WEBINAR

Stimulant Use Disorder:

Evidence-Based Interventions and Promising Approaches to Treatment

APRIL 16, 2026, 1 PM EST

Stephen T. Higgins, Ph.D
Vermont Center on Behavioral Health

William W. Stoops, Ph.D
University of Kentucky

Redonna Chandler, Ph.D
Addiction Policy Forum

addictionpolicy.org

ADDICTION POLICY FORUM

STIMULANT USE DISORDER: DIAGNOSIS, EPIDEMIOLOGY AND PHARMACOLOGICAL TREATMENTS

WILLIAM W. STOOPS, PHD

WILLIAM.STOOPS@UKY.EDU

REQUIRED DISCLOSURE: I AM SPEAKING IN MY PERSONAL CAPACITY IN MY AREA OF EXPERTISE. THE VIEWS EXPRESSED HEREIN ARE MY OWN AND DO NOT REPRESENT THE OFFICIAL VIEWS OF THE UNIVERSITY OF KENTUCKY.

STIMULANT USE DISORDER DIAGNOSIS

Commonly diagnosed using Diagnostic and Statistical Manual, 5th Edition (DSM-5) criteria

- Amphetamine-type
- Cocaine
- Other

Structured clinical interview by a trained professional

Classified as Mild (2-3 symptoms), Moderate (4-5 symptoms), Severe (6+)

- Last 12 months

Can also be diagnosed using International Classification of Diseases, 11th Revision (ICD-11)

- Similar approach

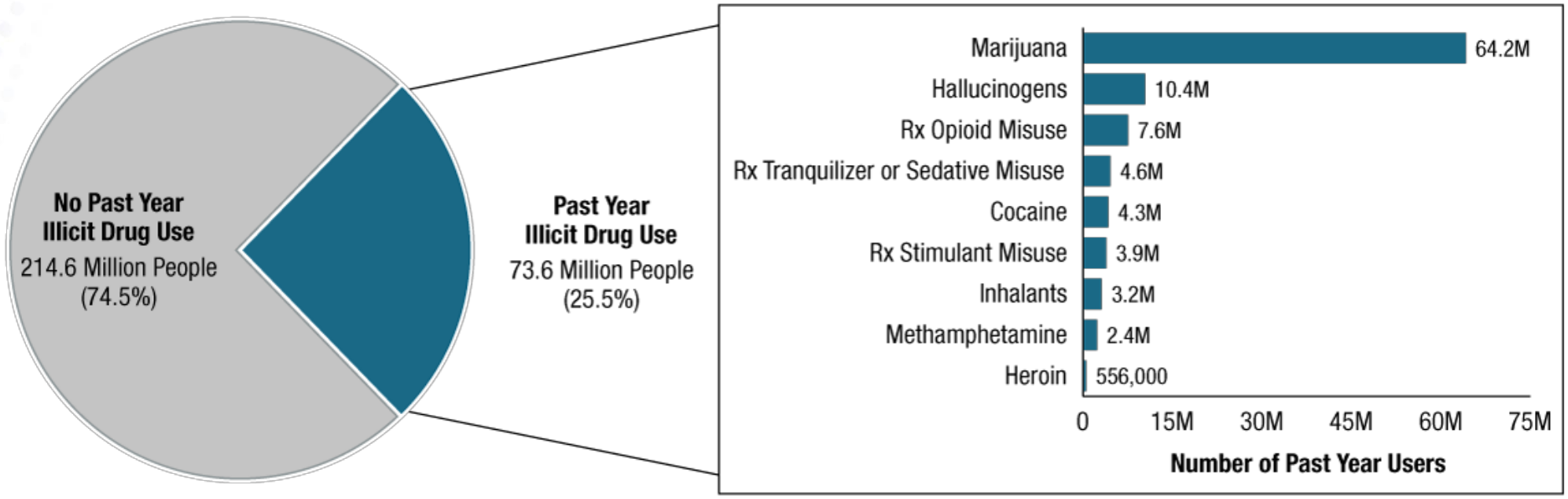
STIMULANT USE DISORDER DIAGNOSIS

Eleven Criteria

- Taking more stimulants than intended or using longer than intended
- Desire to cut down or stop use of stimulants, but inability to do so
- Spending lots of time to get stimulants, use stimulants or recover from use
- Craving stimulants
- Failure to fulfill work, home, school obligations because of stimulant use
- Continued stimulant use in the face of relationship problems
- Giving up important activities because of stimulant use
- Using stimulants in harmful situations
- Continuing to use stimulants even when it's known to cause problems
- Needing to use more stimulants to get high
- Development of withdrawal that is alleviated by stimulant use

EPIDEMIOLOGY: NATIONAL SURVEY ON DRUG USE AND HEALTH*

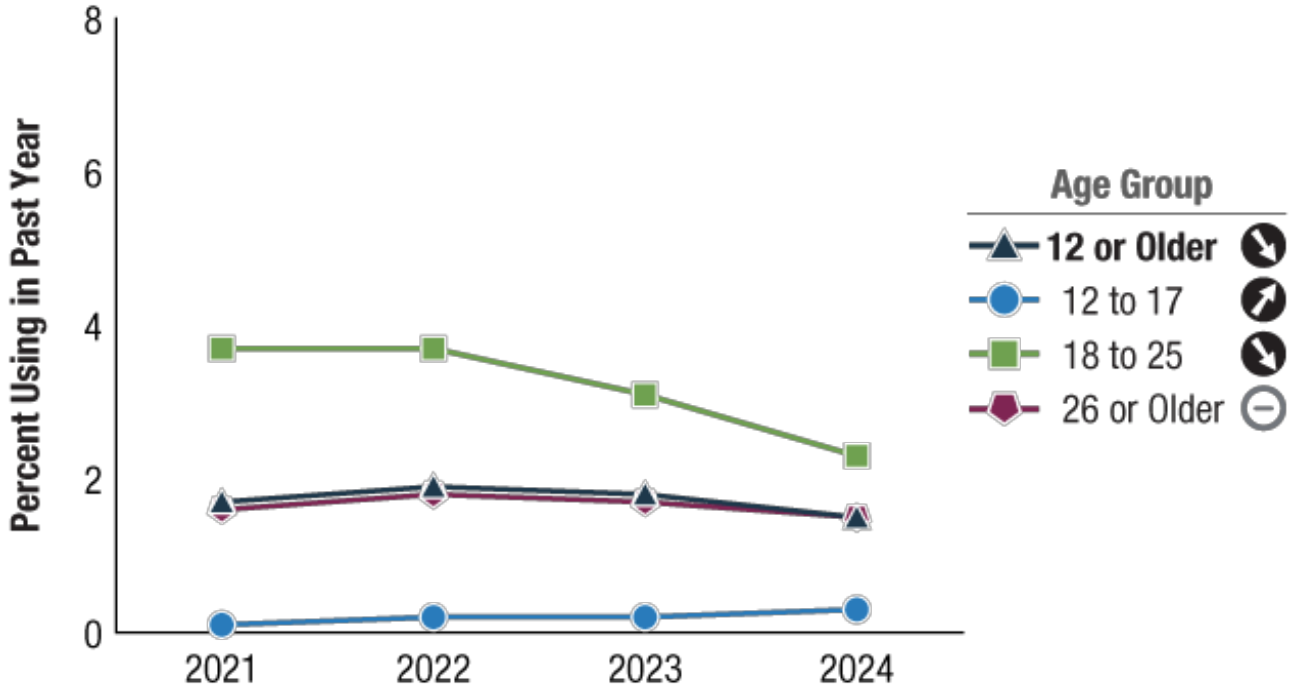
SAMHSA, 2025



*Likely an underestimate of national drug use due to only surveying individuals with stable housing

