

# Managing Concurrent Stimulant Use Disorder and OUD

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# Financial Disclosure

- I have no disclosures to report

# Learning Objectives

- Become familiar with epidemiology of stimulant use in patients on MOUD
- Understand barriers to treatment of patients with stimulant use disorder
- Understand available treatments for stimulant use disorder

# Outline

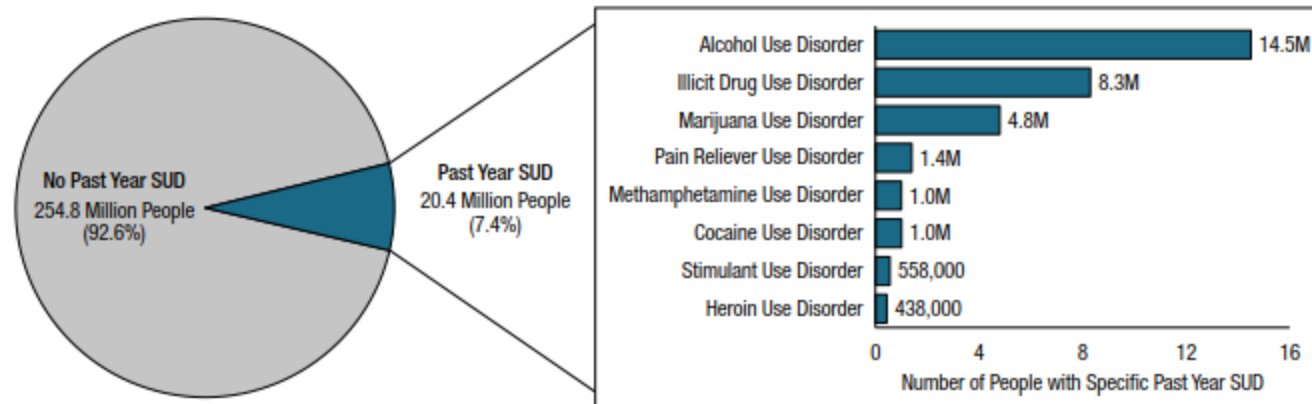
- Epidemiology
- Challenges in the treatment of stimulant use disorder
- Pharmacological treatment
- Psychosocial treatment
- Summary

# What are stimulants

- Cocaine
- Amphetamine/Methamphetamine
- Cathinones

# Cocaine Epidemiology

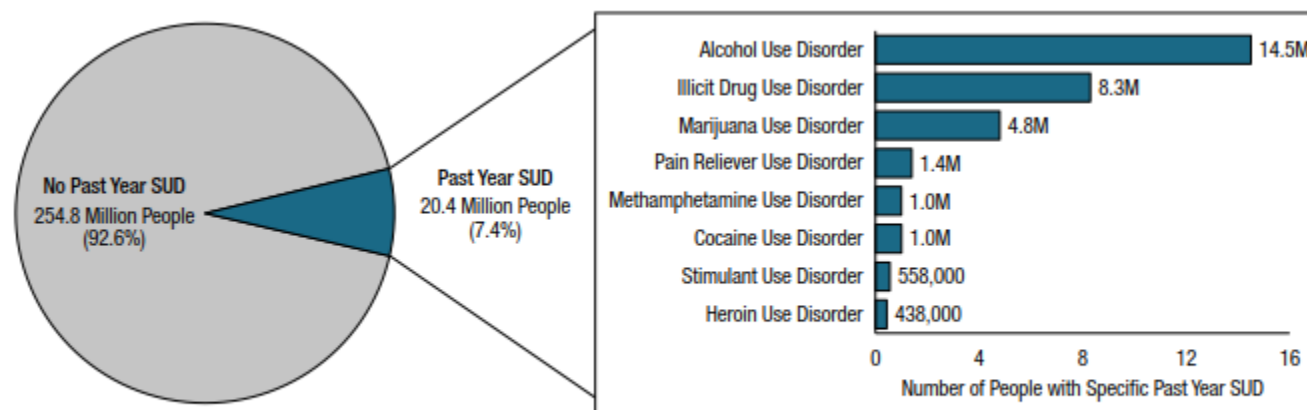
- 18.2 million worldwide
- 5.5 million people in USA in past year
- 2 percent
- Availability limited by distribution
- About 1 million with cocaine use disorder
- Most commonly 18-25 year olds



Note: The estimated numbers of people with substance use disorders are not mutually exclusive because people could have use disorders for more than one substance.

# Methamphetamine Epidemiology

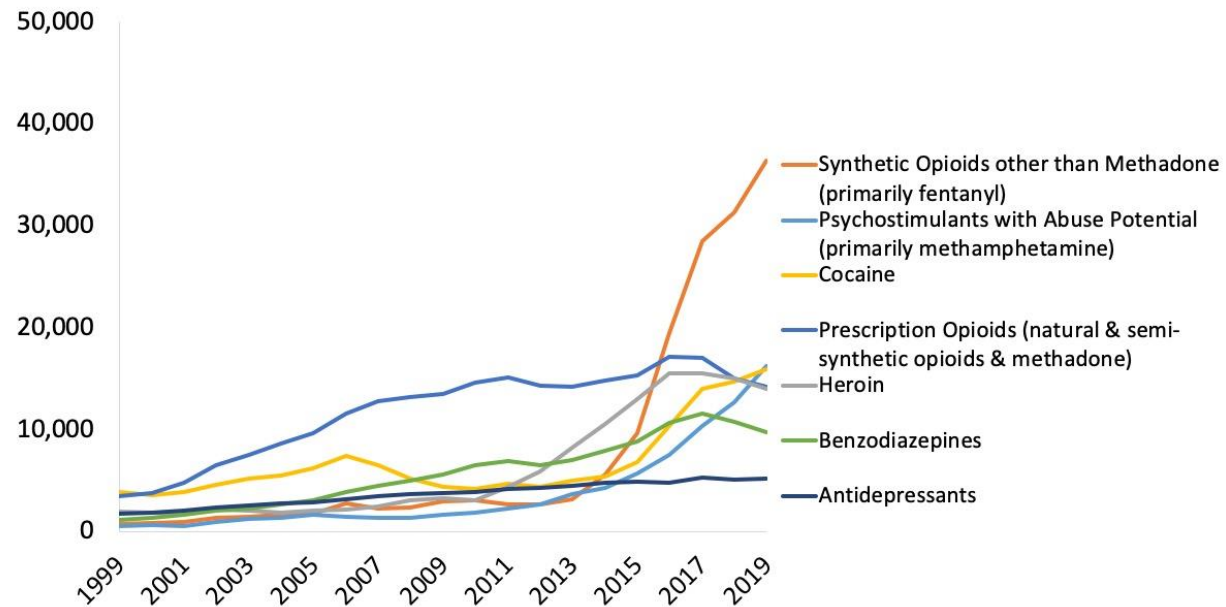
- 29 million in last year globally
- 2 million people in the last year in United States
- 0.7 percent
- Primarily illicit
- About 1 million with amphetamine use disorder
- Most commonly > 26 y/o



