PCSS Medications for Opioid Use Disorders

Providers Clinical Support System

Systemic Solutions for Managing Methamphetamine Use

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Housekeeping

- This event is brought to you by the Providers Clinical Support System – Medications for Opioid Use Disorders (PCSS-MOUD), a program funded by the Substance Abuse and Mental Health Services Administration (SAMHSA). Content and discussions during this event are prohibited from promoting or selling products or services that serve professional or financial interests of any kind.

- PCSS-MOUD aims to increase the knowledge and skills of healthcare and counseling professionals about available evidence-based treatment approaches for substance use disorder (SUD) with a particular focus on opioid use disorder (OUD). PCSS-MOUD provides free training and mentoring to practitioners on the use of medications for OUD (MOUD), and the integration of these services into mainstream health care.

Introduction

Phillip Coffin, MD MIA FACP FIDSA

- Director of Substance Use Research
- San Francisco Department of Public Health, University of California San Francisco
- Internal medicine, addiction medicine, and infectious disease boarded and practicing physician and NIDA/CDC-funded investigator studying pharmacotherapies and behavioral interventions for substance use, overdose, and infectious diseases.

Disclosure to Learners

AAAP is committed to presenting learners with unbiased, independent, objective, and evidence-based education in accordance with accreditation requirements and AAAP policies.

Presenter(s), planner(s), reviewer(s), and all others involved in the planning or content development of this activity were required to disclose all financial relationships within the past 24 months

All disclosures have been reviewed, and there are no relevant financial relationships with ineligible companies to disclose.

This presentation will cover off-label use of medications for treating methamphetamine use disorder.

All speakers have been advised that any recommendations involving clinical medicine must be based on evidence that is accepted within the profession of medicine as adequate justification for their indications and contraindications in patient care. All scientific research referred to, reported, or used in the presentation must conform to the generally accepted standards of experimental design, data collection, and analysis.

Educational Objectives

By the end of this presentation, attendees will be able to:

- **Analyze** current trends in morbidity and mortality related to methamphetamine use in the U.S. and their impact on public health.
- **Explain** the primary causes and mechanisms contributing to deaths from methamphetamine toxicity, distinguishing between acute and chronic effects.
- **Evaluate** evidence-based interventions for the treatment of methamphetamine use disorder including pharmacological and behavioral approaches.

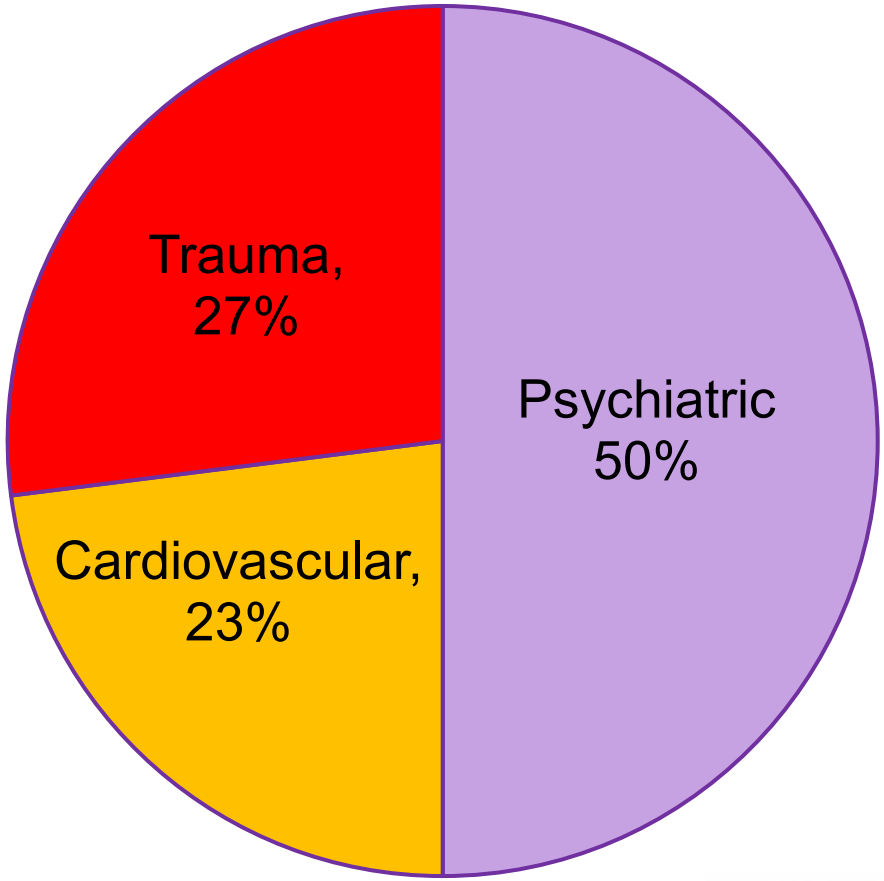
Epidemiology of Methamphetamine Use

Methamphetamine

- Traditionally more on the West Coast
- 2.0 million report past-year use (2019)
- 1.1 million with use disorder (55%)
- ~20% injected (~75% of those who inject have use disorder)
- Increased by ~50% 2015-2019

Hoots B, et al

Approximate Distribution of Complaint Types among Methamphetamine-Related ED Visits



Suen, *BMC EM*, 2022; Jones, *J Clin Nursing*, 2018

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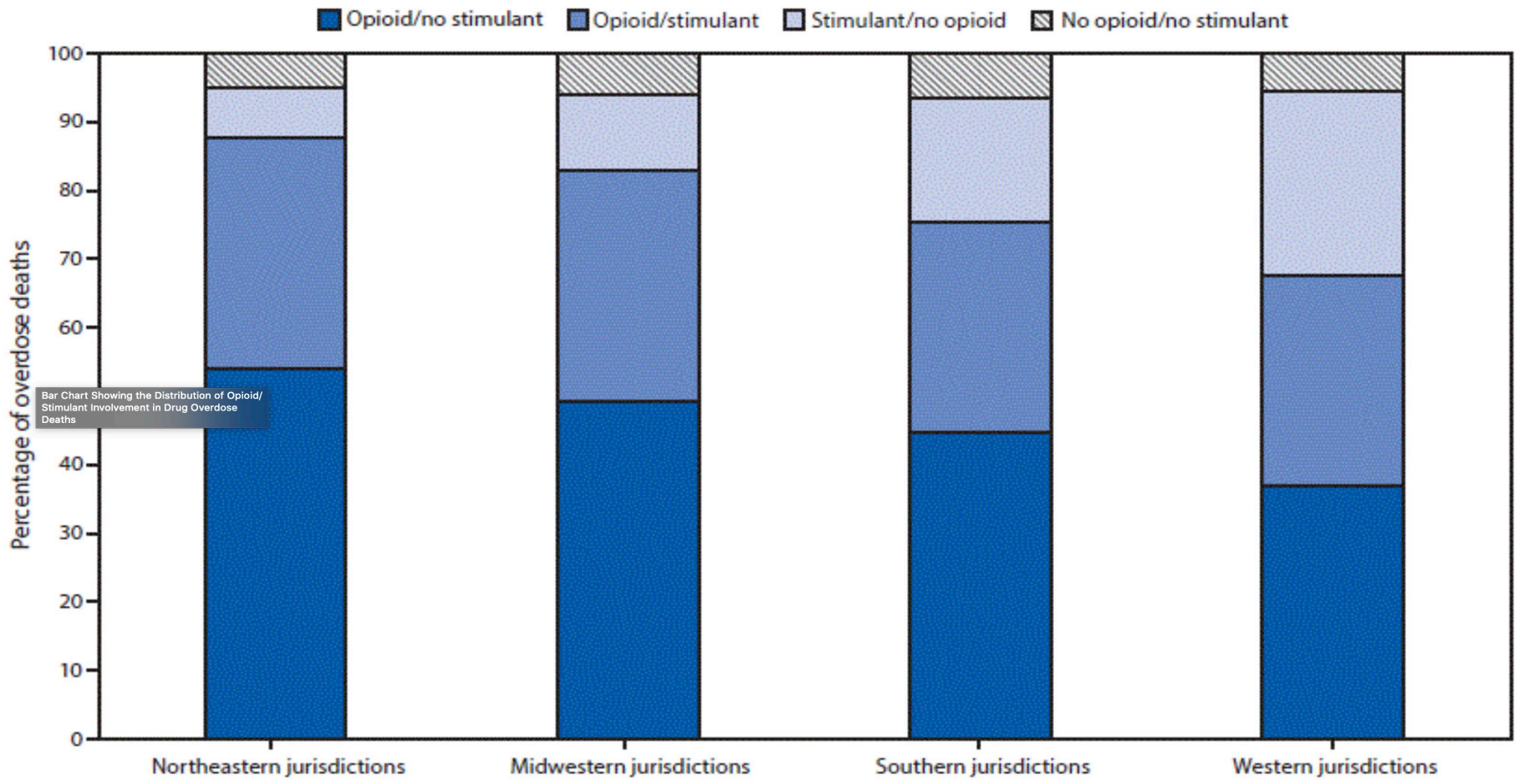
Distribution of Opioids/Stimulants in Overdose Deaths in SUDORS Regions, Jan-June 2019