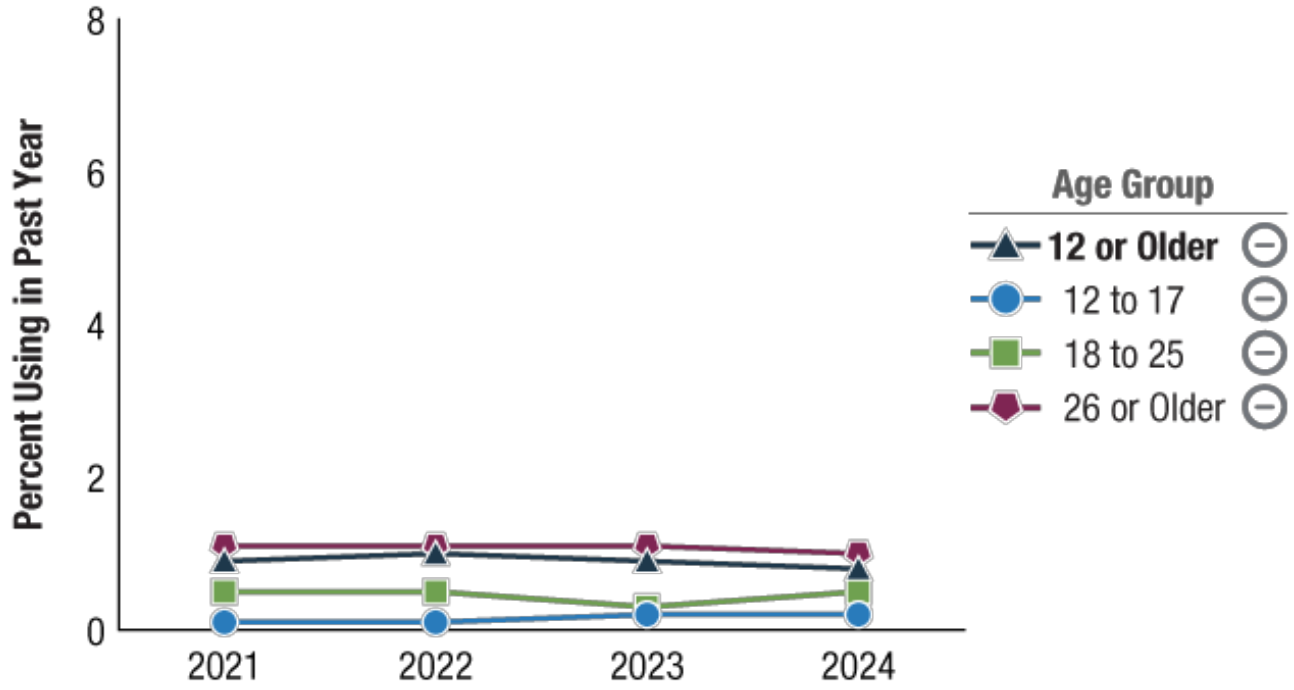
EPIDEMIOLOGY: COCAINE

SAMHSA, 2025



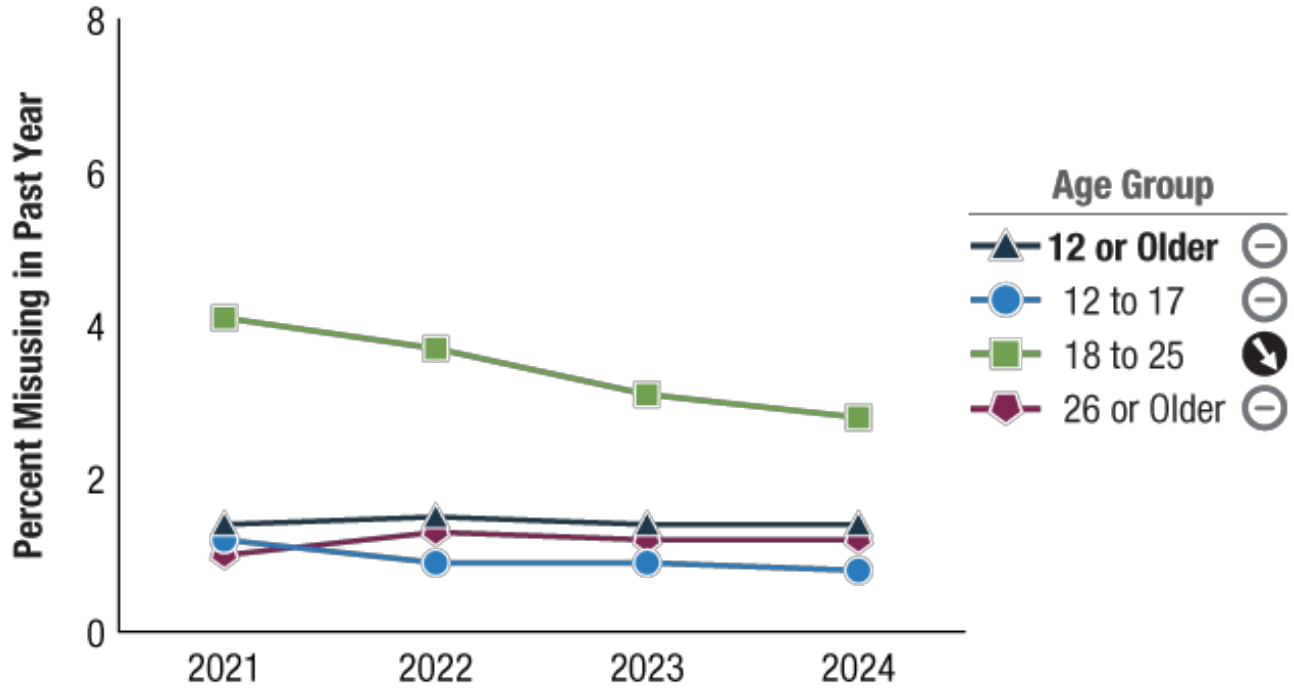
EPIDEMIOLOGY: METHAMPHETAMINE

SAMHSA, 2025



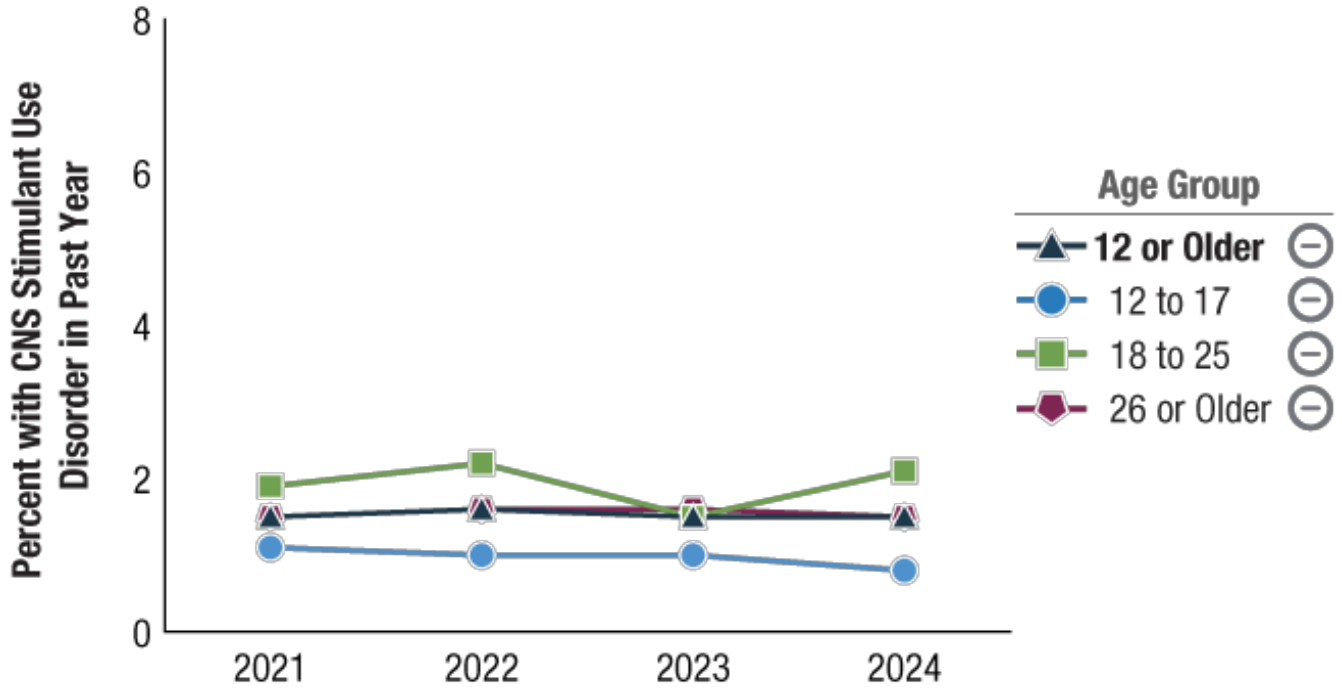
EPIDEMIOLOGY: PRESCRIPTION STIMULANTS

SAMHSA, 2025



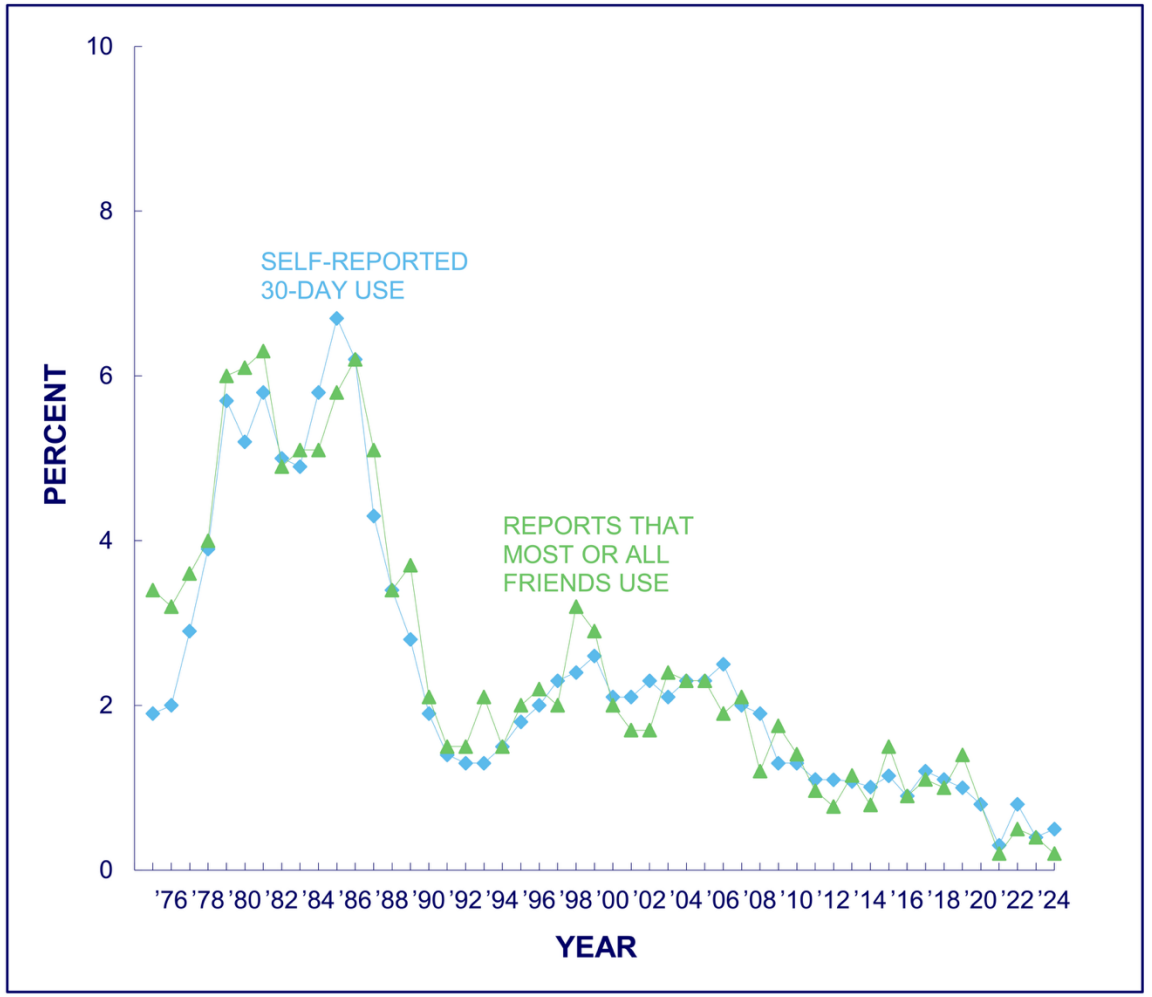
EPIDEMIOLOGY: STIMULANT USE DISORDER