Note: The estimated numbers of people with substance use disorders are not mutually exclusive because people could have use disorders for more than one substance.

# Epidemiology

**Figure 2. National Drug-Involved Overdose Deaths\*,  
Number Among All Ages, 1999-2019**

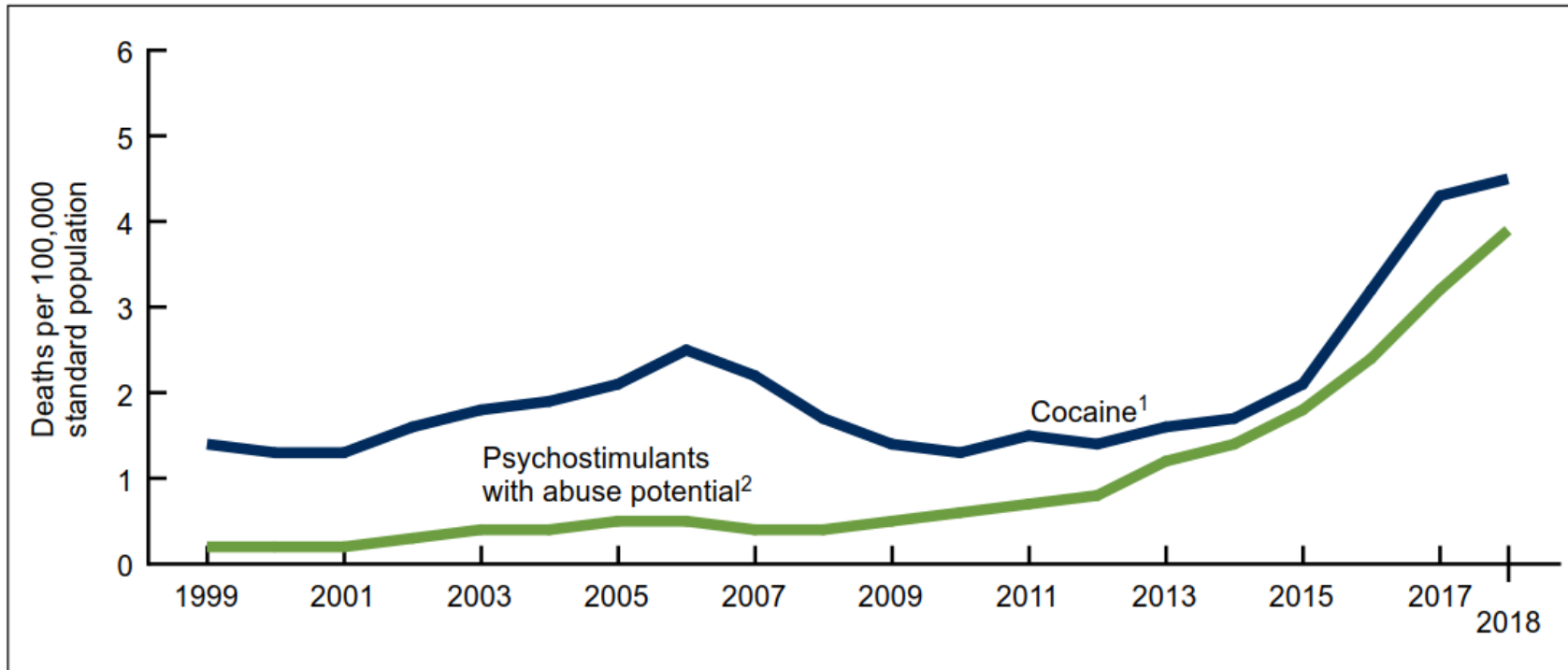


\*Includes deaths with underlying causes of unintentional drug poisoning (X40–X44), suicide drug poisoning (X60–X64), homicide drug poisoning (X85), or drug poisoning of undetermined intent (Y10–Y14), as coded in the International Classification of Diseases, 10th Revision. Source: Centers for Disease Control and Prevention, National Center for Health Statistics. Multiple Cause of Death 1999-2019 on CDC WONDER Online Database, released 12/2020.