O'Donnell, MMWR, September 4, 2020

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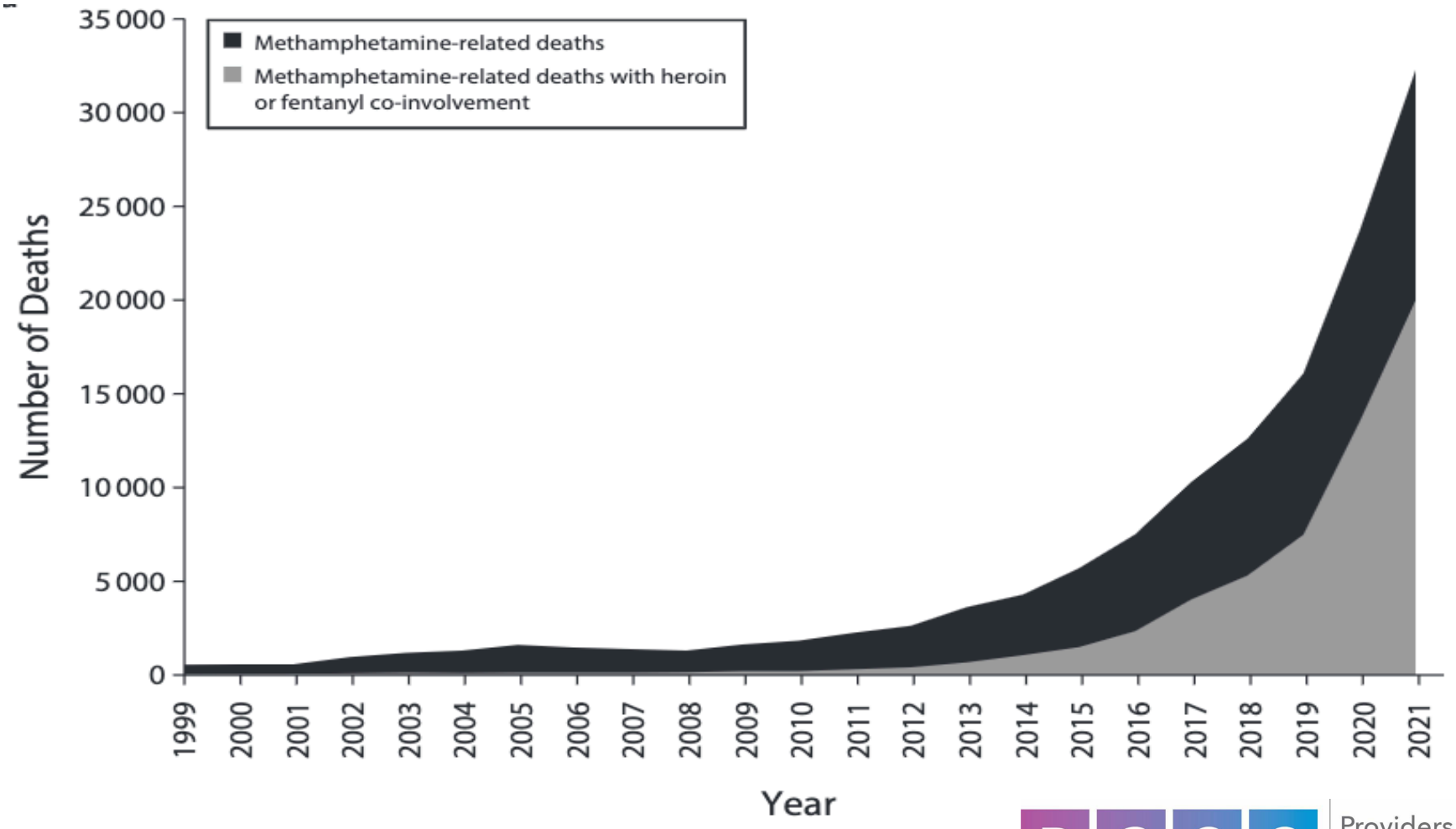
Methamphetamine Deaths in the U.S.



Hoopsick, AJPH, 2023

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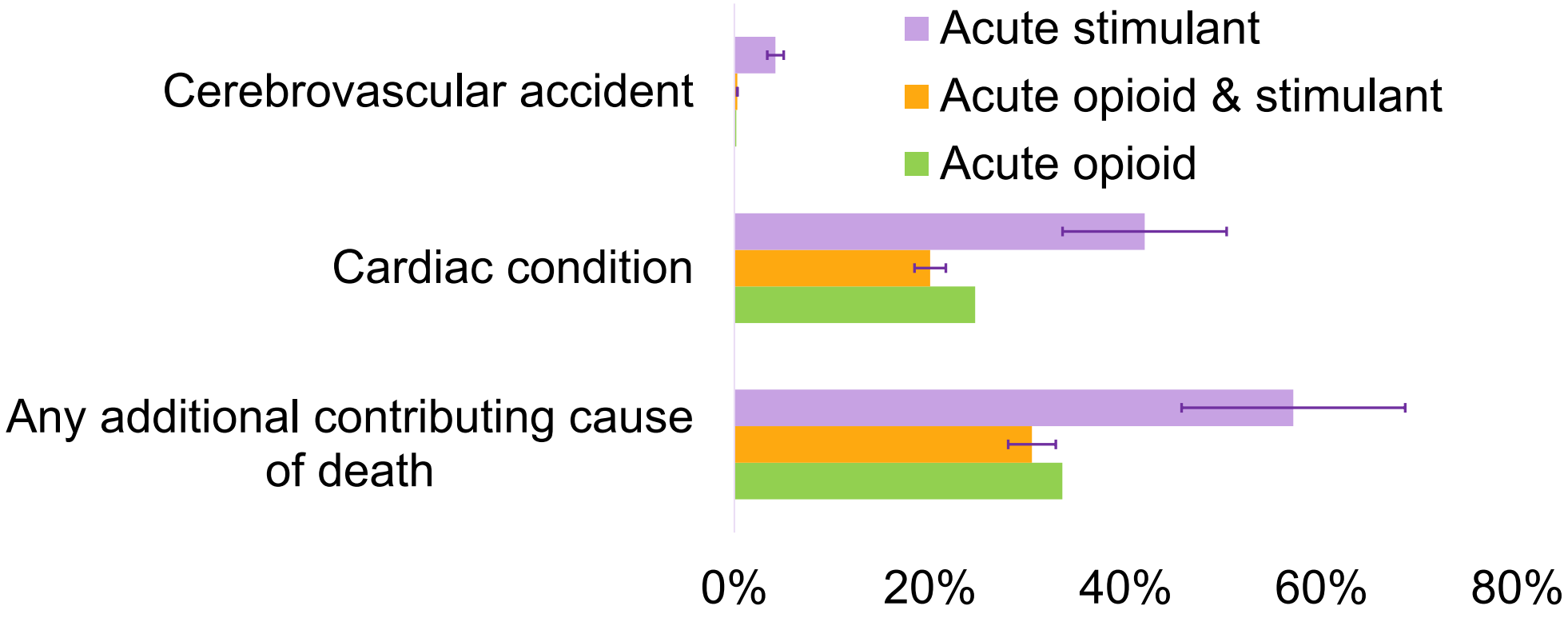
Additional COD Among Acute Toxicity Deaths in San Francisco, 2015-2022