SAMHSA, 2025



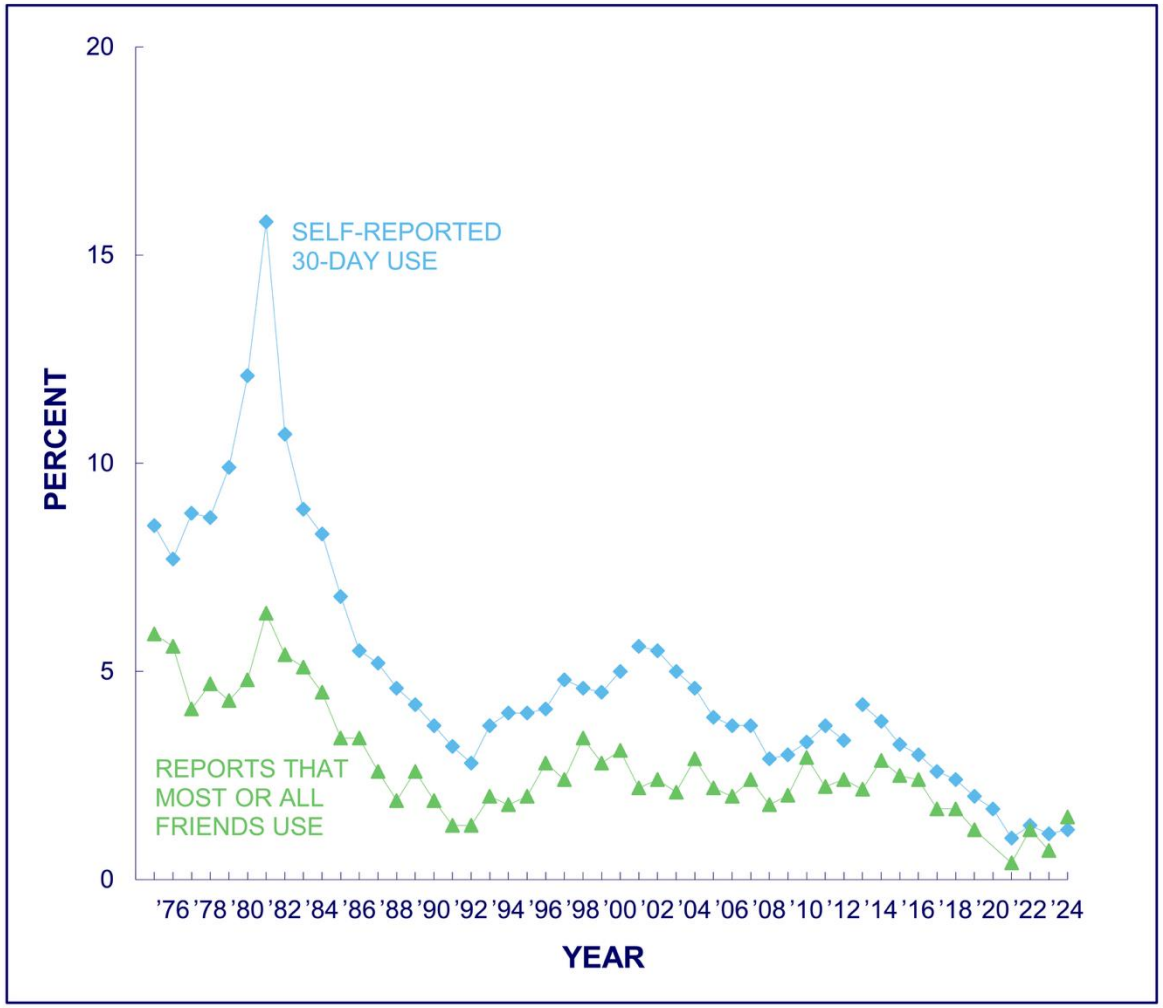
EPIDEMIOLOGY: YOUTH COCAINE USE

MIECH ET AL., 2025



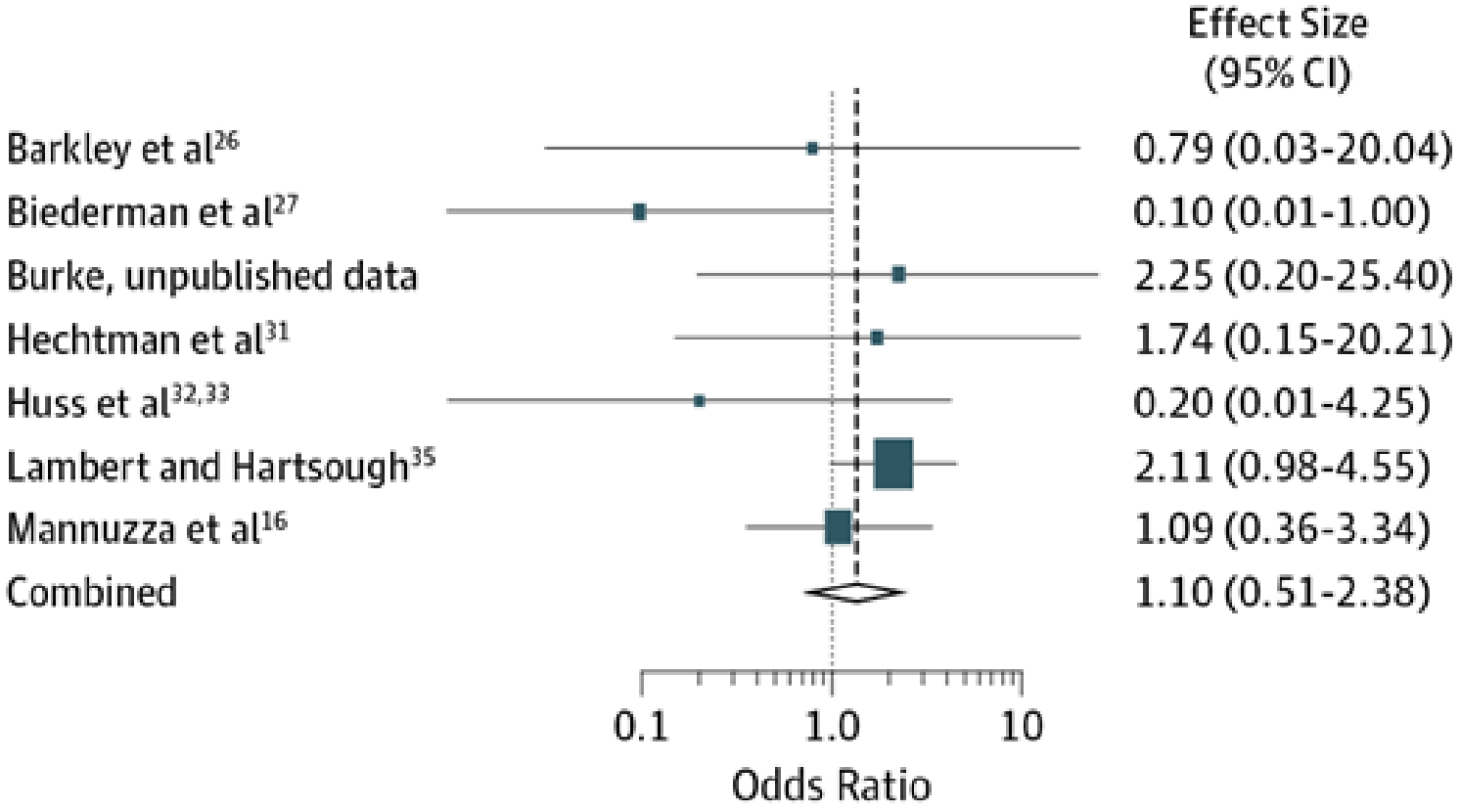
EPIDEMIOLOGY: YOUTH AMPHETAMINE USE

MIECH ET AL., 2025



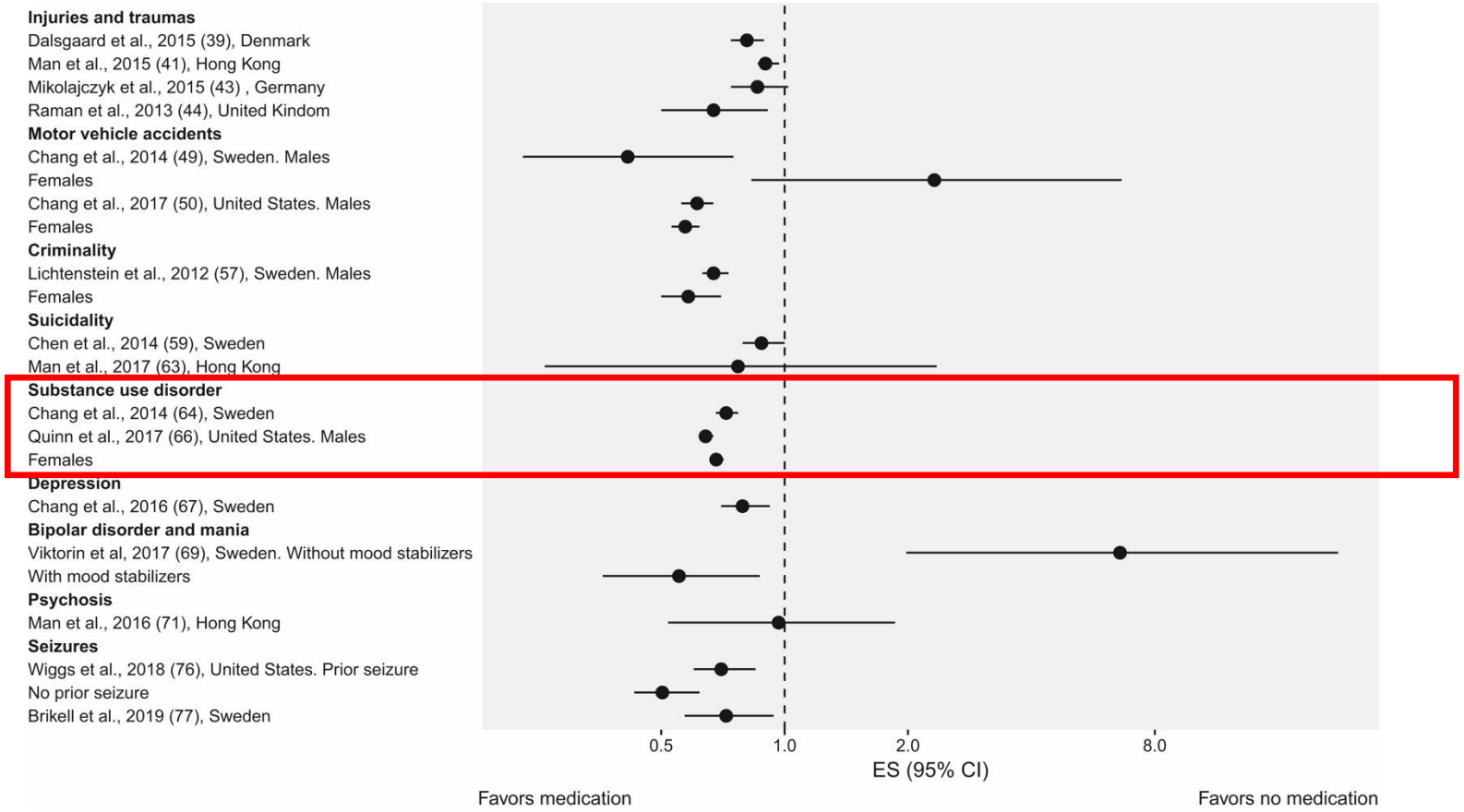
EPIDEMIOLOGY: RISK OF DEVELOPING STIMULANT USE DISORDER FOLLOWING ADHD MEDICATION PRESCRIPTION