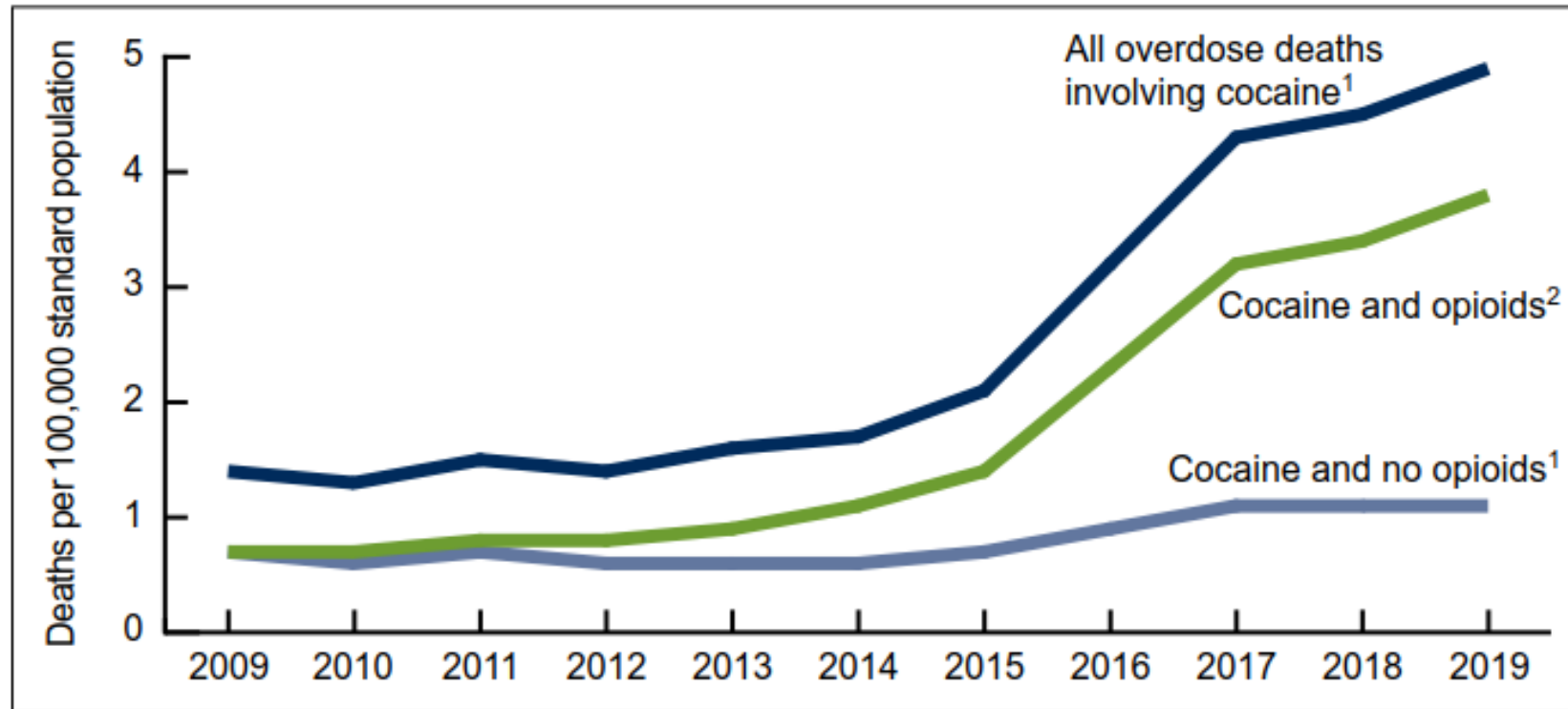
# Epidemiology

Figure 4. Age-adjusted drug overdose death rates involving stimulants, by type of stimulant: United States, 1999–2018



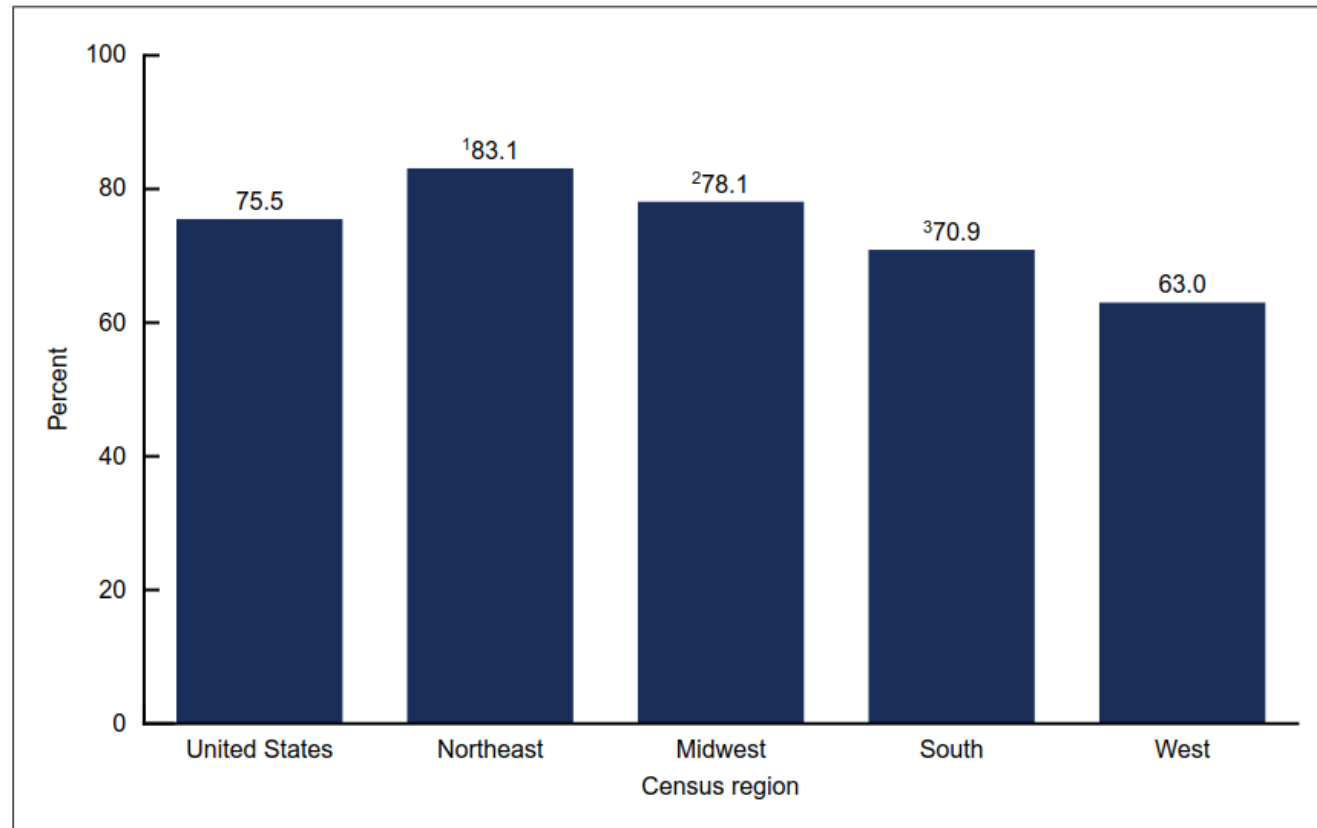
# Epidemiology

Figure 1. Age-adjusted rates of overdose deaths involving cocaine, by concurrent involvement of opioids: United States, 2009–2019