Center on Substance Use & Health, SFDPH

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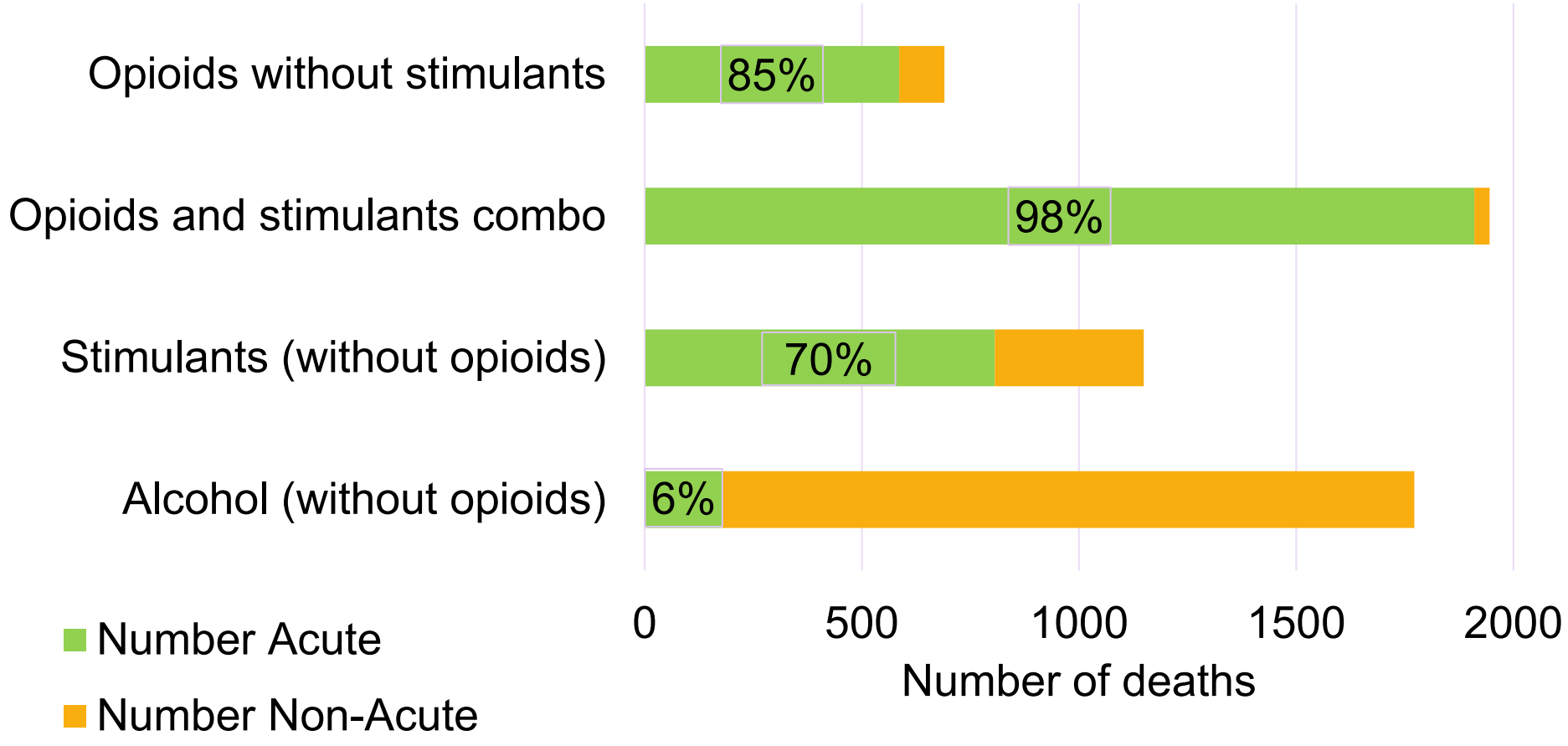
Substance-related deaths attributed to acute toxicity, SF 2015-2022



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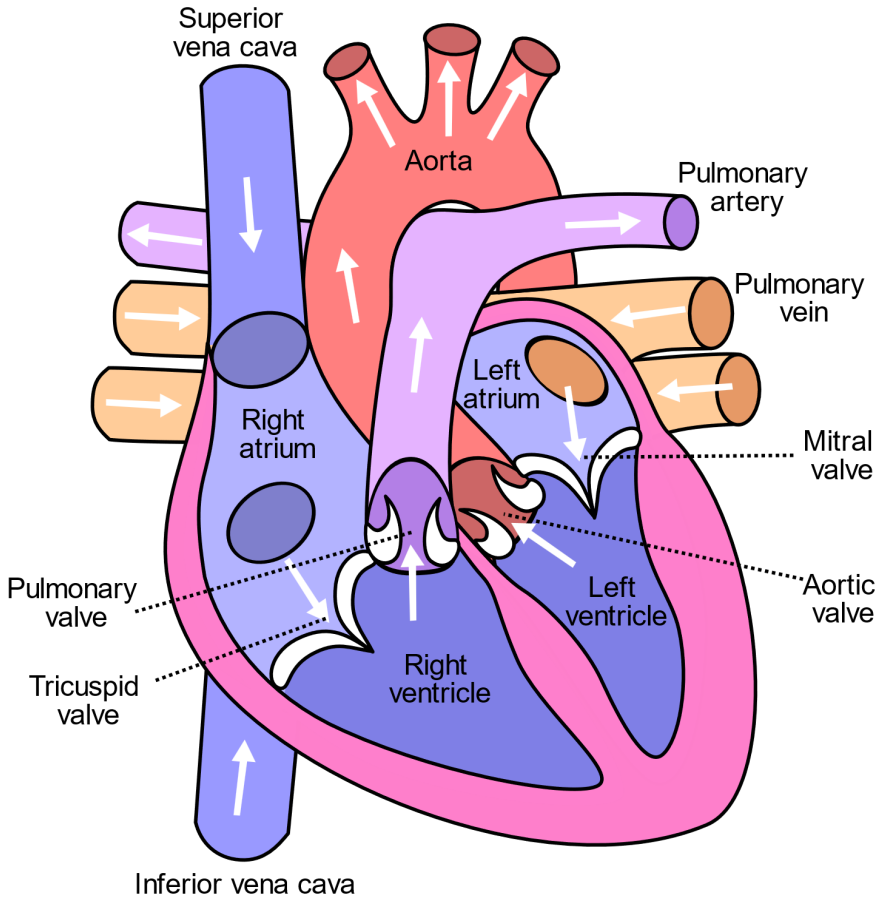
Methamphetamine Morbidity and Mortality Summary

- Methamphetamine use is prevalent and rising
- Most emergency care related to methamphetamine is for psychiatric, cardiovascular, or injury/trauma.
- Stimulants – about half of which are methamphetamine – are present in most fentanyl deaths.
- Deaths attributed to acute methamphetamine toxicity that involve opioids generally appear to be similar to an opioid overdose death.
- Deaths attributed to methamphetamine that do not involve opioids are commonly due to cardiovascular or cerebrovascular events that may be consequences of chronic disease.

Mattson C, et al

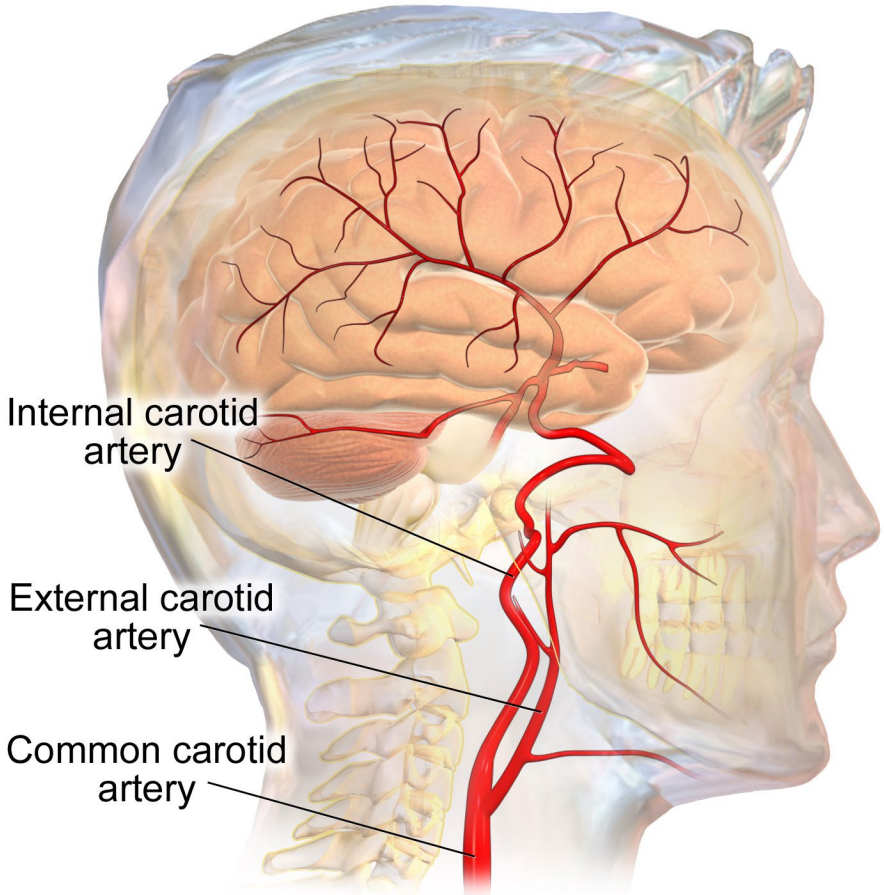
Problems Related to Methamphetamine – Heart / Blood Vessels

