

# **Drug Abuse**

**2022 Novel Aspects in Clinical Toxicology  
Taipai, Taiwan**

**November 18, 2022**

**Richard C. Dart, MD, PhD  
Director, Rocky Mountain Poison and Drug Safety, Denver Health  
Professor, University of Colorado School of Medicine**

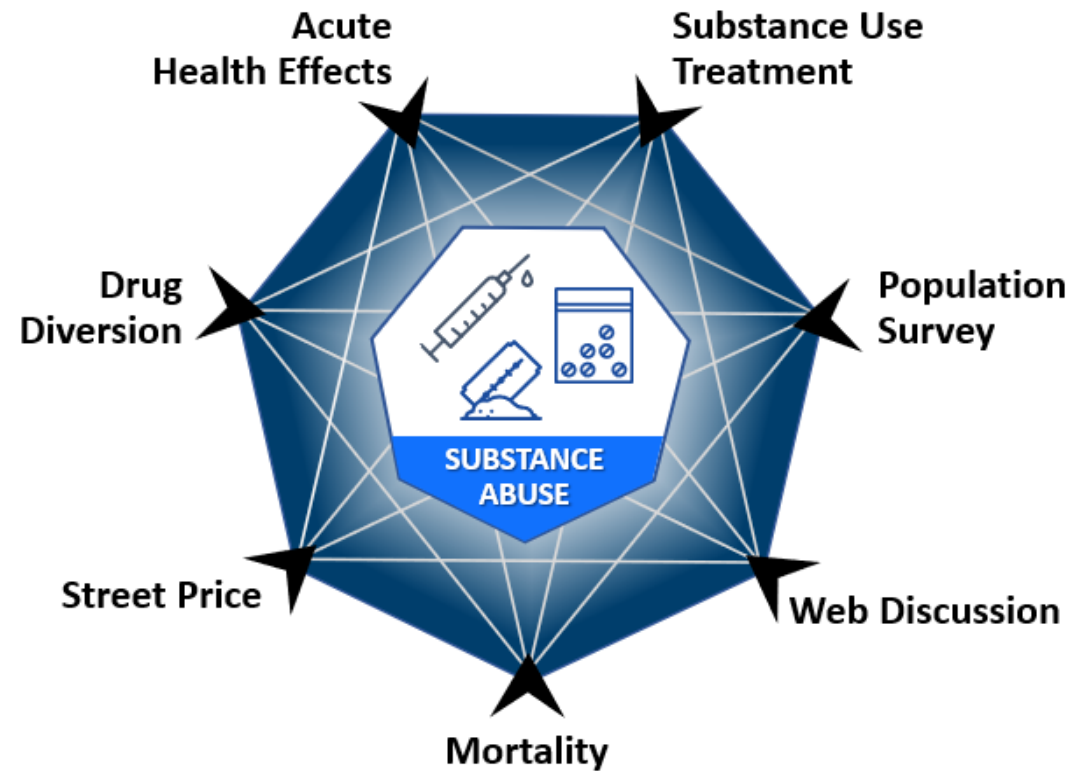
# Competing Interests

RADARS® System is the property of The Denver Health and Hospital Authority (DHHA), a political subdivision of the State of Colorado.

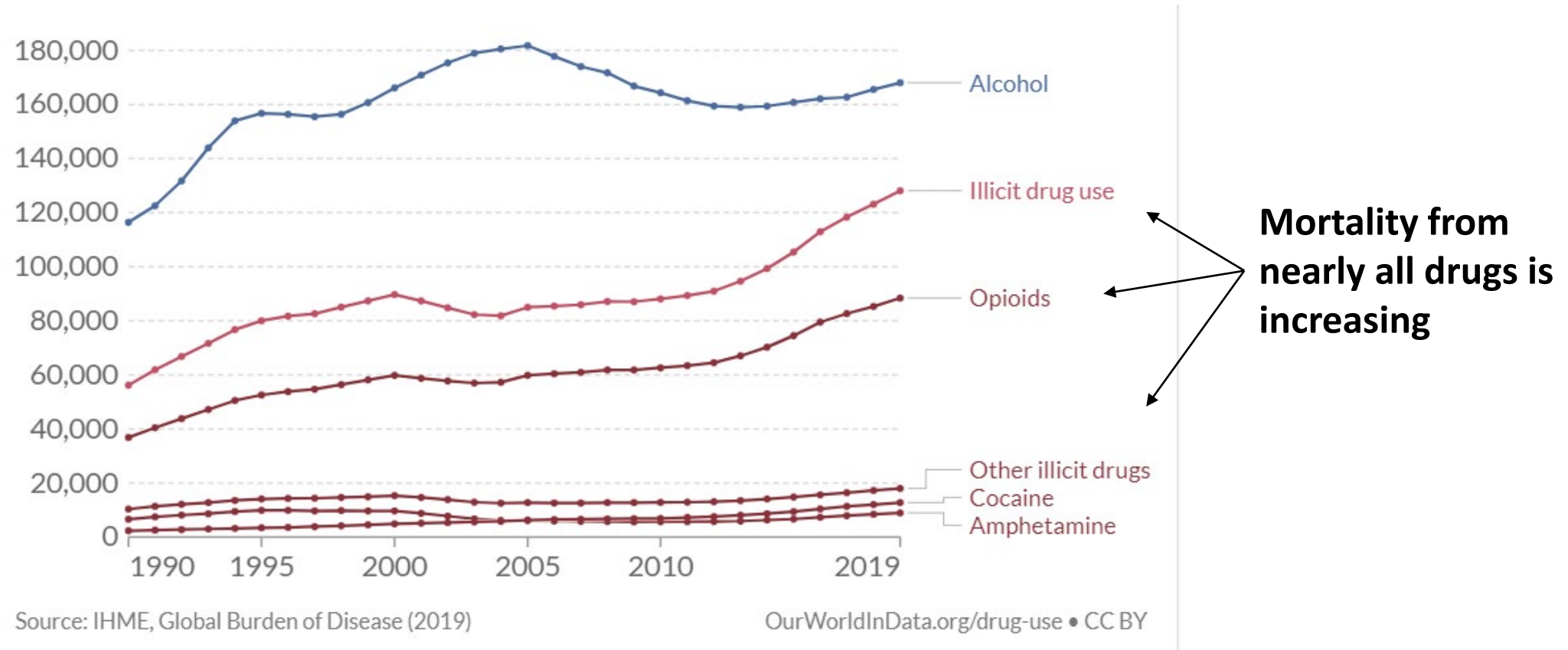
RADARS® System is supported by subscriptions from pharmaceutical manufacturers, government and nongovernment agencies for surveillance, research, and reporting services. No subscriber participated in the conception, analysis, drafting, or review of this presentation.

# Researched Abuse Diversion and Addiction-Related Surveillance (RADARS<sup>®</sup>) System: Real World Evidence and Triangulation

