WELCOME

welcome

RADARS® SYSTEM 2021

15TH ANNUAL SCIENTIFIC VIRTUAL MEETING

RADARS® SYSTEM 2021

15TH ANNUAL SCIENTIFIC VIRTUAL MEETING

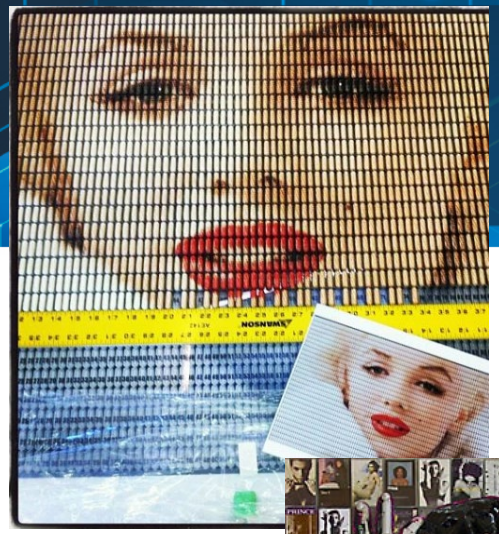
Thursday, May 13, 2021

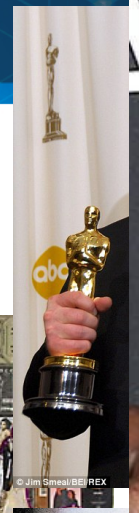
Postmarketing Surveillance: What's the Next Move?

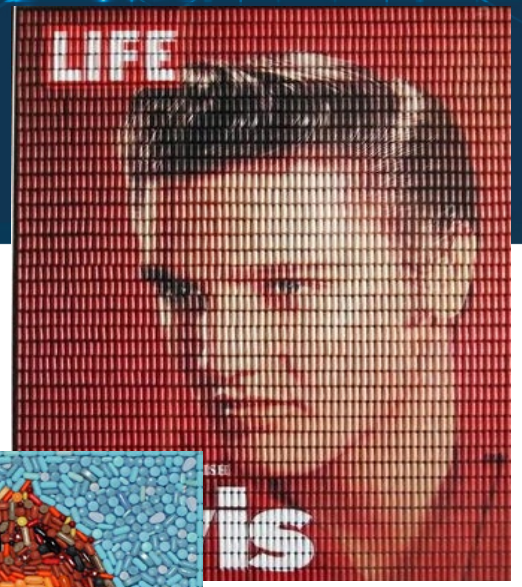
By Source, Fair use, https://en.wikipedia.org/w/index.php?curid=66580721

RADARS® SYSTEM 2021

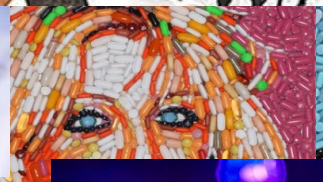
15TH ANNUAL SCIENTIFIC VIRTUAL MEETING

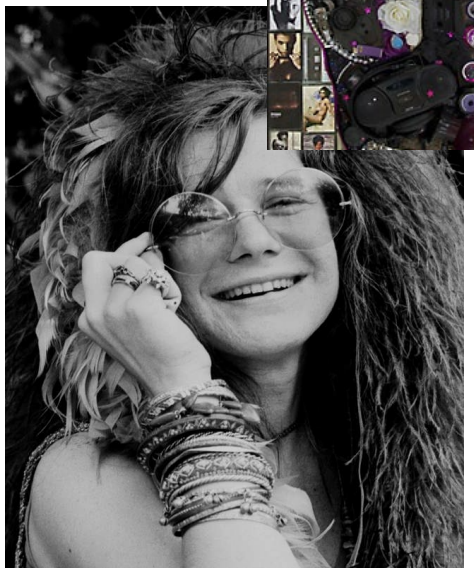






Bobby Brown, Jr.