Cardiomyopathy
Electrical conduction/arrhythmia
Aortic dissection
Myocardial infarction
Ischemic stroke
Hemorrhagic stroke
Gut ischemia
Kidney injury / rhabdomyolysis



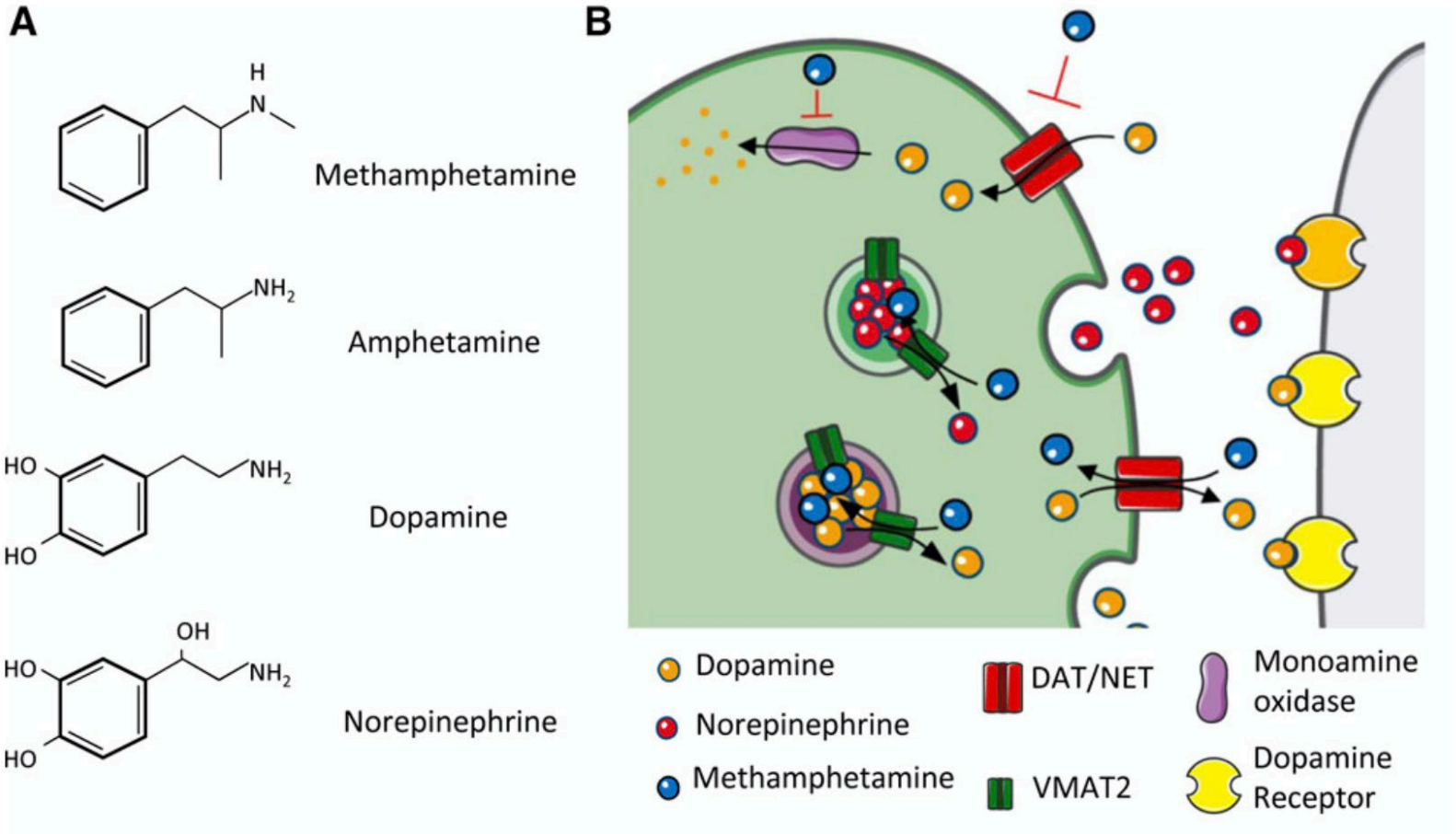
Problems Related to Methamphetamine - Brain

Hemorrhagic > ischemic stroke
Parkinson's
Seizures
Reduced executive function/ concentration/ memory
Psychosis
Impulsivity/risky behaviors