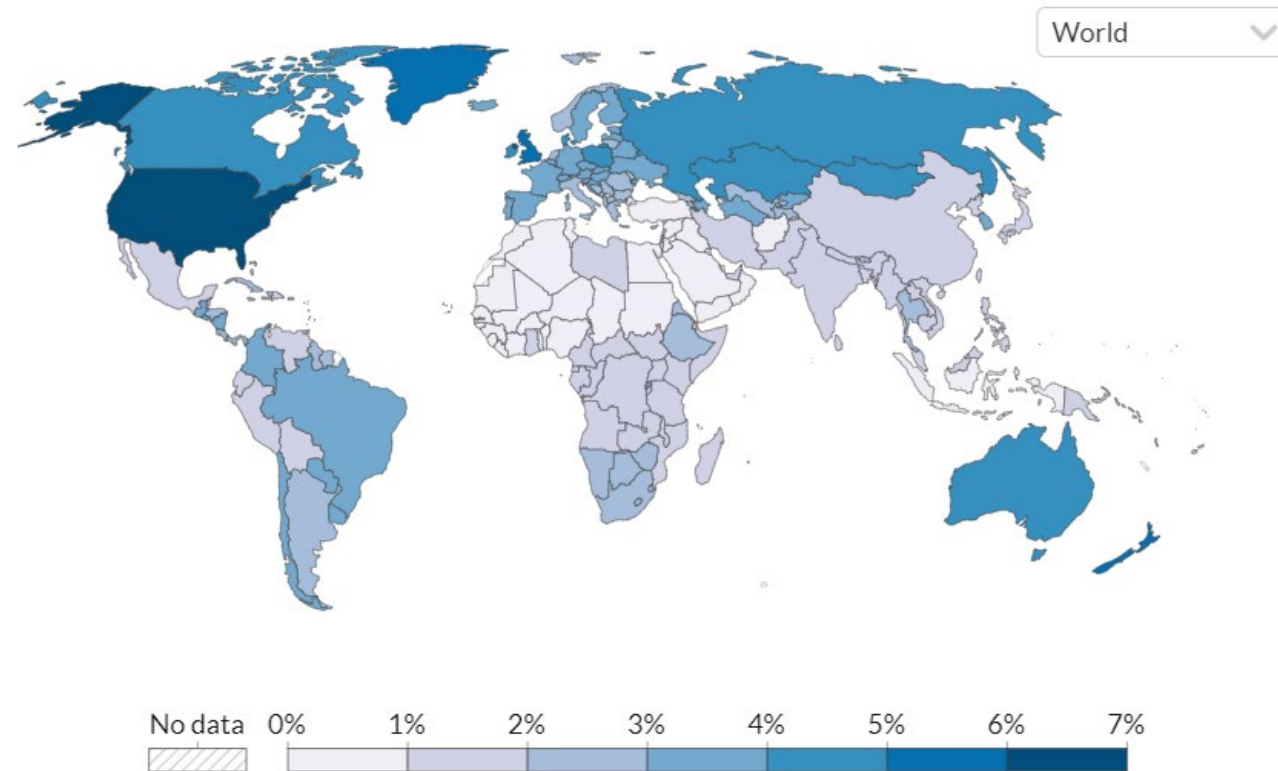
## RADARS.org



# Deaths from Substance Use Disorders, Worldwide



# US is Leader in Substance Misuse and Abuse

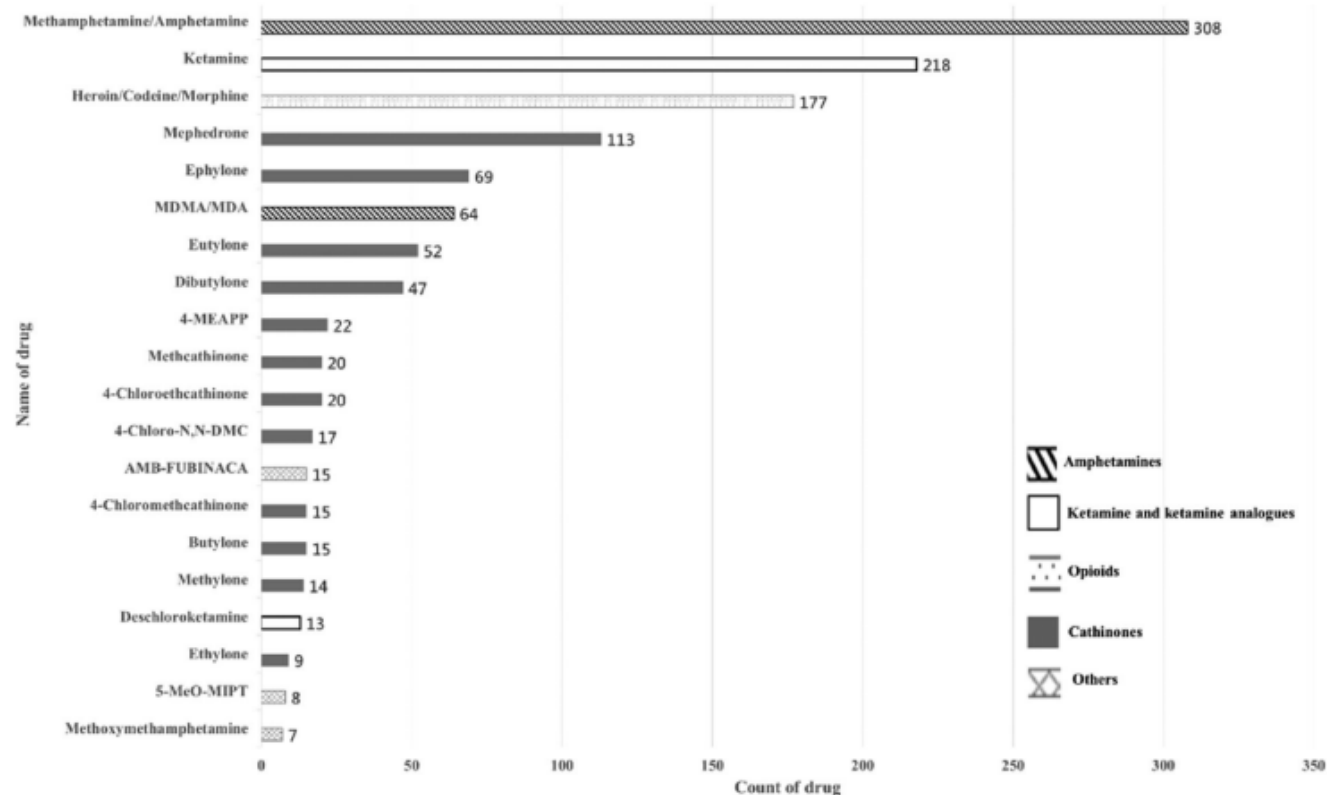


Source: IHME, Global Burden of Disease (2019)

Note: Tobacco smoking is not included. Due to the widespread under-diagnosis, these estimates use a combination of sources, including medical and national records, epidemiological data, survey data, and meta-regression models

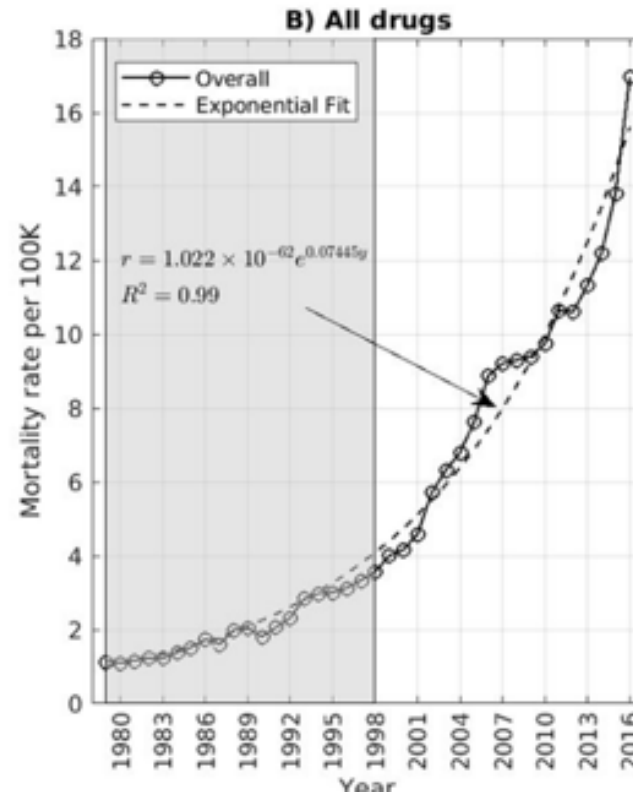
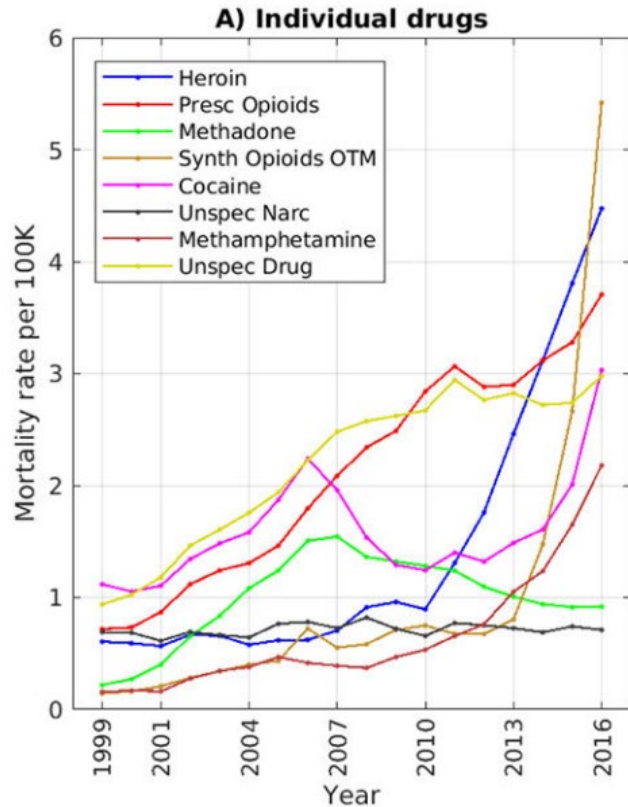
OurWorldInData.org/drug-use • CC BY

# Taiwan: ED Visits Due to New Psychoactive Substances and Other Illicit Drugs



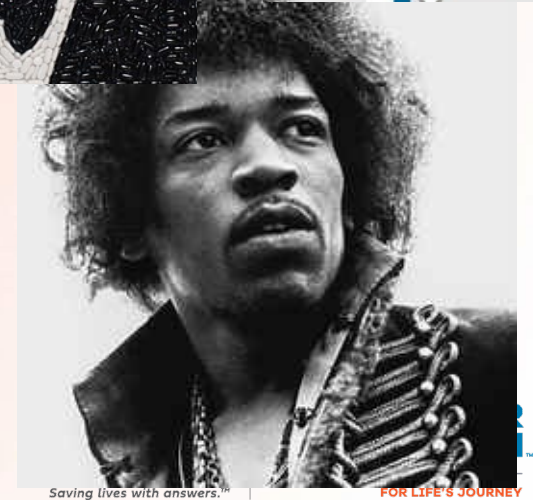
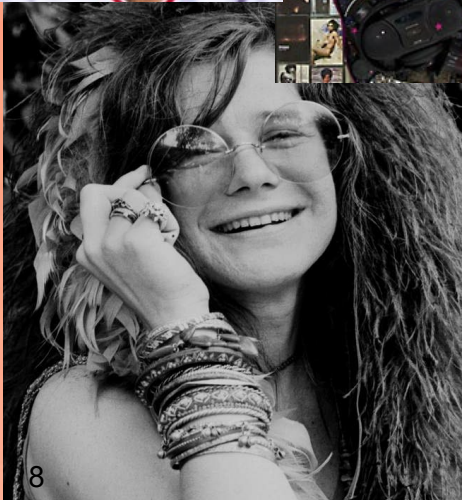
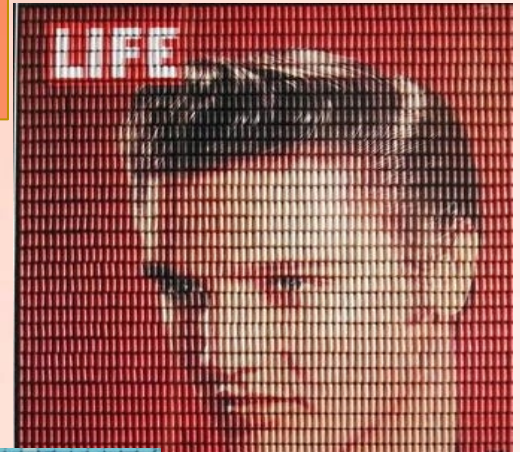
- **Methamphetamine is highest**
- **Ketamine remarkable high**
- **Heroin is real?**
- **Is mortality Increasing?**