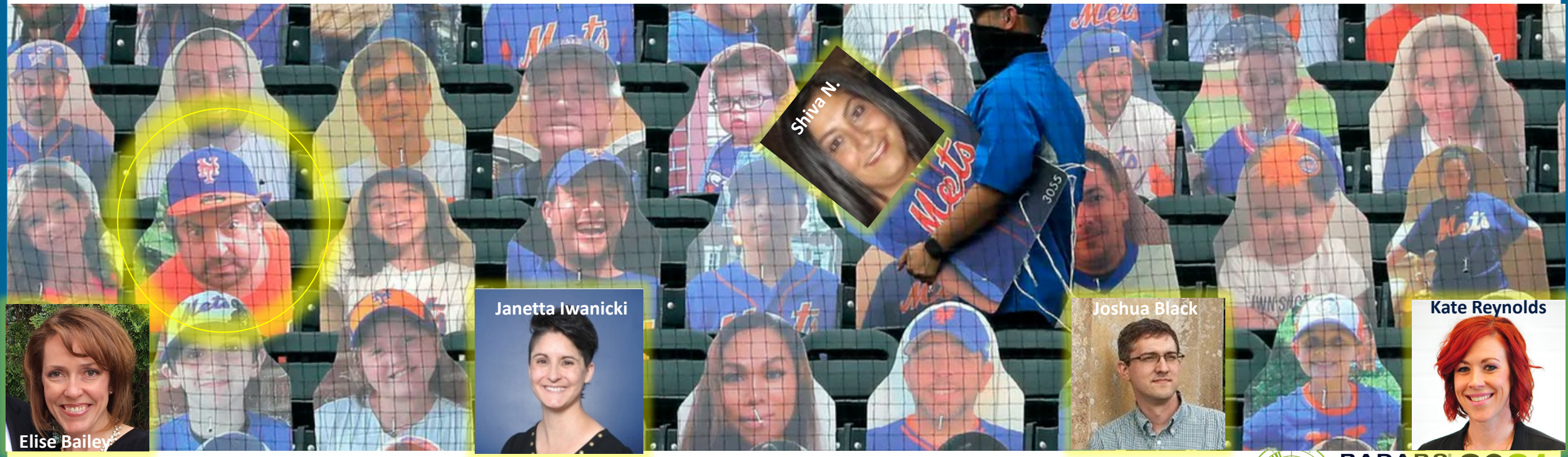




RADARS® System 15th Annual Scientific Meeting

Registrants n=131

Government	35
Academic	19
Industry/Pharma	27
Other	50



RADARS® SYSTEM 2021
15TH ANNUAL SCIENTIFIC VIRTUAL MEETING

RADARS® System - Scientific Advisory Board

Principal Investigators

Theodore J. Cicero, PhD
Washington University in St Louis

Steven P. Kurtz, PhD
Nova Southeastern University

Mark W. Parrino, MPA
American Association for the Treatment of Drug Dependence

Richard C. Dart, MD, PhD
Rocky Mountain Poison & Drug Safety, Denver Health

Substance Abuse Experts

Sidney H. Schnoll, MD, PhD
PinneyAssociates

George E. Woody, MD
University of Pennsylvania

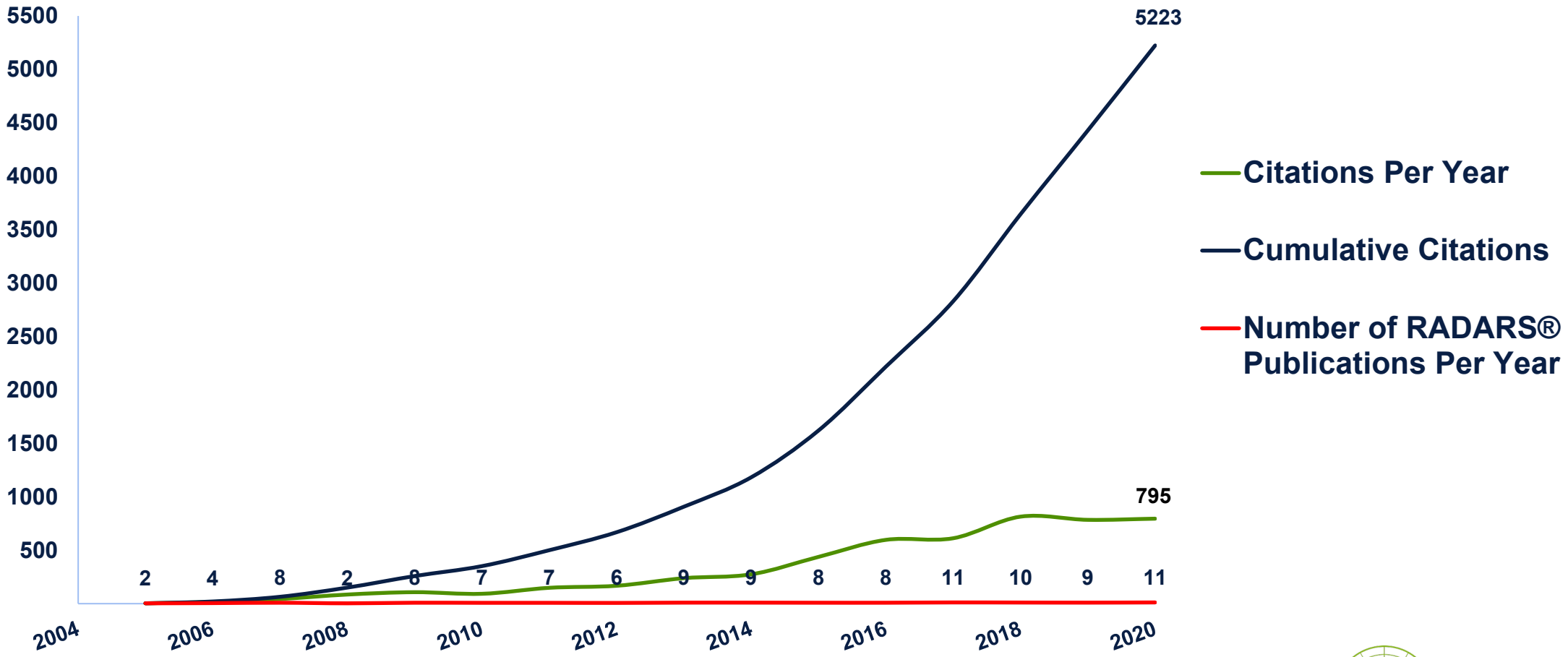
Epidemiology/Biostatistics

Nabarun Dasgupta, MPH, PhD
University of North Carolina in Chapel Hill

Law Enforcement

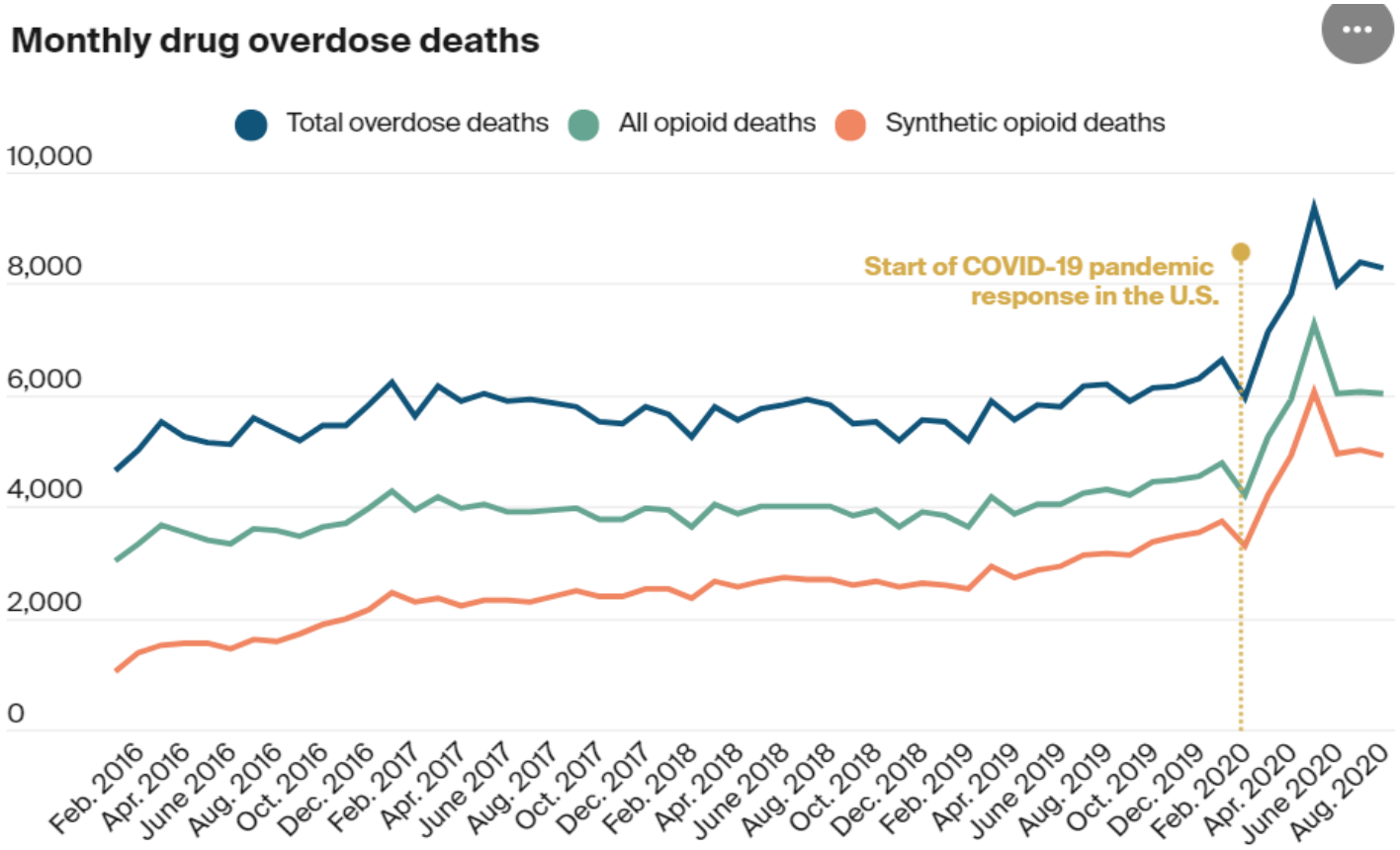
John J. Burke
Pharmaceutical Diversion Education, Inc.; International Health Facility Diversion Association

RADARS® System Publications



RADARS® SYSTEM 2021
15TH ANNUAL SCIENTIFIC VIRTUAL MEETING

News from RADARS® System

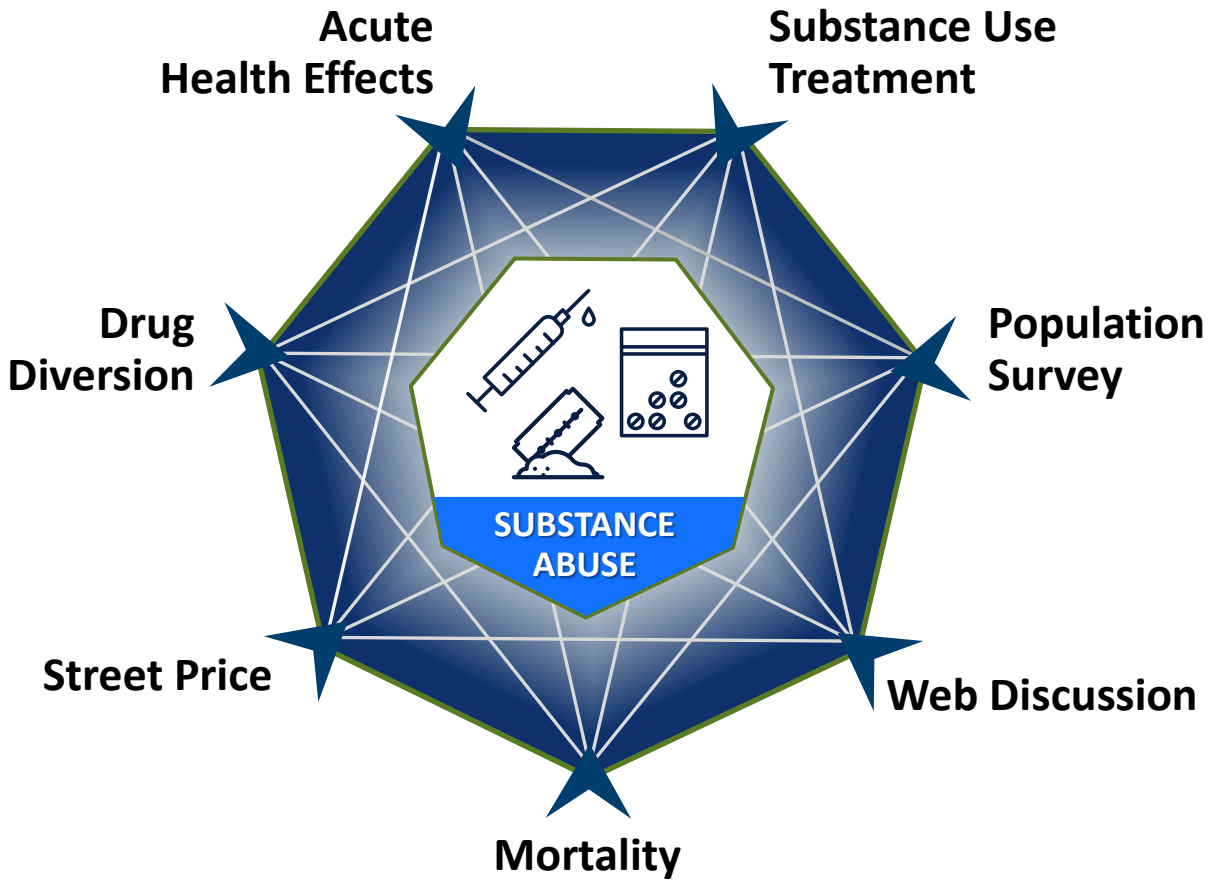


https://www.commonwealthfund.org/blog/2021/spike-drug-overdose-deaths-during-covid-19-pandemic-and-policy-options-move-forward#:~:text=Our%20estimates%20show%20that%20total,had%20never%20risen%20above%206%2C300.

Real World Evidence and Triangulation

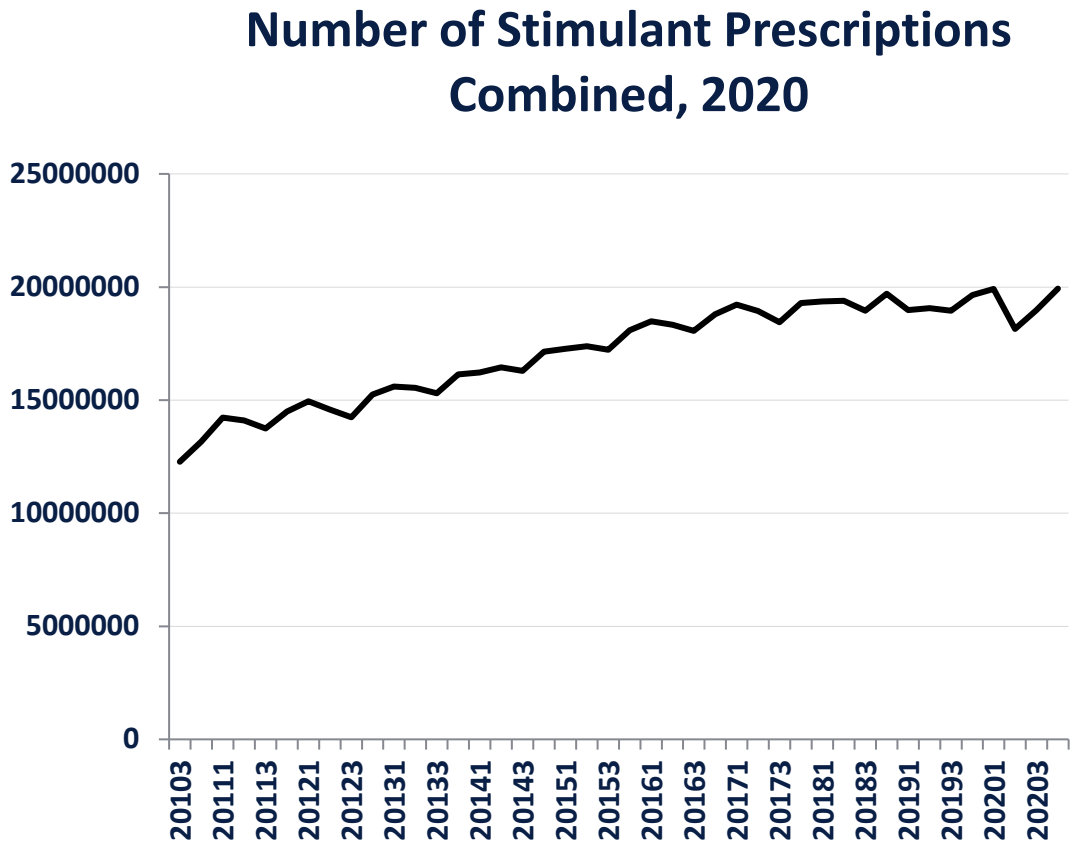
Triangulation

More reliable answers by integrating results from several different approaches, each with different and unrelated key sources of potential bias