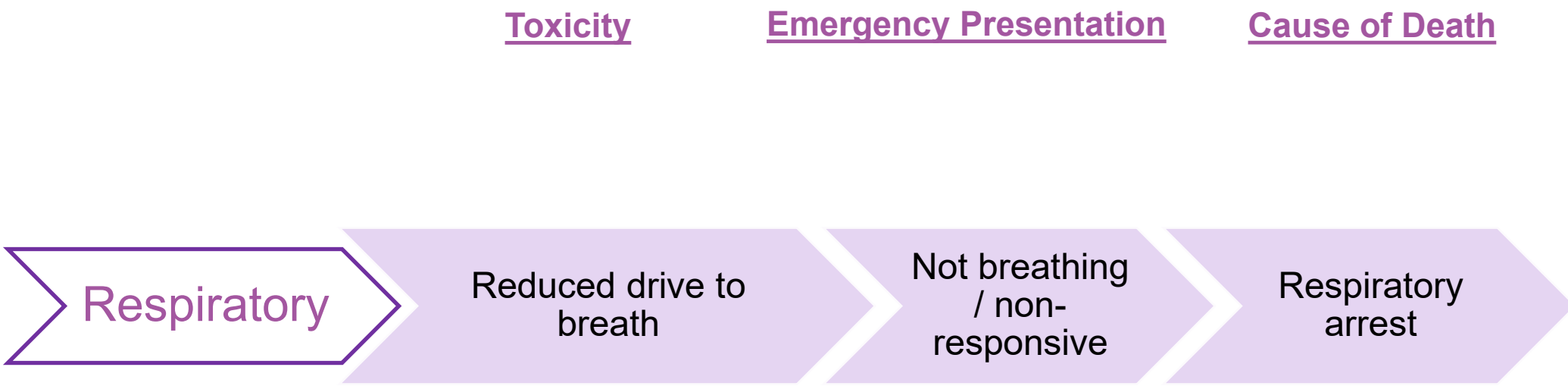
Carotid Artery

Catecholaminergic Effects of MA

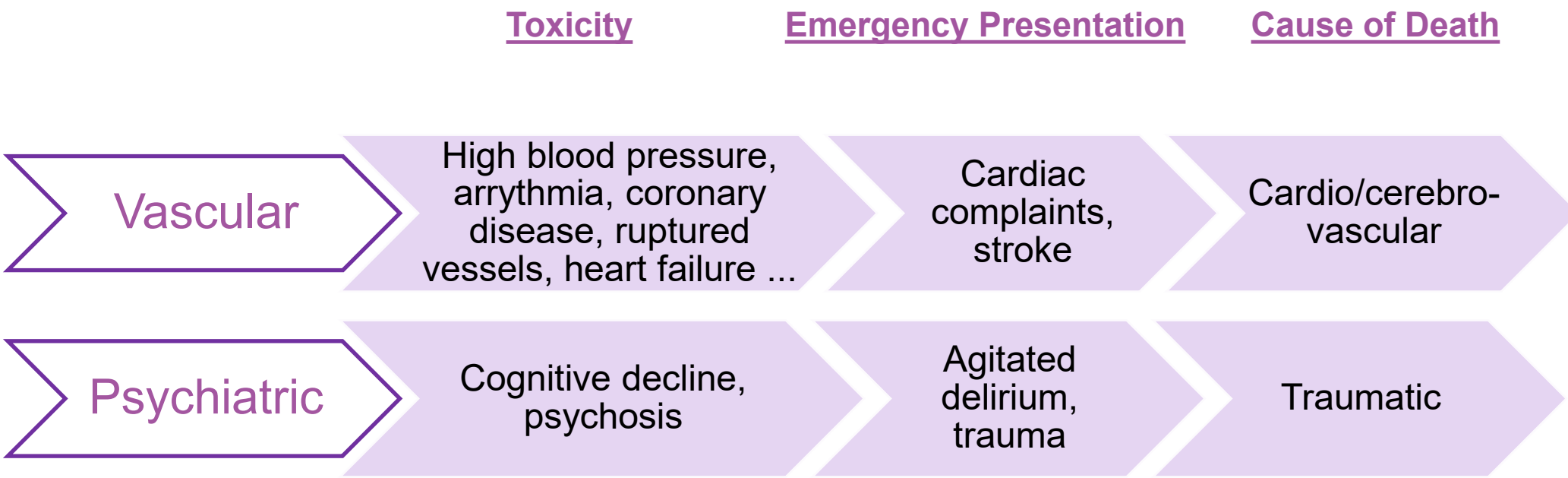


Kevil, Art Thromb Vasc Bio, 2019

A Framework for Acute Toxicity: Opioids



A Framework for Acute Toxicity: Stimulants



Methamphetamine Toxicity: Summary

- Methamphetamine use results in cardiovascular and neuropsychiatric toxicities
- Toxicities likely result from cumulative exposure and binge pattern use, much like seen with alcohol use
  - This is in contrast to the mortality from acute toxicity seen with opioids
- Addressing this long-term toxicity requires addressing methamphetamine use and use disorder as chronic conditions.

4-tier approach to caring for patients who use methamphetamine

Assessment

- Be non-judgmental and trauma-informed.
- Learn why the patient uses stimulants and their perception of risks and benefits.
- Use the DSM-5 to diagnose use disorders.

Routine prevention

- Ensure the patient is up-to-date on vaccines and infection screening and has access to overdose prevention and safer drug use supplies.

Use reduction

- Offer evidence-based strategies to stop or reduce stimulant use.
- Consider both behavioral and pharmacologic interventions.

Toxicity prevention

- Consider strategies for reducing the cardiovascular and neuropsychiatric harms of continued stimulant use.

Coffin & Suen, NEJM Evidence, 2023

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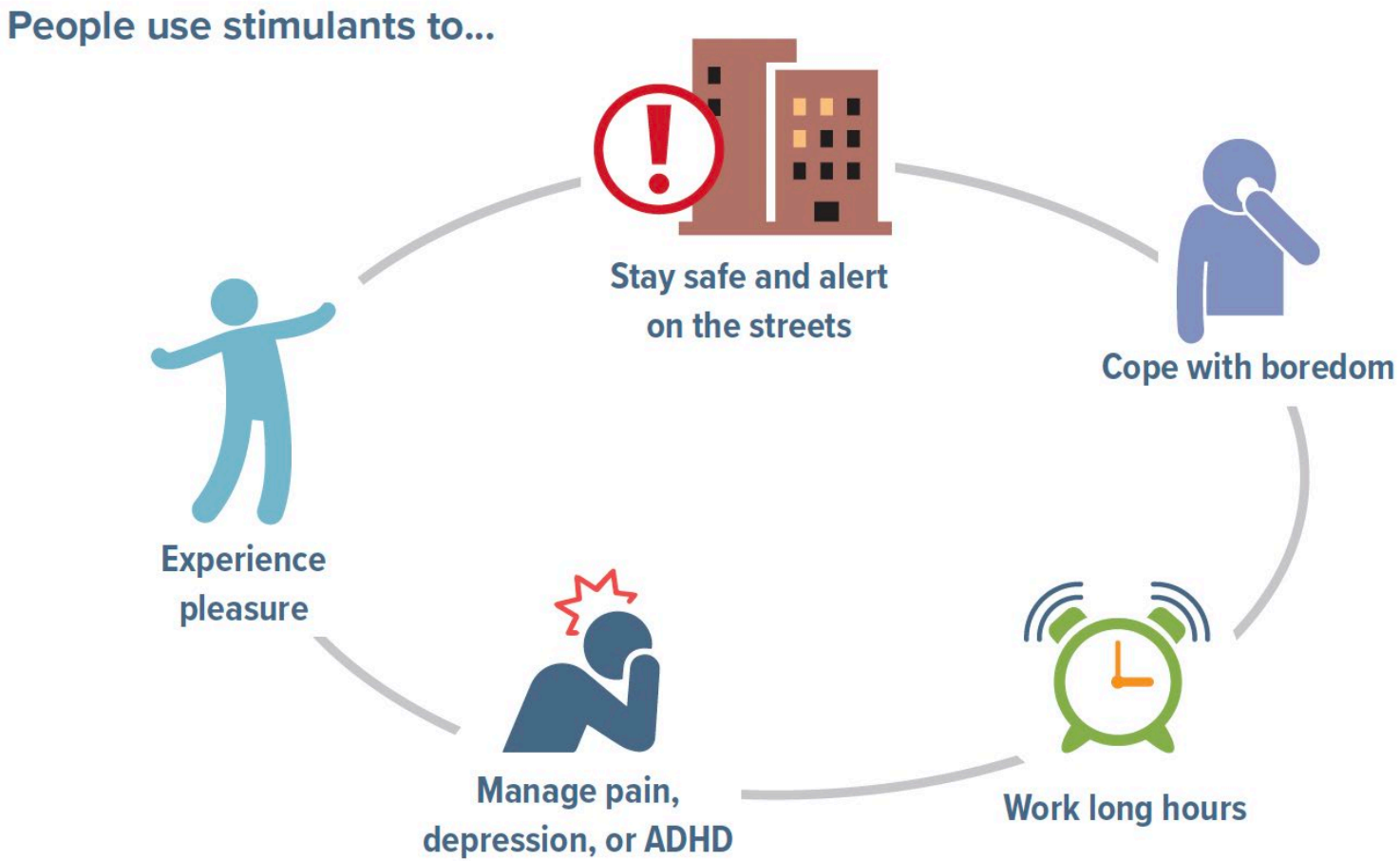
Assessment

- Use motivational interviewing techniques
- Explore **benefits**, and then risks
- Diagnose if a use disorder
- Address use even if no use disorder



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DSM-5 Criteria for Methamphetamine Use Disorder (MeUD)

Drug effects

1. Tolerance
2. Withdrawal

Use patterns

3. Used for longer periods than intended
4. Can't cut down or quit
5. Time spent getting, using or recovering
6. Craving or a strong desire or urge to use a substance

Harms

7. Give up social, work or fun activities
8. Continued use despite knowledge of negative consequences
9. Failure to fulfill major role obligations
10. Use in physically hazardous situations
11. Continued use despite social and interpersonal problems

Hoots B, et al.
APA. *DSM-5.* American Psychiatric Publishing, 2013.

