

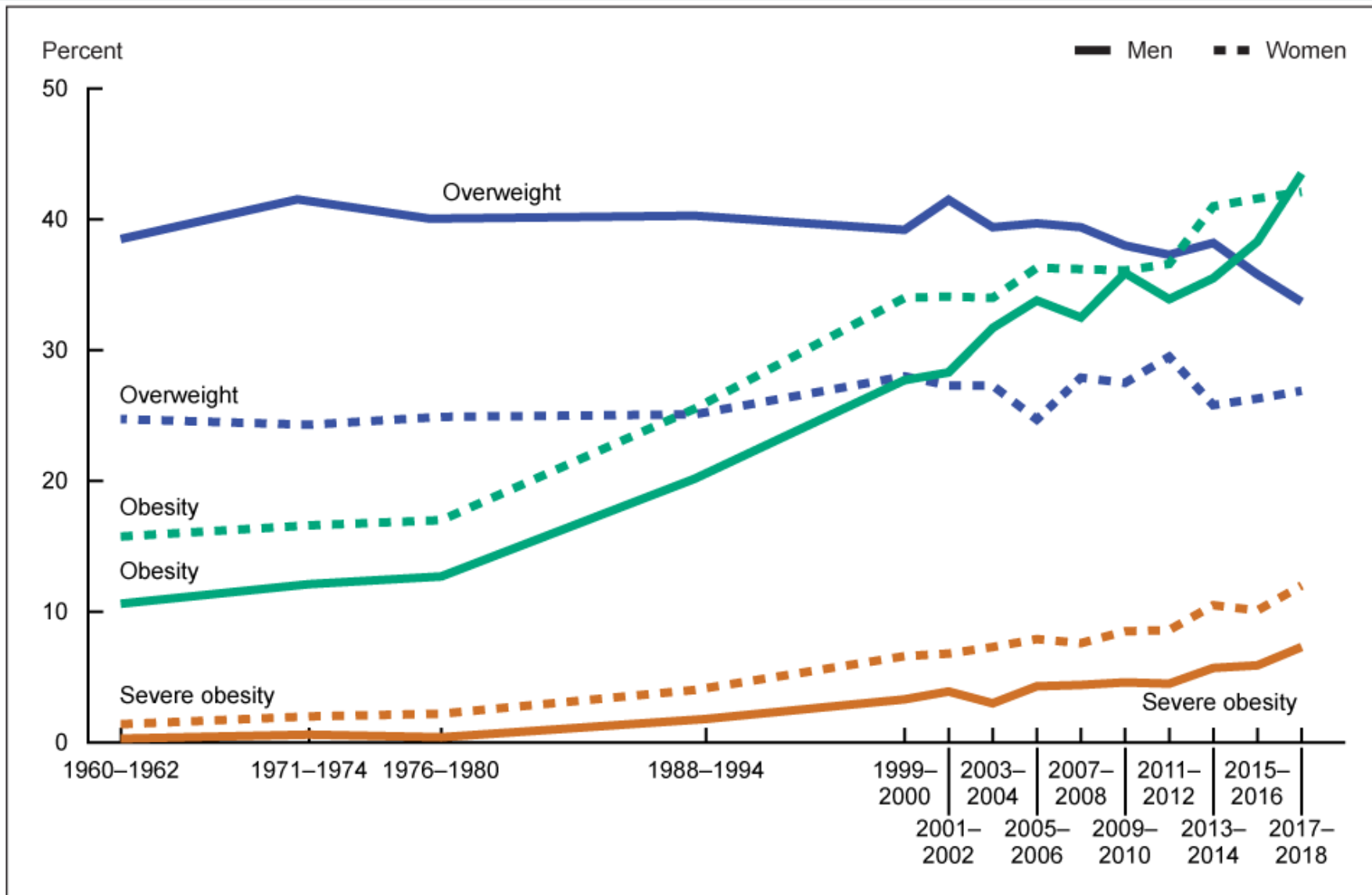
Nationwide Newsworthy Drugs

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Managing Director, Washington Poison Center

Objective

- Describe recent newsworthy drugs and treatments



NOTES: Data are age adjusted by the direct method to U.S. Census 2000 estimates using age groups 20-39, 40-59, and 60-74. Overweight is body mass index (BMI) of 25.0-29.9 kg/m². Obesity is BMI at or above 30.0 kg/m². Severe obesity is BMI at or above 40.0 kg/m². Pregnant women are excluded from the analysis.
 SOURCES: National Center for Health Statistics, National Health Examination Survey and National Health and Nutrition Examination Surveys.

