OBAT TTA+ Office Based Addiction Treatment Training and Technical Assistance +

Principles of Methamphetamine Use Disorder

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Boston Medical Center | Grayken Center for Addiction Boston Medical Center | Boston University

DISCLOSURES

We have no financial or other perceived conflicts of interest to disclose in relation to this presentation.

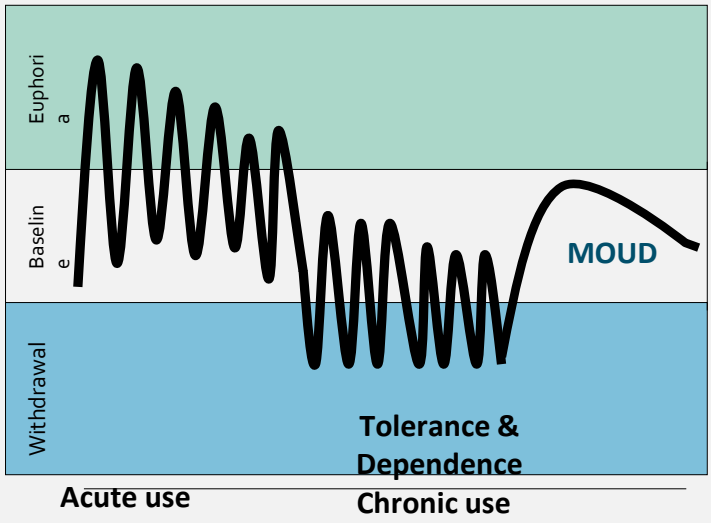
OBJECTIVES

Participants will be able to:

- Identify the role of psychostimulants in the overdose epidemic.
- Describe the difference between methamphetamine intoxication, overdose, and withdrawal.
- Recognize at least two evidence-based treatments for patients with a methamphetamine use disorder.
- Apply harm reduction and de-escalation principles to promote safety for patients who continue to use methamphetamines and their caregivers.

