

# OVERDOSE RESPONSE STRATEGY

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## Stimulant Use Disorder and Treatment

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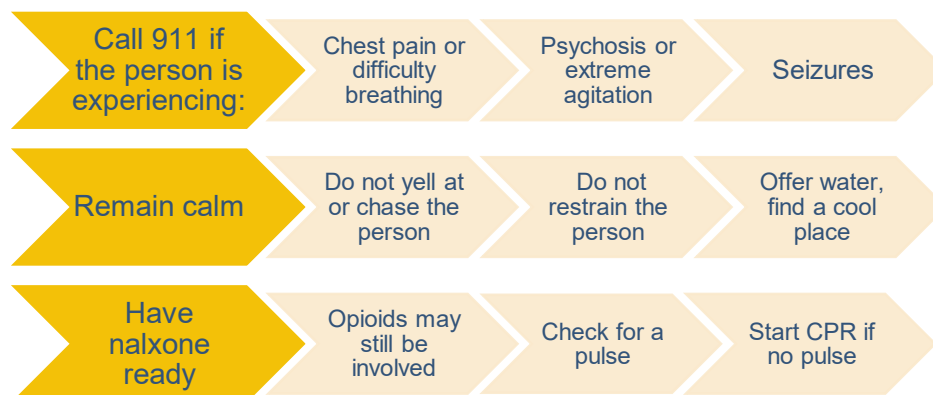
### An Increase in Stimulant Overdoses

Drug use patterns are changing across the United States. As fatal overdoses tied to the opioid epidemic are decreasing, polysubstance and stimulant-only overdose fatalities are increasing. According to the Centers for Disease Control and Prevention (CDC), cocaine was present in 29,449 fatal overdoses in 2023: a seven percent increase from 2022.<sup>1</sup> Psychostimulants with abuse potential, including methamphetamine, were present in 34,855 overdose deaths in 2023: an increase of 2 percent from the previous year.<sup>1</sup> Fatality data for subsequent years remains provisional in many jurisdictions. Additionally, only 1 percent of fatal overdoses in 2010 had any stimulant present; however, stimulant presence increased to 32 percent in 2022.<sup>2</sup> From 2018-2024, 14.5 percent of all fatal overdoses were attributed solely to the presence of stimulants.<sup>3</sup>

### What is a stimulant?

- “Stimulant” most commonly refers to cocaine (powder and crack), methamphetamine, ecstasy or MDMA and diverted prescription stimulants.<sup>1</sup>
- When snorted, smoked, injected or otherwise consumed, stimulants act upon the body’s central nervous system to create feelings of alertness, euphoria, confidence and energy.<sup>1</sup>
- Stimulant use can increase blood pressure, heart rate and body temperature.<sup>4</sup>

### What should you do if you witness a stimulant overdose?<sup>1</sup>



# OVERDOSE RESPONSE STRATEGY

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## Drug Seizure Data

United States Customs and Border Protection (CBP) reported that in 2025, 77,100 kilograms of methamphetamine was seized as part of 2,917 individual interdiction incidents and 70,100 kilograms of cocaine was seized as part of 2,364 incidents.<sup>5</sup> Within the United States and according to the most recently available reporting, the Drug Enforcement Administration (DEA) seized 97.5 metric tons (97,500 kilograms) of cocaine in 2024 and 25,792 kilograms of crystalline methamphetamine in 2023.<sup>6,7</sup>

In 2024, the DEA reported an average purity of 84 percent for cocaine seized in the United States: a noted increase from 74 percent in 2013.<sup>7</sup> At time of seizure, the cocaine was found to be more pure than previous years as common cutting agents are found in smaller quantities. An average purity of 96.6 percent was reported with methamphetamine seizures.<sup>5,6,7</sup> It is important to note that seizure quantity and purity/potency data are law enforcement indicators and do not necessarily measure population exposure or risk.

## Associated Harms of Chronic Stimulant Use<sup>8,9,10</sup>

- Psychosis, extreme agitation
- Heart disease, heart attack and stroke
- Dental disease
- Nutritional deficits
- Exacerbation of mental health diagnoses
- Crimes of acquisition and domestic violence\*

\*It is important to note that methamphetamine use may aggravate existing risk factors for the perpetration of domestic violence rather than be its sole cause.

## Stimulant Use Disorder: Definition and Diagnosis

Stimulant use disorder (StUD) is the continued use of a substance like cocaine or methamphetamine despite risks and adverse effects to a person's physical or psychological wellbeing, their professional or personal life and difficulty stopping or reducing use.<sup>9</sup> When making a clinical diagnosis of StUD, two of the following criteria must be met within the past 12 months:<sup>9,11</sup>

### Symptoms:

1. Taking more than intended
2. Failing to cut down or stop
3. Using larger amounts over a longer period of time
4. Urges and cravings
5. Continued use despite negative impacts on school, work or relationships
6. Using stimulants in physically hazardous situations
7. Increased tolerance
8. Spending time on activities with the purpose of obtaining, using or recovering from using a stimulant
9. Spending less time on activities not involving stimulant use
10. Tolerance
11. Withdrawal symptoms

### Scoring:

#### Mild stimulant use disorder:

- 2-3 symptoms

#### Moderate stimulant use disorder:

- 4-5 symptoms

#### Severe stimulant use disorder:

- 6+ symptoms

\*Clinical discretion and other patient circumstances may alter the classification.

