

# Overramping: Psychostimulant Overdose

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2025



Grayken Center for Addiction  
Training & Technical Assistance  
Boston Medical Center



## Funders



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*Funding for this initiative was made possible (in part) by grant no. 1H79TI085588-02 from SAMHSA. The views expressed in written conference materials or publications and by speakers and moderators do not necessarily reflect the official policies of the Department of Health and Human Services; nor does mention of trade names, commercial practices, or organizations imply endorsement by the U.S. Government.*

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**The faculty and planning committee have no relevant financial relationships to disclose.**

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## AGENDA

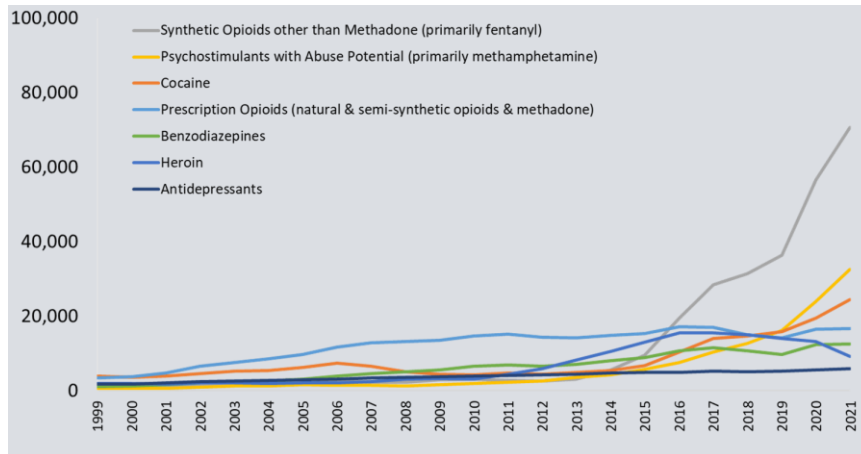
1. What is Overamping?
2. Risk factors for Overamping
3. Preventing Overamping
4. Responding/De-escalating patients experiencing Overamping

## Objectives

1. Review the epidemiology of stimulant use in the United States and the corresponding risk of psychostimulant overdose.
2. Identify the signs and symptoms of overamping.
3. Recognize the medical and psychological risks associated with overamping.
4. Employ the AGRO+ de-escalation strategy for patients experiencing overamping.
5. Devise strategies to reduce the risks of overamping as well as contingency plans for what to do if overamping should occur.