Fryar CD, Carroll MD, Aful J. Prevalence of overweight, obesity, and severe obesity among adults aged 20 and over: United States, 1960-1962 through 2017-2018. NCHS Health E-Stats. 2020.
<https://www.cdc.gov/nchs/data/hestat/obesity-adult-17-18/obesity-adult.htm>

Obesity treatment

- Most drugs have shown limited success
- Many drugs have been removed from the market due to SEVERE adverse events
 - Amphetamines
 - Fen-phen
 - Sibutramine
 - Rimonabant
 - Lorcaserin

https://www.ftc.gov/system/files/documents/commission_decision_volumes/volume-18/vol18.pdf

Rodgers RJ, Tschöp MH, Wilding JP. Anti-obesity drugs: past, present and future. *Dis Model Mech.* 2012;5(5):621-626. doi:10.1242/dmm.009621

GLP1-RA

- Glucagon-like peptide-1 receptor agonists (GLP1)
 - Newer medication for treatment of diabetes and obesity
 - GLP-1 secreted by intestinal tract
 - Potentiates insulin and inhibits glucagon
 - Enhance satiety, decrease appetite, increase energy consumption
 - Decrease gastrointestinal motility
- Dosing ranges from twice daily to weekly
- Weight reduction up to 20% reported
- Expected adverse effects

Semaglutide and tirzepatide

- Weekly administration
 - 12.4% weight loss
 - NNT for % weight loss
 - 5%: ~2
 - 10%: ~2
 - 15%: ~2
- Weekly administration
 - 12-18% weight loss
 - NNT for % weight loss
 - 5%: ~2
 - 20%: ~2

Shortages

- Shortages reported for semaglutide products
 - Initial shortage in 12/2021 (brand name for weight loss)
- Shortages reported for tirzepatide 7/2023
- Widespread, significantly driven by news coverage

Compounding

- Federal Food, Drug and Cosmetic Act
 - Sections 503A, 503B
- FDA-approved product does not meet the clinical needs of the patient
 - Allergy, formulation, dose, shortage

Compounding

- 503A

- Local pharmacy
- Compounds to fill prescription
- Limited supply
- Local regulation

- 503B

- Outsourcing facility
- Compound to sell to pharmacies
- Large batches
- Regulated by FDA

Weight Loss Programs, Backed by Science, Driven by Outcome

- ✔ Affordable Weight Loss for Everyone
- 👩 Includes Doctor & Medication
- 🧪 No Hidden Fees – No Insurance Needed
- 🏥 HIPAA Compliant
- 📄 FDA Licensed Pharmacy

GET STARTED



AS SEEN ON

 **CNBC**

npr

AP ASSOCIATED PRESS

Men'sHealth **Forbes** **Medscape**

**WASHINGTON
POISON
CENTER**

An Independent Nonprofit Organization

Semaglutide Weight Loss Program

Price






\$295

★★★★★ 329 Reviews

Embark on a transformative weight loss journey with our Semaglutide injection, expertly guided by board-certified physicians. Our program integrates monthly, personalized compounded Semaglutide prescriptions with regular virtual check-ins, and unlimited messaging with providers. Join a thriving community of thousands achieving healthier lifestyles with semaglutide online.

