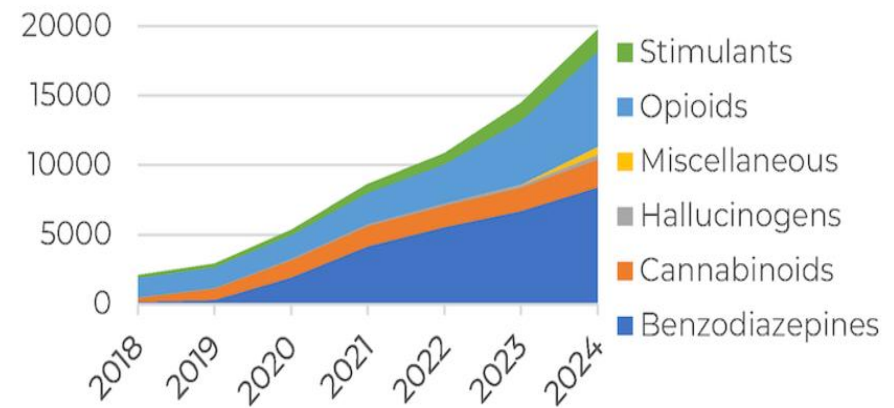


Figure 6: Cumulative number of total NPS detections since 2018.

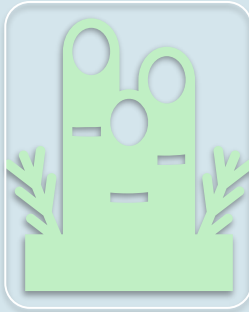
Why are Synthetic Drugs Becoming More Common?



Don't rely on cultivating plants, requiring land, water, and other expenses.



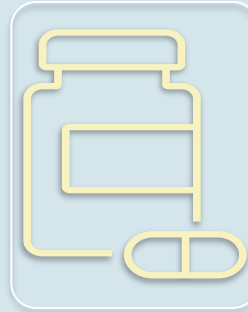
Lower production and shipping costs lead to higher profits.



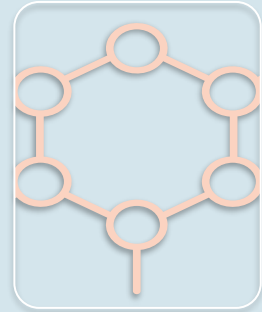
More potent than traditional plant-based drugs.



Can be cut into other drugs (e.g., replacing heroin with fentanyl).



Can be pressed to resemble counterfeit prescription pills.



Chemicals used to make them travel across borders easier.



NPS tends to be used by young people (aged 16 – 24) and young men in particular, who are experimenting with drugs rather than purposefully aiming for a specific effect.

Source: https://www.unodc.org/documents/drug-prevention-and-treatment/Youth%20Initiative/Fact_Sheet_Myth_10_-_New_Psychoactive_Substances_NPS_are_newly_designed_drugs.pdf

Resources

Name	Website
SUBSTANCE ABUSE PREVENTION and CONTROL	HTTP://PH.LACOUNTY.GOV/SAPC/
NATIONAL INSTITUTE on DRUG ABUSE	HTTPS://NIDA.NIH.GOV/
TIANEPTINE FACT SHEET	HTTP://PUBLICHEALTH.LACOUNTY.GOV/SAPC/DOCS/PREVENTION/FACTSHEET/TIANEPTINE-07242024.PDF
KRATOM FACT SHEET	HTTP://PUBLICHEALTH.LACOUNTY.GOV/SAPC/DOCS/PREVENTION/FACTSHEET/KRATOM-07242024.PDF



Thank you

Los Angeles County Department of Public Health
Bureau of Substance Abuse and Prevention Program