Lawlor DA, et al. Int J Epidemiology, 2016, 1866–1886 doi: 10.1093/ije/dyw314

Prescribing of Prescription Stimulants

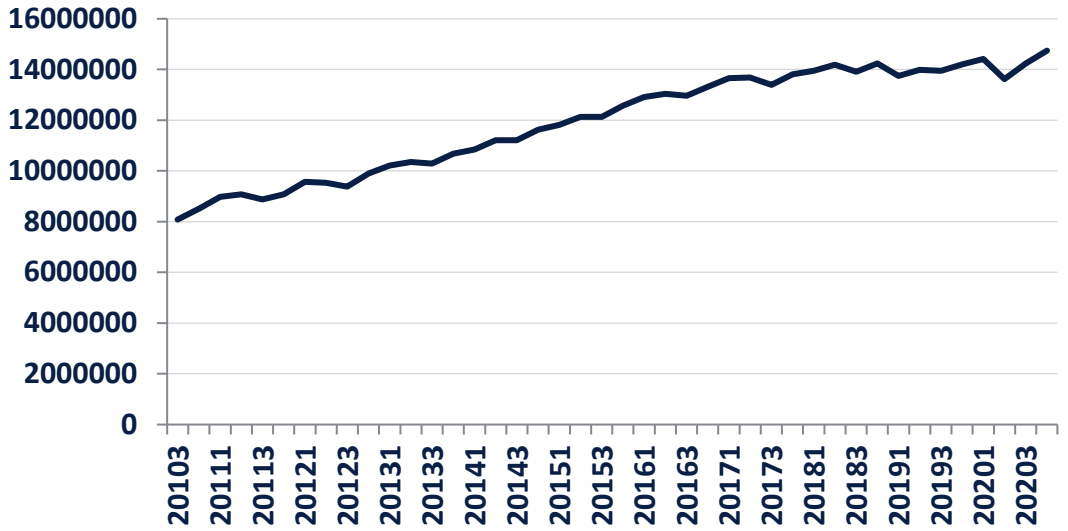


The stimulants - amphetamine and related, methylphenidate, and modafinil

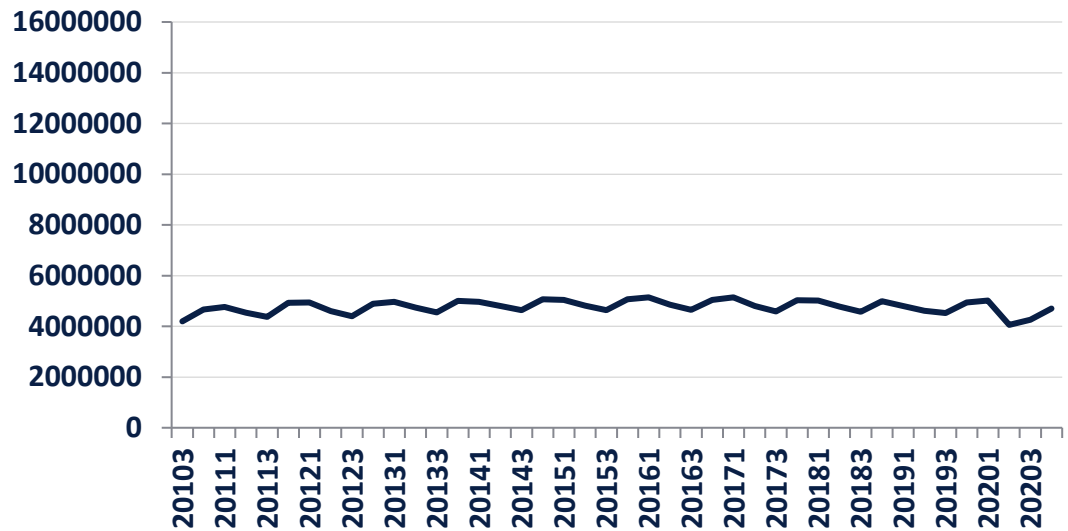
Source: IQVIA™ US-Based Longitudinal Prescription Data

Prescribing of Amphetamine, Methylphenidate

Number of Amphetamine Prescriptions, 2020



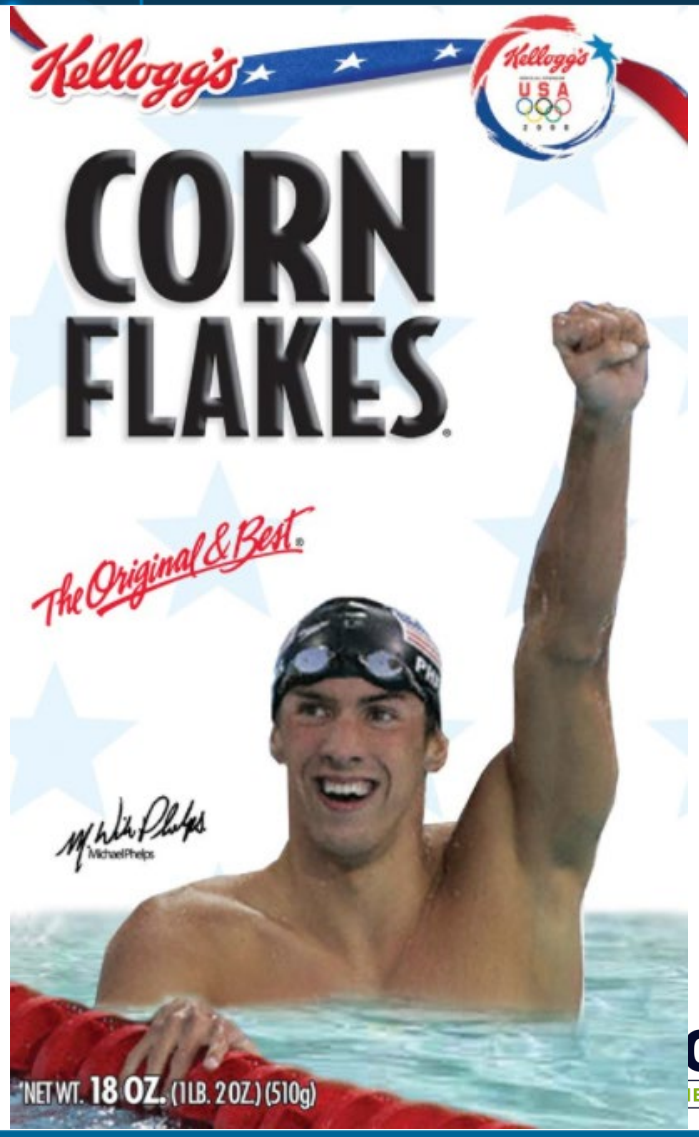
Number of Methylphenidate Prescriptions, 2020



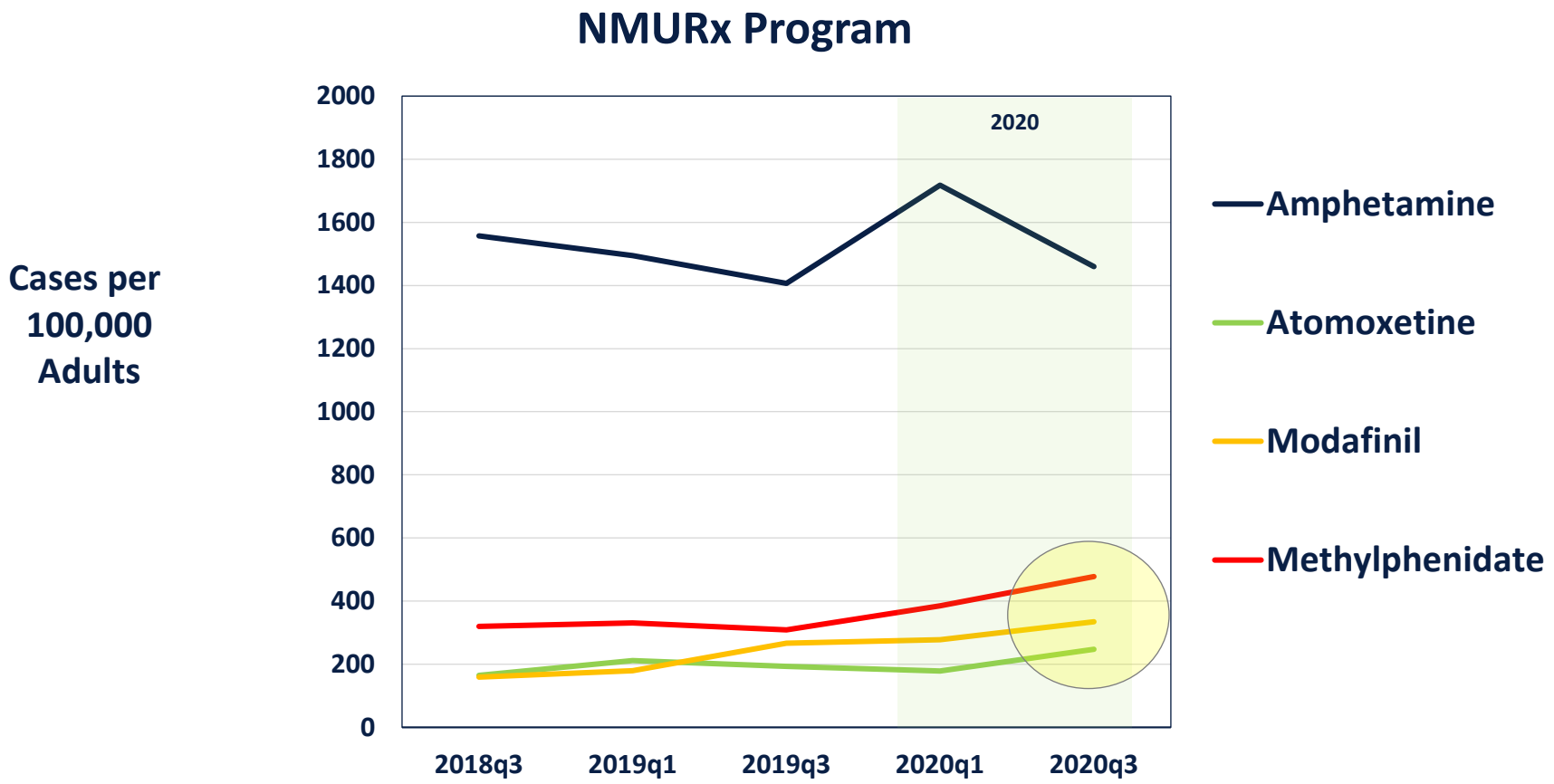
Source: IQVIA™ US-Based Longitudinal Prescription Data

What is an “Endorsement”?