## Psychostimulant Review

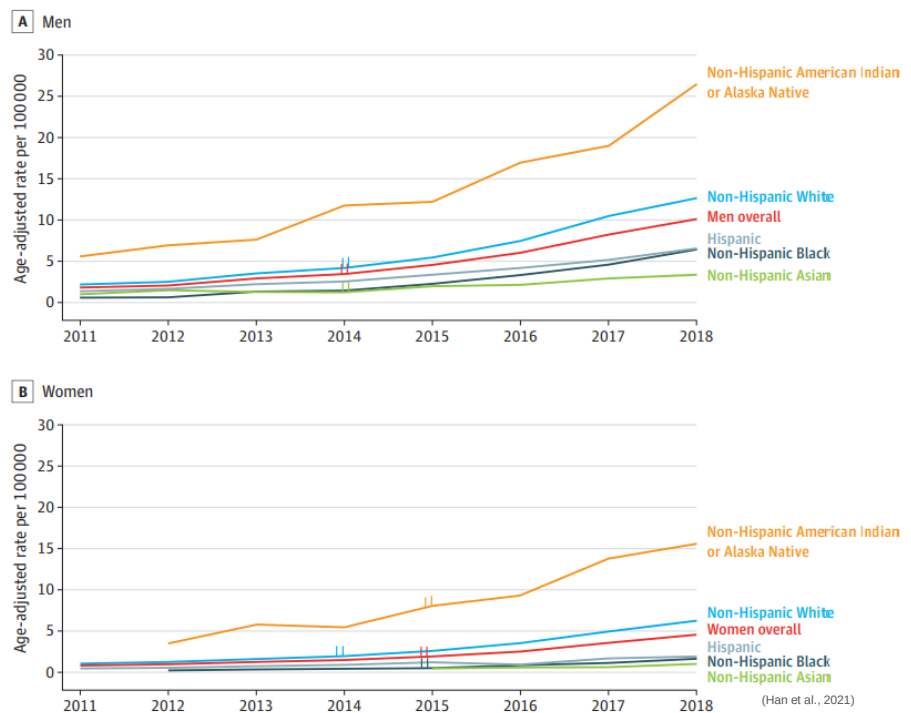
## Polysubstance is the norm



### Key findings:

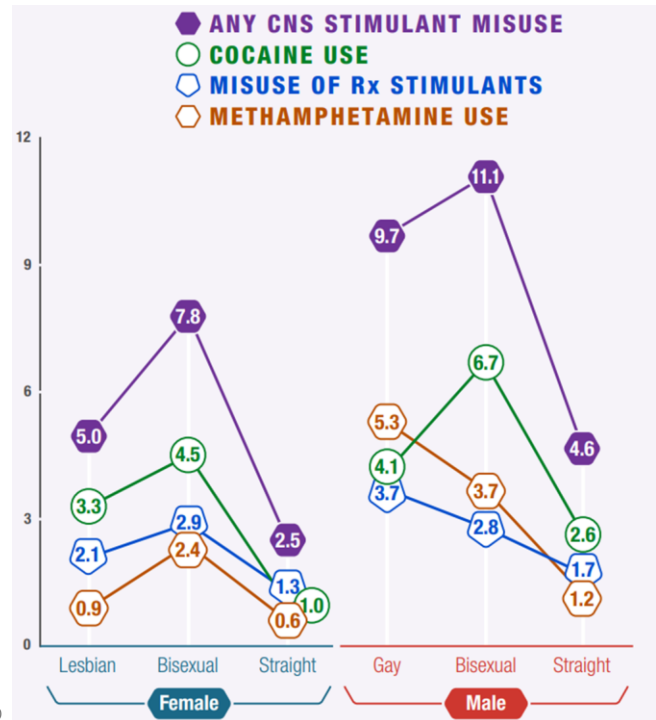
- Overdose deaths involving cocaine and meth are on the rise.
- Polysubstance use is common.

## Racial/Ethnic Disparities



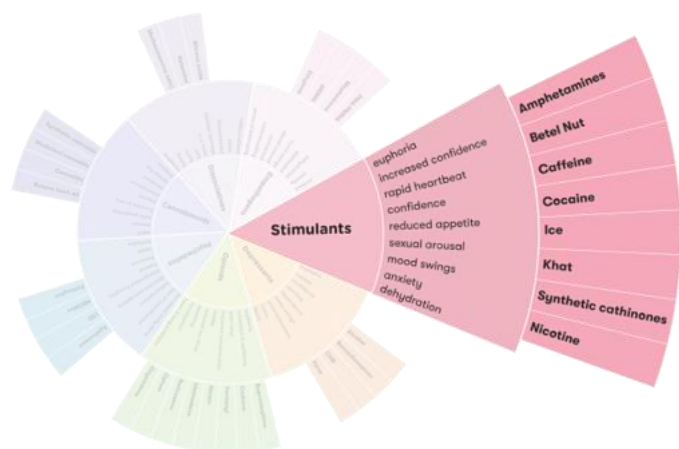
## Stimulant use and Gender/Sexuality Diverse Populations

(Substance Abuse and Mental Health Services Administration, 2023)



## What Are Psychostimulants?

- Substances that are colloquially called “uppers”
- May be legal or illicit.
- Many different routes of use including ingestion, insufflation, injection, inhaled, and intrarectal/vaginal.
- Stimulant use may cause severe medical complications including acute kidney injury and cardiovascular complications.



## Cocaine Basics

**Route of Use:** Intranasal, Intravenous, Smoked/Inhaled

**Metabolized:** Rapidly absorbed, metabolized, and excreted in the urine. Benzoylecgonine=metabolite

**Half-Life:** 30-90 minutes, IN slower onset and prolonged action v. IV or smoked.

**Major Risks:** Cardiovascular incident, hyperthermia, rhabdomyolysis, psychosis



## Methamphetamine Basics

**Route of Use:** Inhaled, Intranasal, Intrarectal, Intravenous

**Metabolized:** Mostly renally excreted and little is metabolized throughout the body.

**Half-Life:** Peaks ~2.5 hours after use. Elimination half-life is similar for intravenous, intranasal, and smoked routes.