# Many Drugs Contribute to Drug-Related Mortality, US



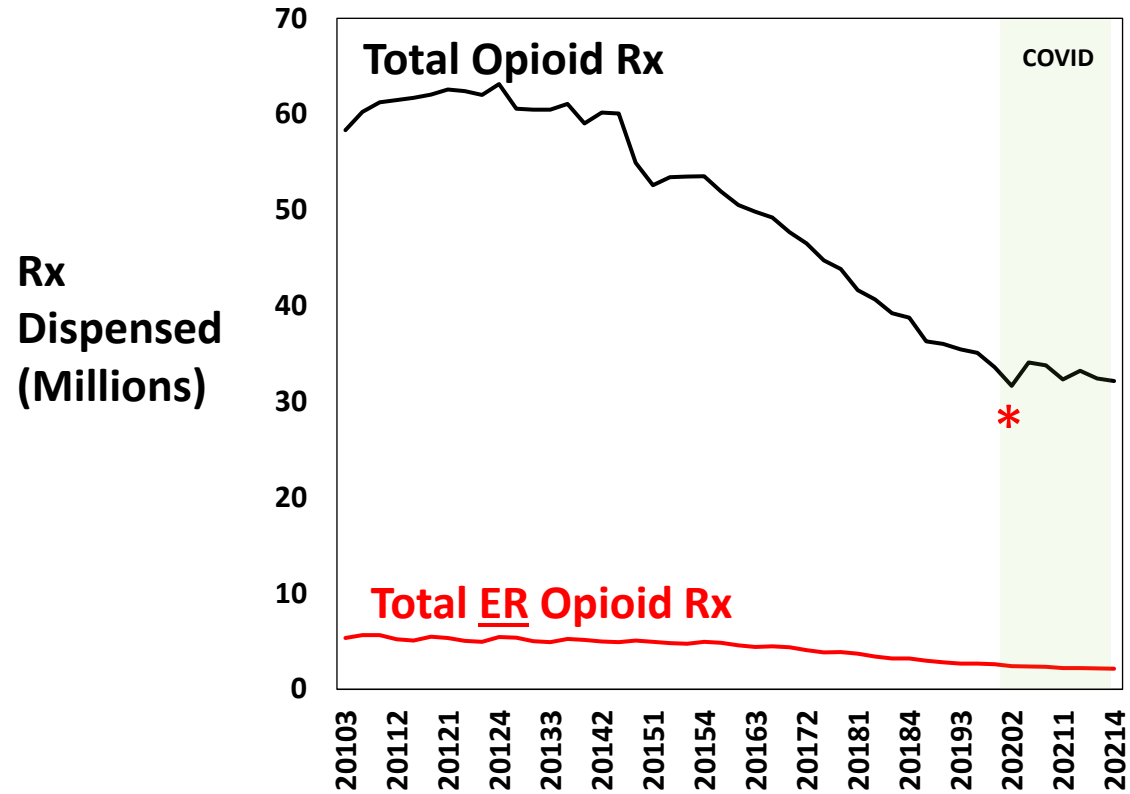
**What drives such rapid and also long-term expansion?**

# An Epidemic of Drug Deaths





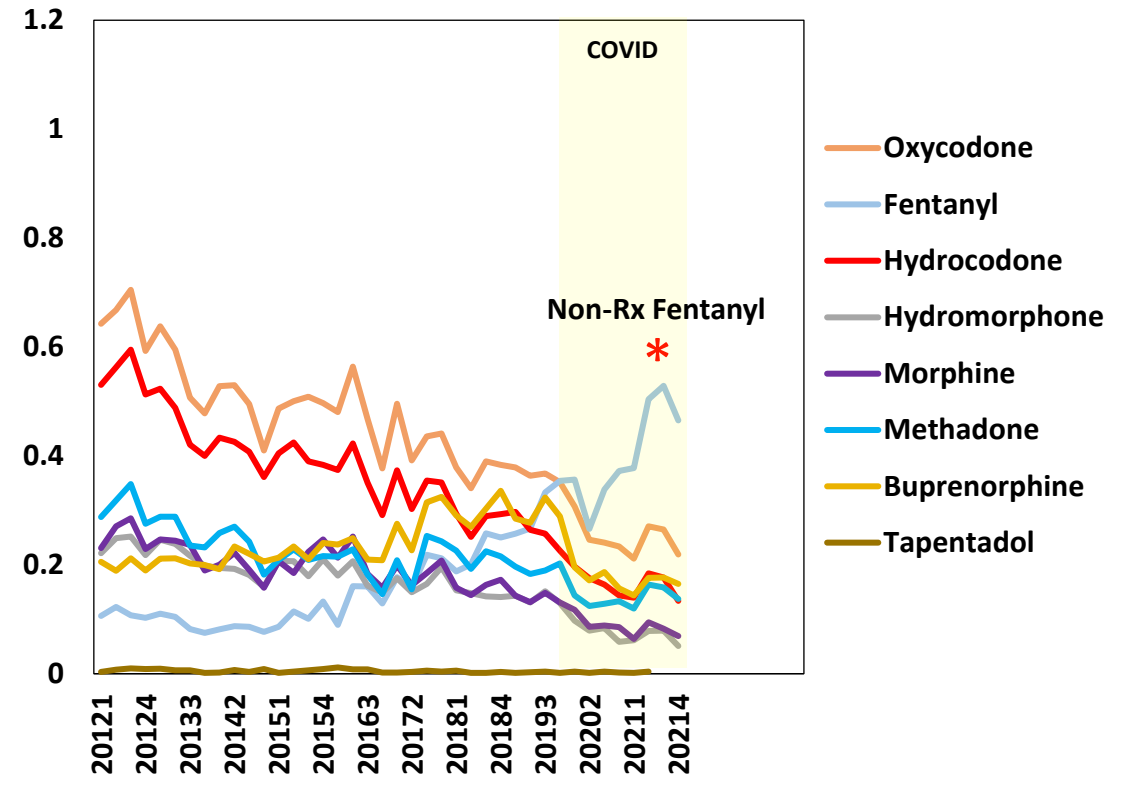
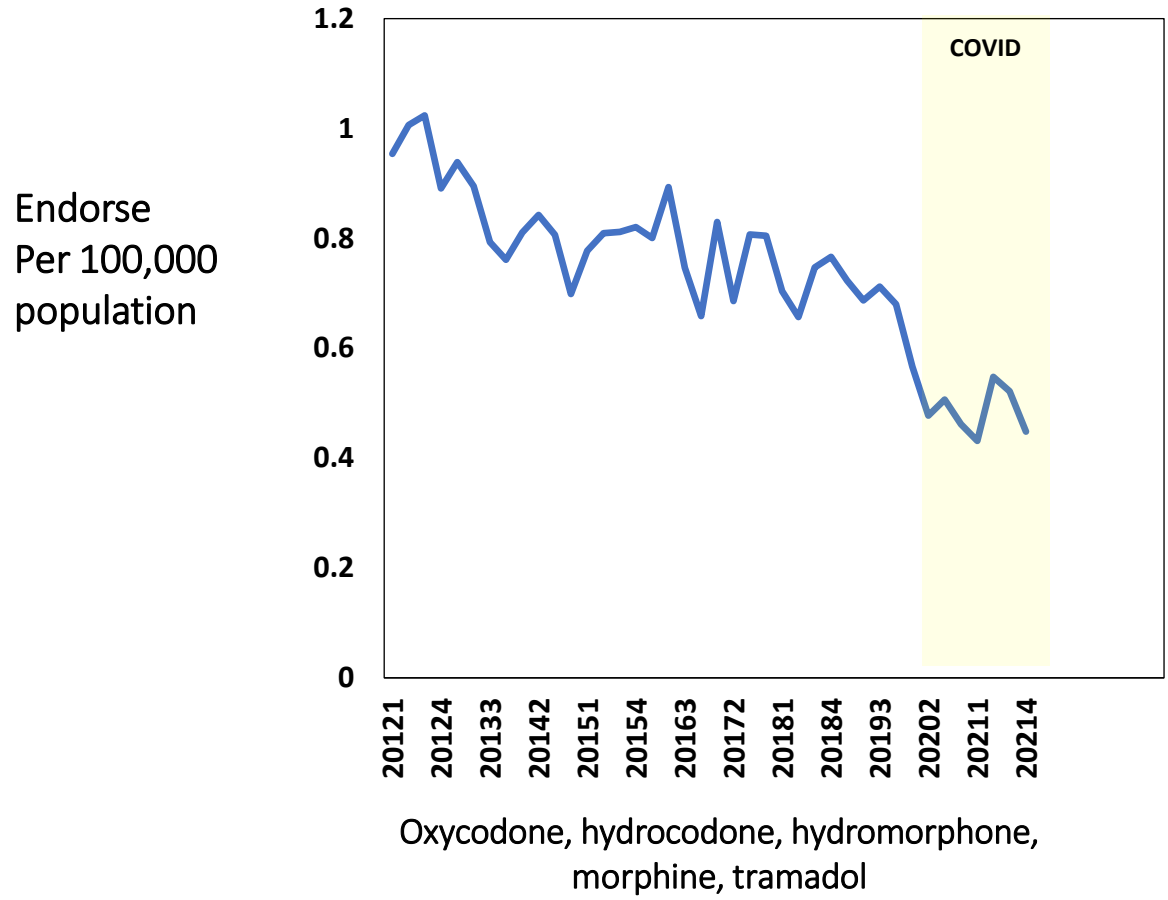
# Prescribing of Rx Opioids Decreasing in US, 2010 - 2021