- Person endorses use of the drug
  - Not necessarily that they thought the drug was good



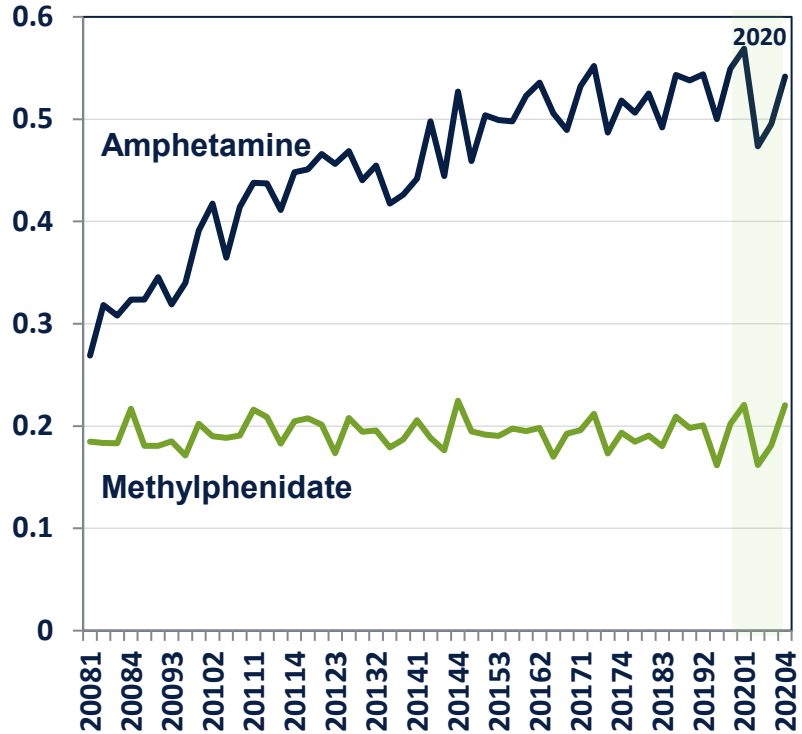
Non-Medical Use of Rx Stimulants, NMURx Program, 2018 - 2020



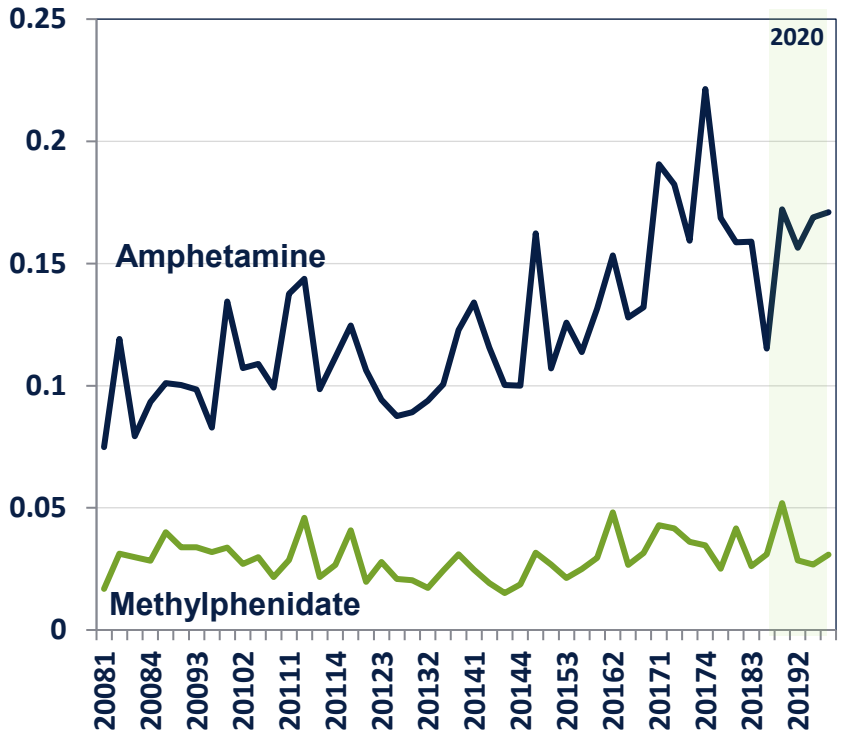
RADARS System, Rx Stimulant Rates, 2008 - 2020