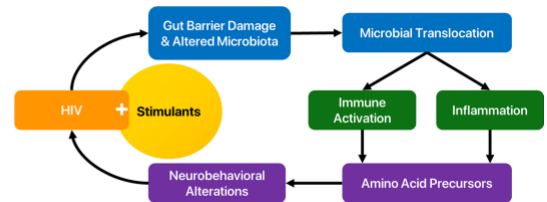
**Major Risks:** Cardiovascular incident, hyperthermia, rhabdomyolysis, psychosis



## Stimulants and HIV

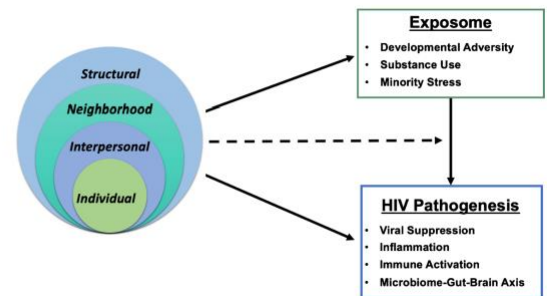
- Rates of stimulant use among people with HIV vary depending on study and geographic location. Some estimates range from 8-15% of PWH.

Fig.1 A microbiome-gut-brain axis model of co-occurring stimulant use and HIV



- Growing literature is examining the relationship between stimulant use and HIV

Fig.3 Multi-level modifiers of the associations of individual-level exposures and HIV pathogenesis



(Ross et al, 2023 and Jacquet, et al, 2018).

## Examples Of Preferred Language

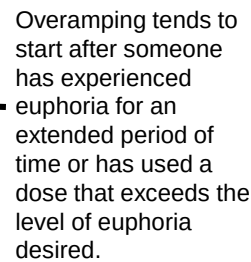
| Say this...                                                                        | Instead of this...                                                             |
|------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| person with a substance use disorder, person with addiction, person who uses drugs | Addict, junkie, crackhead, tweaker, abuser, pill-popper                        |
| Risky or unhealthy alcohol or drug use                                             | Misuse or abuse*                                                               |
| Medication for addiction treatment(MAT), treatment                                 | Medication-assisted treatment (MAT), replacement therapy, substitution therapy |
| Negative or positive urine toxicology test, in active use                          | Dirty or clean urine, dirty                                                    |
| Person in recovery                                                                 | Recovering addict, clean                                                       |
| Person living with HIV                                                             | Poz, "has the bug", "full blown" AIDS                                          |
| Altered perception of reality                                                      | Delusional, nuts, crazy, tweaking                                              |
| Protective behaviors, trauma response                                              | Violent, aggressive, monsters, tweaking                                        |

## The Cost Of Stimulant Use



Centers for Disease Control and Prevention. (2019). *Annual surveillance report of drug-related risks and outcomes - United States*. Washington DC: U.S. Department of Health and Human Services.

# OVERAMPING



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Wood, S., Sage, J. R., Shuman, T., & Anagnostaras, S. G. (2014).

## Recognizing Overramping

- Overamping is the psychostimulant equivalent of an overdose.
- Overamping can be characterized by both physical and psychological symptoms.
- Overamping is an emergency and can result in life-threatening complications like an overdose.
- Overamping is more unpredictable than opioid overdose though there are things that put patients at greater risk.



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## Signs of Overamping

### Physiological

- Headache
- Nausea/vomiting
- Bruxism
- Choreiform movements
- Xerostomia
- Hypertension



- Hyperthermia
- Tachycardia
- Angina
- Insomnia
- Seizure
- Circulatory collapse