# OVERDOSE RESPONSE STRATEGY

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## **Treatment Modalities**

It is estimated that 85-90 percent of people with StUD are not receiving treatment.<sup>11</sup> Only 17.8 percent of governmental funding for substance use disorders goes to StUD treatment programs.<sup>1</sup> Expanding both the availability and understanding of StUD and its treatment is key to addressing the growing public health concern.

### **Contingency Management**

Contingency management (CM) is an evidence-based behavioral intervention to help a patient reach a desired and incentivized outcome.<sup>12</sup> When treating StUD, patients receive something of value like cash or a gift card after a negative urine test, attendance at certain number of therapy sessions or adherence to medication regimens.<sup>12</sup> Studies of CM programs have shown that when used for the treatment of StUD, CM is associated with reductions in the number of days of stimulant use, stimulant cravings and new onset stimulant use. The American Society of Addiction Medicine/American Academy of Addiction Psychiatry (ASAM/AAAP) asserts that contingency management has shown the greatest effectiveness in the treatment of stimulant use disorder, even as a stand-alone treatment.<sup>9</sup>

### **Community Reinforcement Approach**

The community reinforcement approach (CRA) supports individuals diagnosed with StUD in adopting a substance-free lifestyle that is more rewarding than a lifestyle involving substance use.<sup>12</sup> This is reinforced through programs that offer job skills training and other activities that encourage community participation.<sup>9</sup> The Substance Abuse and Mental Health Services Administration (SAMHSA) recommends that treatment programs using the CRA last 24 weeks and include drug screenings and group and individual counseling. Incorporating family and friends of the patient if agreed to by the patient, as well as recreational activities, are key components of the CRA.<sup>8,9</sup>

### **Cognitive Behavioral Therapy**

Cognitive behavioral therapy (CBT) is a therapeutic intervention that is meant to help patients identify thoughts and behaviors that negatively impact their lives. CBT is a short-term strategy that focuses on helping patients implement realistic strategies to help combat substance use disorder, anxiety, depression and other mental health diagnoses.<sup>9</sup> CBT is commonly used and may improve coping strategies and reduce substance use; however, CM shows the largest and most consistent effect in treating StUD.<sup>12</sup>

### **Matrix Model**

The Matrix Model can be used as part of treatment for stimulant use disorder. It combines individual counseling, CBT, family education, social support groups and patient workbooks. The model can be used implemented with many existing in-patient and out-patient treatment programs and encourages mutual support between patients. Key components of the Matrix Model include

# OVERDOSE RESPONSE STRATEGY

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scheduling, exercise, accountability agreements, trigger identification and strategies to overcome guilt and shame.<sup>8</sup>

## **Pharmacotherapy**

Unlike treatment for opioid use disorder (OUD), there are no medications approved for the treatment of stimulant use disorder by the U.S Food and Drug Administration (FDA). Various medications have been used off label to treat StUD, but with limited success. Antidepressant medications like bupropion and mirtazapine can be prescribed. Bupropion can improve mood but has shown little impact on cocaine abstinence. Bupropion has only demonstrated a small effect on methamphetamine abstinence for people who do not use substances every day.<sup>8,9,12</sup>

Anticonvulsant medications like topiramate have shown mixed results in methamphetamine abstinence and reduction in use.<sup>12</sup> The potentially desirable effects shown with topiramate can be offset by cognitive impairment and weight loss.<sup>13</sup> Amphetamine salts have been considered for treatment of stimulant use disorder in a similar manner to methadone or naltrexone treatment for OUD. The risks of this treatment modality are generally considered to outweigh the benefits because of complementary addiction potential, limited clinical trials and provider hesitancy.<sup>8,9</sup>

## **Limitations in Treatment and Research**

Development of more robust treatment options for StUD remain limited due to gaps in research and the current absence of FDA-approved medications to treat StUD. Of the studies conducted, participants are primarily men, with women making up less than 30 percent of study populations. People with existing mental health diagnoses have been excluded from more than 80 percent of clinical trials for StUD medication treatment.<sup>14</sup> Because mental health diagnoses and substance use disorder often present as comorbidities, the exclusion of a significant patient population limits accurate conclusions of pharmacological research. Additional limitations include small sample sizes, inconsistent study design, lack of follow-up and patient attrition rates. Furthermore, of the studies conducted, very few examine methamphetamine use and focus solely on people who use cocaine.<sup>12,14</sup>

## **Treatment Programs Across the United States**

The necessity for StUD treatment programs is highlighted by the increase in stimulant use, the purity and potency of stimulants like methamphetamine and cocaine and the rising rates of overdose fatalities from stimulants.<sup>1,2,3,7,9</sup> Several programs across the country stand out as leaders in both treating and studying StUD and can serve as models for other jurisdictions looking to implement similar initiatives.



TRUST Program and HEART Initiative – Montana Department of Public Health and Human Services (<https://dphhs.mt.gov/heartinitiative/>)

- Contingency management
- Justice-involved re-entry initiatives and expanded in-patient treatment

# OVERDOSE RESPONSE STRATEGY

PUBLIC HEALTH | PUBLIC SAFETY | PARTNERSHIP



START Program – Boston Medical Center, Grayken Center (<https://www.addictiontraining.org/>)

- Contingency management and medication for StUD
- Provider training and technical assistance



Be Well Institute on Substance Use and Related Disorders - UT Health San Antonio (<https://bewell.uthscsa.edu/research/medication-for-stimulant-use-disorder/>)

- Medication for StUD
- Statewide referral network
- Research and grant funding for providers

# OVERDOSE RESPONSE STRATEGY

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