Poison Center Program

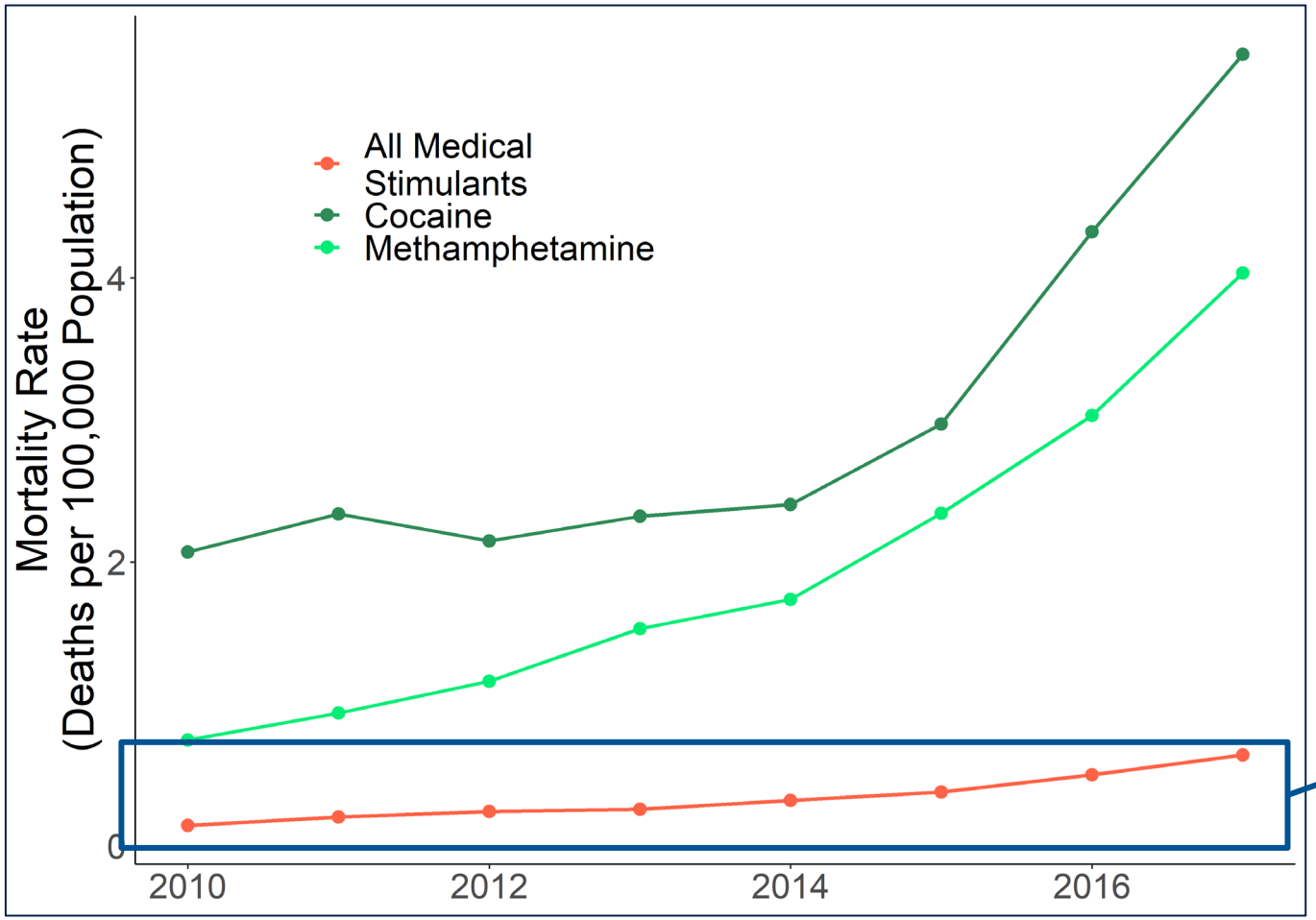
Cases per 100,000 population

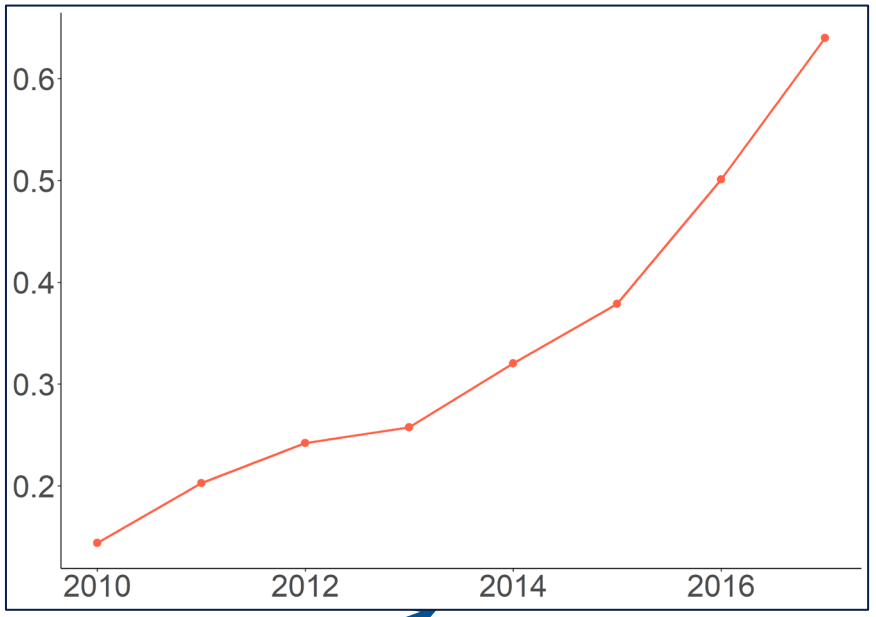


Drug Diversion Program



Increasing Mortality over Time

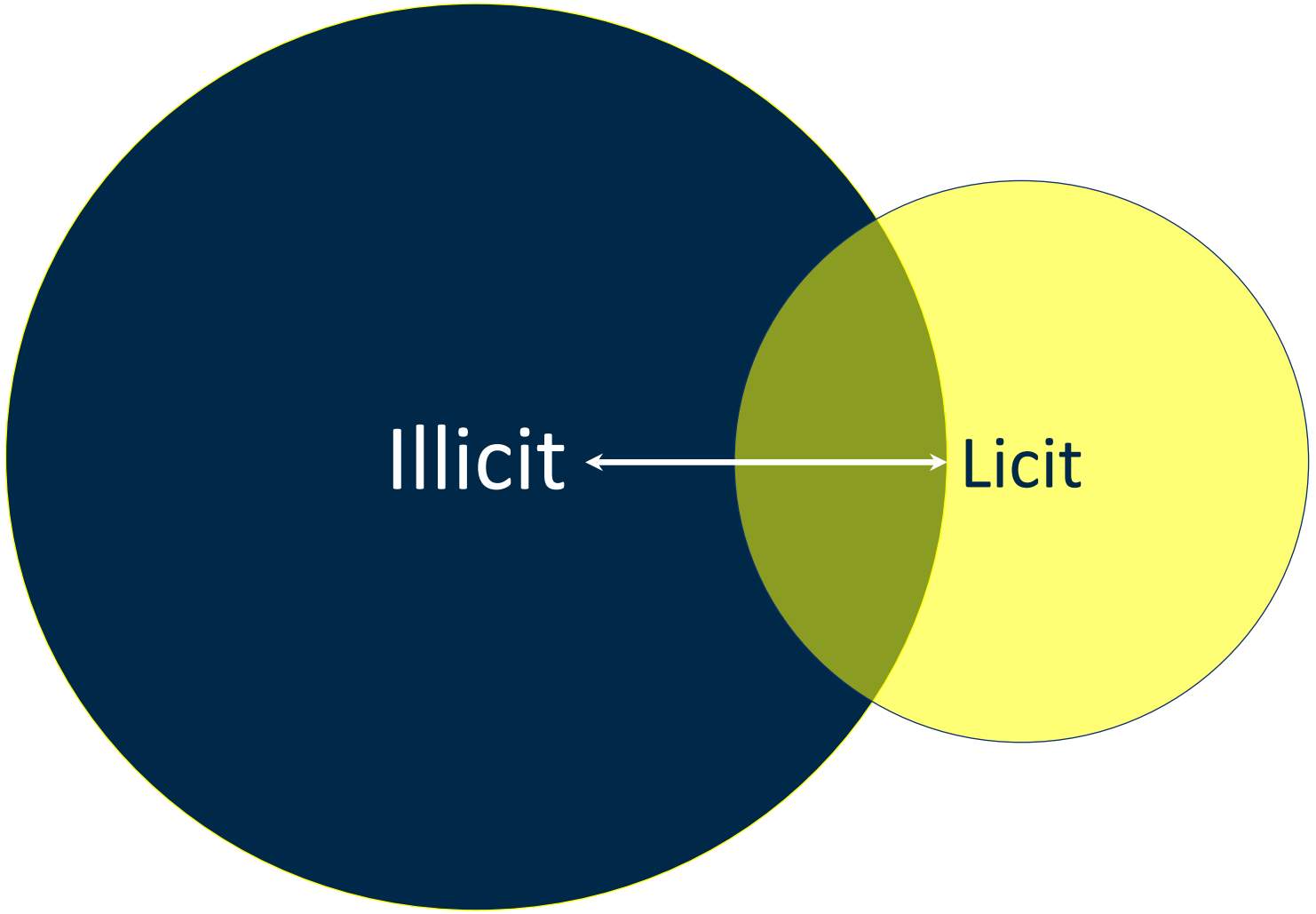




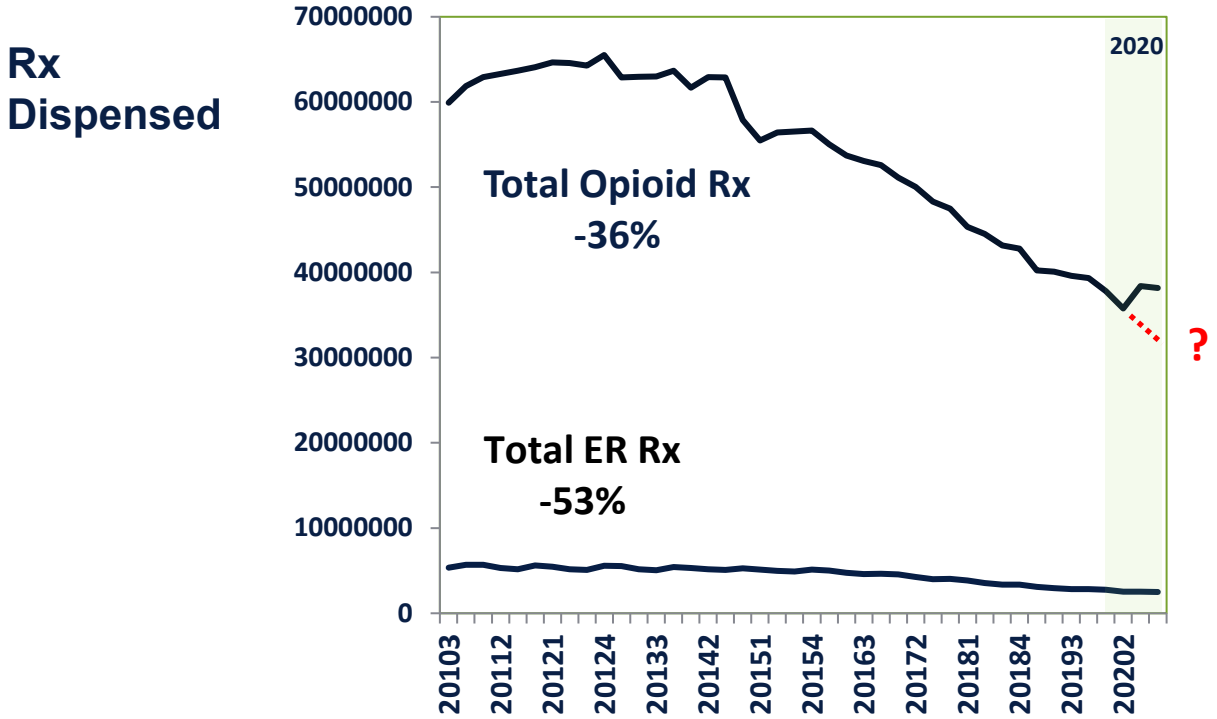
Mortality related to medical stimulants is rising rapidly alongside illicit substances like cocaine and methamphetamine.

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

Interaction of Licit and Illicit Pharmaceuticals

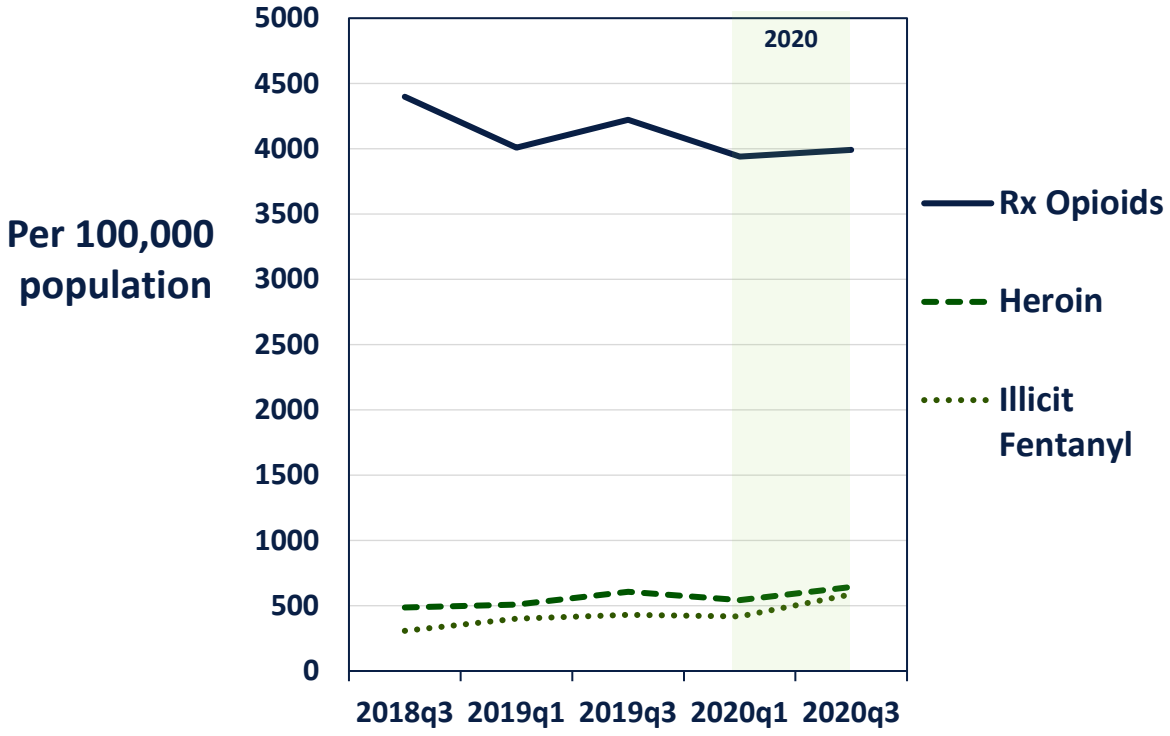


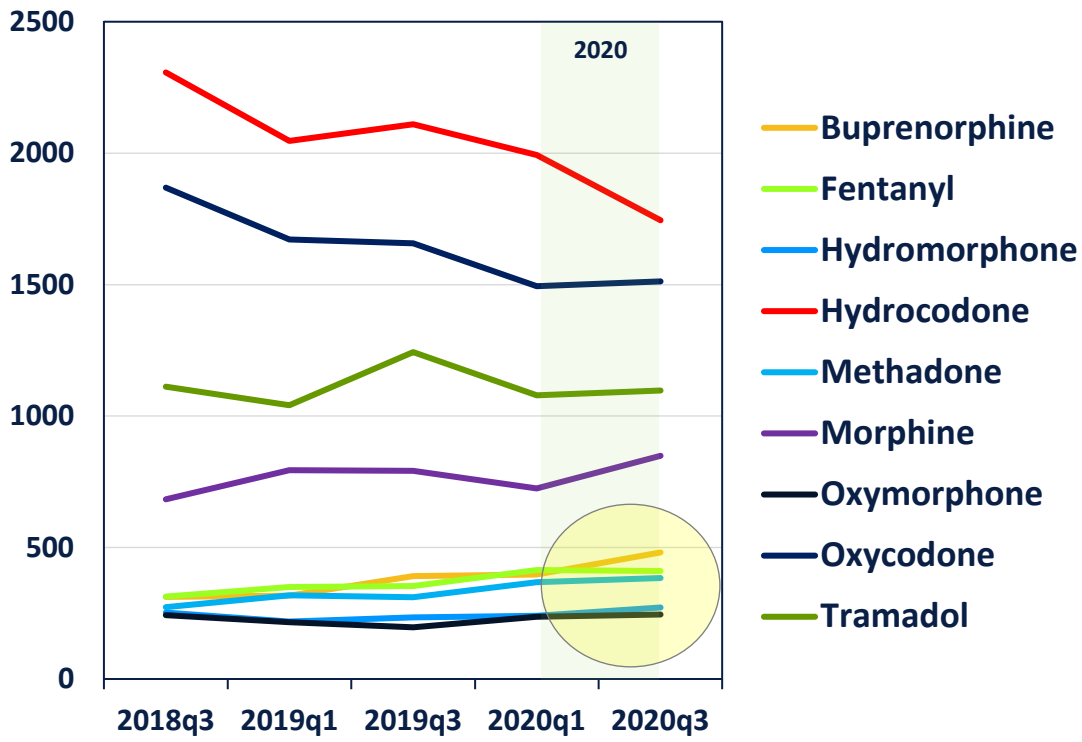
Trends in Annual Opioid Prescribing Rates