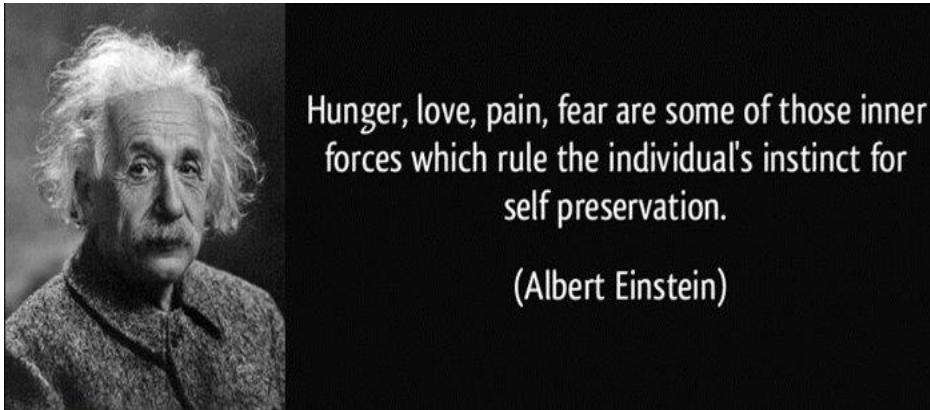
## Signs of Overamping

### Psychological

- Protective behaviors
  - Hypervigilance
  - Panic
  - Anxiety
  - Fear
  - Agitation
  - Defensive posturing
  - Increase sensory awareness
- Paranoia
- Altered perceptions of reality
- Persecutory perceptions of the world
- Restlessness
- Trauma-response
- Psychosis
- Hallucinations
  - Auditory
  - Visual
  - Tactile



## What Are Protective Behaviors?



## What Are Protective Behaviors?

- Protective behaviors are ways in which people act instinctually for self-preservation.
- Altered persecutory perceptions of reality force patients to go into survival mode.
- Acts of aggression, violence, or hypervigilance often occur in the setting of patients fearing for their lives.

# RISK FACTORS FOR OVERAMPING

## Risk factors for overamping

### THE 5 D'S OF OVERAMPING



## 5 D's Of Overamping

**Drug** - The type of stimulant someone takes as well as its purity greatly impacts the response someone may have. Some stimulants have direct effects on dopamine increasing the likelihood of an overamping situation.

**Dose** - The amount of the substance that someone uses has a direct effect on the response that they will experience.

**Delivery** - How the substance is delivered also contributes to the availability of the substance in the body.

## 5 D's Of Overamping

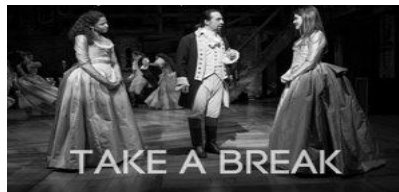
**Duration** - How long someone has been using for is another indicator for the risk of overamping. Using for several days in a row without a break increases the risk for a serious event.

**Disorders/Diseases** - Underlying health conditions, including mental illness, may affect someone's likelihood of experiencing overamping even in the setting of using small amounts or for a limited amount of time.

# PREVENTING OVERAMPING

## Basic Prevention

- Preventing incidents of overamping should target modifiable risk factors.
- Restoration of normal life functions including eating and sleeping can help to extend durations of time without use.
- Providing water to drink and to wash, may help extend time without use and hydrate the person to prevent worsening medical complications from use.

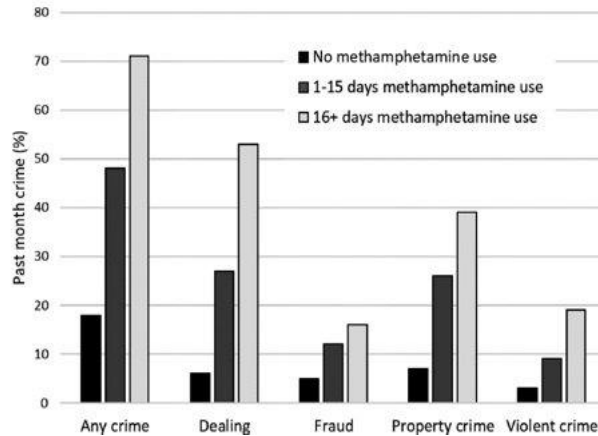


## Reducing Criminal-Legal Involvement

R. McKetin, et al.

Drug and Alcohol Dependence 216 (2020) 108262

Reduction in number of concurrent using days may reduce the risk for interaction with the criminal-legal system.