HUMPHREYS ET AL., 2013

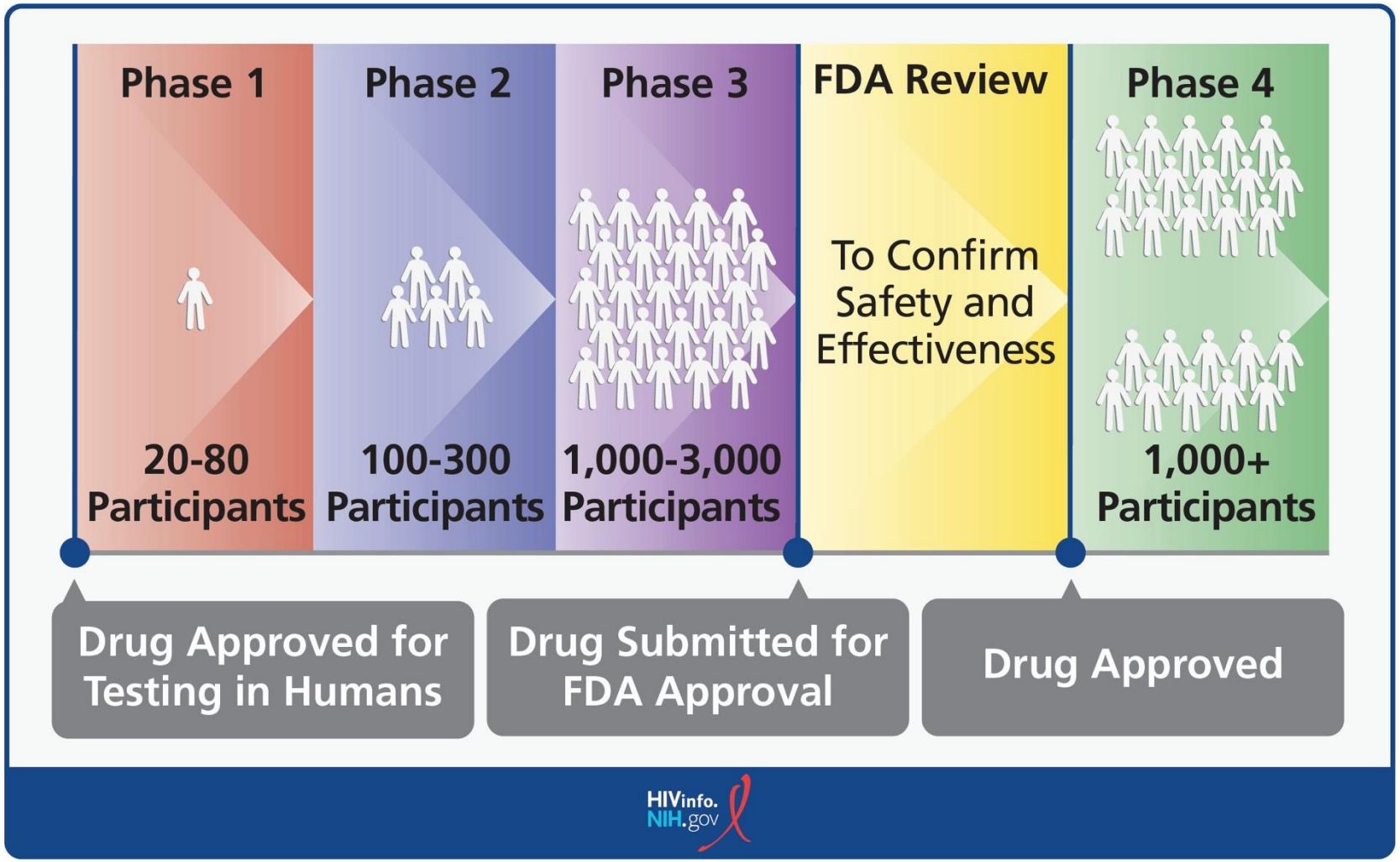


EPIDEMIOLOGY: RISK/BENEFIT OF ADHD MEDICATION TREATMENT

CHENG ET AL., 2019



DEVELOPING PHARMACOLOGICAL TREATMENTS FOR STIMULANT USE DISORDER



STATUS OF PHARMACOLOGICAL TREATMENTS FOR STIMULANT USE DISORDER

No FDA approved pharmacotherapy for stimulant use disorder

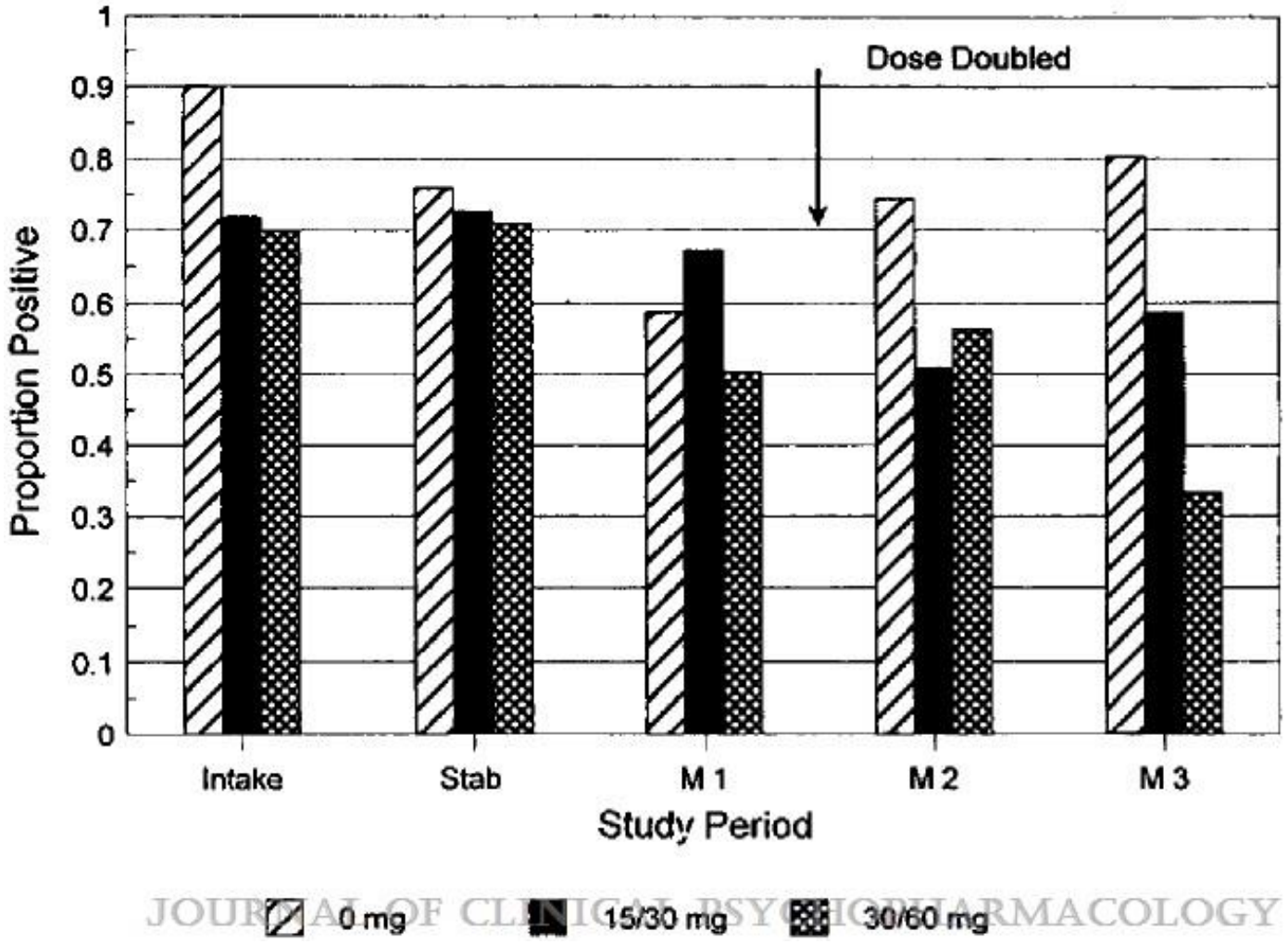
- None have met the bar of promoting complete abstinence
- Approximately 65 medications in over 100 trials for cocaine (Czoty et al., 2016)
- Approximately 25 medications in nearly 40 trials for methamphetamine (Johansen et al., Under Review)

Some drugs have efficacy based on Cochrane reviews

- Cocaine: disulfiram, dextroamphetamine, bupropion (Castells et al., 2016; Traccis et al., 2024)
- Amphetamine/methamphetamine: nothing current
  - Promising data with mirtazapine (Naji et al., 2022) and bupropion/naltrexone (Trivedi et al., 2021)