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Routine Prevention

- Screenings (HIV, HBV, HCV, STIs, TB)
- Vaccinations (HAV, HBV, HPV, TDaP, influenza, PC, COVID)
- Naloxone (regardless of opioid use)
- Fentanyl test strips
- Pre-exposure HIV prophylaxis
- Post-exposure STI prophylaxis (doxy-PEP)
- Smoking cessation
- Treatment for associated psychiatric disorders
- Support for housing, insurance, food

Toxicity Prevention and Management

Cardiovascular

Prevention (smoking cessation; sleep hygiene; dental care; *statins?*)

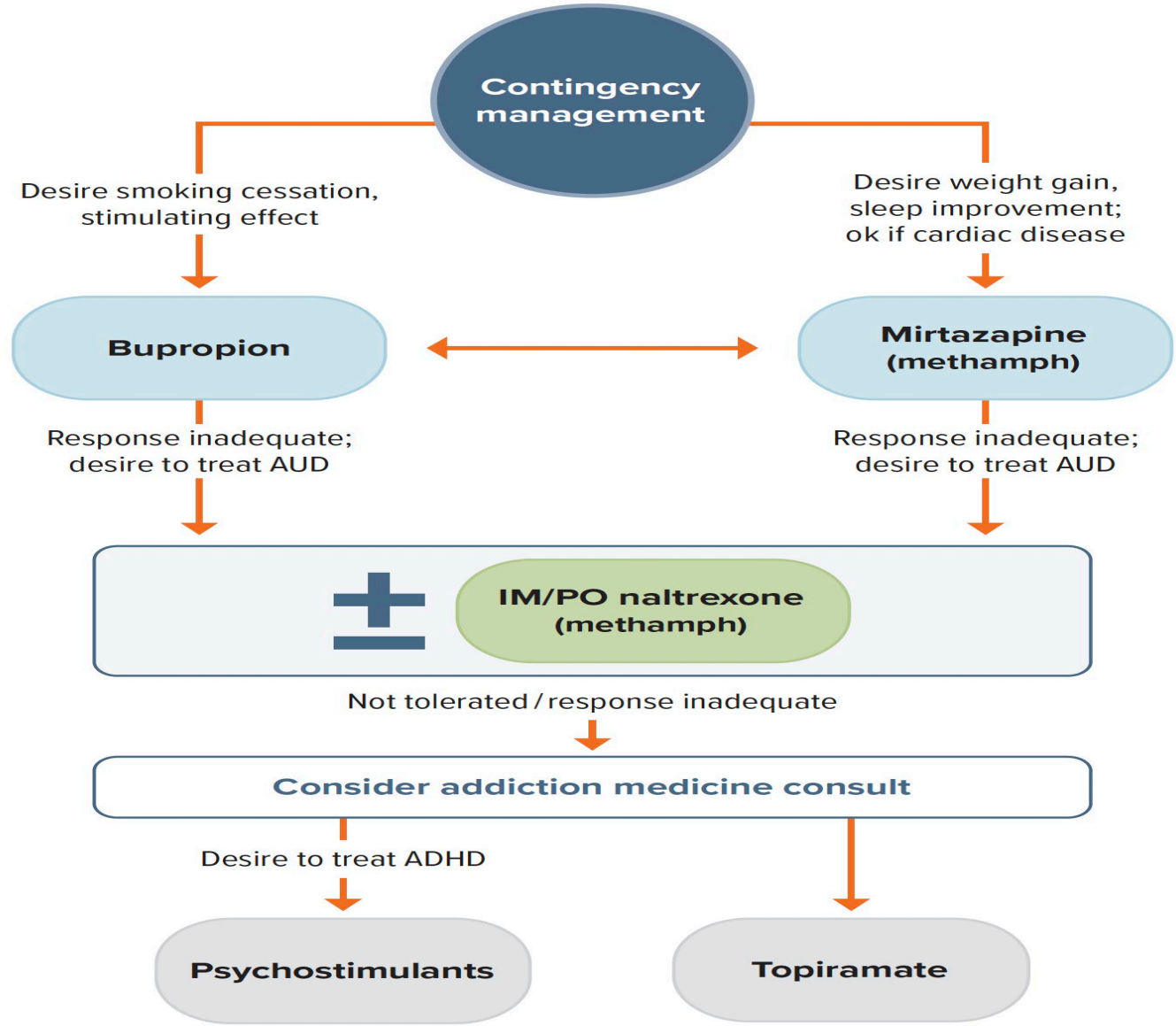
Treatment (acute: beta blockers, benzodiazepines; chronic: GDMT)

Neuropsychiatric

Prevention (*sleep hygiene; statins?*)

Treatment (acute: benzodiazepines, atypical antipsychotics, droperidol, ketamine; *self-administered as-needed olanzapine?*); chronic (atypical antipsychotics)

Stimulant Use Reduction



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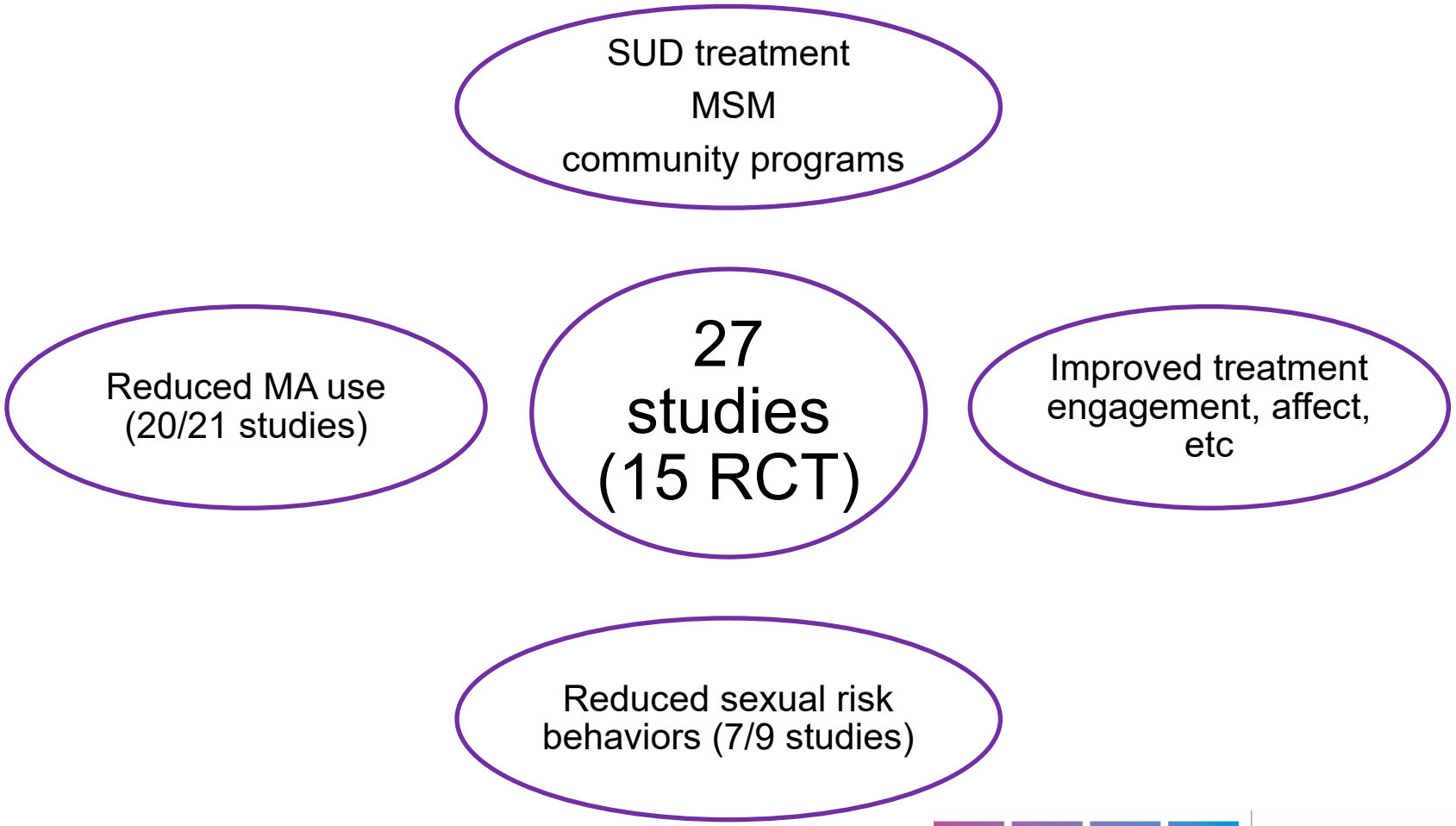
Contingency Management for MeUD Systematic Review



Brown & DeFulio DAD 2021

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MeUD Medication Trials

- 23 pharmacotherapies have been tested in RCTs, with some potential in the following products:
  - Dexamphetamine, methylphenidate
  - Naltrexone
  - Topiramate
  - Bupropion
  - Mirtazapine
  - Riluzole

- Potential future agents
  - GLP-1 agents
  - NAC
  - Pomaglumetad
  - mAbs
  - vaccines