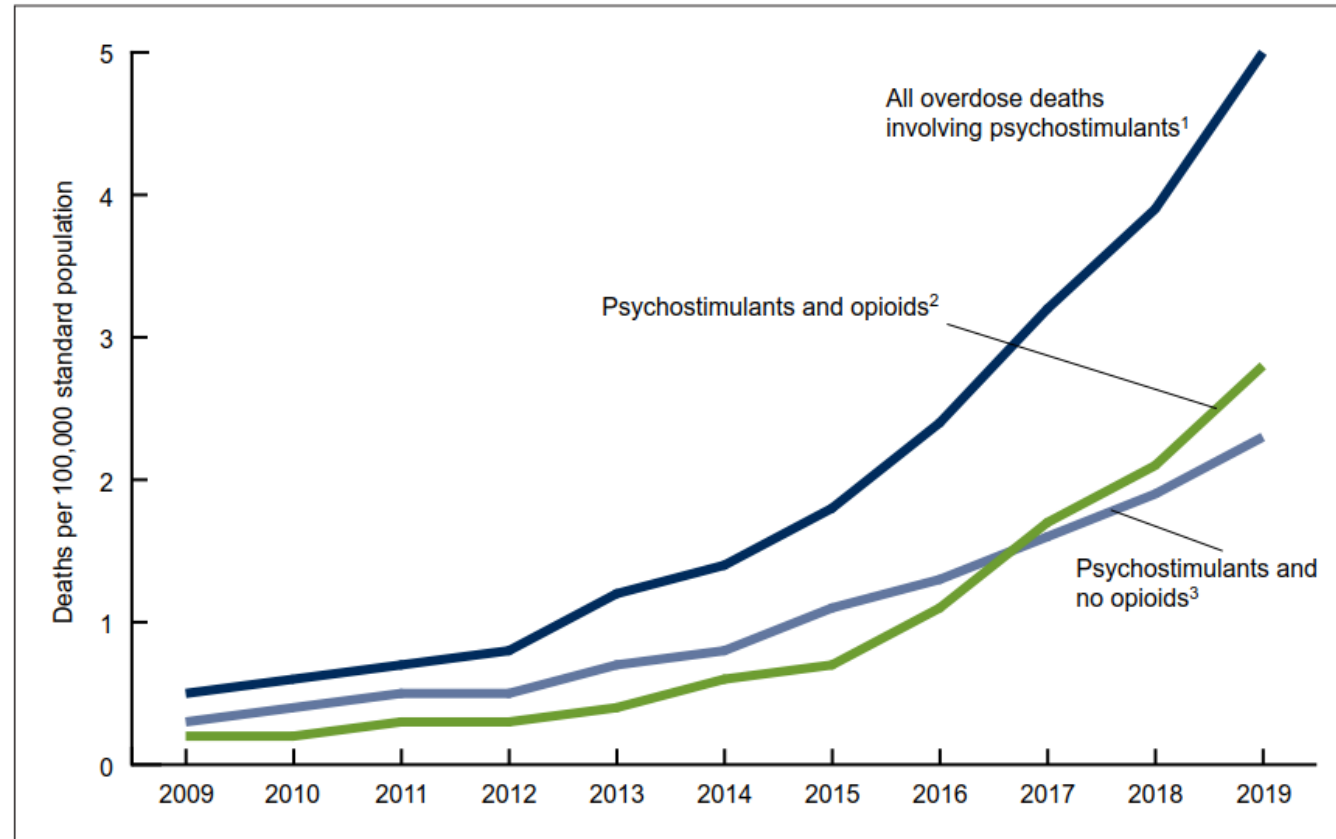
# Epidemiology

Figure 2. Percentage of overdose deaths involving cocaine with concurrent involvement of opioids, by census region: United States, 2019