Source: IQVIA™ US-Based Longitudinal Prescription Data

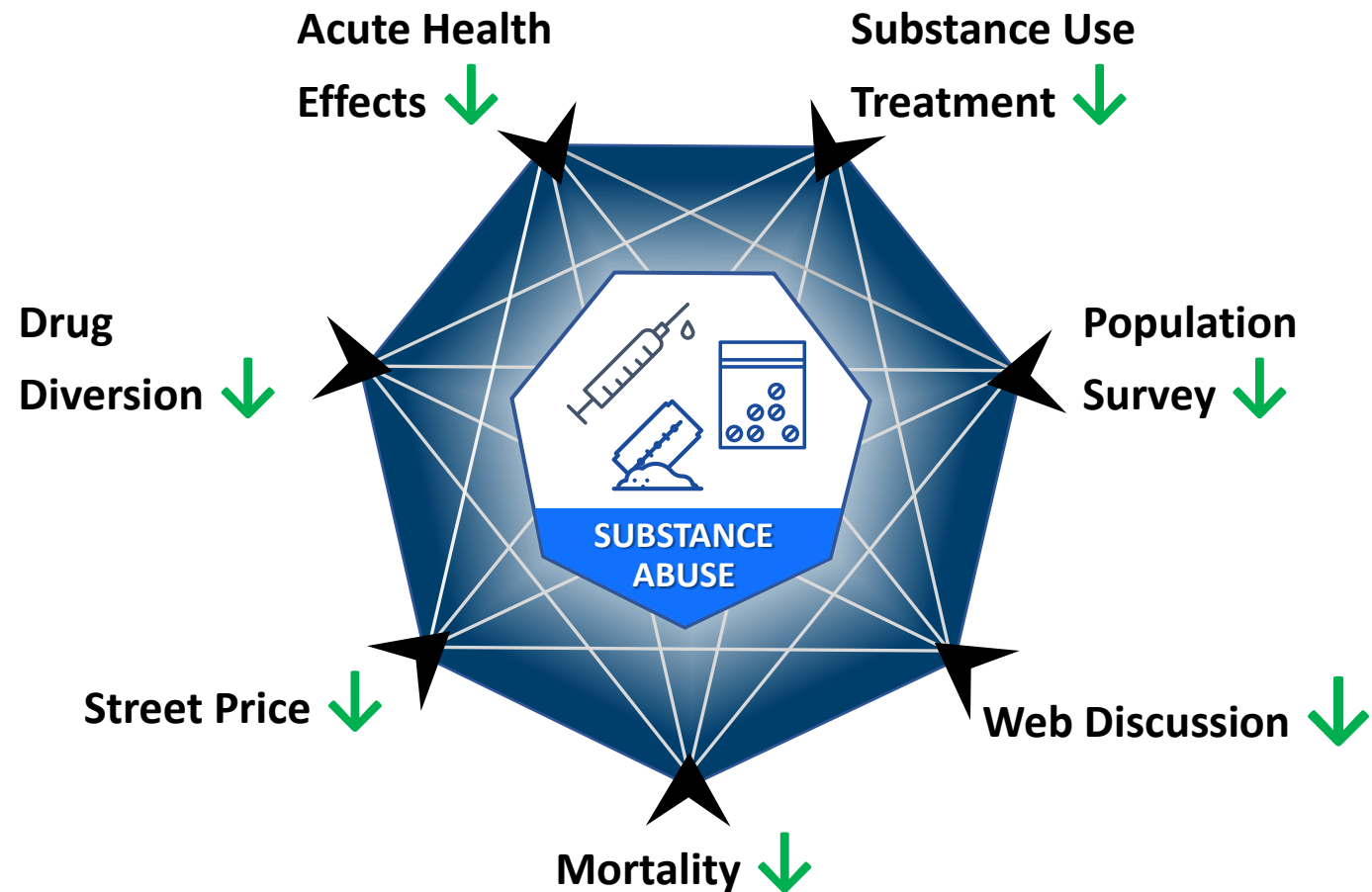
# Rx Opioid Use in Patients Entering Treatment is Decreasing

## RADARS System Treatment Center Programs, 2012 - 2021



# All Measures of Prescription Opioid Use in US Are Decreasing

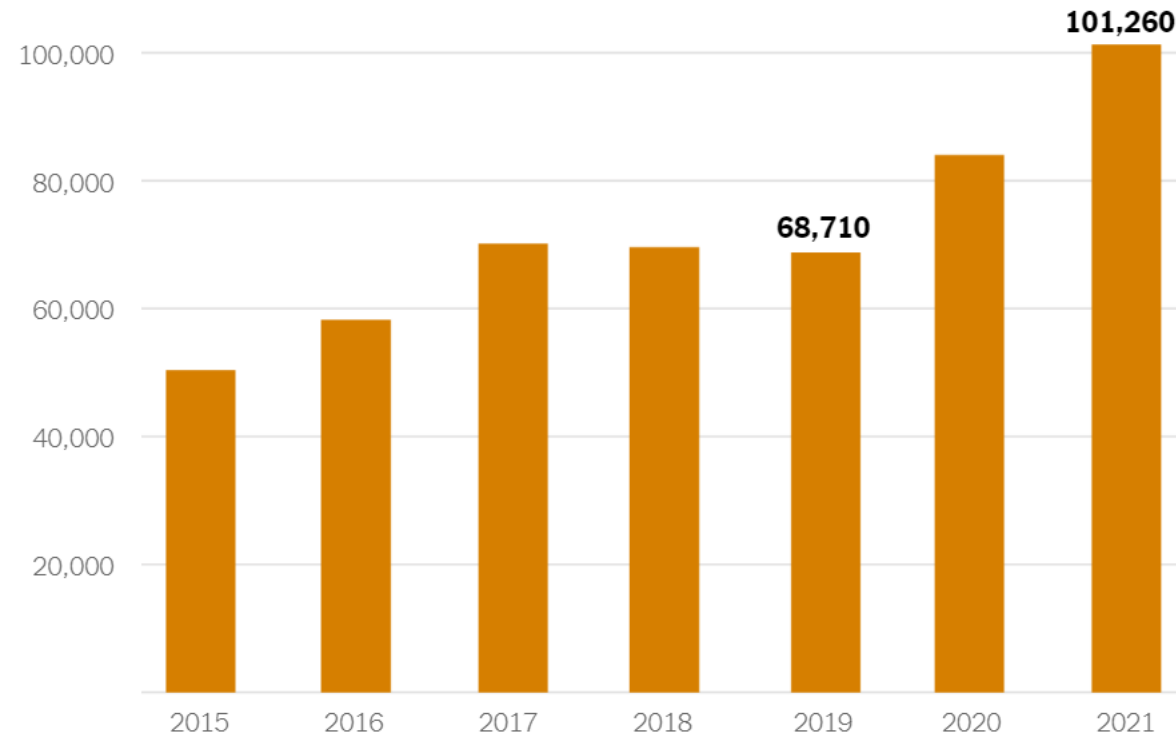
## All Prescription Opioids, Individually or Combined



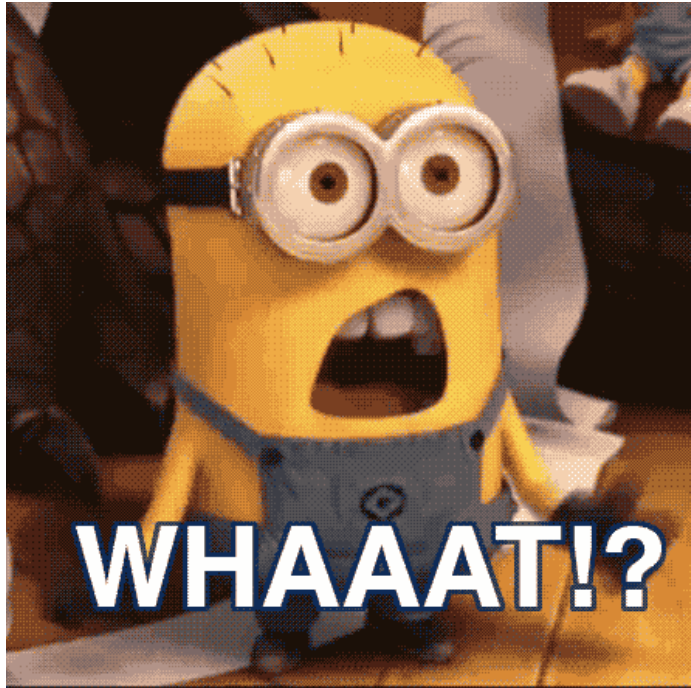
# Drug-Related Deaths Are Increasing in US