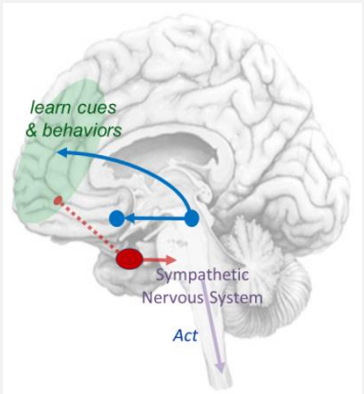
THE EPIDEMIC

ADDICTION AS AN EPIDEMIC

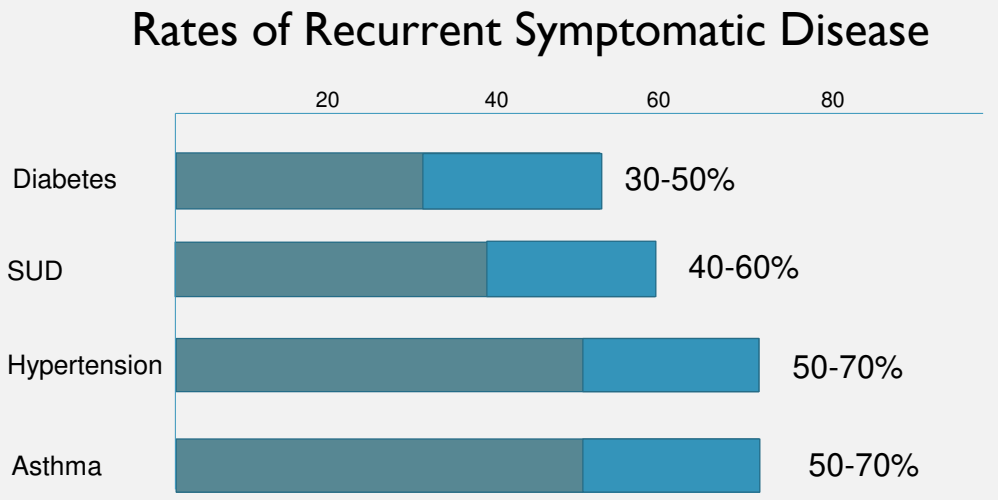


NIH

Compulsive seeking and use, despite harmful consequences

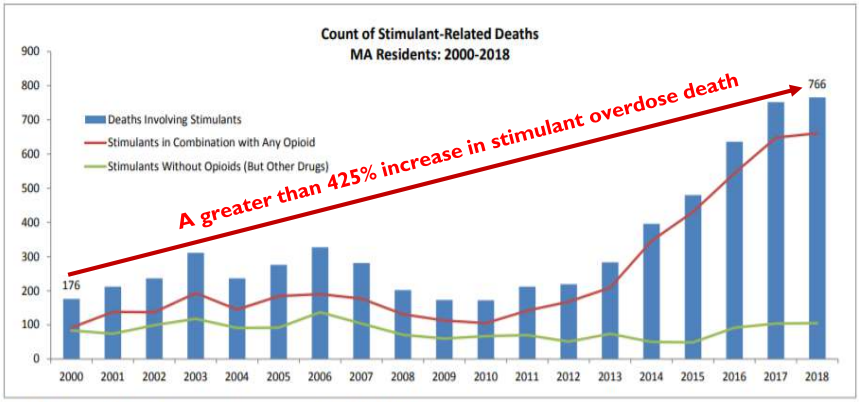


ADDICTION AS AN EPIDEMIC OF CHRONIC DISEASE



Adapted from: http://www.drugabuse.gov/publications/media-guide/science-drug-abuse-addiction

STIMULANT INVOLVED OVERDOSE DEATHS ARE ON THE RISE!

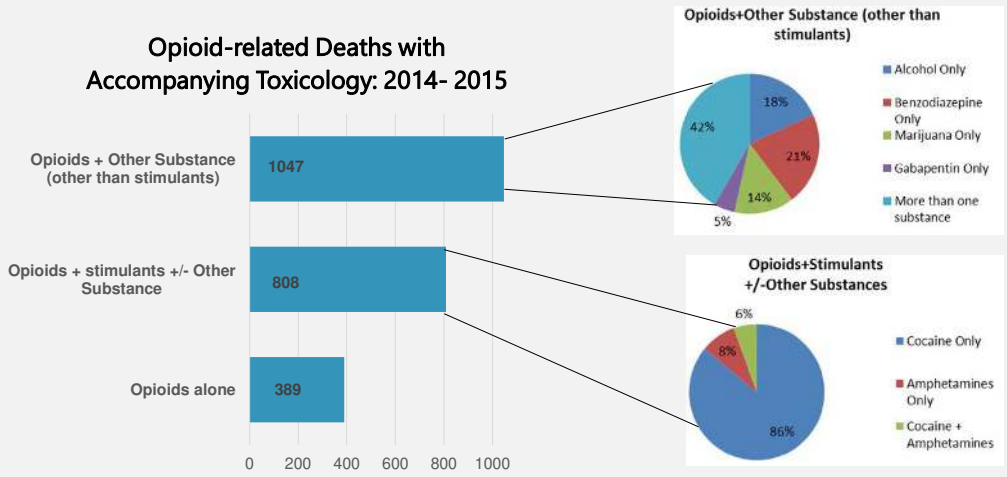


Key findings:

- Counts of deaths involving stimulants have increased 25% per year since 2010.
- The majority of deaths involving stimulants also involve opioids (86%).
- From 2000 to 2018, Massachusetts experienced an estimated 425% increase in deaths involving stimulants per year– most being opioid associated.