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## Changing Delivery Models



**Smoke Works**  
Harm Reduction Tools for Safer Smoking



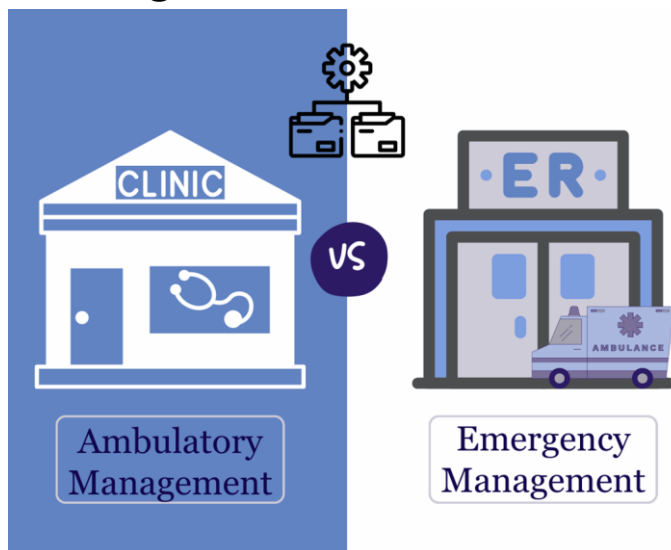
<https://smokeworksboston.wordpress.com/>

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# HOW TO RESPOND

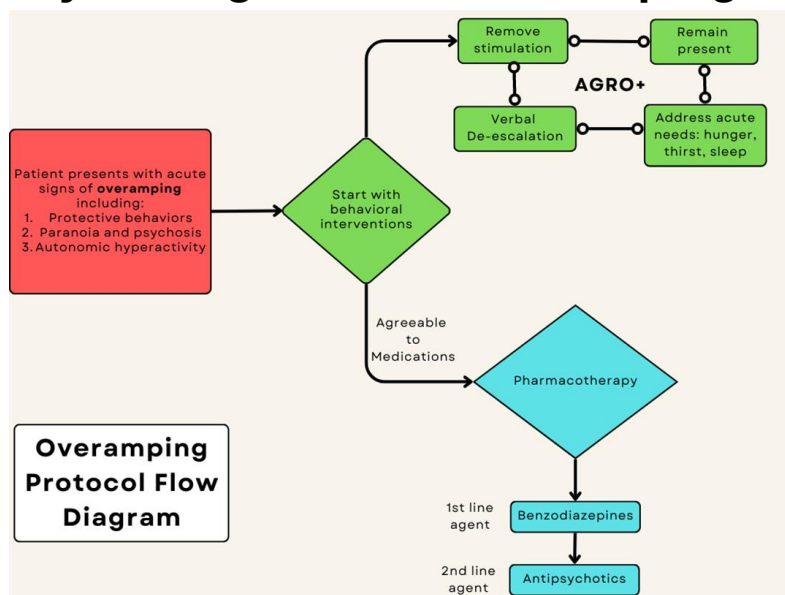
## Making a decision



### Red Flags for ER:

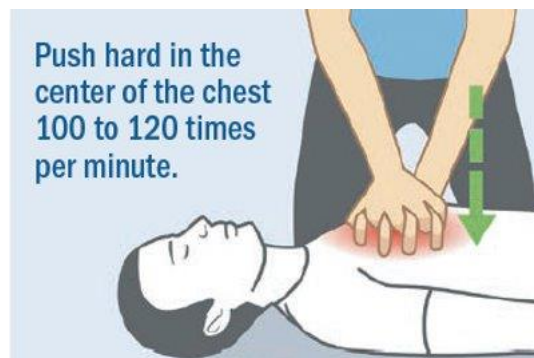
- EKG changes and/or unstable angina
- Uncontrollable hyperthermia (greater than 102F)
- Arrhythmia
- Refractory choreiform movements
- Hypertensive crisis with symptoms
- Seizure
- Syncope
- Respiratory distress

## Ambulatory management of overamping



## Responding To A Suspected Overdose

- Assess the scene
- Assess the person
- Call 911
- Attempt to De-Escalate the patient, if appropriate
- Stay with the person until help arrives
- Should the person suddenly become unresponsive perform CPR until help arrives.

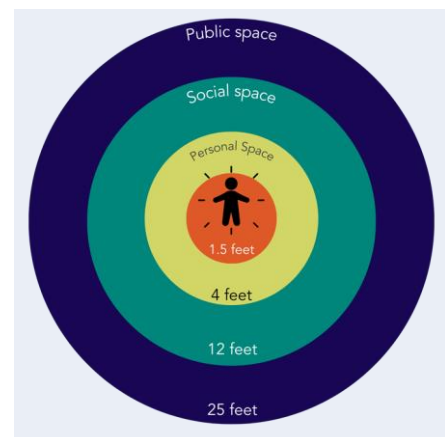


## Behavioral de-escalation



## Behavioral de-escalation

- Ensure your own safety- access to exit, safe distance, never approach a patient with a weapon.
- Avoid cornering the person, prolonged eye contact, and sudden threatening gestures.
- Minimize stimulation and distractions
- Maintain composure—remember it isn't personal!