Same active ingredient as Ozempic® and Wegovy®

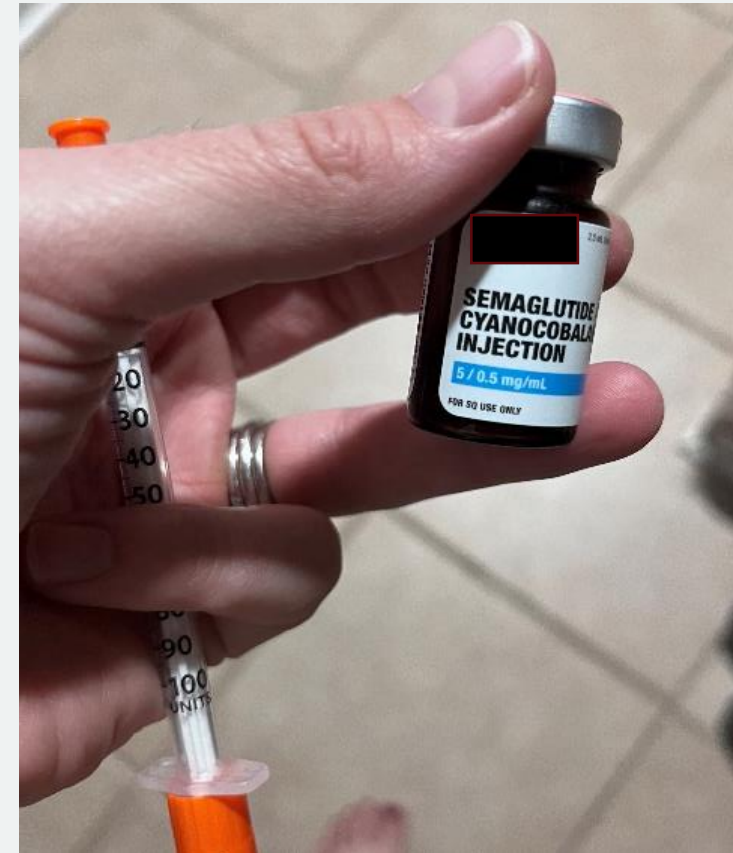
[Order Now](#)

-  Lose up to 15% of body weight*
-  Free provider consultation
-  Ships free in 2-3 days, if prescribed
-  Third-party tested for quality
-  In stock, ready to ship

 Share  Tweet  Pin it

Compounded GLP1-RA

- Instructions:
 - “INJ SUBQ 0.05ML WEEKLY WK1-4, 0.1ML WK5-8, 0.2ML WK9-12, 0.34ML WK13-16, THEN 0.48ML WKLY”
 - Qty: 2.5 mL
- 100-unit insulin needle
- 10-fold dosing errors common (related to units)
- Rapid escalation by days



Other issues

- “Natural Ozempic” - TikTok trend
 - Rice-zempic – combination of uncooked rice, hot water, and lime juice
 - Risk of bacterial food poisoning (bacillus cereus)
- Counterfeits
 - Different drugs in pens (insulin)
 - May cause severe adverse effects