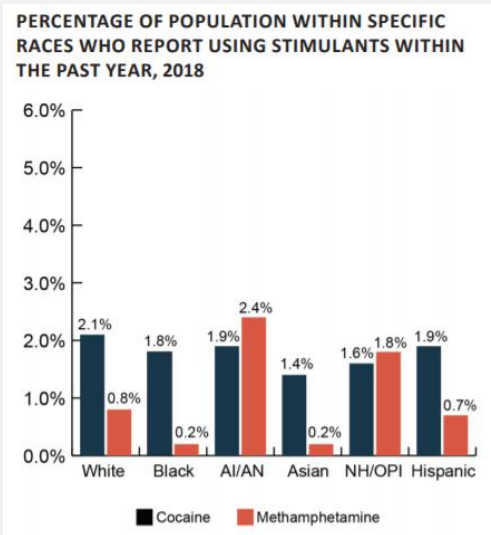
(MADPH, 2020)

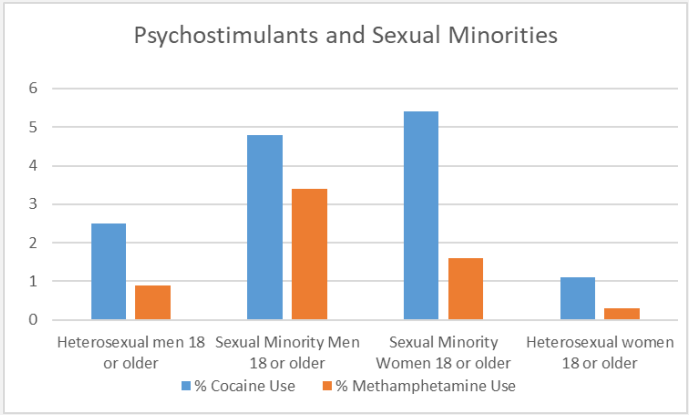
POLYSUBSTANCE USE AND RELATED OVERDOSE DEATHS



(MADPH, 2018)