## Drug overdose deaths in the U.S.

Annual deaths ending in June of each year below

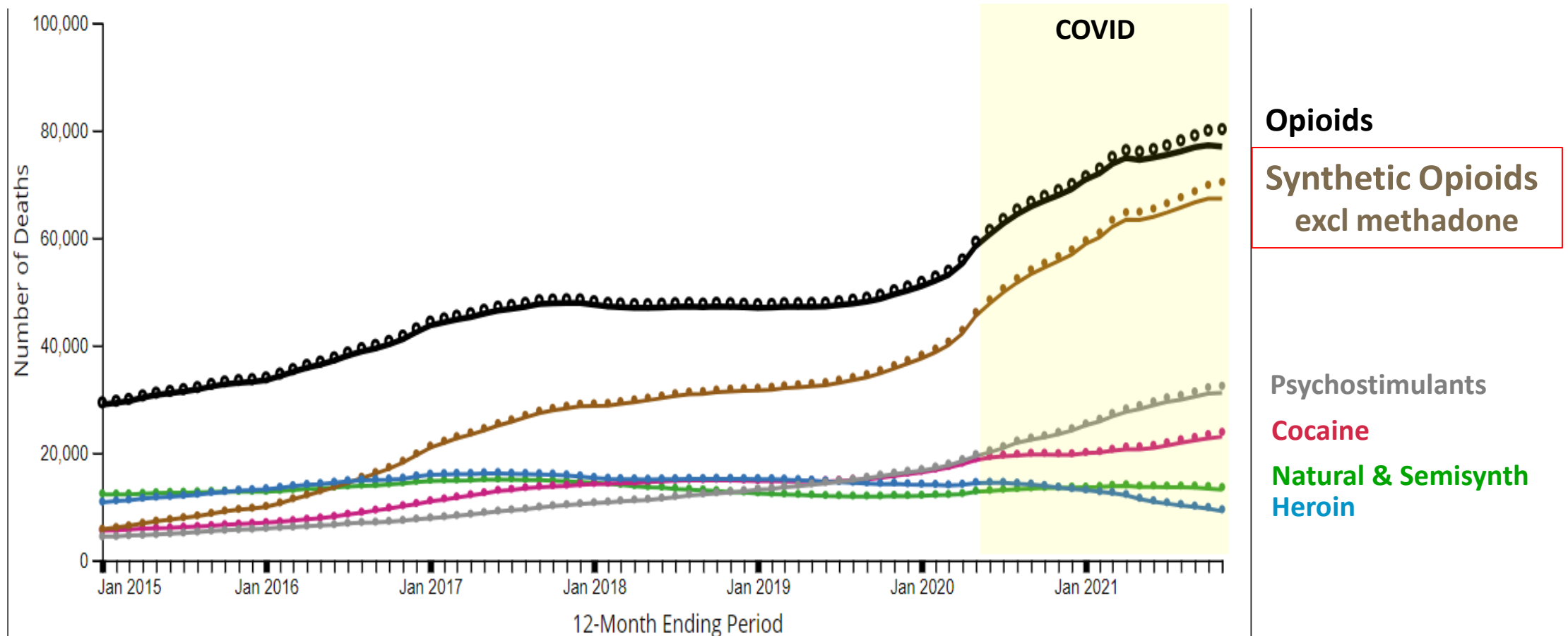


Note: Chart shows provisional figures. • Source: Centers for Disease Control and



HOW CAN WE HAVE  
DECREASING PRESCRIPTION  
OPIOID ABUSE,  
BUT INCREASING DEATHS?

# Drug Overdose Deaths in United States





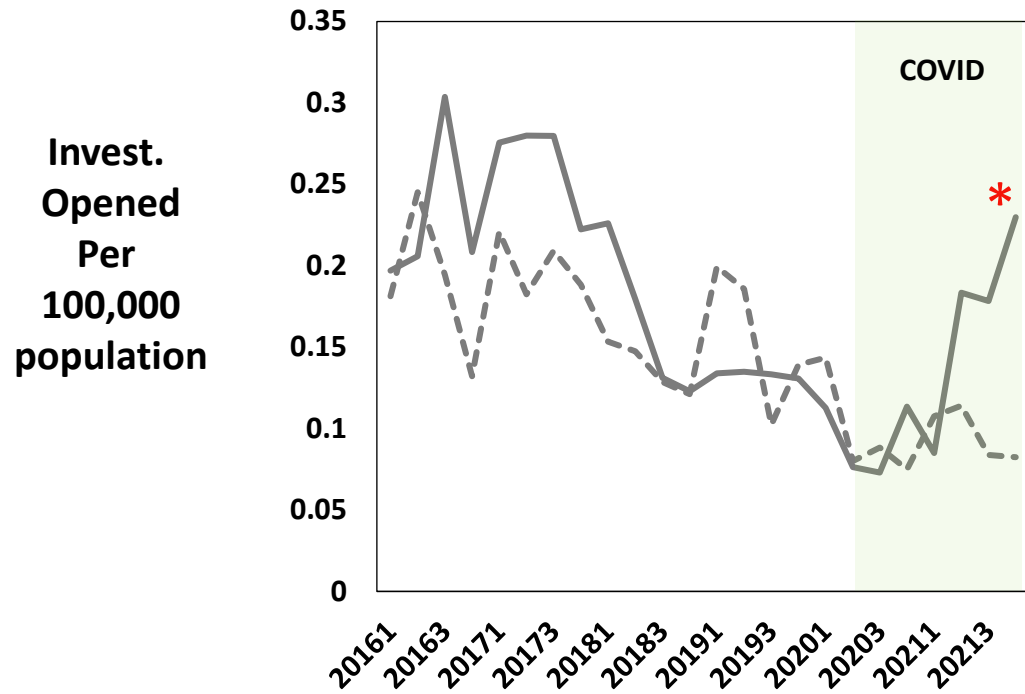
## Illicit Drug Use = “Russian Roulette”

A potentially lethal game of chance in which a player places a single bullet in a revolver, spins the cylinder (so location of bullet is unknown), places the muzzle against the head or body and pulls the trigger. If the loaded chamber aligns with the barrel, the weapon will fire, killing or severely injuring the player.



# The Role of “Counterfeit” Drugs

## Drug Diversion Program – Increase in Oxycodone Cases



--- Other oxycodone

— Other known IR oxycodone





# Why Do People Use Unknown Drugs?

Role of Demand and Supply

*As a recovering substance abuser, I know that no pharmaceutical giant ever pushed a pill down my throat. I did it myself.*

*– Jeffrey Gratton, Long Island, NY Aug 19, 2001 (NYT)*

## Drug Exposure

Nicotine - Alcohol – Cannabis – Etc.