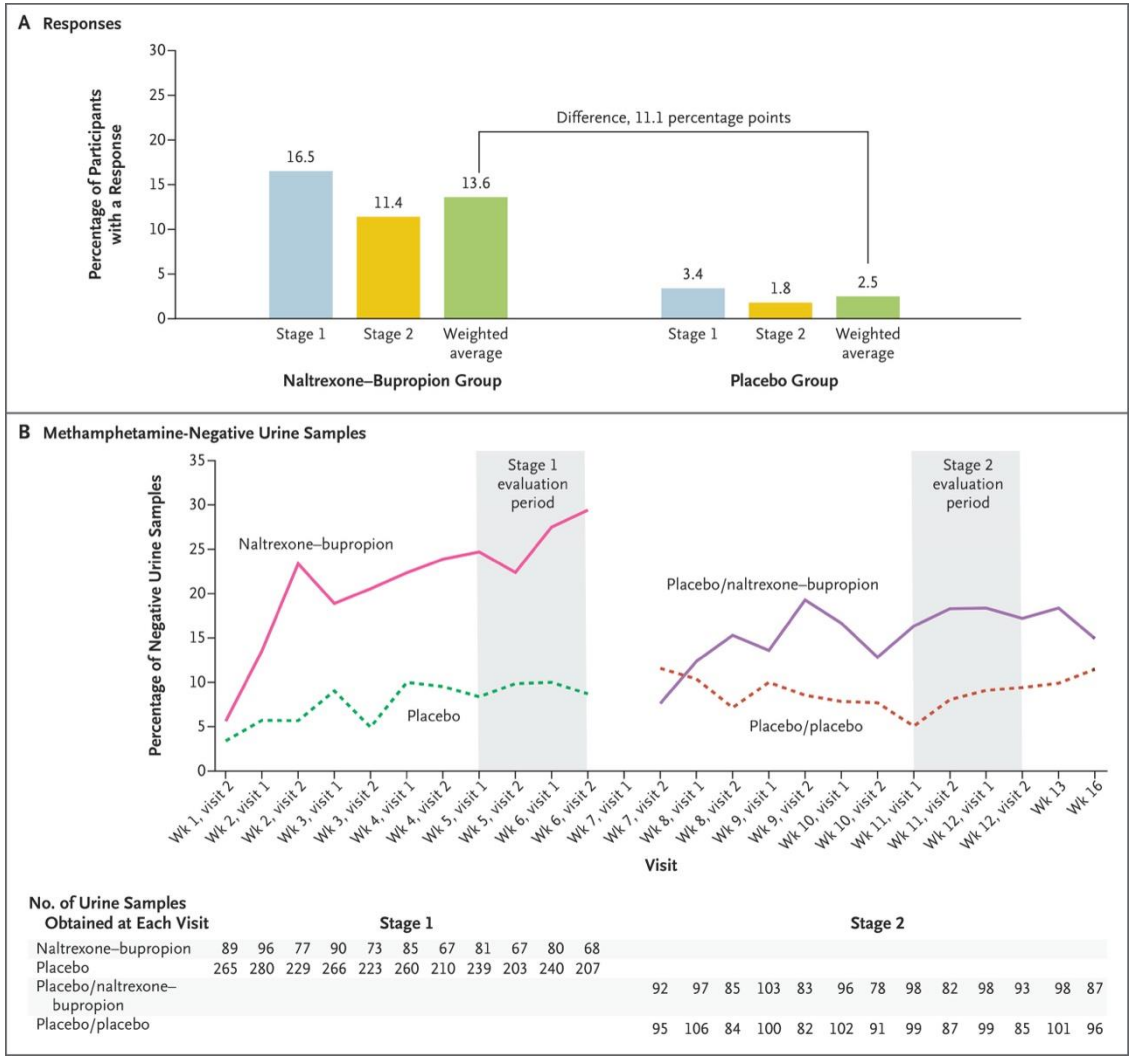
D-AMPHETAMINE FOR COCAINE USE DISORDER

GRABOWSKI ET AL., 2001



BUPROPION/NALTREXONE FOR METHAMPHETAMINE USE DISORDER

TRIVEDI ET AL., 2021



No. of Urine Samples Obtained at Each Visit	Stage 1											Stage 2											
Naltrexone–bupropion	89	96	77	90	73	85	67	81	67	80	68												
Placebo	265	280	229	266	223	260	210	239	203	240	207												
Placebo/naltrexone–bupropion												92	97	85	103	83	96	78	98	82	98	93	98	87
Placebo/placebo												95	106	84	100	82	102	91	99	87	99	85	101	96

WHY HAVEN'T WE DEVELOPED A STIMULANT USE DISORDER PHARMACOTHERAPY?

Long and complicated clinical trial process

- While responses are encouraging, rates of success can be low
- Issues with retention and treatment adherence may mask positive signals

Very high bar for treatment efficacy (i.e., complete abstinence) until recently

- Inconsistent with treatment expectations for other disorders
- Recent FDA guidance indicating openness to non-abstinence outcomes

Reluctance to advance a treatment that is considered to have abuse potential

- Inconsistent with available opioid treatments (e.g., methadone is Schedule II; buprenorphine is Schedule III)

Stimulant Use Disorder commonly co-occurs with other problems

- Not sufficiently considered to date

Pharmaceutical industry does not think it is worth the investment

- NIDA is the primary/sole investor in this area

Focus has been on opioid treatments

NIDA OPIOID PIPELINE

HTTPS://NIDA.NIH.GOV/ABOUT-NIDA/ORGANIZATION/DIVISIONS/DIVISION-THERAPEUTICS-MEDICAL-CONSEQUENCES-DTMC

Opioid Use Disorder and Overdose

Early Preclinical	Late Preclinical	Phase I Clinical Trials	Phase II Clinical Trials	Phase III Clinical Trials	New Formulation
▪ NTR1 modulator ▪ 5-HT2A/2C Agonist ▪ HBS087/ HBS093 ▪ D-CYSee ▪ SBI-0801315/ SBI-0799220 ▪ KOR Modulator ▪ MOR selective antagonist ▪ NAM368 ▪ Fentanyl/heroin vaccine	▪ AT-121 ▪ TRN-228 ▪ VVZ-2417 ▪ Oxytocin ▪ CS-1103 ▪ Methocinnamox ▪ MOR modulator ▪ GM-3009 (Oxa-iboga analog) ▪ SBS-226 ▪ DMX-101 ▪ M-KLH (Heroin Vaccine) ▪ Fentanyl vaccine ▪ Fentanyl mAb ▪ MG001 (Mitragynine)	▪ Oxytocin ▪ Cannabidiol ▪ VK4-116 ▪ CVL-354 ▪ AZD4041 ▪ KNX100 ▪ EC5026 ▪ SBS-147 ▪ Kindolor ▪ MEB-1170 ▪ NRS-033 ▪ EPD-2520 ▪ Oxycodone vaccine	▪ Cannabidiol ▪ Pregabalin + Lofexidine ▪ Suvorexant ▪ Ketamine ▪ Semaglutide ▪ Semaglutide ▪ Psilocybin ▪ Buprenorphine + Naltrexone ▪ Buprenorphine (OD) ▪ Buprenorphine (ED) ▪ Buprenorphine (LDI) ▪ INDV-2000 ▪ CSX-1004	▪ Suvorexant	▪ Naltrexone 2-month injection ▪ BICX104 (Naltrexone 3-month implant) ▪ OLANI (Naltrexone 6-month implant) ▪ BIOPIN 6 (Naltrexone 6-month implant) ▪ Naltrexone transdermal patch (NNTP) ▪ Nalmefene implant ▪ PF614-MPAR (Nafamostat/ Oxycodone ADF) ▪ Buprenorphine ≥3-month injection ▪ Buprenorphine 6-month implant

NIDA STIMULANT PIPELINE

HTTPS://NIDA.NIH.GOV/ABOUT-NIDA/ORGANIZATION/DIVISIONS/DIVISION-THERAPEUTICS-MEDICAL-CONSEQUENCES-DTMC

Stimulant Use Disorder and Overdose

Early Preclinical	Late Preclinical	Clinical Trials		
		Phase I	Phase II	Phase III
▪ SBI-0801315/ SBI-0799220 ▪ SBS-518	▪ OMS 182399 ▪ PPL-138 ▪ NHB 1109 ▪ CocH5-Fc(M6)	▪ CS-1103 ▪ Exenatide ▪ BICX104/Bupropion ▪ STP-7-Mavoglurant ▪ Troriluzole ▪ Pentoxifylline ▪ Psilocybin ▪ Semaglutide	▪ Semaglutide ▪ Bupropion/ Naltrexone	

WHERE DO WE GO FROM HERE?

Address issues in clinical trials that might be masking efficacy

Demonstrate viability of non-abstinence outcomes as a target outcome for pharmacotherapies

- Work with FDA to develop trials with acceptable non-abstinence outcomes

Identify treatments with reduced abuse potential

Identify ways to combine potential treatments with treatments for co-occurring problems (e.g., Opioid Use Disorder; PTSD) to be more effective

- Combine behavioral and pharmacological approaches

Increase pipeline of Stimulant Use Disorder medications

- Advocacy for NIDA's continued investment
- Demonstrate to industry that the investment is worth making
  - Improve quality of life
  - Financial return on investment

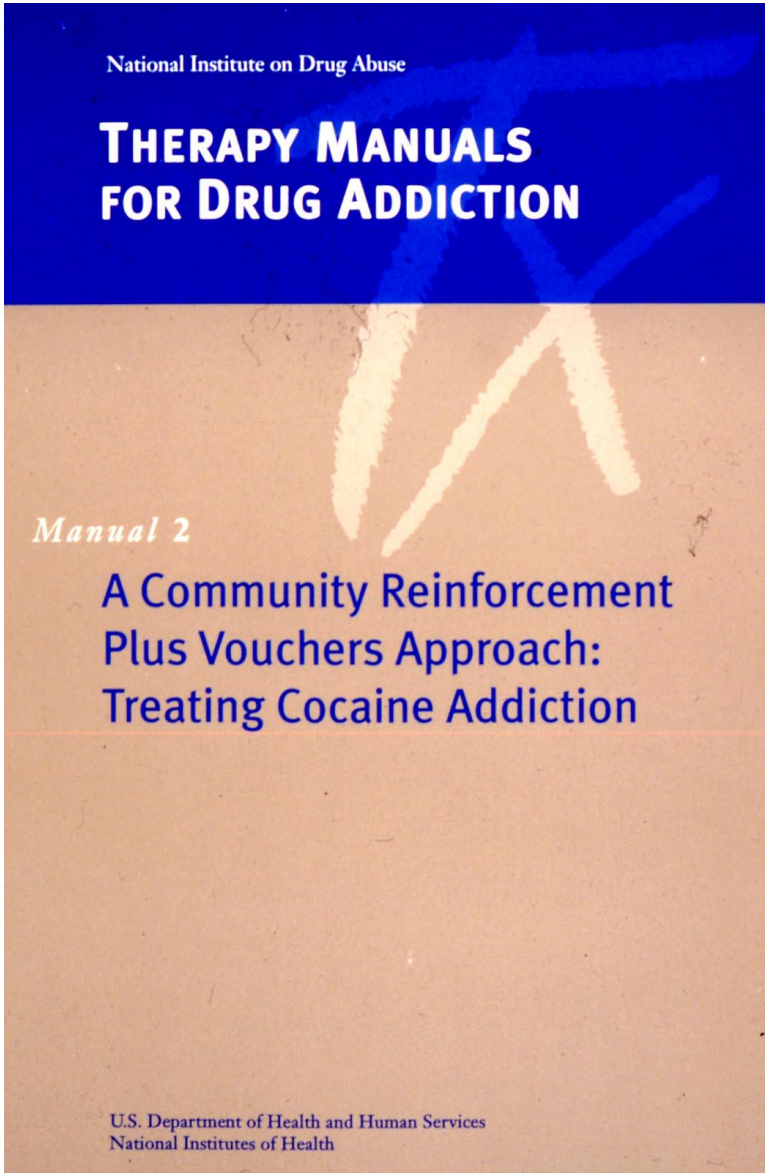
Contingency Management Treatment for Stimulant Use Disorder