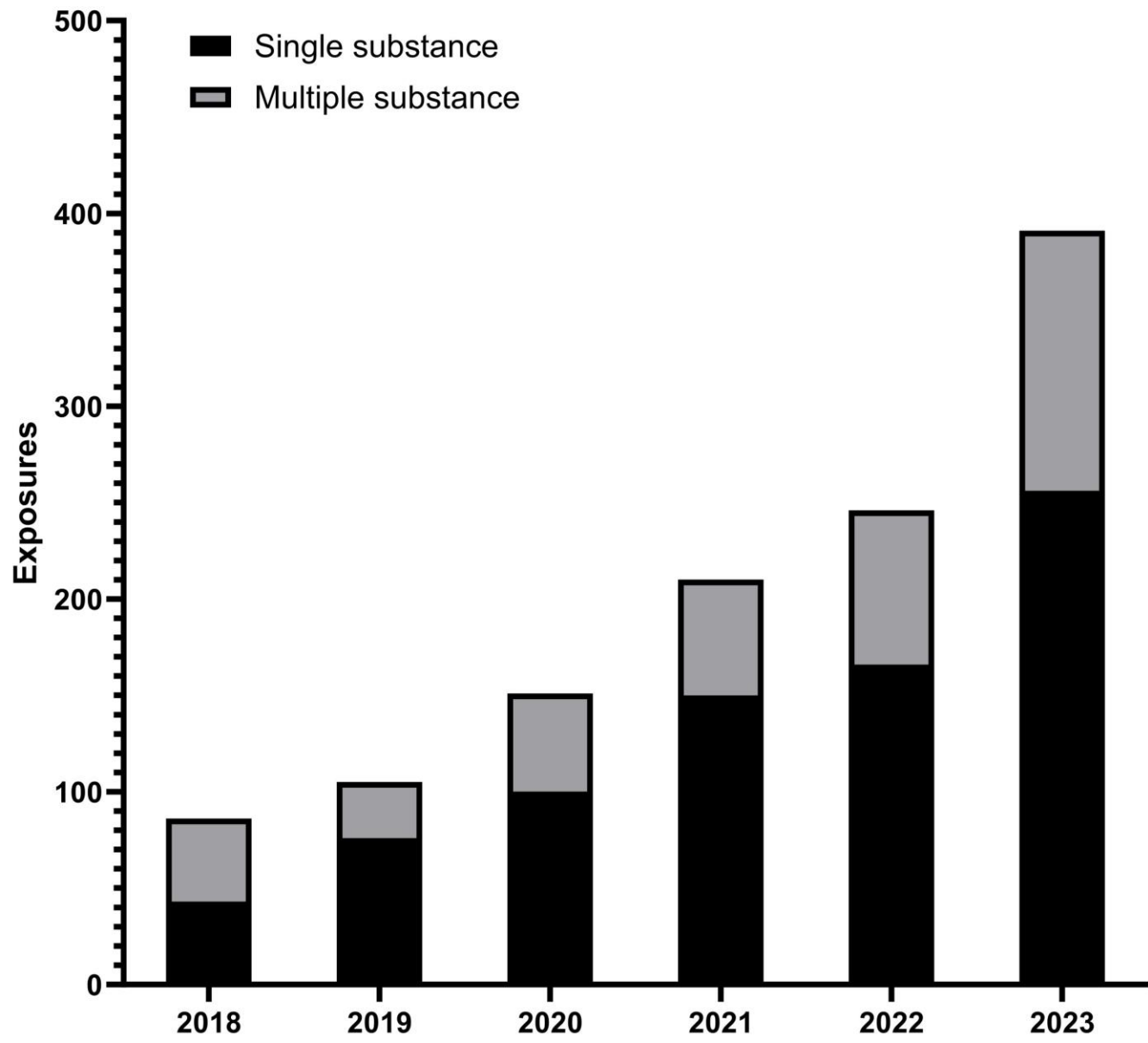
Public health implications

- Potential long-term savings at short-term cost
- Risks from compounded agents
- Rare side effects scale

Tianeptine

- Antidepressant developed in the 1960s
- European, Asian, and Latin American countries
- Not approved in the United States
 - Unpublished phase 1 trial performed in 2009
- Poison center cases on the rise
- Scheduled in some states





Tianeptine

- Opioid activity
- Only antidepressant where doctor-shopping identified in a French study
- Therapeutic use: 25 – 50 mg/day
- Several gram doses reported in misuse and abuse
- Typical course:
 - Increasing dose over time
 - Tolerance
 - Severe withdrawal
 - Opioid-like symptoms

