



NEW SUBSTANCE USE TRENDS: WHAT ADVOCATES SHOULD KNOW

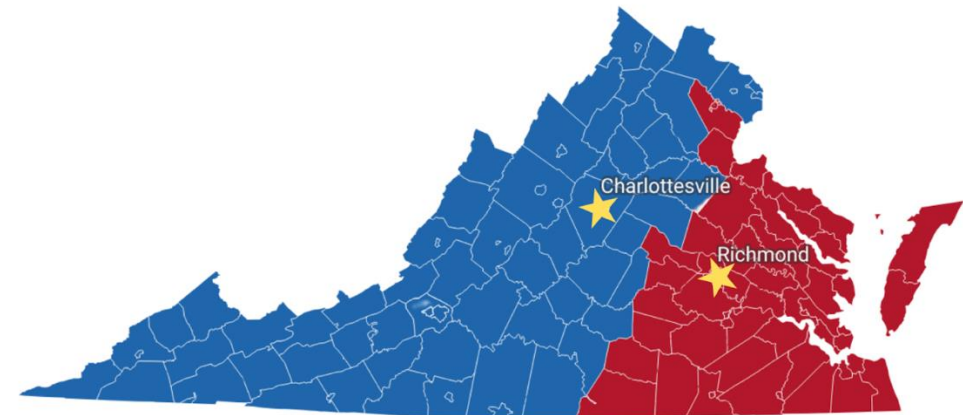
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Objectives

- Review history of drugs of abuse
- Become familiar with new substances of abuse that have become prevalent in the past 2 decades
- Understand which substances can be purchased legally at convenience stores/vape shops
- Define cannabis and cannabinoids
- Recall which substances discussed would show up on a urine drug screen

Top 20 Substances	Cases
Analgesics	2,060
Antidepressants	1,434
Cardiovascular drugs	1,098
Sedative/hypnotics/antipsychotics	1,080
Cleaning substances (household)	1,011
Antihistamines	1,002
Alcohols	932
Cosmetics/personal care products	749
Stimulants and street drugs	747
Anticonvulsants	605
Foreign bodies/toys/miscellaneous	561
Pesticides	494
Hormones and hormone antagonists	475
Dietary supplements/herbals	451
Chemicals	412
Plants	400
Cold and cough preparations	343
Gastrointestinal preparations	343
Vitamins	341
Topical preparations	340

Table 1: 2024 Top 20 Substances



Blue Ridge Poison Center
Part of UVA Health
Charlottesville

Virginia Poison Center
Part of VCU Health
Richmond

POISON CENTERS IN VIRGINIA



Alcohol



Tobacco



Caffeine



Cocaine



Cannabis

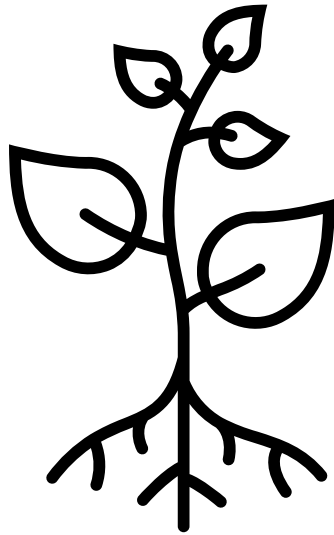
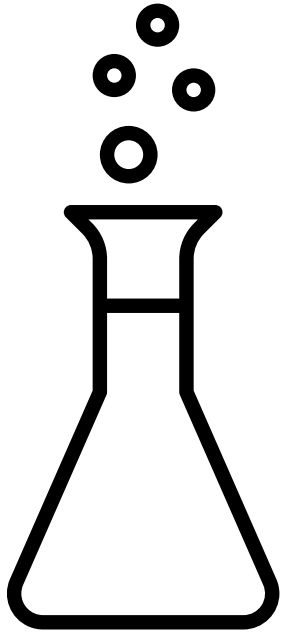


Opioids

HISTORIC DRUGS OF ABUSE

History of drugs

Pharmaceuticals	Psychedelics and party drugs	Stimulants	Opioid epidemic	Novel psychoactive substances
<ul style="list-style-type: none">• Ability to make morphine, oxycodone in a lab	<ul style="list-style-type: none">• Psilocybin• LSD• MDMA	<ul style="list-style-type: none">• Meth• Crack cocaine	<ul style="list-style-type: none">• Oxycodone• Heroin• Fentanyl	<ul style="list-style-type: none">• Designer opioids/ benzos/ ketamines• Synthetic cannabinoids, cathinones, psychedelics• “Gas station drugs”
1900s	1940-80s	1980s	1990s	2000-today



The battle

Replacing drugs derived from plants (eg heroin, cannabis) with synthetic analogues (eg fentanyl, spice), could be the most disruptive innovation in history of the international drug trade”