- Stephen T. Higgins, PhD
- University Distinguished Professor
- Virginia H. Donaldson Professor in Translational Science, Departments of Psychiatry and Psychological Science
- Director, Vermont Center on Behavior and Health
- University of Vermont

- http://www.uvm.edu/medicine/behaviorandhealth/

U.S. Cocaine Epidemic of 1980s & 90s

- Cocaine epidemic like current opioid epidemic
- Scientific/clinical community strikingly unprepared
- Behavioral and pharmacological treatments failing miserably
- Pharmacology of cocaine suggested substantial difficulties in developing an efficacious and specific medication to reduce cocaine use
- Developed a behavioral treatment model


National Institute on Drug Abuse
THERAPY MANUALS FOR DRUG ADDICTION
Manual 2
A Community Reinforcement Plus Vouchers Approach: Treating Cocaine Addiction
U.S. Department of Health and Human Services
National Institutes of Health

Treatment Procedures

- Weeks 1-12: Twice weekly counseling on how to derive reinforcement from the community for healthy lifestyle choices and thrice weekly urinalysis designed to detect any cocaine use

- Weeks 13-24: Once weekly counseling and twice weekly urinalysis

- Months 7-12: Aftercare--once monthly check-in with counselor and random urinalysis

Voucher-based Incentive Program (Weeks 1-12)

- Cocaine-negative specimens earned pts ($.25 each) recorded on vouchers
- 1st voucher set at low value of $2.50, but value escalated with each consecutive cocaine-negative test
- Equivalent of $10 bonus earned for every 3 consecutive negative tests
- Cocaine-positive tests or failure to give a specimen reset vouchers back to initial low value
- 5 consecutive negative tests returned vouchers back to the value preceding reset
- Vouchers exchangeable for retail items in community; max. earnings possible = $997.50

Controlled Clinical Trials on Cocaine Dependence

- Completed seven controlled clinical trials demonstrating the efficacy of the CRA & Vouchers treatment, along with numerous complimentary clinical lab studies (often substituting cigarette smoking for cocaine use)

- Two of the clinical trials compared CRA + Vouchers vs. standard care; four experimentally isolated the effects of VBRT on cocaine abstinence; and one isolated effects of CRA.

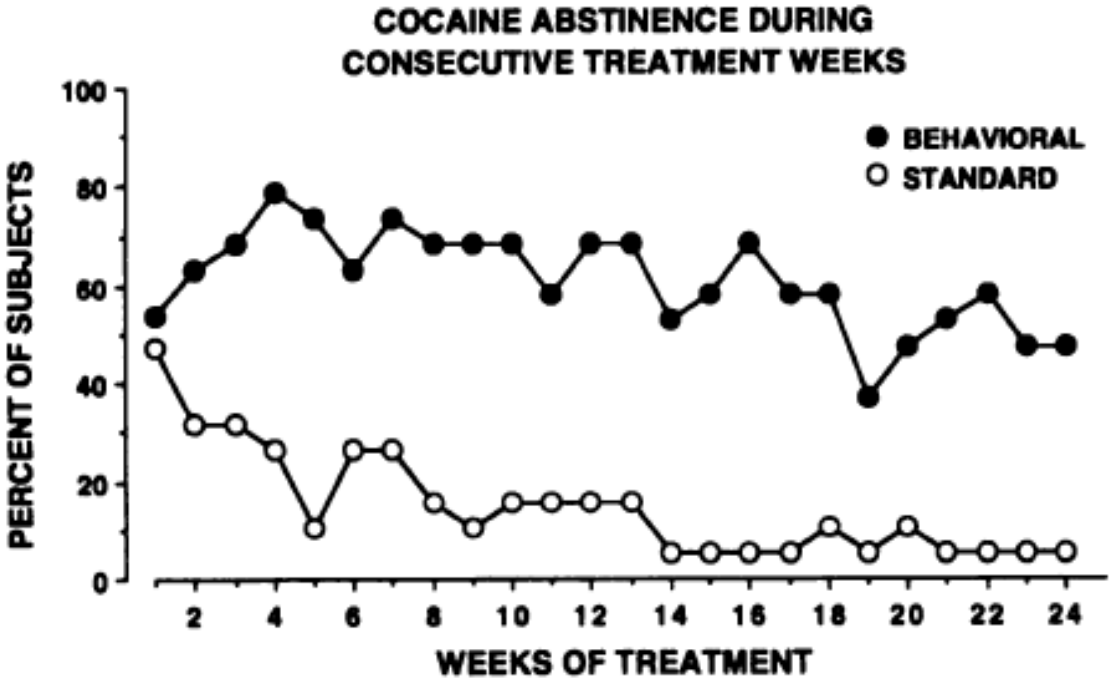
- Briefly review a sample of those studies

Trial Comparing Behavioral vs. Standard Care

- CRA + Vouchers compared to standard drug abuse counseling based on disease model and 12-steps
- 38 cocaine-dependent subjects randomized to two treatments (19/gp.)
- 6 months treatment and 6 months of follow-up

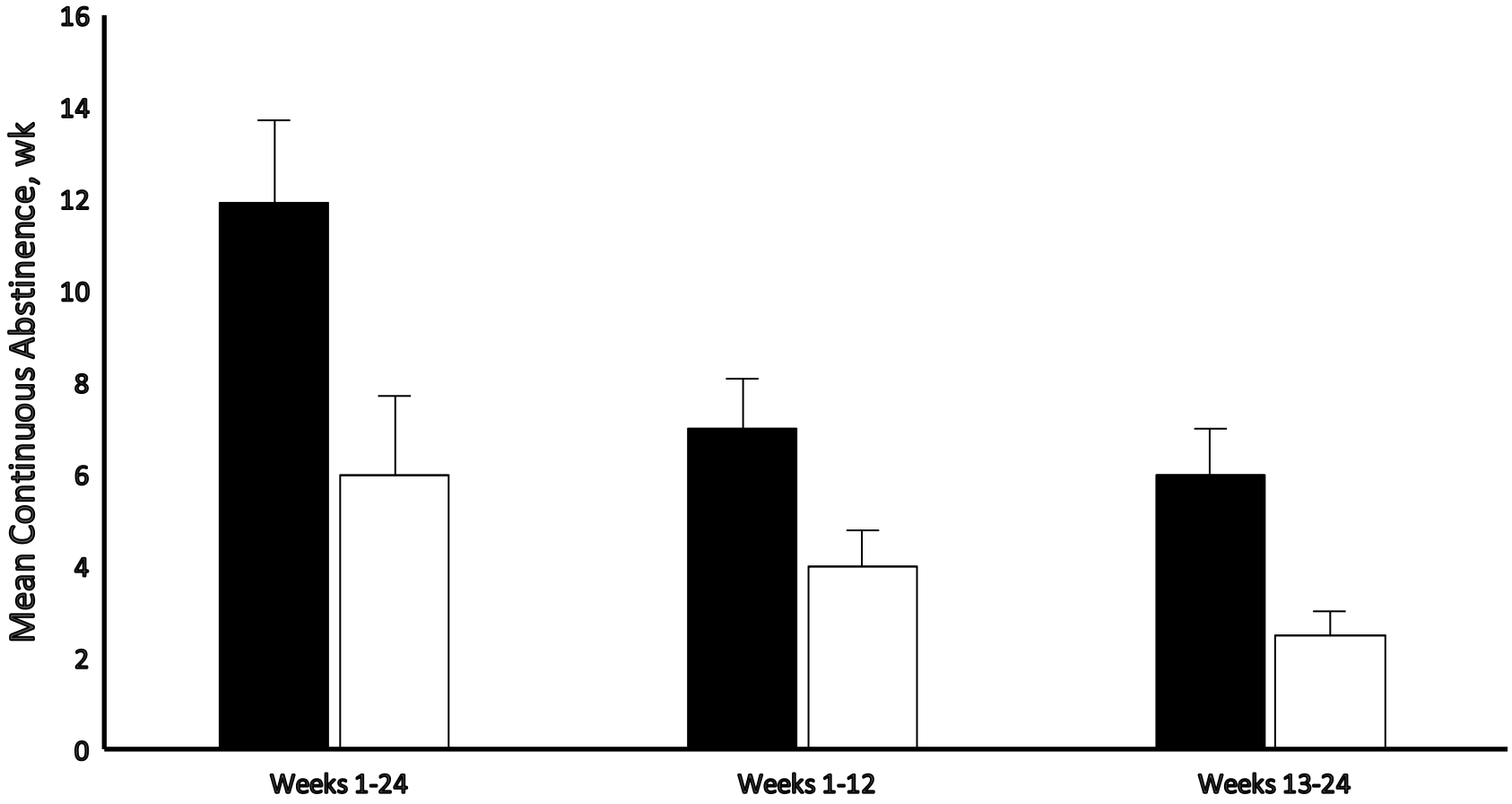
Higgins ST, Budney AJ, Bickel WK, Hughes JR, Foerg F, Badger G. Achieving cocaine abstinence with a behavioral approach. *Am J Psychiatry*. 1993; 150:763-9.