Clinical effects

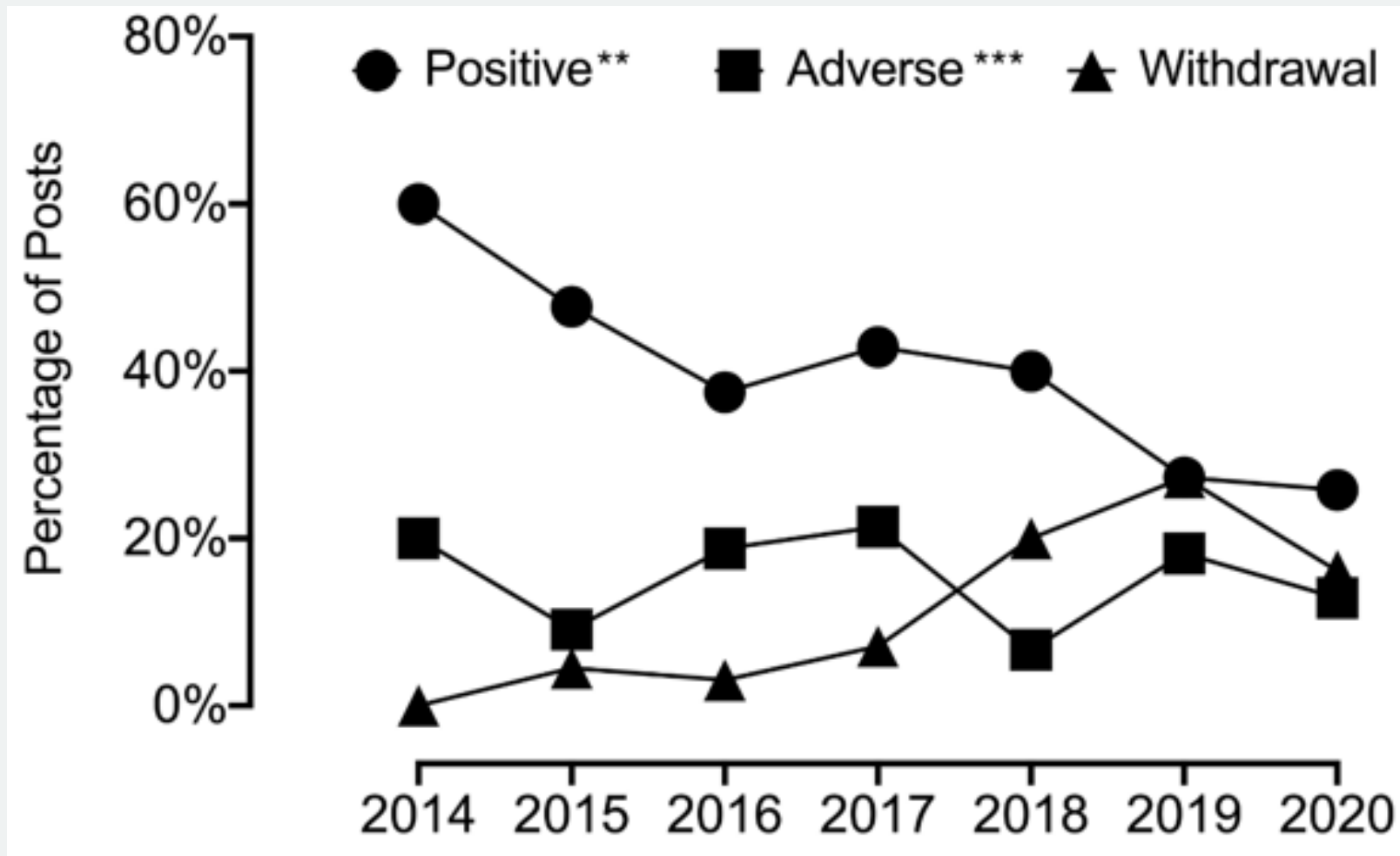
Desirable

- Euphoria
- Contentedness
- Analgesia
- Nodding off
- Decrease anxiety
- Feeling OK
 - Feel like true self

Undesirable

- Agitation
- Tachycardia
- Hypertension
- Confusion
- Severe lethargy
- Withdrawal (opioid-like)

Reddit posts



Tianeptine contamination

- June – November 2023
- 20 severe tianeptine poisoning cases reported to NJ poison center
- 14/17 patient reported using Neptune's Fix
- Seizure (8), cardiac arrest (1), ventricular arrhythmia (4)
- 7/17 intubated
- Six samples evaluated by laboratory:
 - All contained kavain
 - 2 contained synthetic cannabinoids

Public health implications

- Withdrawal management complicated
- Issues with contamination and misbranding
- Acute = opioid
- Long-term = antidepressant

Marijuana Analogues

- Classic delta-9 THC
 - Location of a double-bond
- Analogues
 - Delta-8, delta-10, HHC, THC-O, THC-B, THC-H, THCP
 - May be naturally occurring
 - Often synthesized from CBD
- Dose response may be variable



Marijuana analogues

- Similar intoxicating effects
- Known contamination with delta-9 THC
 - Issue in other states
- Use more common in Southern states compared with Western



Legality?

- 2018 Farm bill legalized CBD
 - Products with $< 0.3\%$ THC
- Analogues in trace amounts in hemp ($< 0.1\%$)
 - CBD converted to delta9, then delta8
- Specifically banned in Washington
 - Fewer manufacturing controls
 - “small business impact”

Marijuana scheduling

- Department of Health and Human Services (DHHS)
 - Proposed schedule 3
- Drug Enforcement Administration (DEA)
 - Similar proposal consistent with DHHS
- Implications for use: none
- Implications for research: massive

Schedule III substances

- May cause physical dependence
- Moderate to low potential for dependence
 - Anabolic steroids
 - Ketamine
 - Testosterone
 - Acetaminophen with codeine (<90 mg/tablet)

Marijuana scheduling

- Still unapproved as a drug
 - Federally not an approval or deregulation
- More readily available for research
- Loosened regulation = more adult use = more pediatric cases

Psilocybin

- Hallucinogenic component of mushrooms
- Hallucinogenics used in the 1960s
 - Alcoholism and LSD
 - Schizophrenia
 - Depression