Brookings Institution

Drug outline

- Historic illicit drugs
 - Opioids (designers, adulterants)
 - Stimulants (cocaine/methamphetamine, synthetic cathinones)
- Cannabinoids
- “Gas station drugs”
 - Opioids
 - Mushroom gummies
 - Inhalants
 - Nootropics



OPIOIDS

Opioids

- **Opioids** are substances that bind the mu opioid receptors and including synthetically made drugs (fentanyl, oxycodone, methadone etc)
- **Opiates** are substances that bind the opioid receptors and are naturally derived from the opium poppy (heroin, opium, morphine, codeine)

Urine drug screens (UDS)

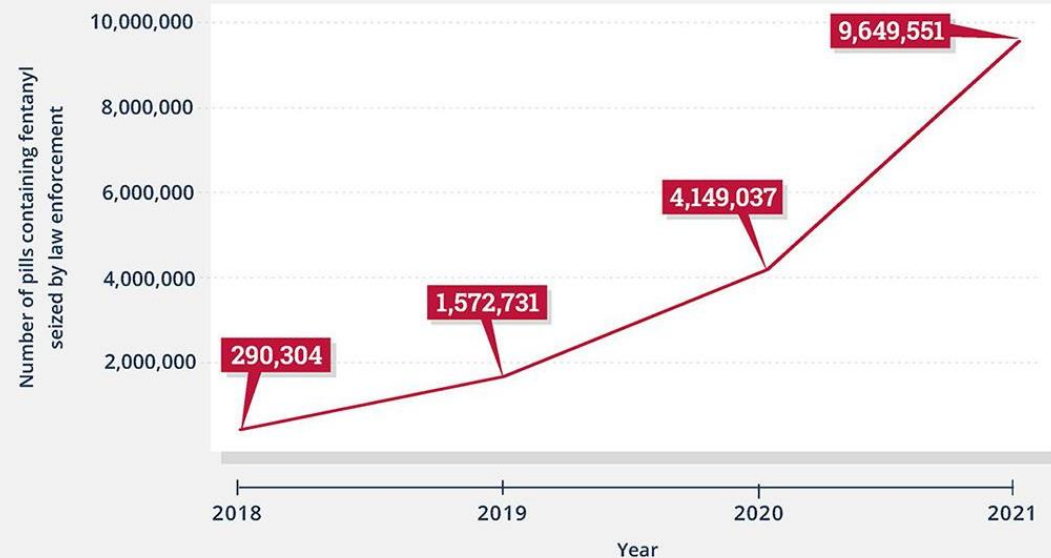
- False positives/false negatives
- NIDA 5 UDS
 - Amphetamines
 - Cocaine
 - Marijuana (delta 9 THC)
 - Opiates
 - PCP



Opioid epidemic 1990s-present

- Oxycontin
- Heroin
- Fentanyl
- Designer opioids

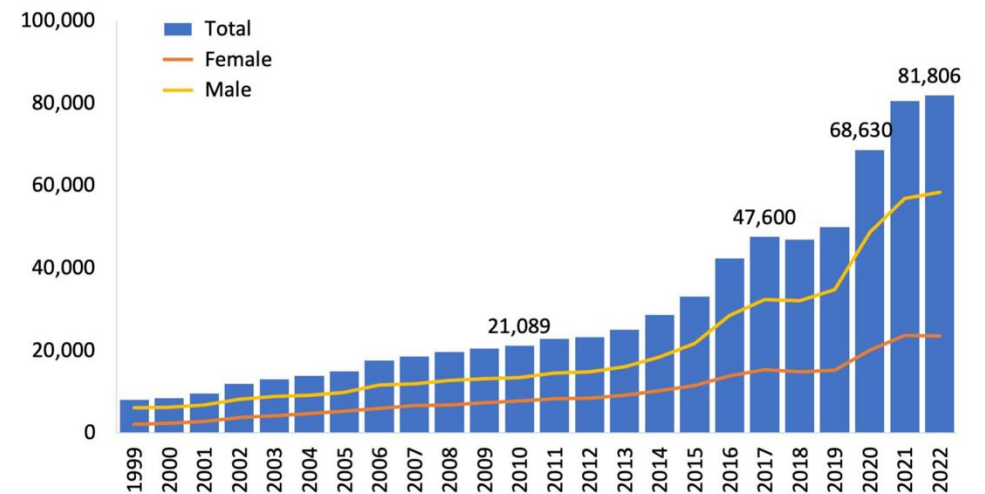
Number of Pills Containing Fentanyl Seized by Law Enforcement in the United States, 2018 – 2021



Fentanyl and designer opioids



Figure 3. U.S. Overdose Deaths Involving Any Opioid* by Sex, 1999-2022



*Among deaths with drug overdose as the underlying cause, the "any opioid" subcategory was determined by the following ICD-10 multiple cause-of-death codes: natural and semi-synthetic opioids (T40.2), methadone (T40.3), other synthetic opioids (other than methadone) (T40.4), or heroin (T40.1). Source: Centers for Disease Control and Prevention, National Center for Health Statistics. Multiple Cause of Death 1999-2022 on CDC WONDER Online Database, released 4/2024.