FIGURE 1. Abstinence From Cocaine Among Cocaine-Dependent Outpatients Given Behavioral Treatment or Standard Drug Abuse Counseling[a]



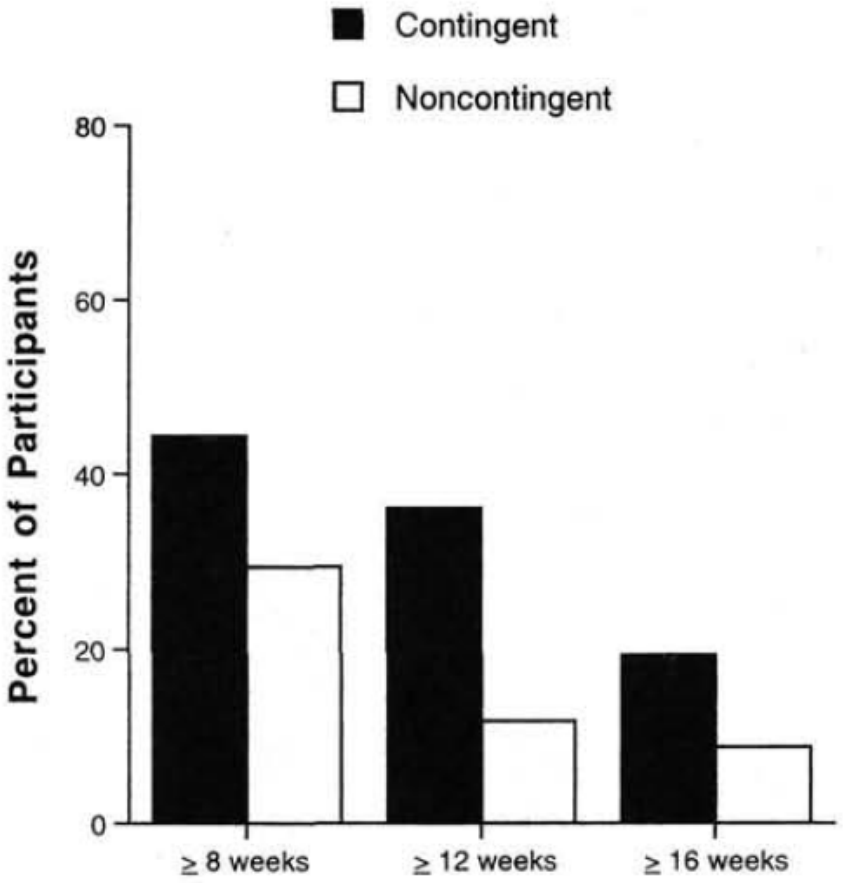
What’s the key contributor?

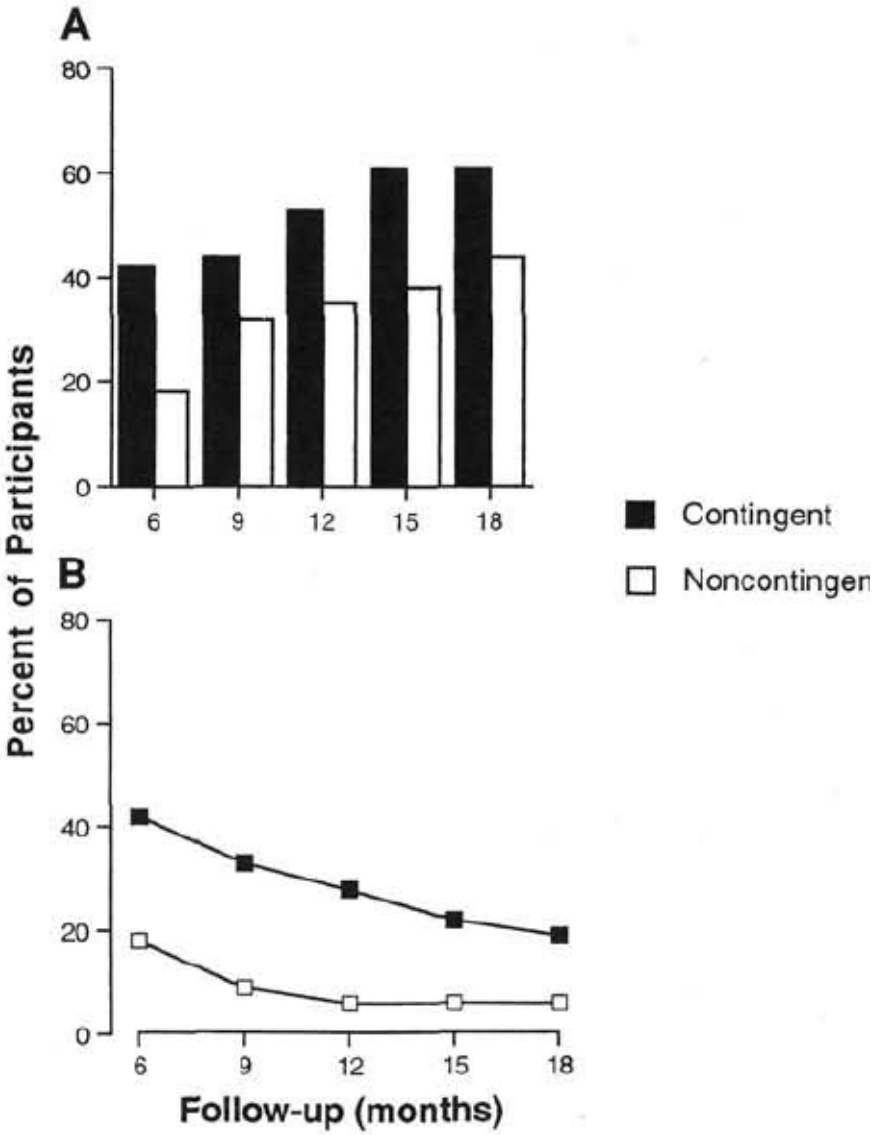
Higgins ST, Budney AJ, Bickel WK, Foerg FE, Donham R, Badger GJ. Incentives improve outcome in outpatient behavioral treatment of cocaine dependence. *Arch Gen Psychiatry*. 1994; 51: 568-76.



Longer-term effects?

Higgins ST, Wong CJ, Badger GJ, Ogden DE, Dantona RL. Contingent reinforcement increases cocaine abstinence during outpatient treatment and 1 year of follow-up. *J Consult Clin Psychol.* 2000; 68(1):64-72.




A
80
60
40
20
0
6
9
12
15
18
Contingent
Noncontingen
B
80
60
40
20
0
6
9
12
15
18
Percent of Participants
Follow-up (months)

Literature Reviews

Literature Reviews on Vouchers and Related Financial Incentives for Substance Use Disorders

- Three reviews covering 1991-2014 (24 years).

- Lussier, J. P., Heil, S. H., Mongeon, J. A., Badger, G. J., Higgins, S. T., 2006. A meta-analysis of voucher-based reinforcement therapy for substance use disorders. *Addiction 101*, 192-203. **(January 1991 - March 2004, 13.25 years)**

- Higgins, S. T., Sigmon, S. C., Heil, S. H., 2011. Contingency management in the treatment of substance use disorders: Trends in the literature. In P. Ruiz & E. Strain (Eds.), *Lowinson and Ruiz's Substance Abuse: A comprehensive textbook* (pp. 603-621). Philadelphia, PA: Lippincott Williams & Wilkins. **(April 2004 - October 2009, 5.5 years)**

- Davis, D.R., Kurti, A.N., Skelly J.M., Redner, R., White, T.J., Higgins, S.T. (2016). A review of the literature on contingency management in the Treatment of Substance Use Disorders, 2009-2014. *Preventive Medicine*. **(November 2009 through December 2014, 5.2 years)**

Results

- Across those 24 years, 176 controlled studies were reviewed, with 151 (86%) reporting significant treatment effects.

Resurgence of Psychomotor Stimulant Use and Fentanyl

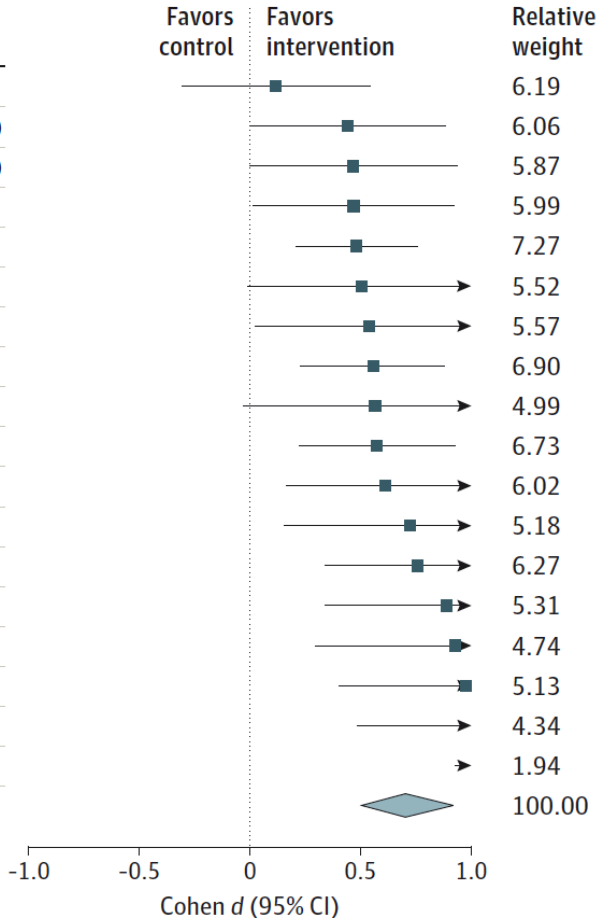
Bolivar HA, Klemperer EM, Coleman SRM, DeSarno M, Skelly JM, Higgins ST. Contingency management for patients receiving medication for opioid use disorder: A systematic review and meta-analysis. *JAMA Psychiatry.* 2021; 78: 1092-1102.