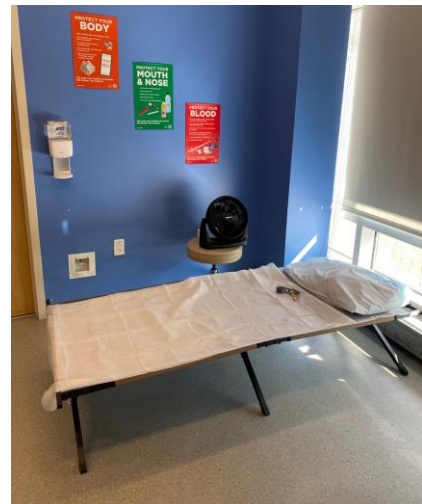


## VERBAL DE-ESCALATION

- Actively listen and convey empathy.
- Validate their concerns without endorsing delusions.
  - “I understand how you could feel that way.”
  - “This must be very scary to feel like people are after you.”
- Assist patient in developing a short-term plan.
  - “Other people who have felt similar to you found it helpful to....”
- Short-term plans should focus on patient safety and ideally begin development of rapport with patient to promote further engagement in treatment.

## Ensuring a Safe Space

- Patients with symptoms of **overamping** are promptly brought to START clinic’s “**cool-down**” space.
- **Non-pharmacological interventions to reduce symptoms:**
  - Sunglasses and ear plugs to reduce external stimuli
  - Electrolyte water and chewing gum to reduce dehydration
  - A cot with blankets and pillows to address symptoms of sleep deprivation



## Stimulant Psychosis Protocol

Benzodiazepines are 1st line treatment for psychosis while antipsychotics are 2nd line treatment.

|          | Medication                                      | Soft Max | Notes                                                                                                                                                                |
|----------|-------------------------------------------------|----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1st line | Midazolam<br>2-5 mg IV/IM/IN<br>Q5-15min<br>PRN | 10 mg    | • High doses may be needed                                                                                                                                           |
|          | Lorazepam<br>2-4mg IV/IM<br>Q10-15min<br>PRN    | 8 mg     |                                                                                                                                                                      |
| 2nd line | Haloperidol<br>5mg IV/IM<br>(repeat in 10m)     | 10 mg    | • ↑ seizure risk<br>• ↑ QTc prolongation<br>• ↑ temperature due to ↓ diaphoresis                                                                                     |
|          | Olanzapine<br>5-10mg IM<br>(repeat in 120m)     | 20 mg    |                                                                                                                                                                      |
| 3rd line | Ketamine<br>0.5-2 mg/kg IV or 3-5 mg/kg IM      | 500 mg   | • Appropriate if contraindications to 1st or 2nd line agents<br>• Appropriate if inadequate response to appropriate doses or combinations of 1st and 2nd line agents |