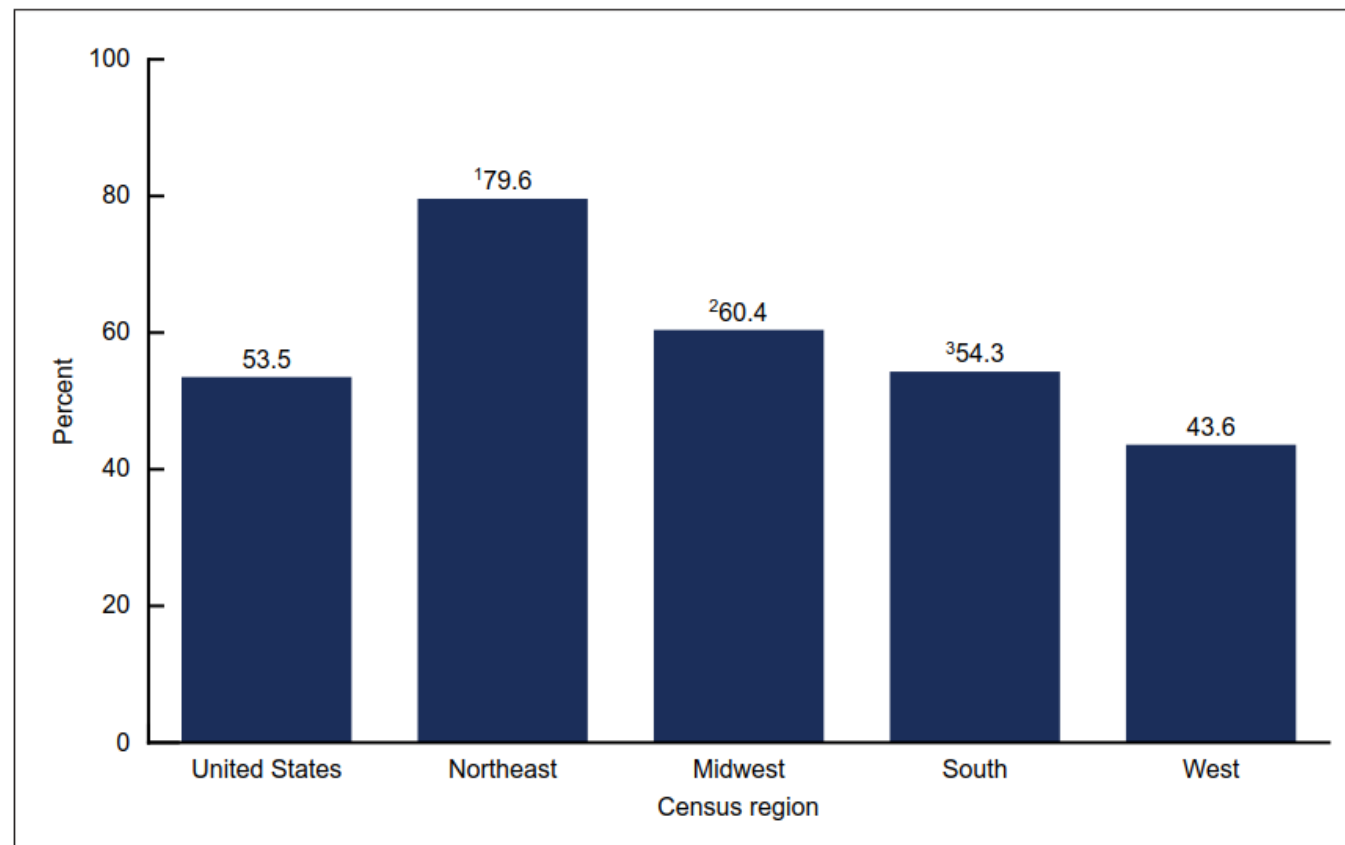
# Epidemiology

Figure 3. Age-adjusted rates of overdose deaths involving psychostimulants, by concurrent involvement of opioids: United States, 2009–2019



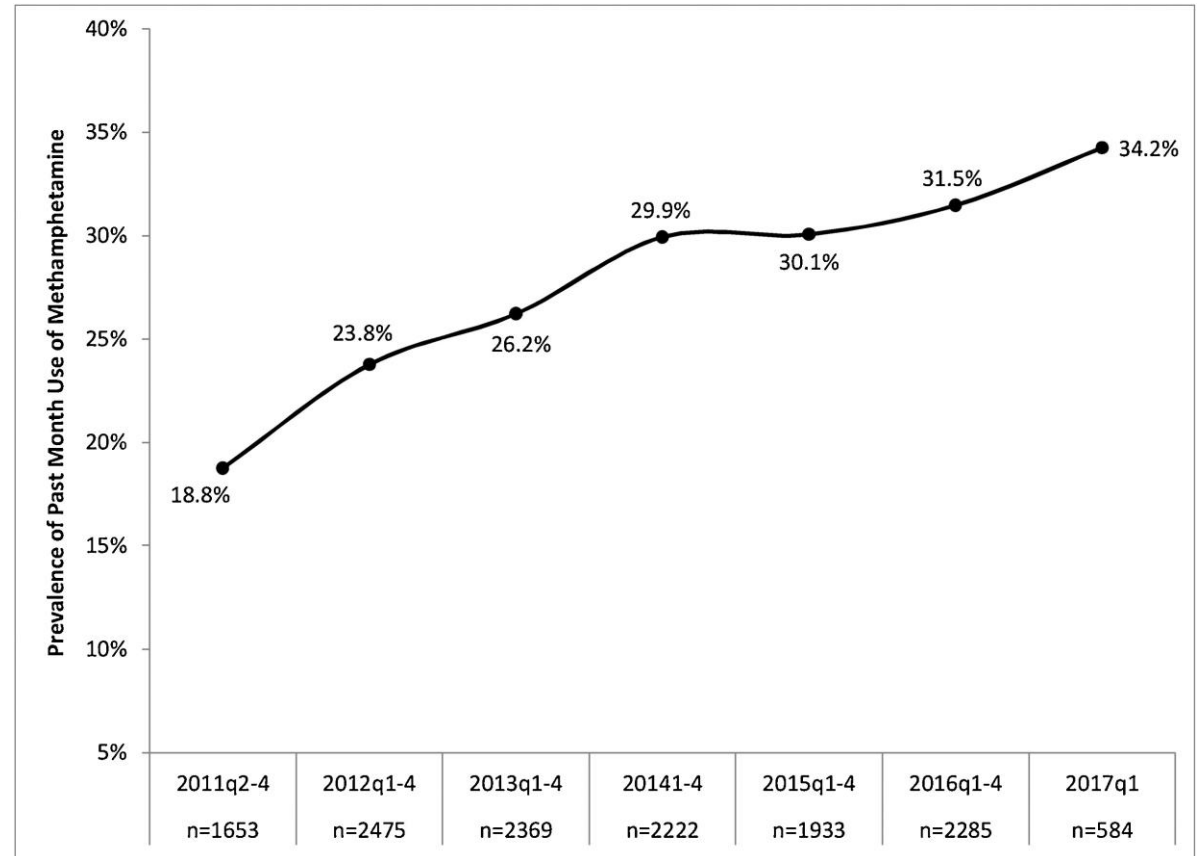
# Epidemiology

Figure 4. Percentage of overdose deaths involving psychostimulants with concurrent involvement of opioids, by census region: United States, 2019



# Epidemiology

- Methamphetamine
- 19% 2011 → 34% 2017



# Impact of concurrent stimulant use

## Association between methamphetamine use and retention among patients with opioid use disorders treated with buprenorphine