Methods

- Systematic search of PubMed, Cochrane CENTRAL, Web of Science, reference sections of published reports through May 05, 2020
- Prospective experimental studies of monetary-based CM among patients undergoing medication treatment for OUD (MOUD)
- 74 studies (n=10,444) met inclusion criteria for systematic review; 60 studies (n=7,000) met inclusion criteria for meta-analysis (Cohen's d)
- Following PRISMA guidelines, three independent investigators extracted data
- Primary outcome: effect of CM at end-of-treatment assessments across six clinical problems: psychomotor stimulant use, polydrug use, illicit-opioid use, cigarette smoking, therapy attendance, medication adherence

Psychomotor Stimulants

Study	Cohen *d* (95% CI)	Relative weight
Umbricht et al,[24] 2014	0.12 (-0.31 to 0.54)	6.19
Preston et al,[25] 2001	0.44 (-0.002 to 0.89)	6.06
Winstanley et al,[26] 2011	0.47 (-0.005 to 0.94)	5.87
Petry et al,[27] 2005	0.47 (0.02 to 0.92)	5.99
Blanken et al,[28] 2016	0.48 (0.21 to 0.76)	7.27
Rawson et al,[29] 2002	0.51 (-0.01 to 1.02)	5.52
Rowan-Szal et al,[30] 2005	0.54 (0.03 to 1.05)	5.57
Festinger et al,[31] 2014	0.56 (0.23 to 0.88)	6.90
Petry et al,[32] 2007	0.57 (-0.03 to 1.16)	4.99
Kirby et al,[33] 2013	0.58 (0.22 to 0.93)	6.73
Katz et al,[34] 2002	0.61 (0.17 to 1.06)	6.02
DeFulio et al,[35] 2009	0.73 (0.16 to 1.29)	5.18
Epstein et al,[36] 2003	0.76 (0.34 to 1.17)	6.27
Silverman et al,[37] 2007	0.89 (0.34 to 1.44)	5.31
Silverman et al,[38] 1999	0.93 (0.29 to 1.56)	4.74
Silverman et al,[39] 2004	0.98 (0.40 to 1.55)	5.13
Silverman et al,[40] 1996	1.19 (0.49 to 1.89)	4.34
Silverman et al,[41] 1998	5.21 (3.88 to 6.54)	1.94
Total (95% CI)	0.70 (0.49 to 0.92)	100.00



Dissemination/Implementation

California Breaks the Logjam

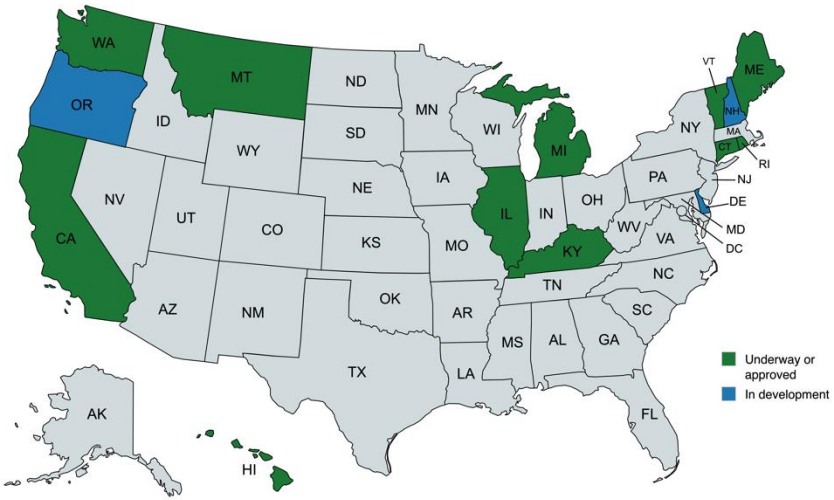
Issue Brief: December 2021

DHCS

California Advancing and Innovating Medi-Cal (CalAIM)
CMS Approval of CalAIM and Other Medi-Cal Initiatives

Our Journey to a Healthier California for All

Medi-Cal – a cornerstone of California's health care system – is undergoing a bold transformation that puts people's needs at the center of care, setting the pace for transformation of the entire health care sector. Everyone has a stake in a better Medi-Cal program; many of us know someone who depends on it for their coverage and care. Medi-Cal covers:



States with Currently Known CM Initiatives*

- **1115 Waiver Demonstration**
- California (ongoing)
- Washington (currently state funds; waiver approved)
- Montana (to start soon)
- Hawaii (to start soon)
- Michigan
- **Opioid Settlement Funds**
- Vermont (ongoing)
- Michigan (ongoing)
- Rhode Island (providing CM via app)
- Kentucky (in prep)
- Connecticut (in prep)
- **Other**
- Maine (foundation and health system grants)
- Illinois (CM Pilot via Opioid settlement funds)
- Others in development: Oregon, Delaware, New Hampshire
- Outside US: UK (nationwide for perinatal smoking); Australia

SAMHSA ADVISORY
Substance Abuse and Mental Health Services Administration

January 2025

USING SAMHSA FUNDS TO IMPLEMENT EVIDENCE-BASED CONTINGENCY MANAGEMENT SERVICES

Contingency management (CM) is a proven health care intervention with demonstrated effectiveness in treating a variety of substance use disorders (SUDs) among diverse populations. To advance the provision of evidence-based CM services that promote abstinence from a specific substance, or encourage treatment attendance or medication adherence, the Substance Abuse and Mental Health Services Administration (SAMHSA) now allows those recipients of a SAMHSA grant that authorizes SAMHSA-approved CM activities in treating SUDs, to provide a motivational incentive value of up to $750 per patient, per year, subject to the requirements and safeguards set forth in this document. To promote program integrity and effectiveness, CM incentives should take the form of items, or vouchers or gift cards for items and services, that support patient well-being and recovery – cash payments are not permitted.

SAMHSA grant programs that authorize a CM intervention support the implementation of either escalating voucher CM or prize-based CM in an evidence-based manner. While there is no set limit on the value of each motivational incentive to reinforce a specific behavior, SAMHSA encourages those grantees eligible to implement CM services under the terms of their grant to appropriately budget for the proposed duration of the CM services. It is essential that grantees adhere to evidence-based CM principles and models, and ensure that all participants in a CM intervention have equal opportunity to receive the same incentive amounts.

Background

CM is a health care intervention in which tangible reinforcers, or motivational incentives, are given to participants contingent on objective evidence of change in a specific, incentivized behavior. CM is widely studied and has been successful in treating a variety of SUDs in diverse populations, and with demonstrated long-term benefit (a median of 24 weeks after reinforcement ended) beyond other active, evidence-based treatments such as cognitive behavioral therapy, 12-Step facilitation, as well as community-based intensive outpatient treatment (Ginley et al., 2021). It is designed to promote positive behavior change through immediate reinforcing contingencies (in the form of incentives) when the incentivized behavior occurs and withholding or reducing those incentives when the incentivized behavior does not occur.

Incentives that have been described in the literature include vouchers, gift certificates, tangible objects chosen by participants, or provision of non-treatment services such as housing or workplace access. Reinforcing the new behavior with timely incentives has been shown to increase the likelihood of success.

FEATURE

A time-tested behavioral intervention brings new momentum to substance use treatment

Contingency management is highly effective. New policies and programs are increasing access

Date created: April 1, 2026 8 min read
Vol. 58, No. 3
Print version: page 56

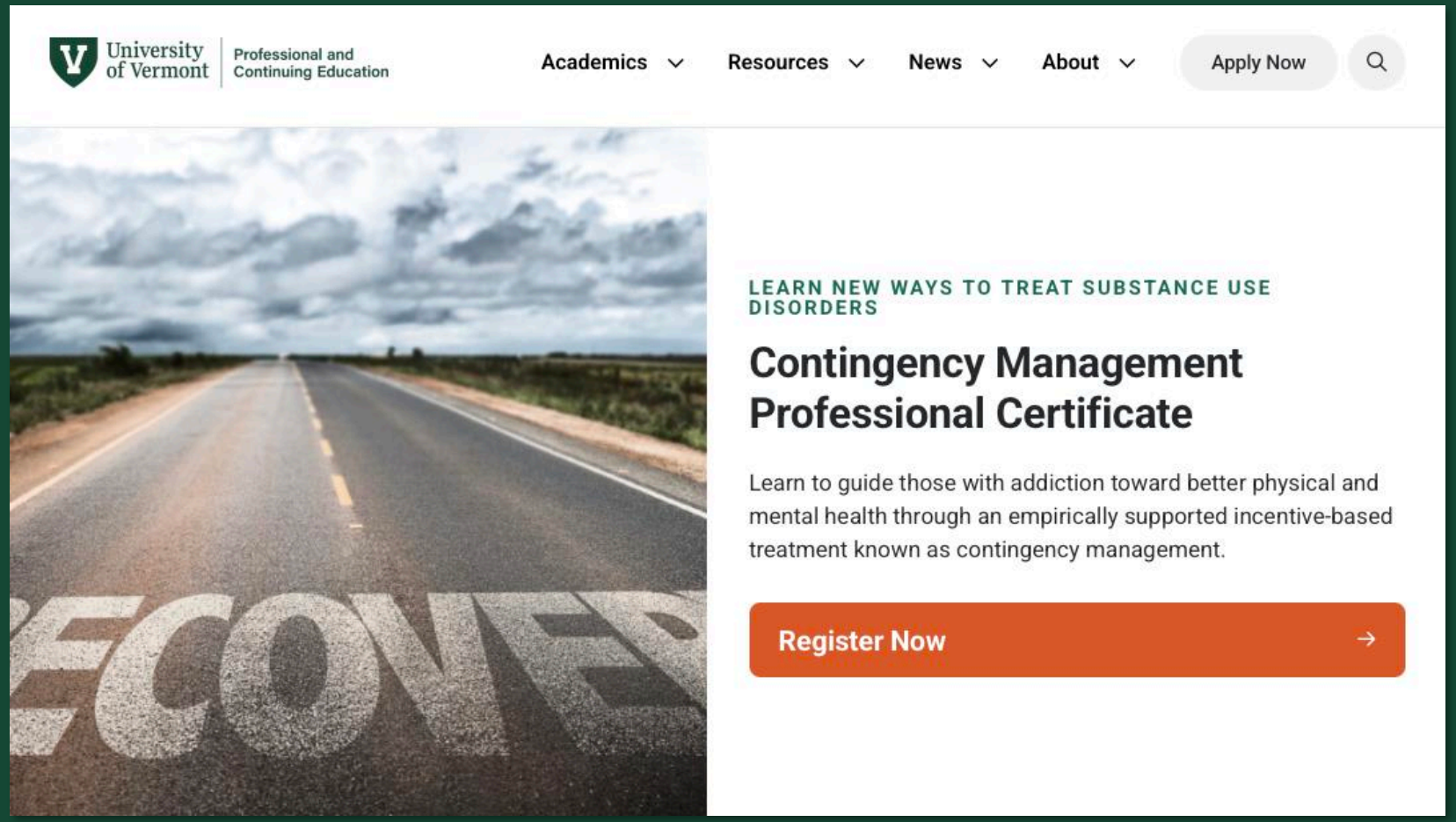
Key points

- Contingency management (CM) is a highly effective incentive-based treatment for stimulant use disorder.
- Clinical practice guidelines, real-world results, and policy shifts are paving the way for more patients to benefit from CM.
- CM also holds promise for treating other substance use disorders and promoting a range of healthy behaviors.

Conclusions

- Stimulant use disorder (StUD) continues to represent a serious U.S. public health challenge.
- Contingency management remains the most effective treatment for StUD.
- After decades of inaction, there is broad U.S. federal and state support for CM implementation.
- Initial efforts are promising but there is more to be learned about effective implementation.

Contingency Management Certificate Course



https://learn.uvm.edu/program/contingency-management-certificate/

University of Vermont