### Risk Factors

Family Dysfunction  
Emotional Abuse  
Isolation

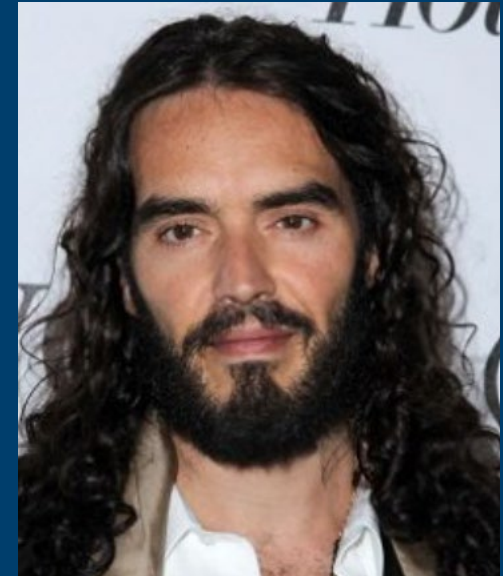
### Risk Factors

Physical Abuse  
Trauma  
Genetics

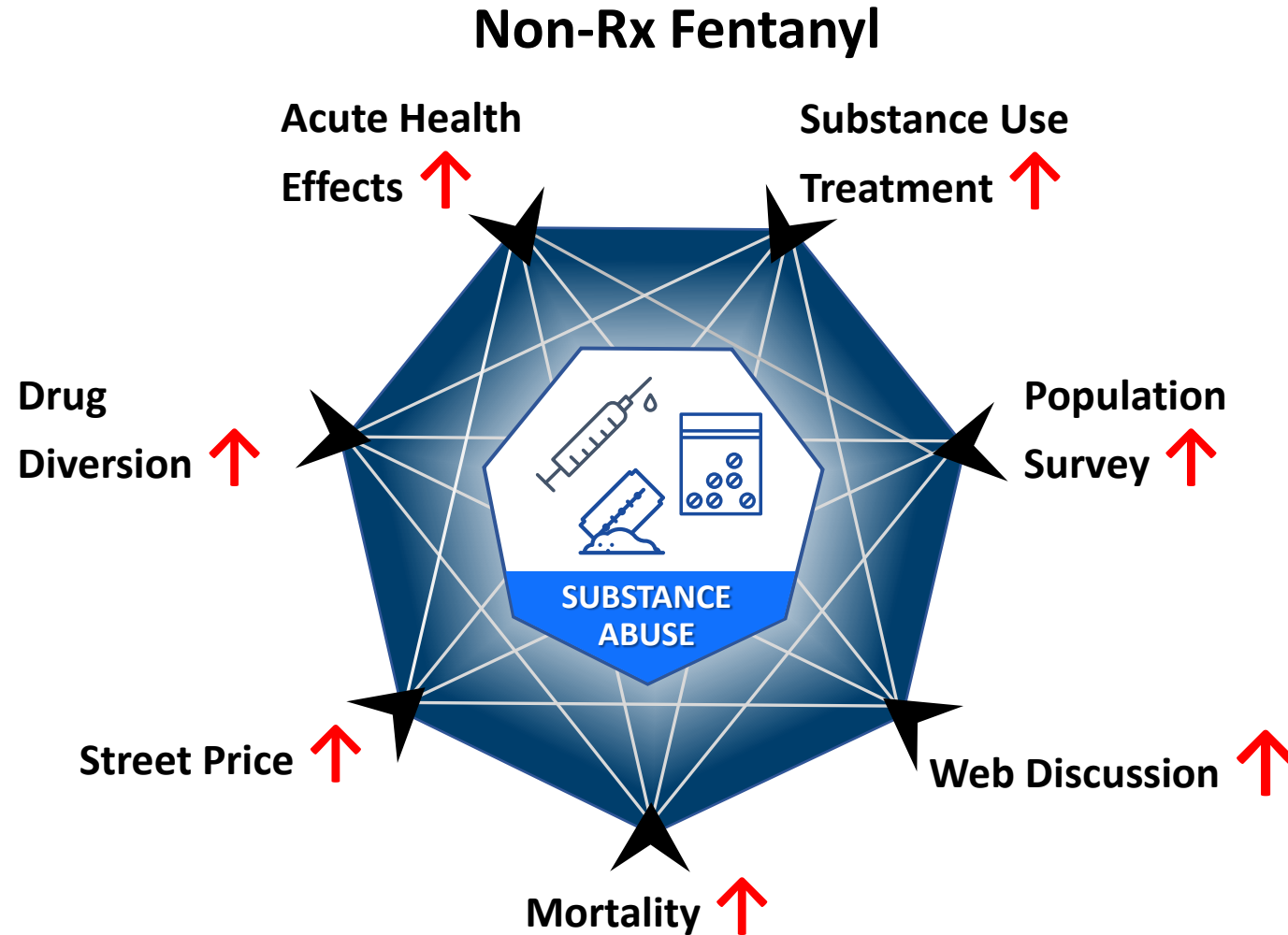
## Polysubstance Abuse

*Drugs are not my problem.  
Reality is my problem.  
Drugs are my solution.*

*Russell Brand*



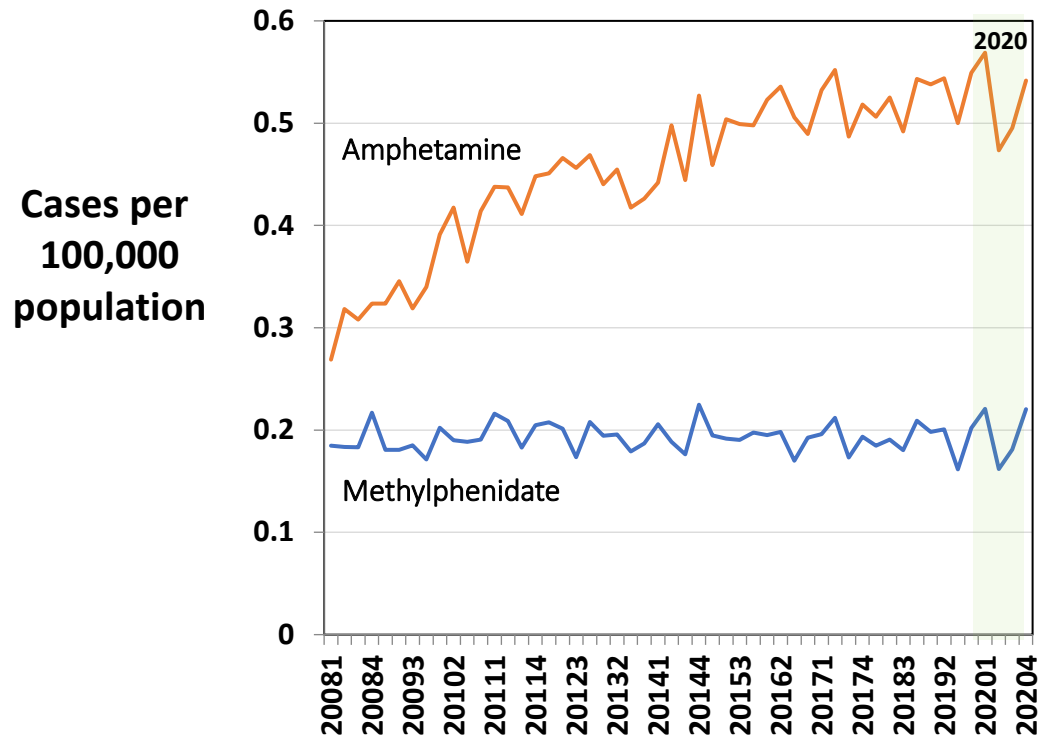
# All Measures of Illicit Fentanyl Use Are Increasing



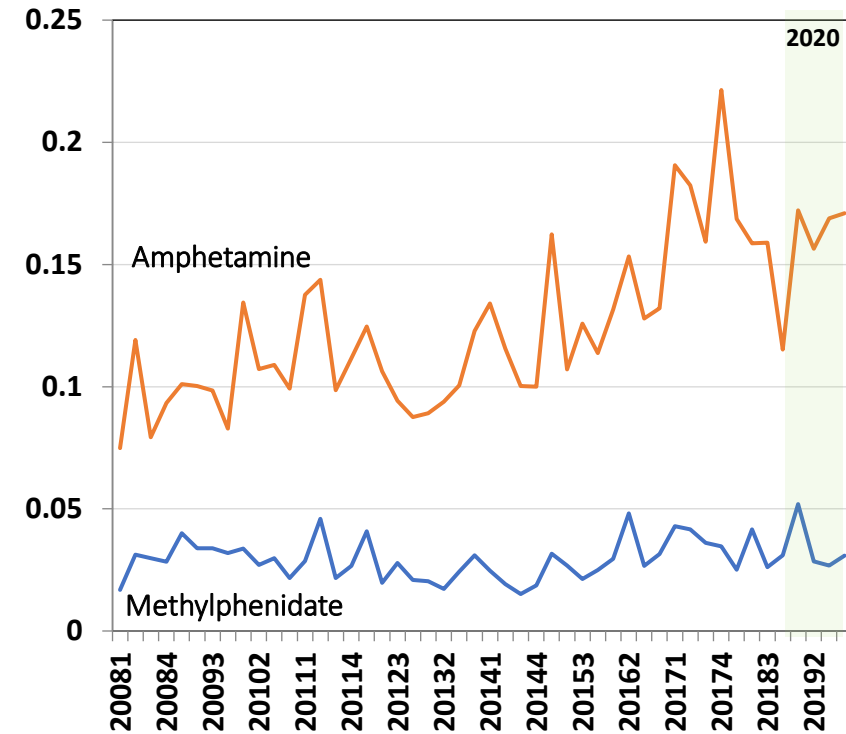
# What Does the Future Hold?

# RADARS System, Rx Stimulant Rates, 2008 - 2020

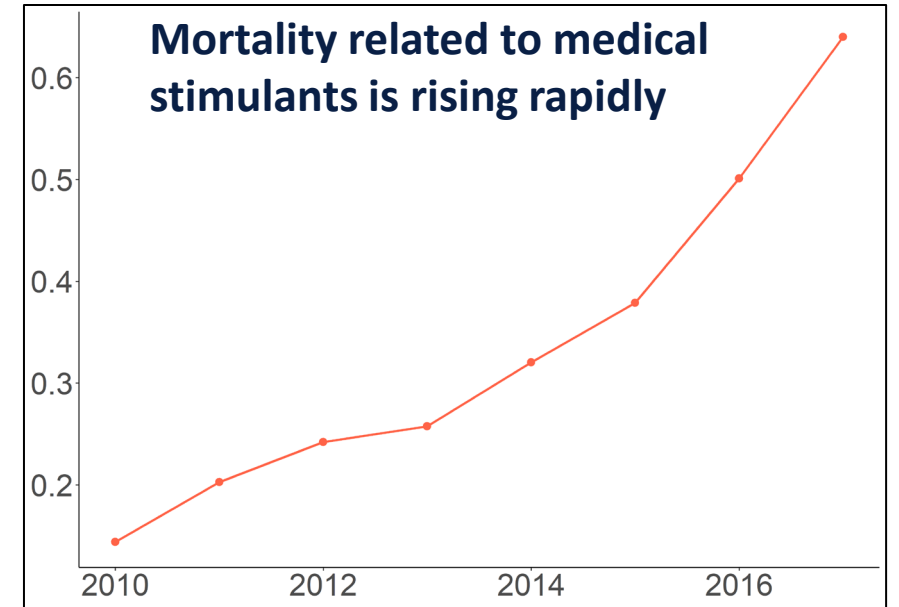
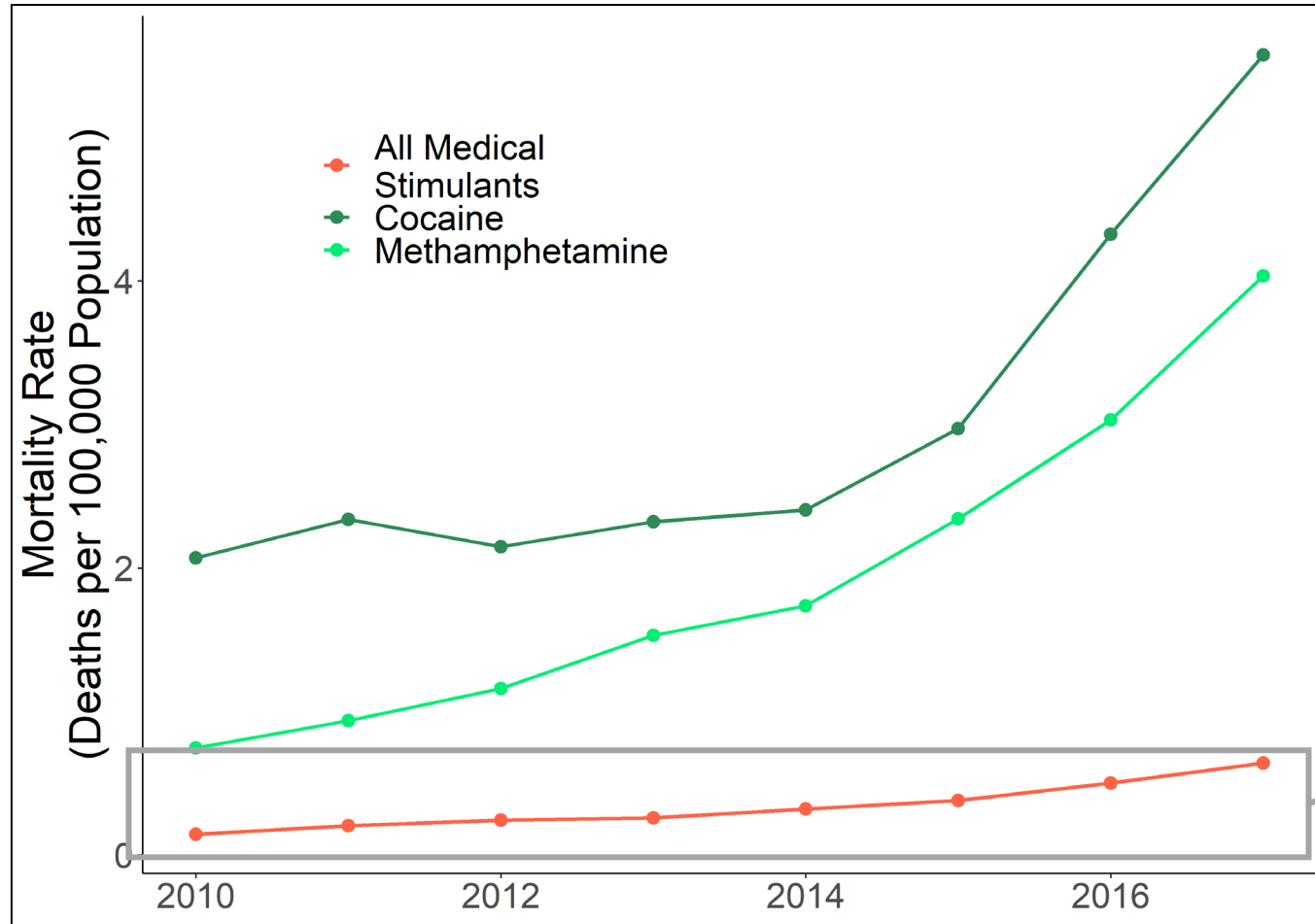
## Poison Center Program