Names

- Street names
 - Perc 30
 - Xanax
- Designer opioids
 - Acrylfentanyl
 - Acetylfentanyl
 - U-47700
 - Nitazenes
- Adulterants
 - Xylazine (“tranq dope”)
 - Medetomidine





STIMULANTS

Cocaine

- Snorted
- IV
- Smoked (crack cocaine)

Methamphetamines

- Snorted
- IV
- Smoked

Bath salts (synthetic cathinones)

- Snorted

PCP

- Snorted
- Smoked

“Molly” may no longer refer to MDMA and may be meth or bath salts instead





CANNABINOIDS



Cannabis

- *Cannabis* → genus of plants
 - *C. sativa*
 - *C. indica*
 - *C. ruderalis*
- *Cannabis* contains **cannabinoids** → substances that bind cannabinoid receptors (THC, CBD etc)

Cannabinoids

Substances that bind the CB receptors

CB 1 receptors

- Centrally located
 - Psychoactive symptoms
 - Regulation of cognition, memory/motor, nociception
 - N/V

CB 2 receptors

- Peripherally located
- Anti-inflammatory effects

Downstream effects

- Modulate neurotransmitters including GABA, serotonin, dopamine, norepinephrine, acetylcholine, glutamate

Cannabinoids

Endogenous cannabinoids

Phytocannabinoids

Synthetic cannabinoids

Phytocannabinoids

- From the Cannabis plant
- 100+ substances
 - Delta 9-THC
(tetrahydrocannabinol)
 - CBD (cannabidiol)



Regular plant → Maryjane,
MJ, pot, weed, dank, ganja,
holy weed, jazz cigarette

Pressed resin from top of
plant → hashish

Oil from resin → butane hash
oil, dab, budder, earwax

Phytocannabinoids

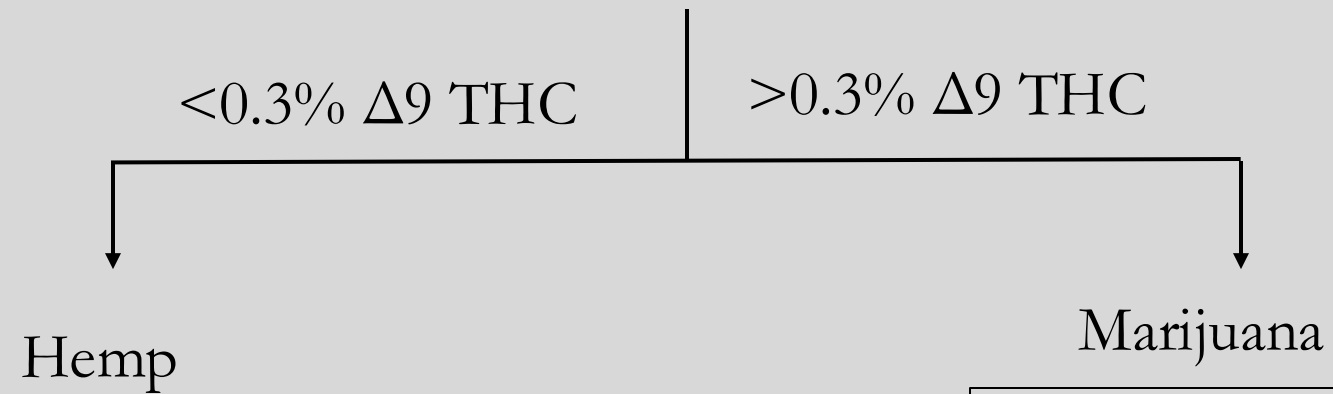
- From the Cannabis plant
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(tetrahydrocannabinol)
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Farm Bill 2018