Judith I. Tsui<sup>a,\*</sup>, Jim Mayfield<sup>b</sup>, Elizabeth C. Speaker<sup>b</sup>, Sawir Yakup<sup>b</sup>, Richard Ries<sup>e</sup>, Harvey Funai<sup>d</sup>, Brian G. Leroux<sup>c</sup>, Joseph O. Merrill<sup>a</sup>

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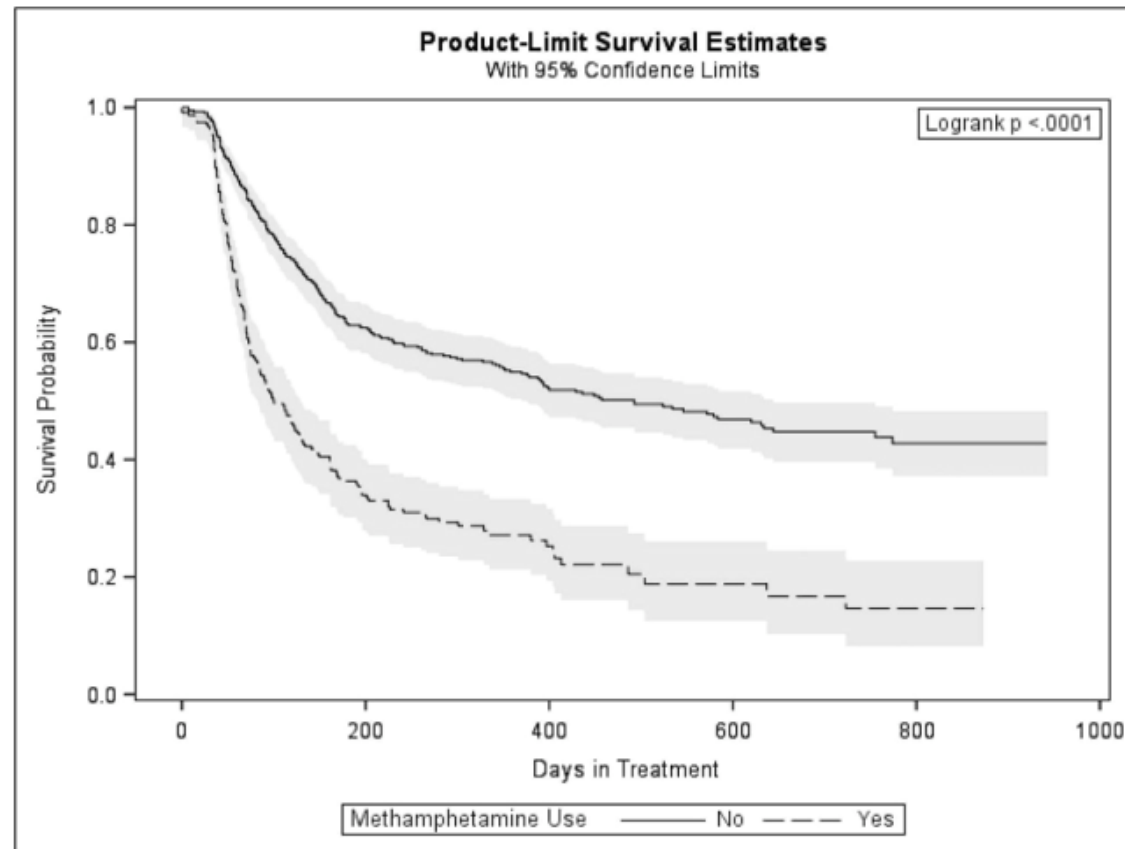
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- 30 percent of patients entered with amphetamine use

# Impact of concurrent stimulant use





# Impact of concurrent stimulant use

RESEARCH ARTICLE

## Retention of patients in opioid substitution treatment: A systematic review

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# Motivation for treatment

## Interest in reducing methamphetamine and opioid use among syringe services program participants in Washington State



Vanessa M McMahan<sup>a,b,\*</sup>, Susan Kingston<sup>c</sup>, Alison Newman<sup>c</sup>, Joanne D. Stekler<sup>a,d,e</sup>,  
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# Medication Treatments

- Characterized largely by failure
- No FDA approved medications

# Treatments

## Topiramate for cocaine dependence: a systematic review and meta-analysis of randomized controlled trials

**Mohit Singh<sup>1,6</sup>, Dipinder Keer<sup>1,7</sup>, Jan Klimas<sup>1,2,4</sup>, Evan Wood<sup>2,5</sup> & Dan Werb<sup>2,3</sup>**

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# Treatments

## **Topiramate for Cocaine Dependence during Methadone Maintenance Treatment: A Randomized Controlled Trial**

**Annie Umbricht, Anthony DeFulio, Erin L. Winstanley, D. Andrew Tompkins, Jessica Peirce, Miriam Z. Mintzer, Eric C. Strain, and George E. Bigelow**

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# Treatments



CNS Drugs (2020) 34:337–365

<https://doi.org/10.1007/s40263-020-00711-x>

SYSTEMATIC REVIEW



## Pharmacological Treatment of Methamphetamine/Amphetamine Dependence: A Systematic Review

Krista J. Siefried<sup>1,2,3</sup>  · Liam S. Acheson<sup>2</sup>  · Nicholas Lintzeris<sup>4,5,6</sup>  · Nadine Ezard<sup>1,2,3,6</sup> 

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# Treatments

- Tricyclic antidepressants
  - Comorbid depression common
  - Desipramine most studied
- SSRIs
- MAOIs

# Treatments

- Bromocriptine
- Amantadine



# Treatments

- Stimulants
- Trials of
  - Dextroamphetamine
  - Methylphenidate
  - Modafinil

# Treatments

- Cocaine Vaccine



# Treatment

- Buprenorphine as Potential treatment for AUD
  - Data from the 1989 in Rhesus monkeys
  - 1991 in Long Evans Rats