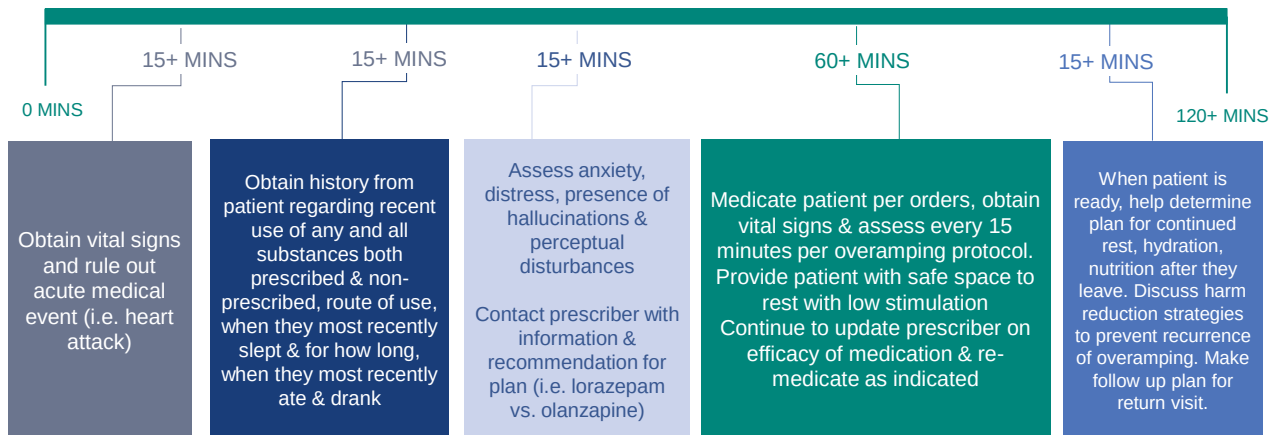
## Pharmacological intervention

### AMBULATORY MEDICATION PROTOCOL PSYCHOSTIMULANT OVERAMPING

|                               | Drug       | Dose                             | Route    | Monitoring                                                                               |
|-------------------------------|------------|----------------------------------|----------|------------------------------------------------------------------------------------------|
| First Line<br>Benzodiazepines | Lorazepam  | 0.5mg-1mg,<br>repeat in 30-60min | PO       | Monitor vital signs and for decreased agitation. If sleeping check q60min.               |
| Second Line<br>Antipsychotics | Olanzapine | 5-10mg<br>repeat in 120min       | PO or IM | Monitor for vital signs and for decreased agitation. Assess for extrapyramidal symptoms. |

## Acute Nursing Visits

**OVERAMPING: Approx. 120 minutes**



## Post-acute overramping management

What persists?

## Short term safety planning

- Identify a safe person
- Feelings of self-harm or suicide - seek emergency medical care
- Avoid highly stimulating situations
- Increase fluids and food intake
- Reality testing
- Refrain/reduce from ongoing use
- Return to clinic for re-evaluation

## POST ACUTE MANAGEMENT & CARE



Develop a post-acute care plan and safety plan for individuals who have experienced overamping, including incorporation of overamping prevention strategies.

- Harm reduction strategies
- Developing a safety plan
- Acknowledgement of safe space/people
- Connect/referrals to resources/communities to build support network
- Safer use kits (smoking, sniffing, booty-bumping)

## Evaluating persistent psychosis

Consider using a validated screening tool quantitatively.

Key things to evaluate:

- How bothersome are the persistent symptoms to the patient?
- Has the patient trialed an effective agent in the past?
- Are the symptoms expected to persist for a long time?

The 16-item Version of the Prodromal Questionnaire (PQ-16)

|     |                                                                                                                      | If TRUE: how much distress did you experience?               |                                                                                                             |          |        |
|-----|----------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|----------|--------|
|     |                                                                                                                      | None                                                         | Mild                                                                                                        | Moderate | Severe |
| 1.  | I feel uninterested in the things I used to enjoy.                                                                   | <input type="checkbox"/> True <input type="checkbox"/> False | <input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 |          |        |
| 2.  | I often seem to live through events exactly as they happened before (déjà vu).                                       | <input type="checkbox"/> True <input type="checkbox"/> False | <input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 |          |        |
| 3.  | I sometimes smell or taste things that other people can't smell or taste.                                            | <input type="checkbox"/> True <input type="checkbox"/> False | <input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 |          |        |
| 4.  | I often hear unusual sounds like banging, clicking, hissing, clapping or ringing in my ears.                         | <input type="checkbox"/> True <input type="checkbox"/> False | <input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 |          |        |
| 5.  | I have been confused at times whether something I experienced was real or imaginary.                                 | <input type="checkbox"/> True <input type="checkbox"/> False | <input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 |          |        |
| 6.  | When I look at a person, or look at myself in a mirror, I have seen the face change right before my eyes.            | <input type="checkbox"/> True <input type="checkbox"/> False | <input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 |          |        |
| 7.  | I get extremely anxious when meeting people for the first time.                                                      | <input type="checkbox"/> True <input type="checkbox"/> False | <input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 |          |        |
| 8.  | I have seen things that other people apparently can't see.                                                           | <input type="checkbox"/> True <input type="checkbox"/> False | <input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 |          |        |
| 9.  | My thoughts are sometimes so strong that I can almost hear them.                                                     | <input type="checkbox"/> True <input type="checkbox"/> False | <input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 |          |        |
| 10. | I sometimes see special meanings in advertisements, shop windows, or in the way things are arranged around me.       | <input type="checkbox"/> True <input type="checkbox"/> False | <input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 |          |        |
| 11. | Sometimes I have felt that I'm not in control of my own ideas or thoughts.                                           | <input type="checkbox"/> True <input type="checkbox"/> False | <input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 |          |        |
| 12. | Sometimes I feel suddenly distracted by distant sounds that I am not normally aware of.                              | <input type="checkbox"/> True <input type="checkbox"/> False | <input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 |          |        |
| 13. | I have heard things other people can't hear like voices of people whispering or talking.                             | <input type="checkbox"/> True <input type="checkbox"/> False | <input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 |          |        |
| 14. | I often feel that others have it in for me.                                                                          | <input type="checkbox"/> True <input type="checkbox"/> False | <input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 |          |        |
| 15. | I have had the sense that some person or force is around me, even though I could not see anyone.                     | <input type="checkbox"/> True <input type="checkbox"/> False | <input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 |          |        |
| 16. | I feel that parts of my body have changed in some way, or that parts of my body are working differently than before. | <input type="checkbox"/> True <input type="checkbox"/> False | <input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 |          |        |