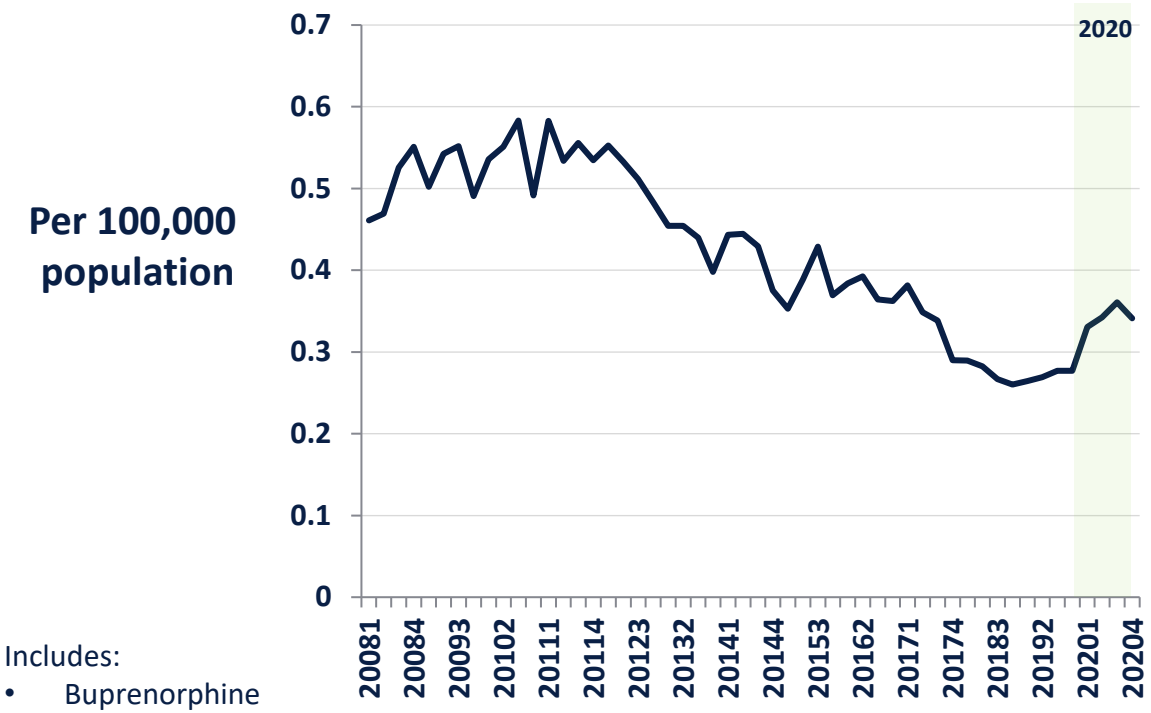
Source: IQVIA™ US-Based Longitudinal Prescription Data

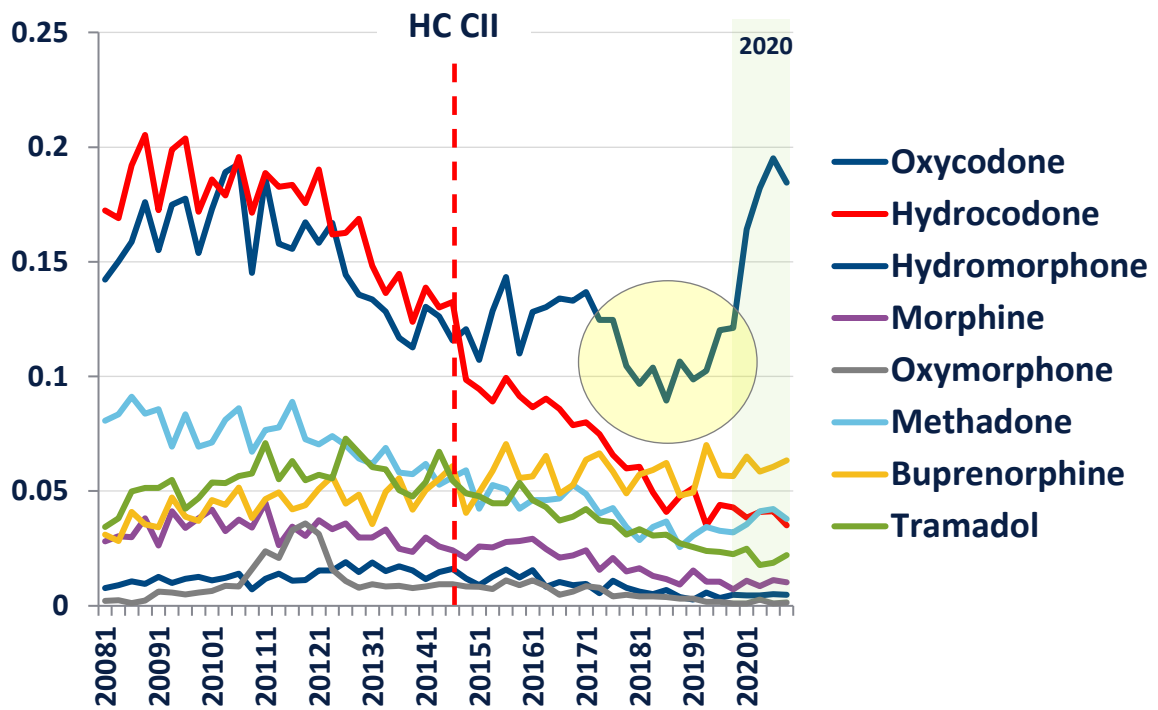
Non-Medical Use of Opioids, NMURx Program, 2018 - 2020





Poison Center Program, Intentional Abuse, 2006 - 2020



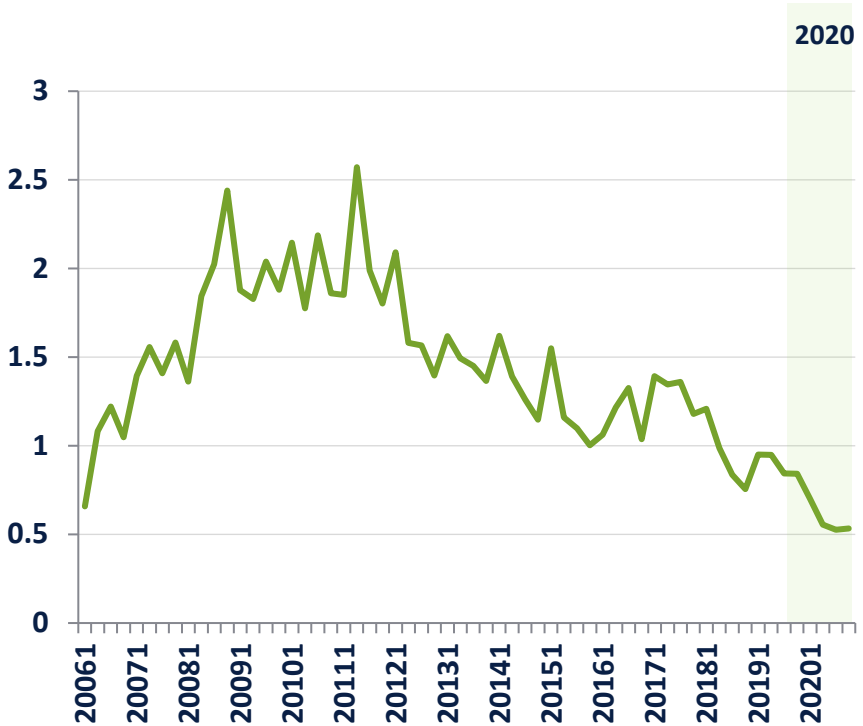


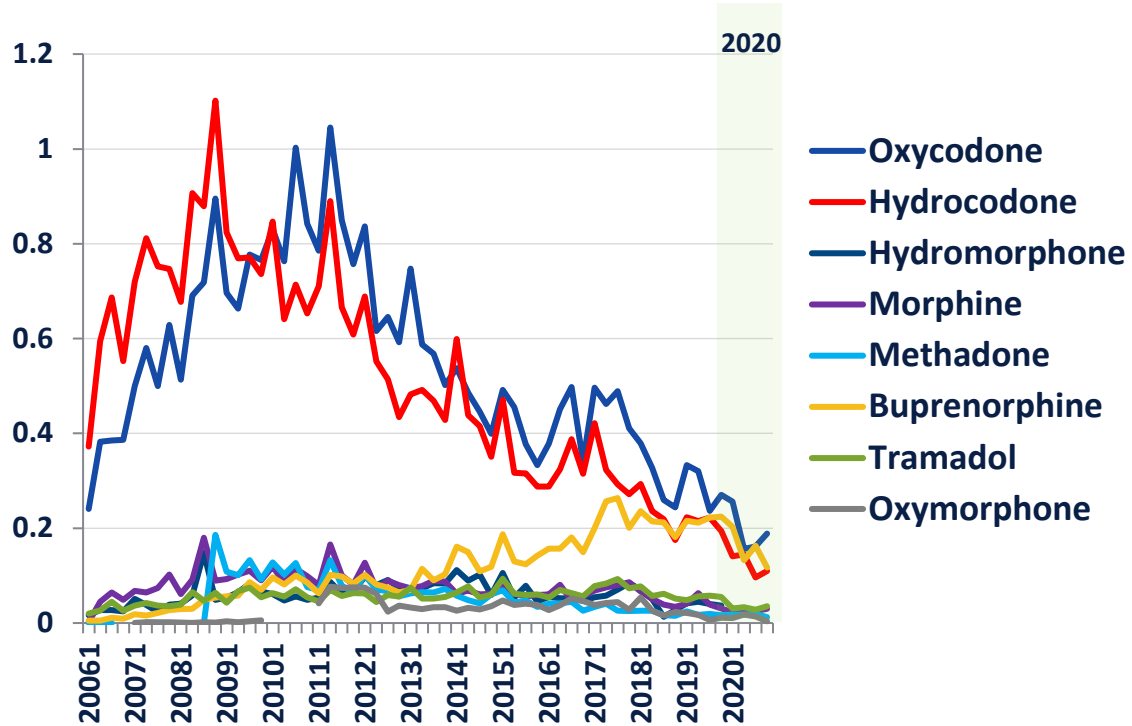
Includes:

- Buprenorphine
- Hydrocodone
- Hydromorphone
- Methadone
- Morphine
- Oxycodone
- Oxymorphone
- Tapentadol
- Tramadol