## Drug Diversion Program



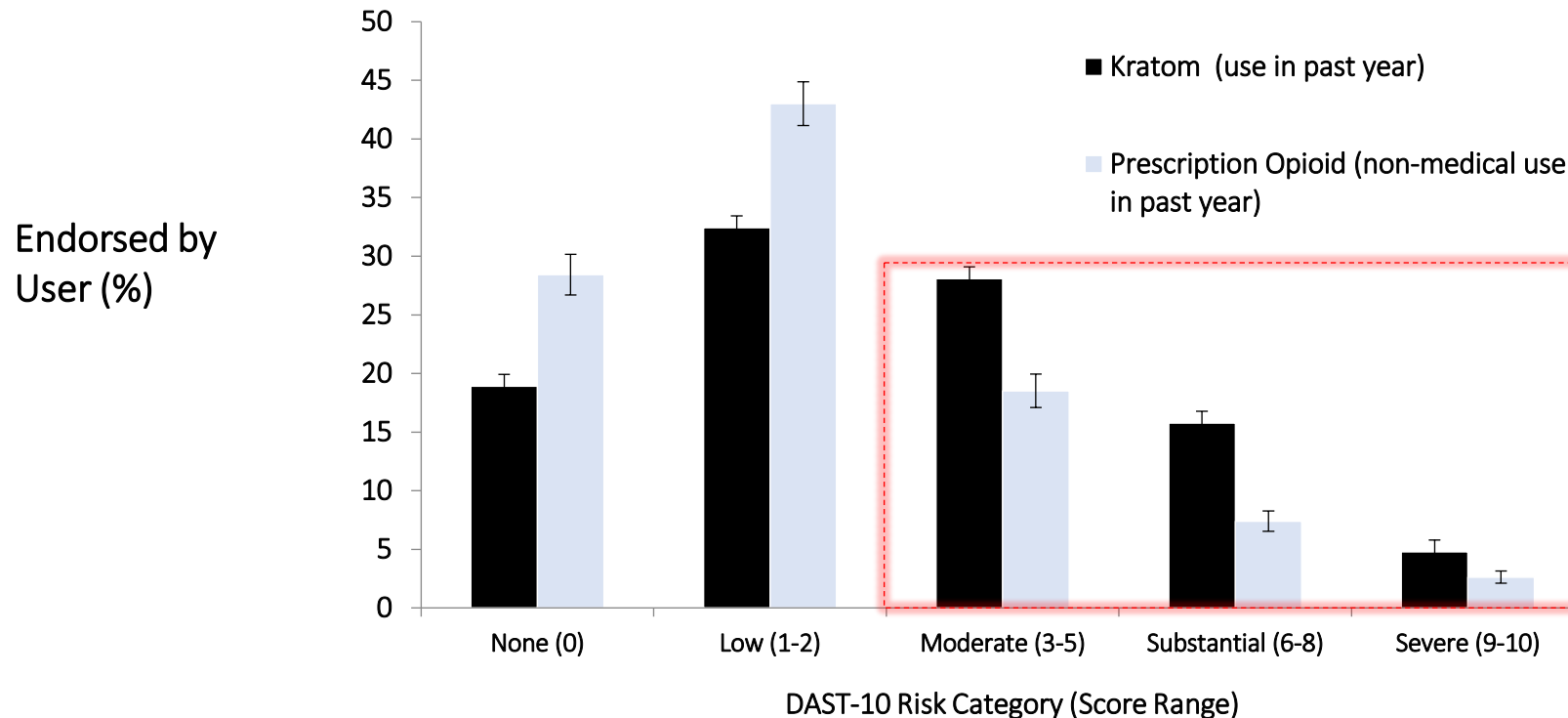
# Stimulants - Increasing Mortality over Time



Black J, et al. Association of Medical Stimulants With Mortality in the US From 2010 to 2017  
doi:10.1001/jamainternmed.2020.7850

# 3 Million Adults Have Used Kratom, NMURx, 2018-2019

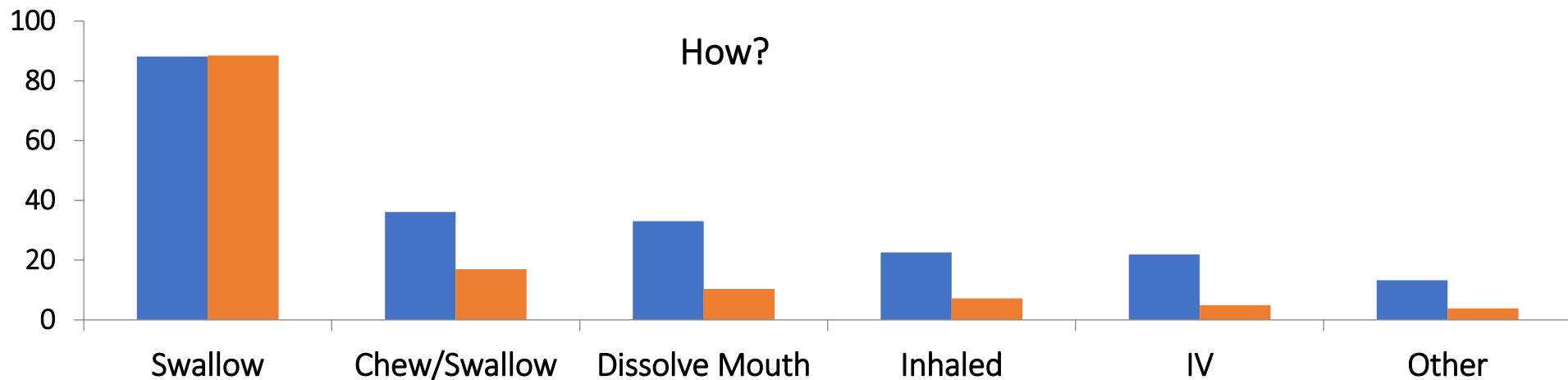
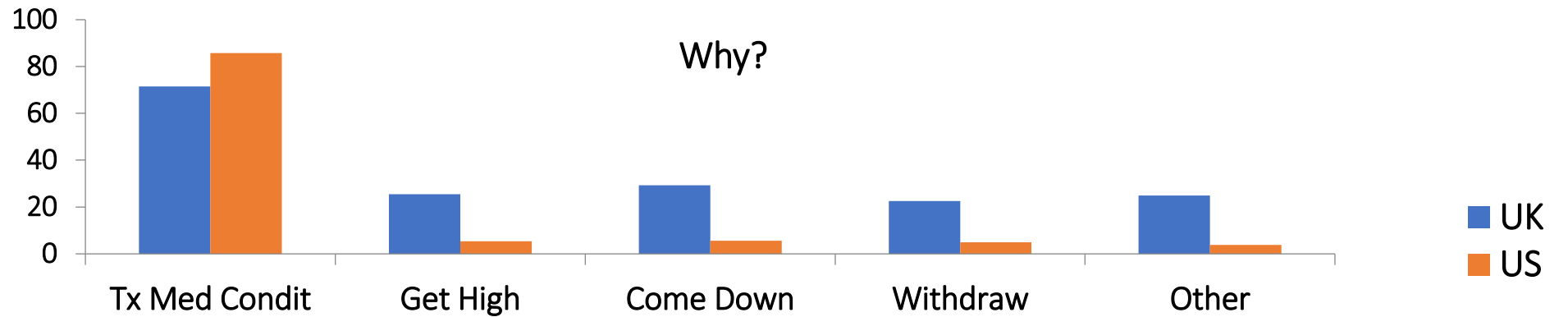
## Kratom Abuse Profile More Severe Than Prescription Opioids