# Buprenorphine

- 40 participants
- Randomized, double blind

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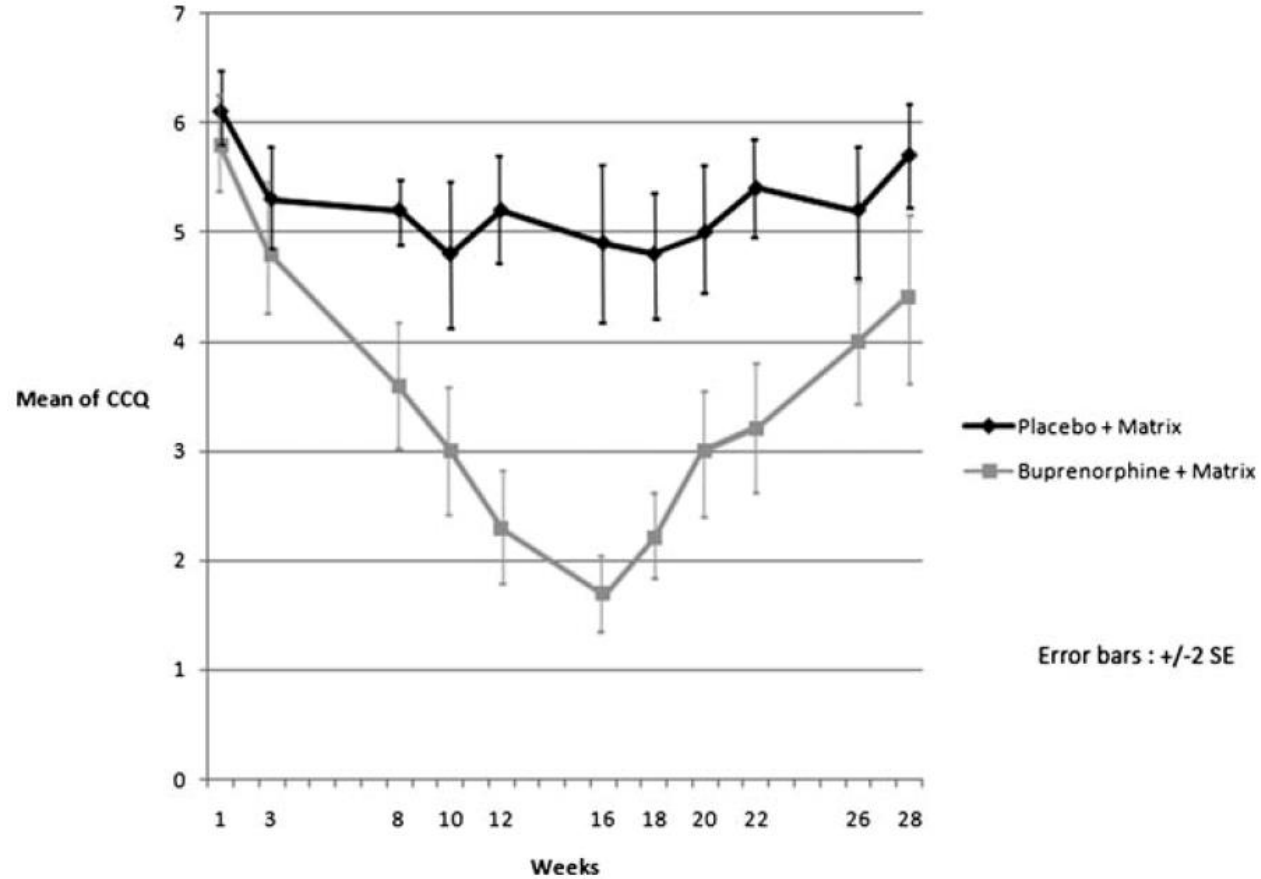
## BRIEF REPORT

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### The Effect of Buprenorphine on Methamphetamine Cravings

*Mehrdad Salehi, MD,\* Alireza Emadossadat, MD,\* Gholam Reza Kheirabadi, MD,†  
Mohammad Reza Maracy, PhD,‡ and Mohammad Reza Sharbafchi, MD\**