Psilocybin

Single-Dose Psilocybin for a Treatment-Resistant Episode of Major Depression

Authors: Guy M. Goodwin, F.Med.Sci., Scott T. Aaronson, M.D., Oscar Alvarez, M.R.C.Psych., Peter C. Arden, M.P.H., Annie Baker, R.G.N., James C. Bennett, M.Sc., Catherine Bird, M.Sc., [+66](#), and Ekaterina Malievskaia, M.D. [Author Info & Affiliations](#)

Published November 2, 2022 | N Engl J Med 2022;387:1637-1648 | DOI: 10.1056/NEJMoa2206443

Single-Dose Psilocybin Treatment for Major Depressive Disorder A Randomized Clinical Trial

Charles L. Raison, MD¹; Gerard Sanacora, MD, PhD²; Joshua Woolley, MD, PhD^{3,4}; [et al](#)

[» Author Affiliations](#) | [Article Information](#)

JAMA. 2023;330(9):843-853. doi:10.1001/jama.2023.14530

Psilocybin

- Thought to reset the some of the brain
- These were:
 - Controlled trials
 - Fixed and known dose of psilocybin
 - Physician or PhD psychologist facilitators
- Not:
 - A random trip
 - An unknown amount of psilocybin from a mushroom
 - Your friend who is smoking marijuana

Public health implications

- Still considered Schedule I
- May see uptick in use, especially if approved by FDA
- Efforts needed to ensure appropriate use

- FDA recently rejected MDMA for PTSD for a multitude of reasons

Mushroom edibles

- Marketed starting ~2022
 - Initially psilocybin
 - Limited marketing regions available
 - Muscimol
- Hallucinogenic amanita muscaria
 - Sedation
 - Euphoria
 - Drowsiness



Diamond Shruumz

- Index cases: Late April or May 2024
- Patients with severe illness (seizures, coma, serotonin syndrome)
 - Required intensive care unit treatment
- As of 8/2/24
 - 113 cases; 42 hospitalizations; 2 potentially associated deaths
 - 3 cases in Washington

DEA No. RA0571996
FL License # CMTL-0003
CLIA No. 10D1094068

Certificate of Analysis

R&D

Client Information:

Diamond Shroomz
2413 S Broadway
Santa Ana, California 92707

Batch # 000
Batch Date: 2023-04-24
Extracted From: N/A

Sampling Date: 2023-05-11
Lab Batch Date: 2023-05-11
Orig. Completion Date: 2023-05-17

Initial Gross Weight: 62.823 g
Net Weight: 53.523 g

Number of Units: 1
Net Weight per Unit: 3568.200 mg
Sampling Method: MSP 7.3.1

Statement of Amendment: Updated Potency



Amanita Muscaria
Tested



Psilocin
Tested



Psilocybin
Tested



Amanita Analytes

Specimen Weight: 1721.350 mg

Tested

SOP 13.058 (LCMS)

Alkaloid Potency Summary

Total Alkaloids	0	Total Psilocybin + Psilocin	Not Detected
Total Amanita Analytes	-		

Pieces For Panel: 15

Analyte	LOD (%)	LOQ (%)	Result (mg/g)	(%)
Ibotenic acid	1.13E-05	5.21E-5	<1.00	<1.00

Misbranded product

Flavor	Muscimol	Psilocybin or derivative	Pregabalin (Lyrica)	Kava kava
Birthday cake	0/4	3/4	0/4	2/4
Cinnamon	1/3	2/3	0/3	2/3
Cookie butter	2/3	1/3	1/3	3/3
Cookies N Cream	1/3	1/3	1/3	3/3
Dark Chocolate	0/3	1/3	1/3	3/3
Fruity Cereal	2/3	1/3	0/3	2/3