* $\Delta 9$ THC is the main psychoactive cannabinoid in the cannabis plant

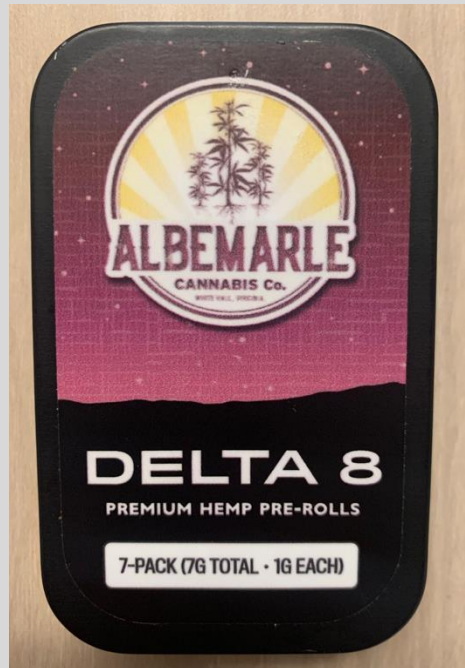


Cannabis plant



1995 ave 4% THC
2019 ave 15% THC

“Phytocannabinoids”



“Phytocannabinoids”





THC-A, THC-B



THC-A, THC-P, THC-M





Synthetic cannabinoids

- 2004 Germany
- Sold as “herbal incense”
- JWH-018 was first isolated structure
- Bind to CB receptors with 100x potency of phytocannabinoids



OTHER “GAS
STATION DRUGS”

NICOTINE





TIANEPTINE “GAS STATION DOPE”

MMWR | **TIANEPTINE, A POSSIBLE PUBLIC HEALTH RISK**

ANTIDEPRESSANT NOT APPROVED IN THE U.S.	POISON CONTROL CENTER CALLS INCREASING	TREATING TIANEPTINE MISUSE
<p>PEOPLE MAY BE ABUSING TIANEPTINE BECAUSE OF ITS OPIOID-LIKE EFFECTS</p>  <p>MISUSE CAN LEAD TO SEVERE ADVERSE EFFECTS, DEPENDENCE, AND WITHDRAWAL</p>	<p>218 CALLS FROM 2000 THROUGH 2017</p> <p>11 CALLS IN FIRST 14 YEARS</p> <p>207 IN MOST RECENT 4 YEARS</p> 	<p>CONSIDER TIANEPTINE MISUSE WHEN PATIENTS HAVE OPIOID-LIKE OVERDOSE OR WITHDRAWAL SYMPTOMS</p>  <p>CONSULT POISON CONTROL CENTERS (1-800-222-1222) FOR FURTHER MANAGEMENT</p> 

National Poison Data System data from 2000-2017 as published in El Zahran, MMWR 2018
<https://pubs.cdc.gov/pub/2018/04/11/00000000-0000-0000-0000-000000000000>
 11/2018

WWW.CDC.GOV

Kratom (*Mitragyna speciosa*)

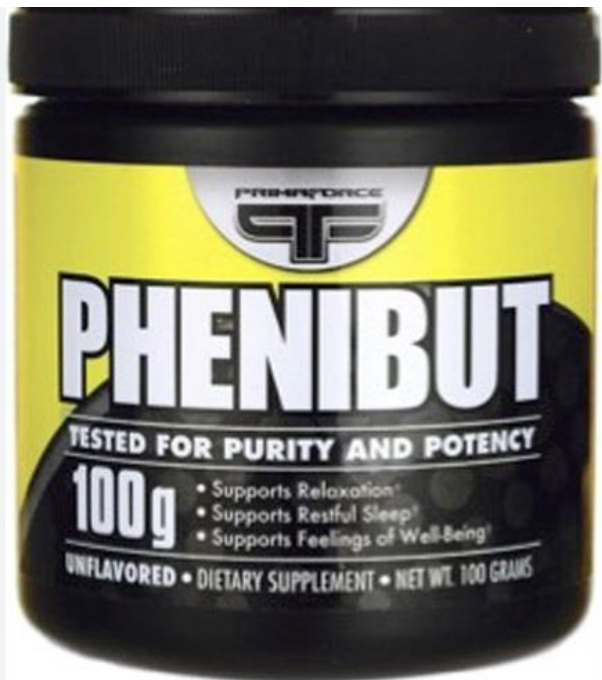
- Plant native to Southeast Asia
- Active components:
 - Mitragynine
 - 7-hydroxymitragynine
 - Pseudo-indoxyl
- ~1-9% of population has used it
- Nootropic, sleep, anxiety, opioid withdrawal



Kratom



PHENIBUT



Psychedelic mushrooms

- Psilocybin containing mushrooms (serotonin agonist)
- Ibotenic acid and muscimol containing mushrooms (glutamate and GABA agonists)



Psychedelics





NITROUS OXIDE

Hydrocarbons



Take home points

- Many more drugs available now than in the past
- Opioid epidemic continues with more potent substances
 - Fentanyl
 - Counterfeit pills
- “Legal” drugs are available at convenience stores:
 - Cannabinoids
 - Kratom, tianeptine, phenibut
 - Nitrous oxide, hydrocarbons
 - Mushroom gummies
- Most of the novel substances will not be detected on a routine urine drug screen



Blue Ridge Poison Center



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