# Buprenorphine



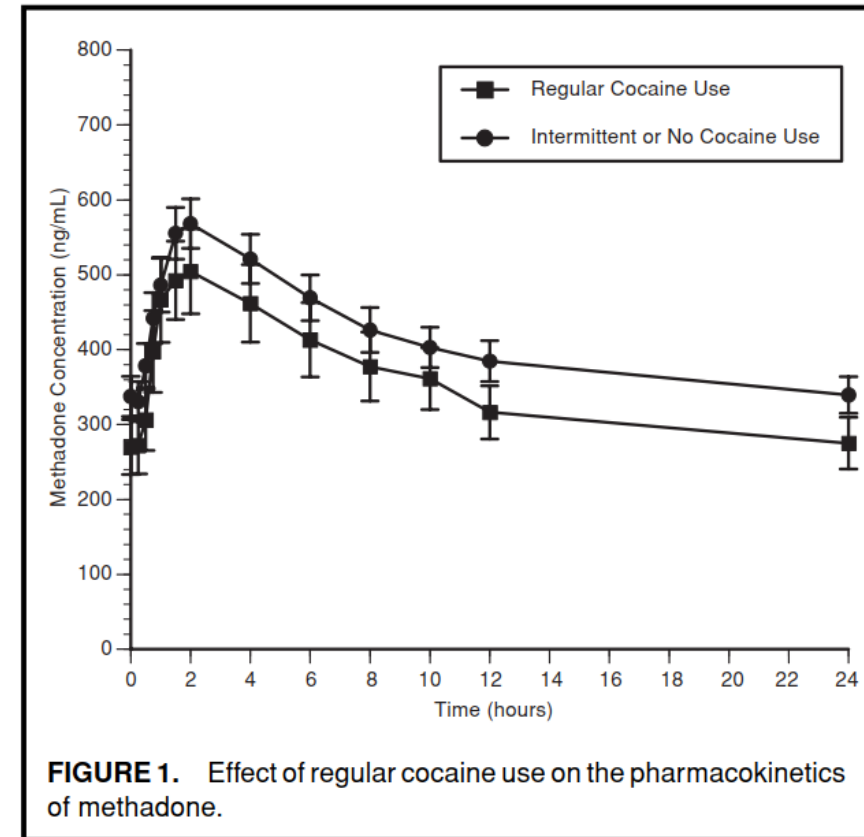
# Buprenorphine

**TABLE 2.**  $\chi^2$  Test Results for Comparing the Ratio of Positive METH Urine Tests in Both Groups

	<b>Urine Test</b>	<b>Placebo Group, n (%)</b>	<b>Intervention Group, n (%)</b>	<b>P</b>
Week 3 (second visit)	Positive	17 (58.6)	10 (45.5)	0.351
Week 8 (third visit)	Positive	16 (64.0)	0 (0.0)	<0.001
Week 10 (fourth visit)	Positive	14 (58.3)	2 (10.0)	<0.001
Week 12 (fifth visit)	Positive	13 (61.9)	0 (0)	<0.001
Week 16 (sixth visit)	Positive	14 (70.0)	0 (0)	<0.001
Week 18 (seventh visit)	Positive	11 (55.0)	1 (5.0)	0.001
Week 20 (eighth visit)	Positive	10 (50.0)	3 (15.0)	0.018
Week 22 (ninth visit)	Positive	14 (70.0)	6 (30.0)	0.011
Week 26 (10th visit)	Positive	16 (80.0)	9 (45.0)	0.022
Week 28 (11th visit)	Positive	16 (80.0)	13 (65.0)	0.288

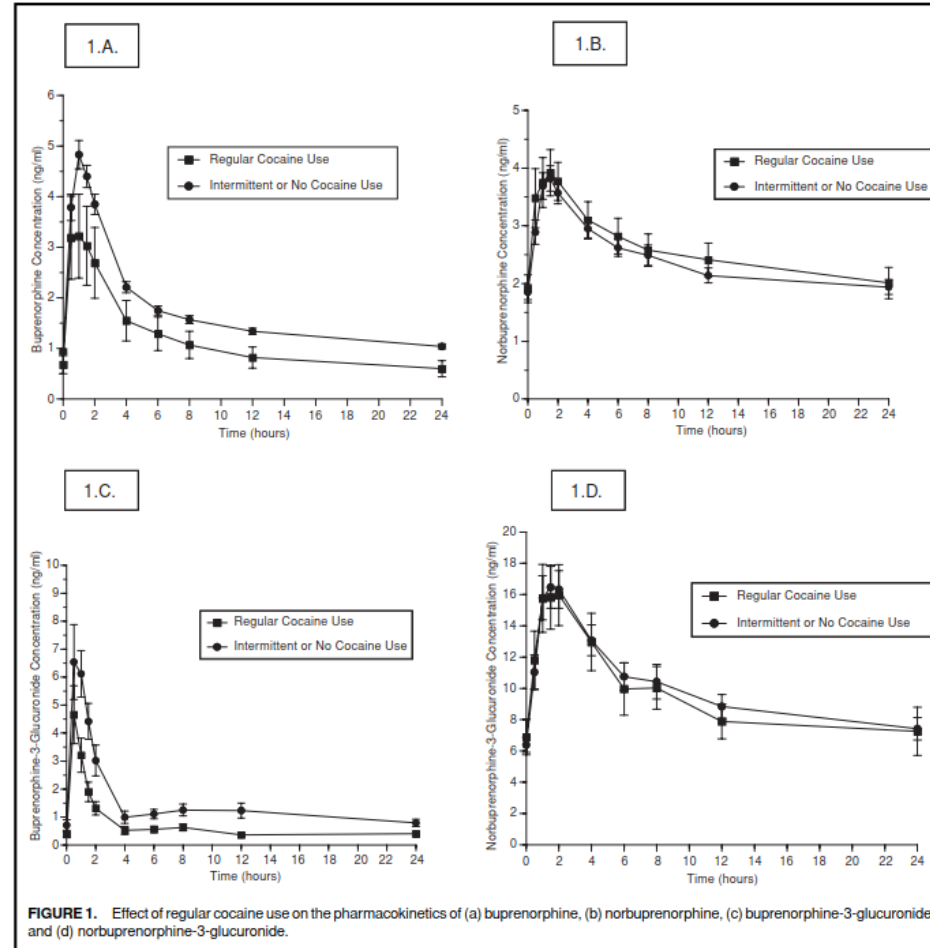
# Cocaine and Methadone Drug Interactions

Pharmacokinetic parameter	Cocaine (+) (N = 16)	Cocaine (-) (N = 23)	p value
<b>Methadone</b>			
AUC <sub>0-24</sub> (ng*h/ml)*	8,304 (587)	9,905 (649)	.09
Cl/F (L/h)*	10.5 (.9)	8.8 (.5)	.08
C <sub>max</sub> (ng/ml)*	519 (35)	588 (39)	.22
T <sub>max</sub> (h)*	1.5 (1.0-4.0)	2.0 (1.0-4.0)	.13
C <sub>24</sub> (ng/ml)	271 (23)	342 (23)	.04



# Cocaine and Buprenorphine Drug Interactions

- Add Details
- Add Details
- Add Details



McCance-Katz EF, 2009



# Treatments

- Psychotherapy
- Matrix Model
  - Combines multiple types of therapy
  - Individual
  - Group
  - Family
  - *Contingency Management*
  - Management of co-occurring disorders

# Treatments

- Multiple meta-analyses/systematic reviews of psychosocial treatments
- DeCrescenzo, et al 2018
- Farrell et al, 2019
- AshaRani et al 2020
- Brown and DeFulio 2020

# Treatments

- If contingency management is so effective, why is it not available?

# Summary

- Stimulant use amongst patients on MOUD is significant and increasing
- There are no FDA approved medications for stimulant use disorder
- Contingency management is effective but largely unavailable
- Mainstay of treatment remains other psychosocial interventions

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# Thank you!

## Questions & Discussion

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