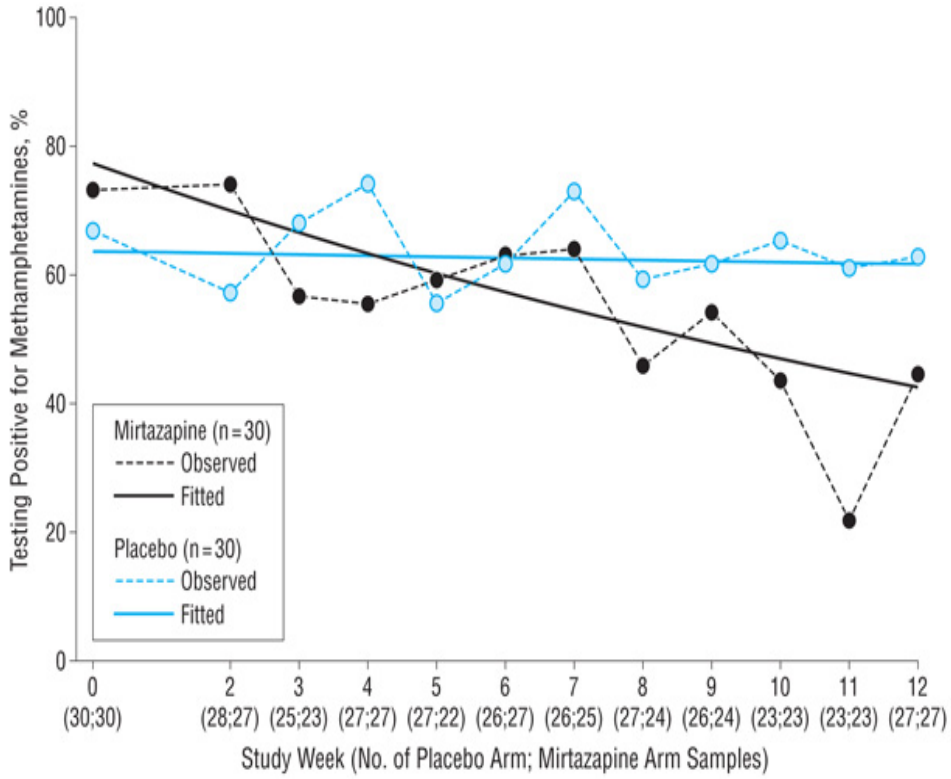
Some Classes Without Signal	
SSRIs	GABA agents
TCAs	BDZ antagonist
5HT3R antagonist	Nicotinic agonist

Limitations
Measure of MA use & outcome of choice
Co-morbid mental illness
Co-morbid cardiac disease
Medication adherence

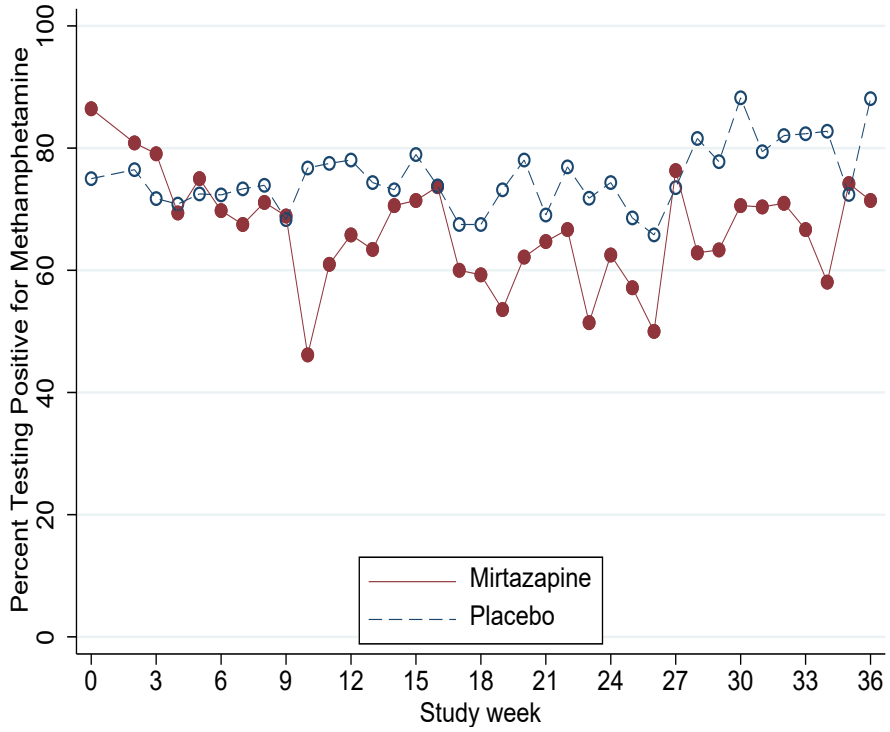
Siefried, CNS Drugs, 2020

Mirtazapine for MA Use Disorder

Mirtazapine 1.0 (N=60; MSM)



Mirtazapine 2.0 (N=120; MSM/TGW)



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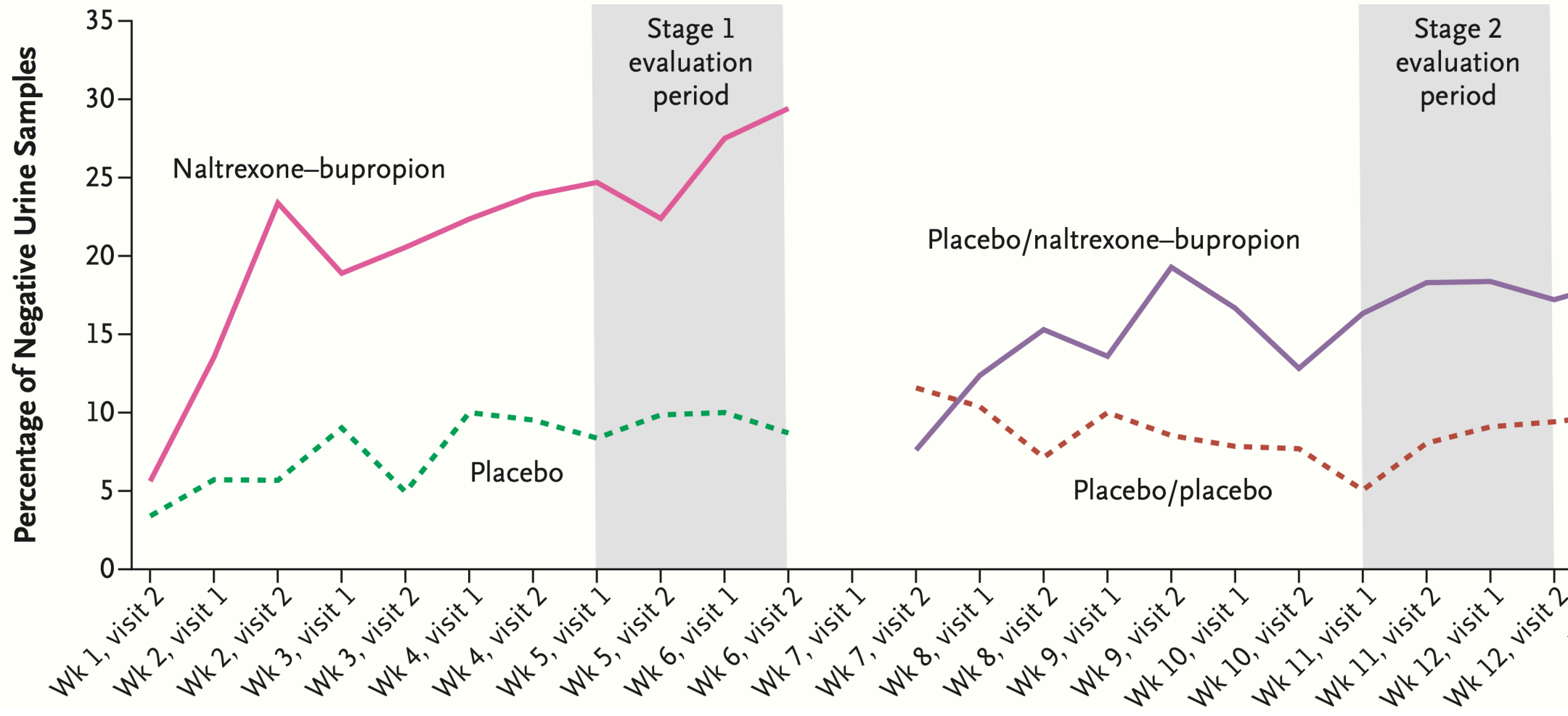
Colfax, Arch Gen Psych 2011, Coffin JAMA Psych 2020