# Psychosis Management

## Recurrent episodes of psychosis

- Patients who have experienced psychosis related to overamping are at risk for recurrent episodes of psychosis with continued use.
- May consider treatment with PRN antipsychotic medications.
  - Olanzapine, haloperidol, risperidone

## Persistent episode of psychosis

- Patients who have experienced psychosis (particularly tactile hallucinations) are at risk for persistent psychosis that may be overt or subclinical.
- May consider treatment with daily PO or a long-acting injectable antipsychotic.
  - Paliperidone, aripiprazole, haloperidol

# TAKE HOMES: ACUTE STIMULANT INTOXICATION

- Assess the scene and prioritize safety.
- De-escalate the patient by relocating to quiet space.
- DON'T PANIC! Be aware of body language and voice.
- Provide medication treatment for acute stimulant psychosis (benzodiazepines/antipsychotics) or assist patient in getting to setting that can provide these interventions.
- Plan to engage patient in outpatient addiction treatment services.



# Resources

## Virtual Drop-in Office Hours

*Monthly opportunities to ask your addiction-related questions*



To learn more and join an upcoming session, [click here](#) or scan QR code!

### General Office Hours:

2<sup>nd</sup> Thursday of each month from 5 – 6pm EST

### Stimulant-Focused Office Hours:

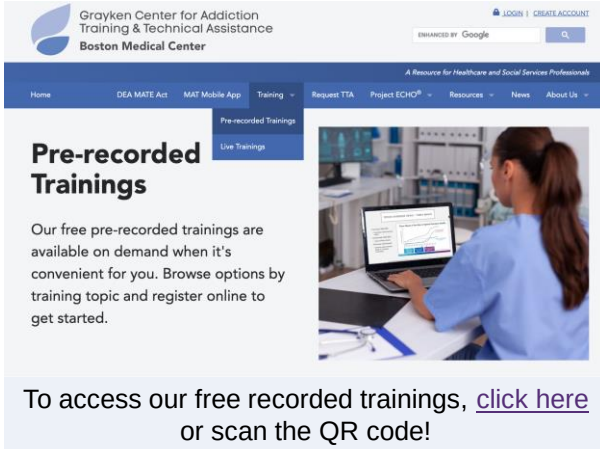
3<sup>rd</sup> Thursday of each month from 5– 6pm EST

- ☒ Hosted by BMC Grayken TTA Clinical Educators
- ☒ Open to all clinical providers and staff supporting those with substance use



## FREE Pre-Recorded Trainings

*Advancing Addiction Treatment: Building Knowledge of Substance Use & Specialty Topics; Substance Use Disorders 101; Nuts & Bolts of Buprenorphine Treatment*



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- ✓ 20 separate trainings on various **specialty topics**
- ✓ Count towards **DEA MATE Act** requirement
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## Harm Reduction Short Videos



we're excited to announce our new

# HARM REDUCTION SHORT VIDEO SERIES

The new Harm Reduction Educational Series is a collection of **15 short videos** now available as part of our virtual harm reduction toolkit developed to equip healthcare professionals and community partners with **practical harm reduction skills to better support patients who use substances**. Topics covered include **safer smoking**, **injecting**, **sniffing**, **booty bumping**, and **overdose prevention and reversal**.

[Click here](#) or scan QR code to watch!



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