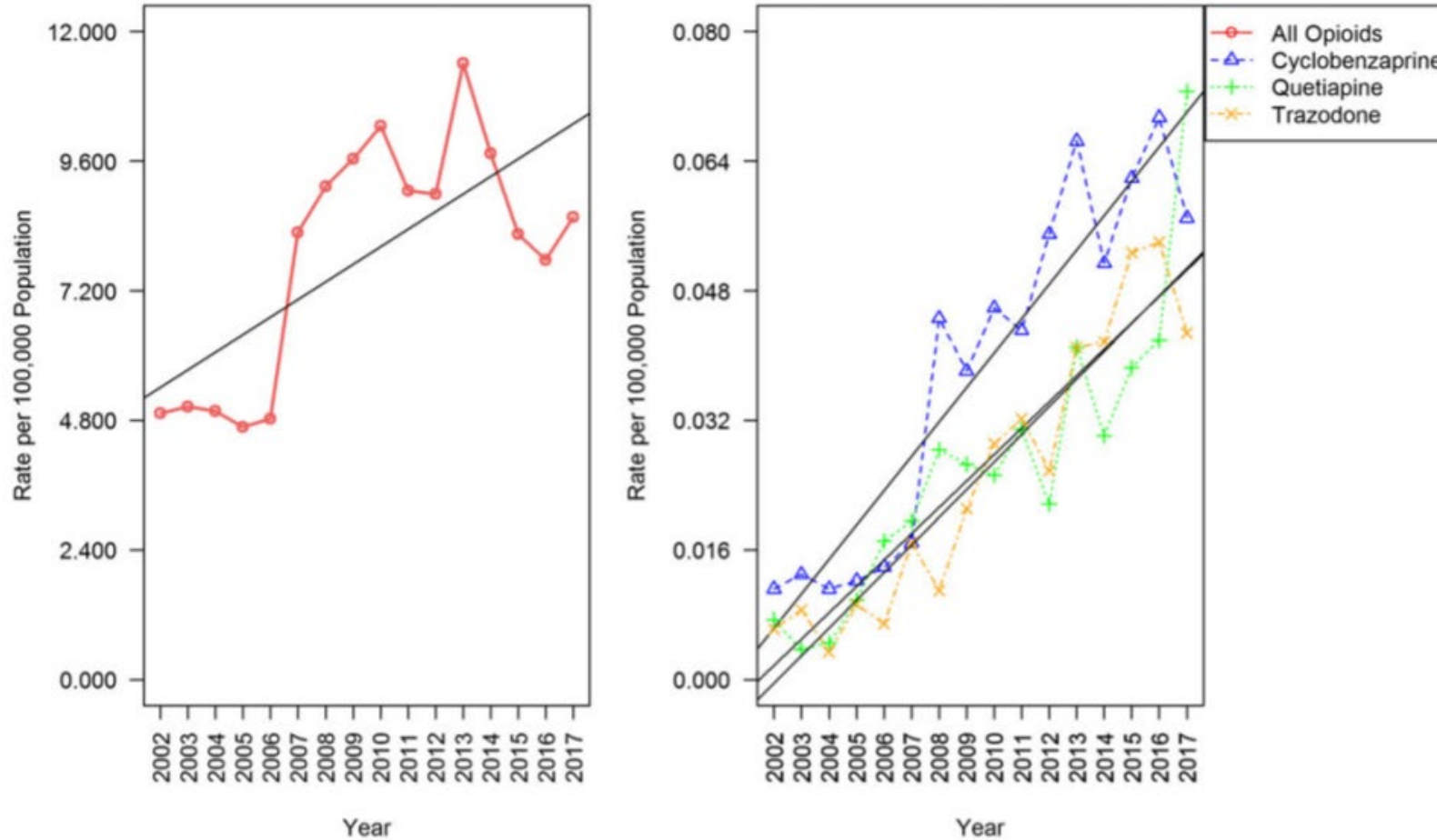
Schimmel J, et al. Prevalence and description of kratom (*Mitragyna speciosa*) use in the United States: A cross-sectional study. *Addiction*. 2020 <https://doi.org/10.1111/add.15082>.



# Nonmedical Use of Loperamide (Immodium) in UK and US, NMURx, 2017



# Increasing Diversion of Nonscheduled Psychoactive Prescription Medications



# From US FDA

## DRUG DEVELOPMENT SNAPSHOT

- 113 CLINICAL TRIALS FOR MDMA
- 99 CLINICAL TRIALS FOR PSILOCYBIN
- 29 CLINICAL TRIALS FOR LYSERGIC ACID DIETHYLAMIDE (LSD)



Source: Clinicaltrials.gov, Accessed 2/16/22; 5/16/22

1. Carhart-Harris, et al (2021). Trial of psilocybin versus escitalopram for depression. *New England Journal of Med.*; 384: 1402-1411

2. Mitchell JM, et. al. (2021). MDMA-assisted therapy for severe PTSD: a randomized, double-blind, placebo-controlled phase 3 study. In *Nature Med.* ; 27: 1025-1033

\*Images: <https://fortune.com/2022/01/26/fda-clears-bsd-based-drug-clinical-trials/>; <https://www.livescience.com/psilocybin-depression-breakthrough-therapy.html>;

# Psychedelic Module

- IN 2020, 2.6% OF PEOPLE AGED 12+ (OR 7.1M PEOPLE) USED HALLUCINOGENS IN THE PAST YEAR
- 1.4M PEOPLE INITIATED HALLUCINOGEN USE IN THE PAST YEAR, INCLUDING 251,000 ADOLESCENTS

Figure 9. Past Year Illicit Drug Use: Among People Aged 12 or Older; 2020

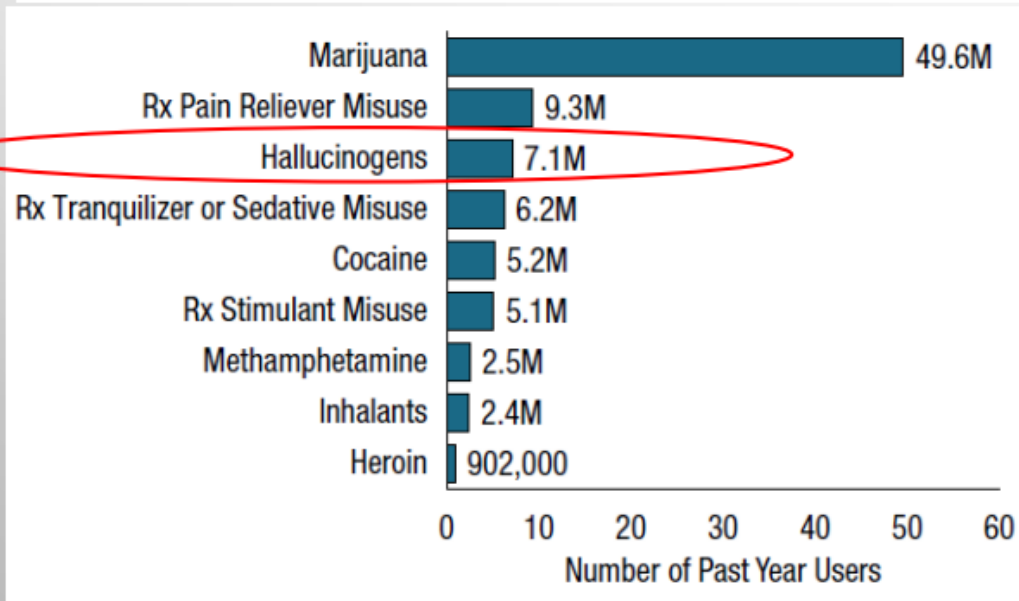
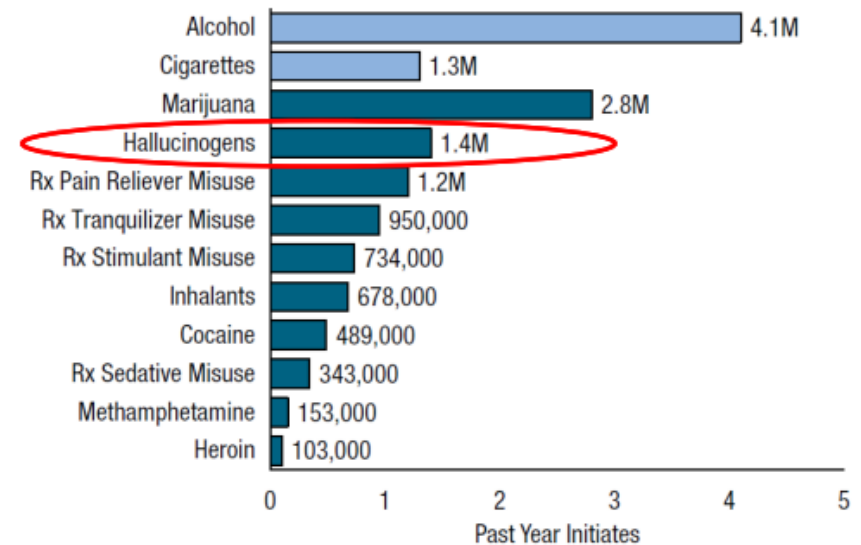


Figure 21. Past Year Initiates of Substances: Among People Aged 12 or Older; 2020



2020 NSDUH Annual National Report | CBHSQ Data ([samhsa.gov](https://www.samhsa.gov))

Note: category of hallucinogens includes LSD, PCP, peyote, mescaline, psilocybin, MDMA, ketamine, DMT and Salvia divinorum

# Summary

- Opioid deaths are still rising
  - Mainly due to synthetic opioids like fentanyl
  - Counterfeit drugs rising
  - Illicit fentanyl continues to rise
- Most patients misuse more than one drug
- Most deaths involve more than one drug
- On the horizon: stimulants, OTCs, antipsychotics, hallucinogens
- How can we decrease demand?

# Questions?

[Richard.Dart@rmpds.org](mailto:Richard.Dart@rmpds.org)

[www.RADARS.org](http://www.RADARS.org)