Mirtazapine for HIV Risk Reduction

Behavior	M1.0 Risk Ratio for Treatment Arm @ 12 weeks	M2.0 Risk Ratio for Treatment Arm @ 24 weeks
# Male Partners with whom MA used	**0.45 (0.24-0.82)**	**0.52 (0.27-0.97)**
# Male Partners	**0.20 (0.04-0.93)**	0.54 (0.27-1.14)
Episodes Anal Sex with Serodiscordant Partners	**0.31 (0.14-0.66)**	0.42 (0.28-1.01)
Episodes UAI with Serodiscordant Partners	**0.34 (0.17-0.70)**	**0.47 (0.23-0.97)**
Episodes Insertive UAI with Serodiscordant Partners	**0.29 (0.14-0.58)**	0.56 (0.24-1.31)
Episodes Receptive UAI with Serodiscordant Partners	0.27 (0.05-1.57)	**0.37 (0.14-0.93)**

Colfax, Arch Gen Psych 2011, Coffin JAMA Psych 2020

Bupropion + ER-Naltrexone for MA Use Disorder



Trivedi NEJM 2021

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Managing Methamphetamine Use: Summary

- Use a systematic approach to address methamphetamine use
- Start by exploring perceived benefits
- Diagnose a use disorder, but **proceed with addressing use even if a disorder is not present**
- Ensure screenings, vaccinations, naloxone, and other prevention strategies are provided
- Discuss cardiovascular and neuropsychiatric toxicities of methamphetamine use
  - Offer strategies that may help prevent these
  - Aggressively treat any chronic toxicities
- Offer use reduction strategies including contingency management and various medications
  - It's okay to try out other medications: this can be a debilitating disease

Conclusions

- Methamphetamine use is prevalent throughout North America
- Emergency presentations related to methamphetamine are largely psychiatric, cardiovascular, and injury-related
- Deaths attributed to both fentanyl and methamphetamine are likely primarily due to fentanyl toxicity
- Deaths attributed to acute toxicity from methamphetamine are largely cardiovascular in nature, and many are sequelae of chronic disease, more similar to alcohol-related deaths than to opioid overdose deaths.
- Use a systemic approach to addressing methamphetamine use, including:
  - Assessment: but address use whether or not there is a use disorder
  - Routine prevention: screenings, vaccinations, naloxone, PrEP, doxy-PEP, …
  - Toxicity prevention and management: smoking cessation, sleep hygiene, possibly statins, GDMT, atypical antipsychotics, as-needed olanzapine, etc
  - Use reduction: contingency management, mirtazapine, bupropion, naltrexone, potentially topiramate and amphetamine-type stimulants

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PCSS-MOUD Mentoring Program

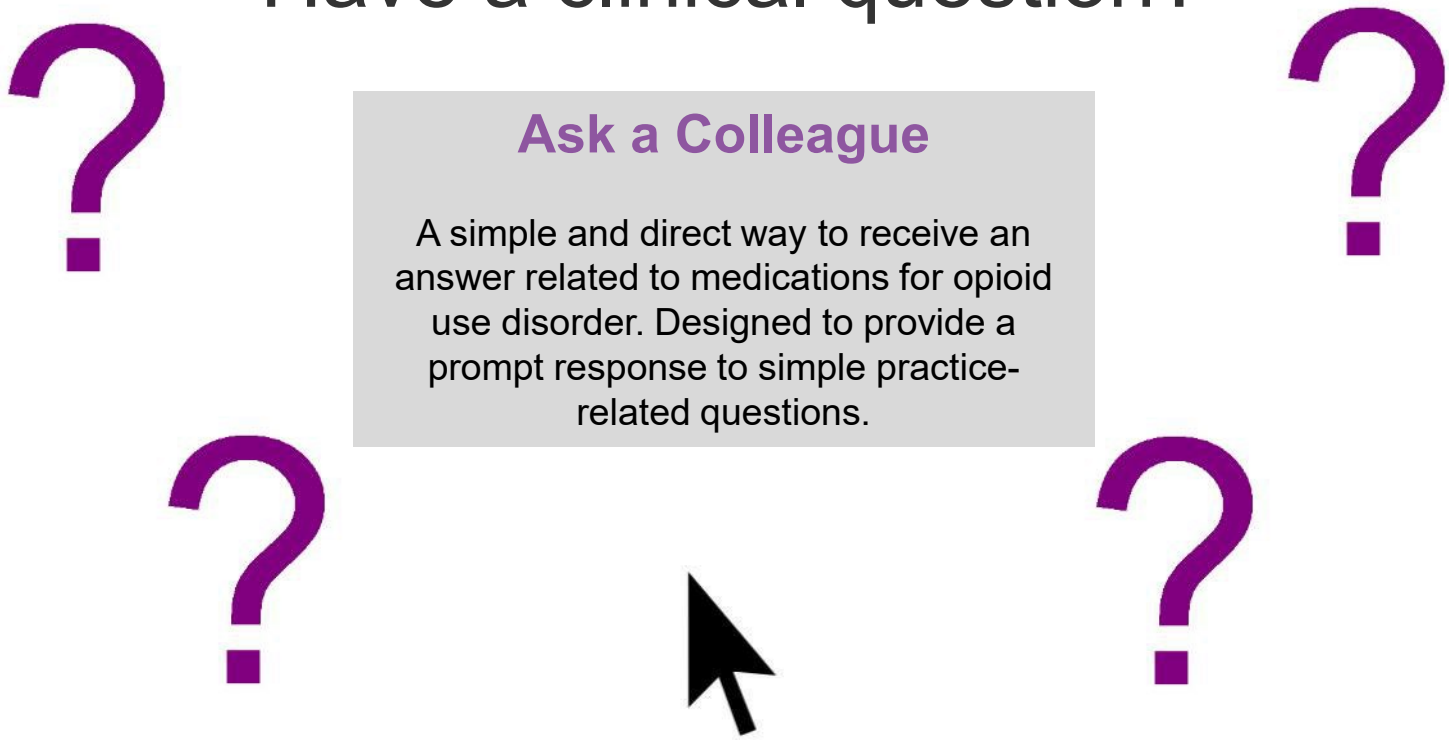
- PCSS-MOUD Mentor Program is designed to offer general information to clinicians about evidence-based clinical practices in prescribing medications for opioid use disorder.
- PCSS-MOUD Mentors are a national network of providers with expertise in **addictions, pain, and evidence-based treatment including medications for opioid use disorder (MOUD)**.
- 3-tiered approach allows every mentor/mentee relationship to be unique and catered to the specific needs of the mentee.
- No cost.

For more information visit:

https://pcssNOW.org/mentoring/

PCSS-MOUD Discussion Forum

Have a clinical question?



Ask a Colleague

A simple and direct way to receive an answer related to medications for opioid use disorder. Designed to provide a prompt response to simple practice-related questions.

http://pcss.invisionzone.com/register

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PCSS-MOUD is a collaborative effort led by the American Academy of Addiction Psychiatry (AAAP) in partnership with:

Addiction Policy Forum	American College of Emergency Physicians*
Addiction Technology Transfer Center*	American College of Medical Toxicology
African American Behavioral Health Center of Excellence	American Dental Association
All Rise	American Medical Association*
American Academy of Child and Adolescent Psychiatry	American Orthopedic Association
American Academy of Family Physicians	American Osteopathic Academy of Addiction Medicine*
American Academy of Neurology	American Psychiatric Association*
American Academy of Pain Medicine	American Psychiatric Nurses Association*
American Academy of Pediatrics*	American Society for Pain Management Nursing
American Association for the Treatment of Opioid Dependence	American Society of Addiction Medicine*
American Association of Nurse Practitioners	Association for Multidisciplinary Education and Research in Substance Use and Addiction*
American Association of Psychiatric Pharmacists	Black Faces Black Voices
American Chronic Pain Association	Coalition of Physician Education

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Columbia University, Department of Psychiatry*	Northwest Portland Area Indian Health Board
Council on Social Work Education*	Partnership to End Addiction
Faces and Voices of Recovery	Physician Assistant Education Association
Mobilize Recovery	Project Lazarus
NAADAC Association for Addiction Professionals*	Public Health Foundation (TRAIN Learning Network)
National Alliance for HIV Education and Workforce Development	Sickle Cell Adult Provider Network
National Association of Community Health Centers	Society for Academic Emergency Medicine*
National Association of Social Workers*	Society of General Internal Medicine
National Council for Mental Wellbeing*	The National Judicial College
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