Drug Diversion Program, 2006 - 2020

Invest. Opened Per 100,000 population



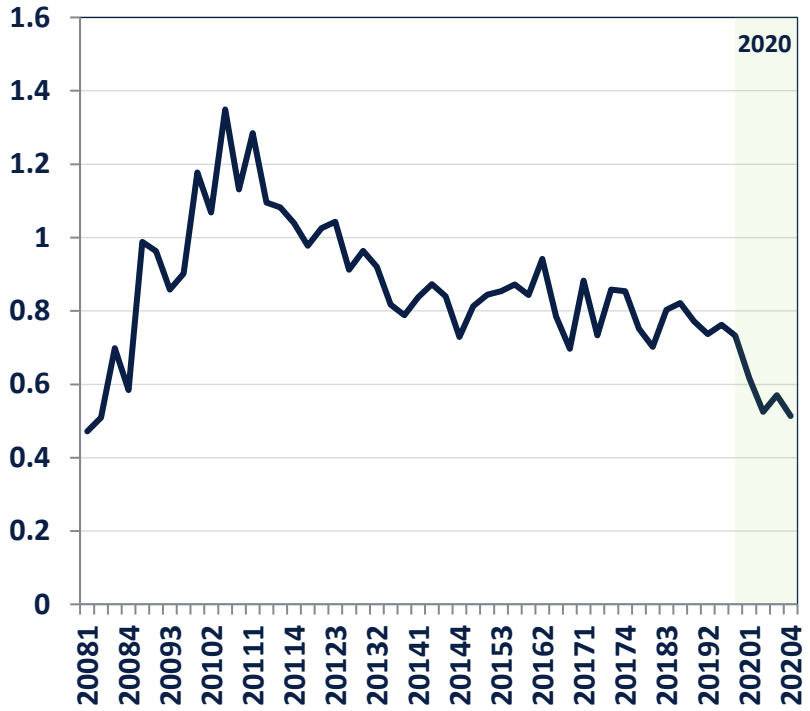


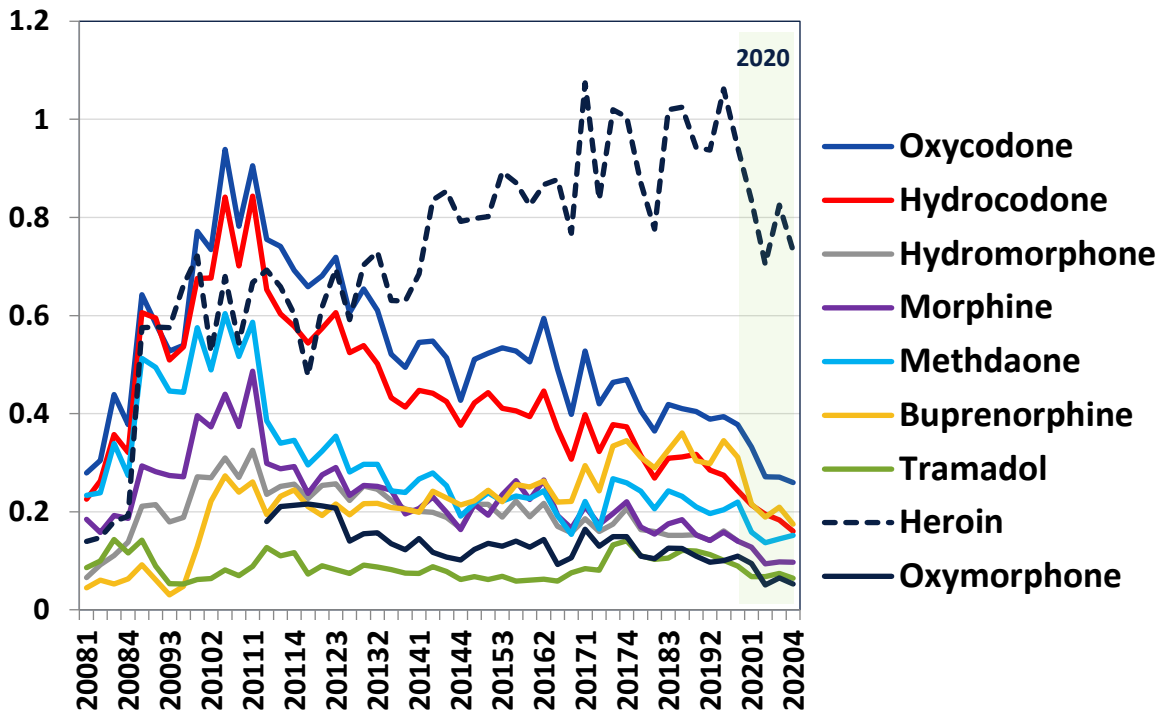
Includes:

- Buprenorphine
- Hydrocodone
- Hydromorphone
- Methadone
- Morphine
- Oxycodone
- Oxymorphone
- Tapentadol
- Tramadol

Treatment Center Programs Combined, 2008 - 2020

Endorse.
Per 100,000 population





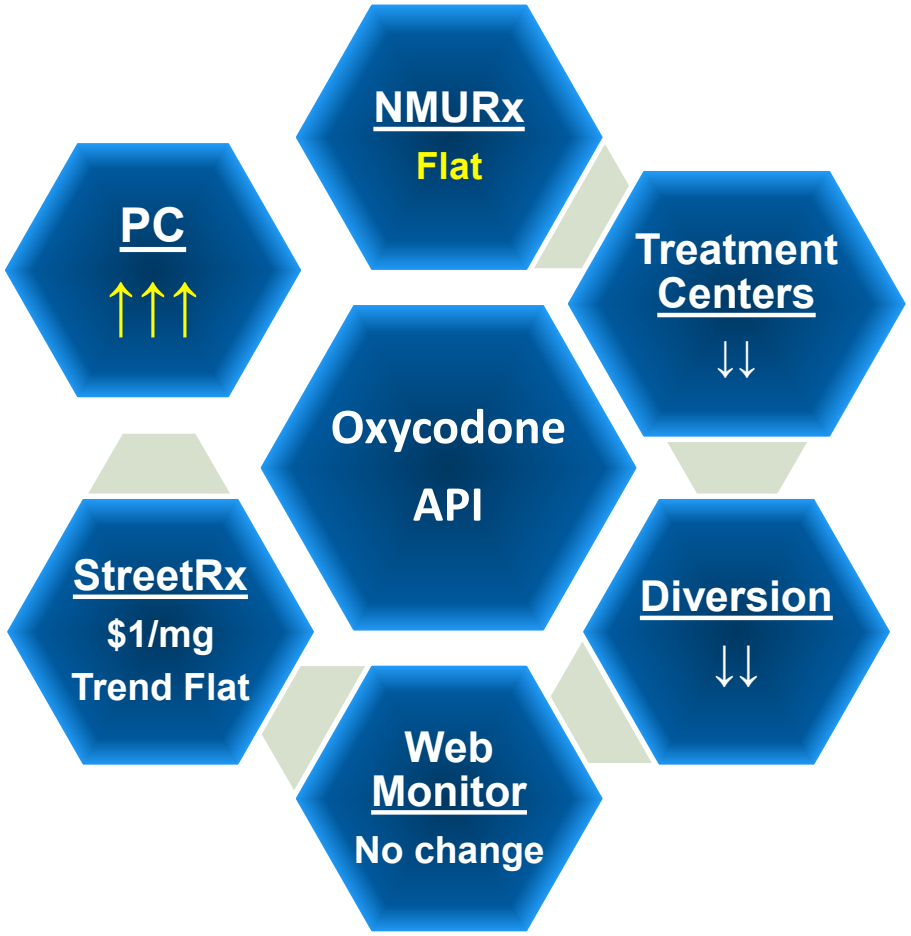
Includes:

- Buprenorphine
- Hydrocodone
- Hydromorphone
- Methadone
- Morphine
- Oxycodone
- Oxymorphone
- Tapentadol
- Tramadol

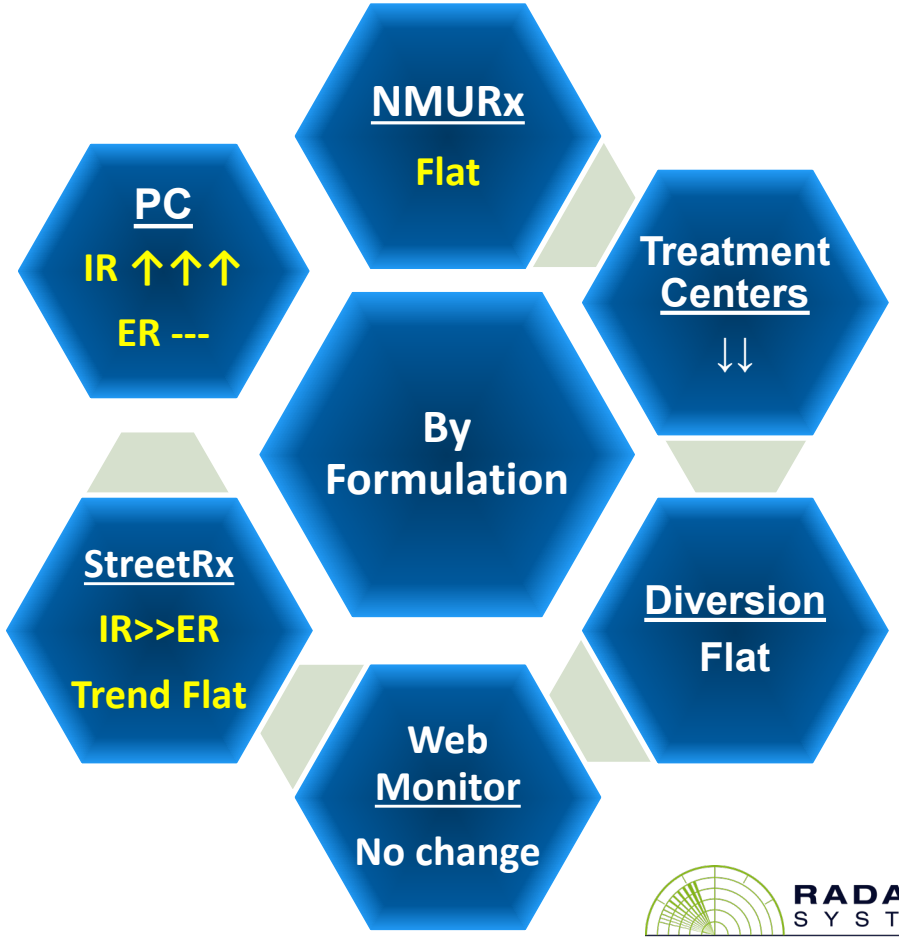
Is
Oxycodone
Surging?

Oxycodone – Summary of Mosaic Evaluation

API-level Analysis of Oxycodone



Formulation-level Analysis of Oxycodone



Postmarketing Surveillance of “Small” Drugs

- How do we interpret drugs with low exposure (low prescription volume)
  - Sufentanil
  - Esketamine
  - MDMA (Ecstasy)
  - Oxymorphone
- Any drug will garner a small number of endorsements
  - Careless endorsements
  - Innate variability
  - What is the relation between drugs with low prescription volumes and use?