Additionally: 4-acetoxy-N,N-dimethyltryptamine

FDA regulation

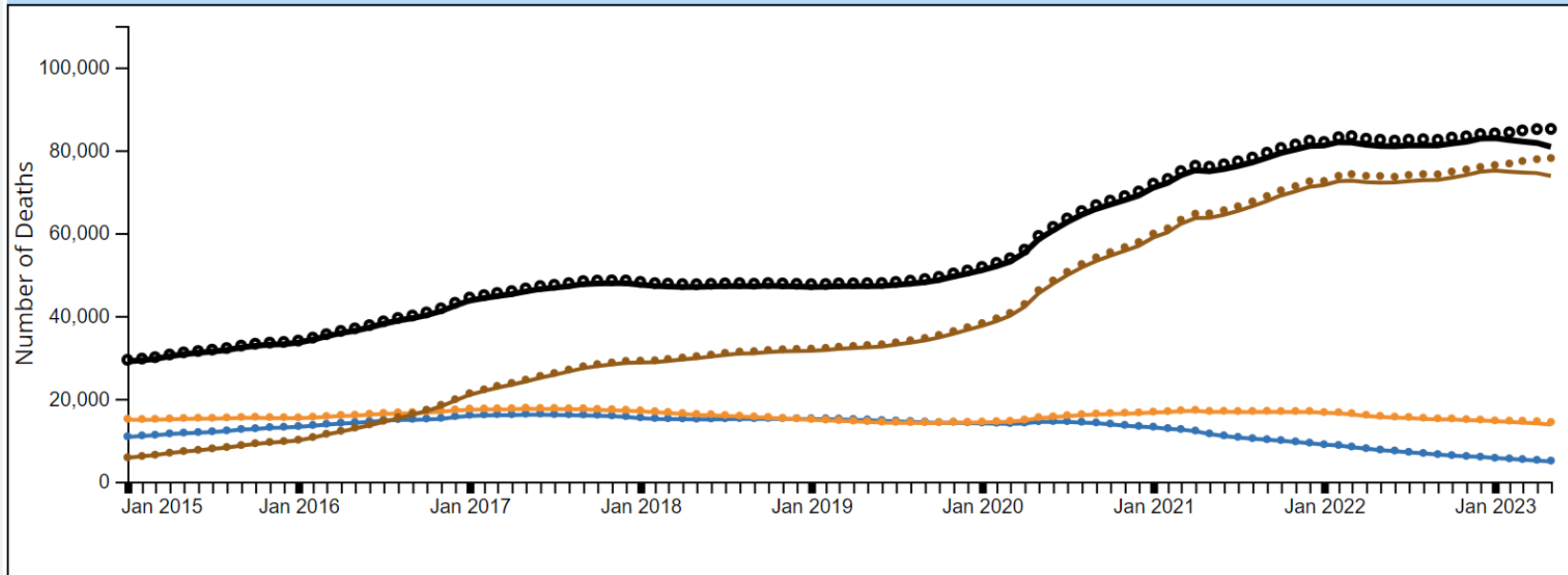
- Although the FDA **does not have premarket approval of food products**, it has the authority to approve certain ingredients before they are used in food or intended to contact food. Those include food additives (substances added intentionally to food, as well as substances that migrate to food from food contact products such as food packaging), and color additives.

Public health implications

- Small, but widespread epidemic
- Not the first contamination/misbranding issue
 - Tianeptine
 - CBD in Utah
 - E-VALI

Opioid overdoses

Figure 2. 12 Month-ending Provisional Number of Drug Overdose Deaths by Drug or Drug Class: United States



Legend for Drug or Drug Class

- Heroin (T40.1)
- Natural & semi-synthetic opioids, incl. methadone (T40.2, T40.3)
- Opioids (T40.0-T40.4, T40.6)
- Synthetic opioids, excl. methadone (T40.4)

---- Reported Value

○ Predicted Value

Management of opioid overdose

- Sternal rub
- Call **911**
- **Clear the mouth** and open the airway (on back and chin lifted)
- **Give opioid antagonist (naloxone)**
- Ventilation

Nalmefene

- Longer acting medication compared with naloxone
- Recent intranasal and autoinjector approval
- Reported as “fentanyl fighter”

Intranasal opioid antagonists

Nalmefene

- Approved in 1995
- Rapid return of respiratory drive:
 - 80% at **2.5 minutes**
 - 95% at 5 minutes
- **Long duration:** 11.4 hours
- Prescription only
 - Standing orders – 11 states
- Approved 12 years and older

Naloxone

- Approved in 1971
- Rapid return of respiratory drive:
 - **2.5 minutes** to response
- **Short duration:** 2.1 hours
- Over the counter or prescription
 - Standing orders – 50 states
- No age limit

Public health implications

- Potential new tool
- Unclear endpoints and outcomes
- May be affordability issues

Summary

- GLP1-RA – meteoric rise in use and poison center calls
- Tianeptine calls on the rise, long-term treatment may be necessary
- Marijuana analogues avoiding purity and consistency regulations
- Marijuana may be rescheduled with research implications
- Psilocybin in therapeutic trials
- Mushroom gummies/edibles sickening patients
- Nalmefene is a new opioid reversal with issues