Quantifying the Relation: Rx Dispensing and Estimates of NMU

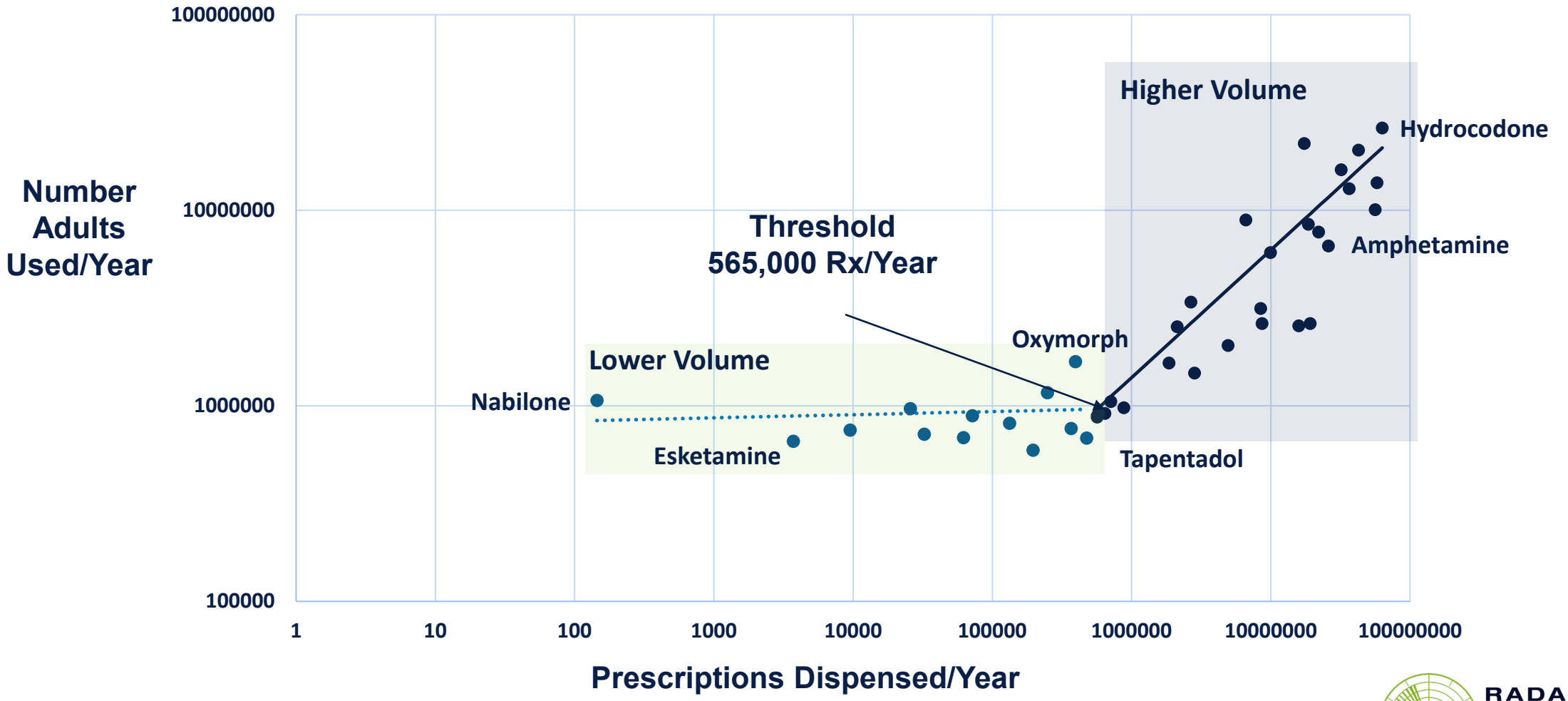
- **Methods**
  - Data source – NMURx Program
  - 37 API
  - Joinpoint regression
  - Test – Retest to estimate reliability

- **Results**
  - 4 waves: 106,404 respondents
  - Demographics stable

Pain Relievers	Sedatives	Stimulants	Cannabinoids
Buprenorphine	Alprazolam	Amphetamine	Dronabinol
Codeine	Baclofen	Methylphenidate	Nabilone
Dihydrocodeine	Chlordiazepoxide	Modafinil	
Eluxadoline	Clobazam		
Fentanyl	Clonazepam		
Gabapentin	Clorazepate		
Hydrocodone	Diazepam		
Hydromorphone	Estazolam		
Morphine	Eszopiclone		
Oxycodone	Flurazepam		
Oxymorphone	Lorazepam		
Pregabalin	Midazolam		
Tapentadol	Oxazepam		
Tramadol	Quazepam		
	Temazepam		
	Triazolam		
	Zaleplon		
	Zolpidem		

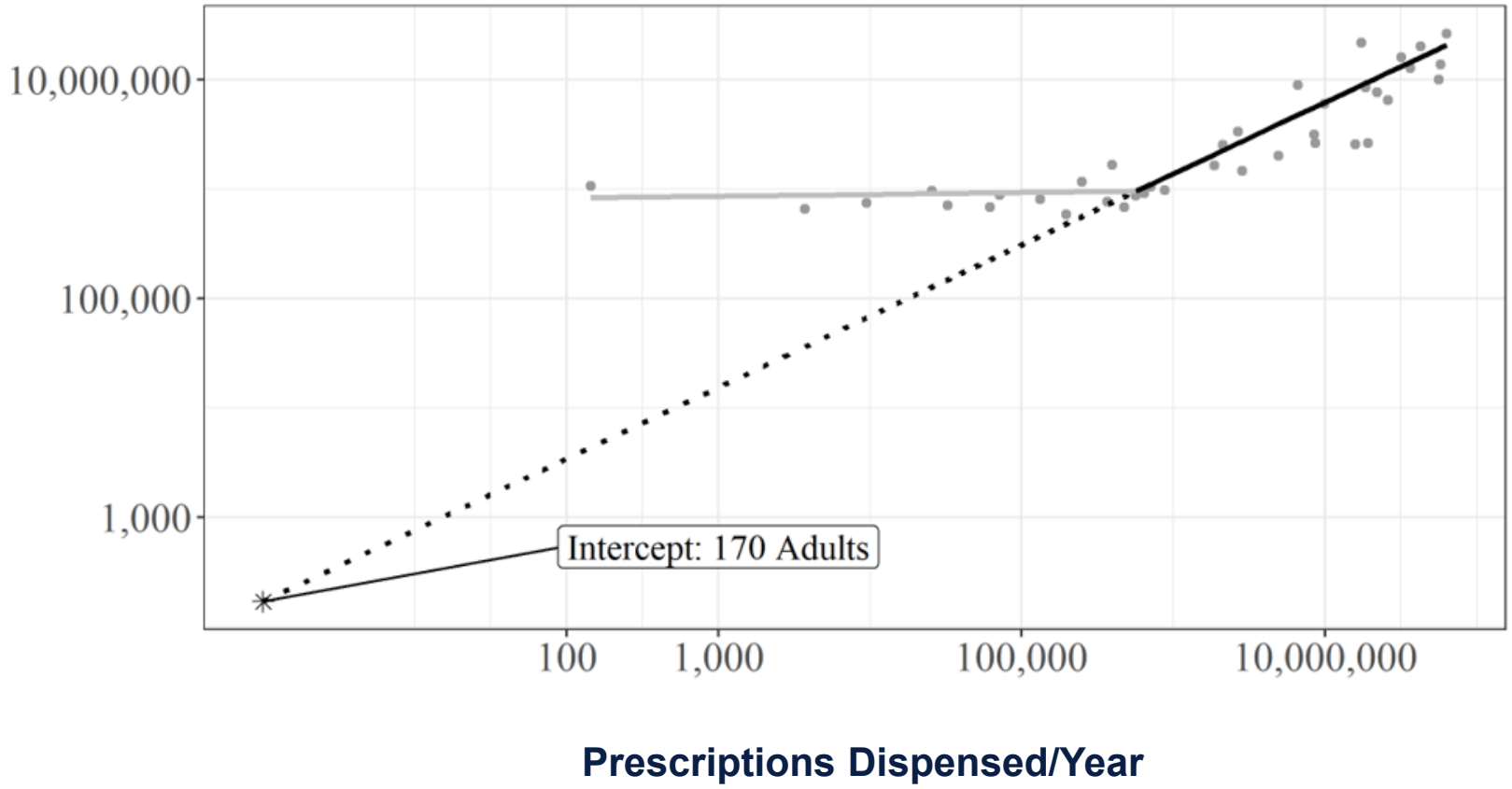
Black J, et al. Drug product dispensing and estimates of use in a general population survey as a signal detection problem. Pharmacoepidemiol Drug Safety, 2021

Black, *et al.* Results



Black J, et al. Pharmacoepidemiol Drug Safety, 2021

Validity of Model



Black J, et al. Pharmacoepidemiol Drug Safety, 2021

High Volume vs. Low Volume Pharmaceuticals

- Higher Volume Pharmaceuticals (above threshold)
  - Quantitative prevalence and trend analysis
- Lower Volume Pharmaceuticals (below threshold)
  - Non-representative national sample
  - Analyze individual cases
  - Qualitative methods
  - Example oxymorphone
    - Contact individuals in f/u to Poison Center, NMURx, and Survey of Key Informants' Patients Programs

2021 Program

Postmarketing Surveillance: What's the Next Move?

Richard C. Dart, MD, PhD

Executive Director, RADARS® System, Denver Health and Hospital Authority
President, Canadian Consumer Product and Pharmaceutical Safety Inc.

Meeting the Challenges of COVID-19 in Postmarketing Surveillance

Janetta L. Iwanicki, MD

Chief Scientific Officer, Research and Consulting, Rocky Mountain Poison & Drug Safety, Denver Health and Hospital Authority

2021 Program

Defining Populations of Interest for Postmarketing Studies

Nabarun Dasgupta, PhD

Senior Scientist and Innovation Fellow, Gillings School of Global Public Health, University of North Carolina in Chapel Hill
Consultant – RADARS® System

The Rest of the Story: Other Drugs Misused in the United States

Janetta Iwanicki, MD

Chief Scientific Officer, Research and Consulting, Rocky Mountain Poison & Drug Safety, Denver Health and Hospital Authority

2021 Program

Prescribing and Over-The-Counter Drugs; A Vast Range of Misusing Opportunities

Professor Fabrizio Schifano

Chair in Clinical Pharmacology and Therapeutics
Consultant Psychiatrist (Addictions); Psychopharmacology, Drug Misuse and Novel Psychoactive Substances Research Unit, School of Life and Medical Sciences, University of Hertfordshire, UK

Understanding Stimulant Use in the General Population: Prevalence and Patterns of Non-Medical Use

Joshua C. Black, PhD

Senior Research Scientist, Rocky Mountain Poison & Drug Safety, Denver Health and Hospital Authority

2021 Program

It's Not Easy Being Buprenorphine: Identifying Unique Substance Use Patterns Associated with Buprenorphine

Matthew Ellis, PhD(c)

Principal Investigator, RADARS® System Survey of Key Informants' Patients
Research Faculty Instructor, Washington University School of Medicine

Changes in Diversion of Buprenorphine and Gabapentin in the U.S.

Mance E. Buttram, PhD

Associate Professor, Nova Southeastern University
Associate Director, Center for Applied Research on Substance Use and Health Disparities

2021 Program

FDA's Holistic Approach to Addressing Polysubstance Use and the Drug Overdose Crisis

Marta Sokolowska, PhD

Associate Director for Controlled Substances, Office of the Center Director, Center for Drug Evaluation & Research, Food & Drug Administration

Panel Discussion and Summary