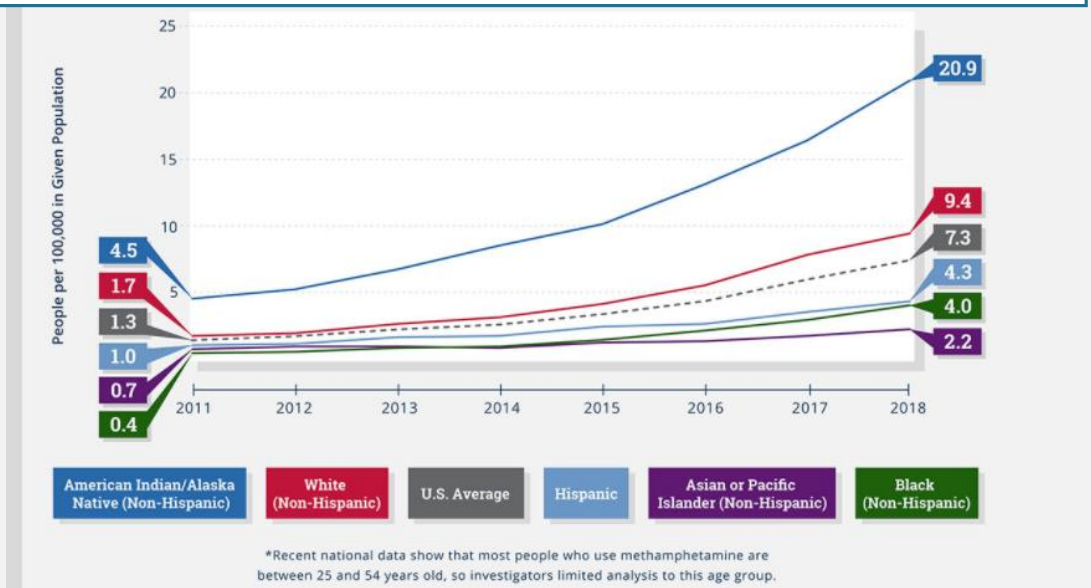
DISTRIBUTION OF PSYCHOSTIMULANT USE



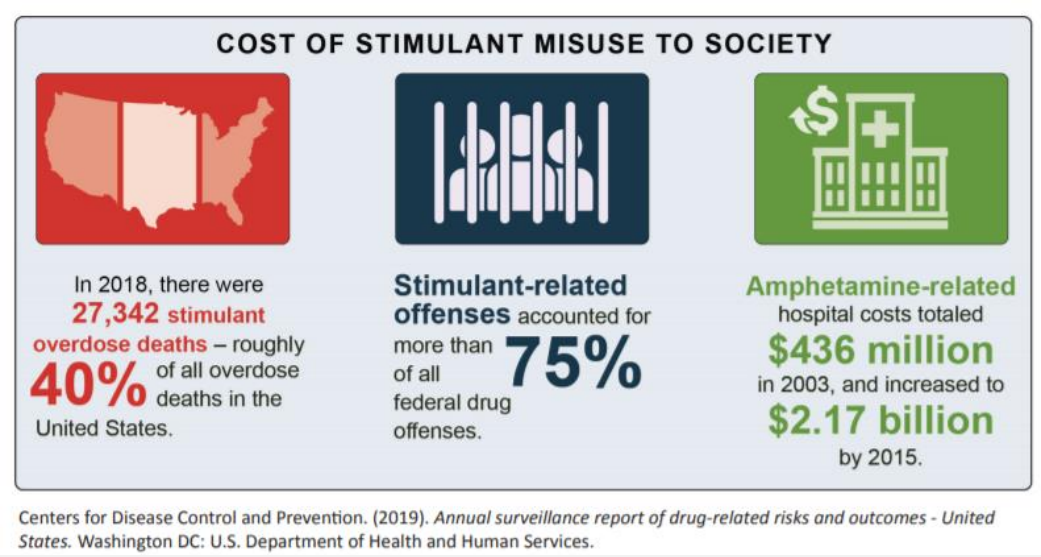


(SAMHSA, 2020)(NSDUH, 2015)

OVERDOSE DEATH DISPARITIES



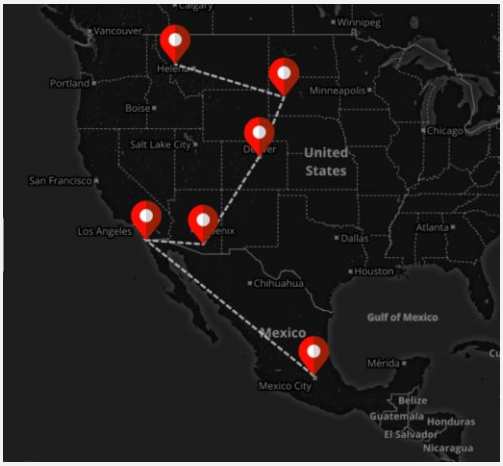
THE COST OF STIMULANT USE



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.

METHAMPHETAMINE PIPELINE

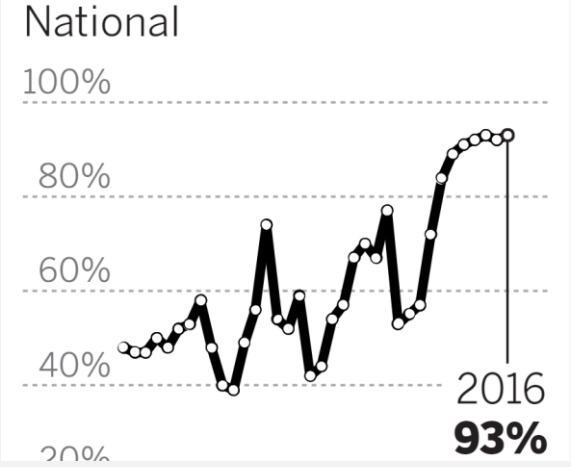
HOMEMADE OR IMPORTED?



(The Meth Effect Team, 2017)

THE PURITY TEST

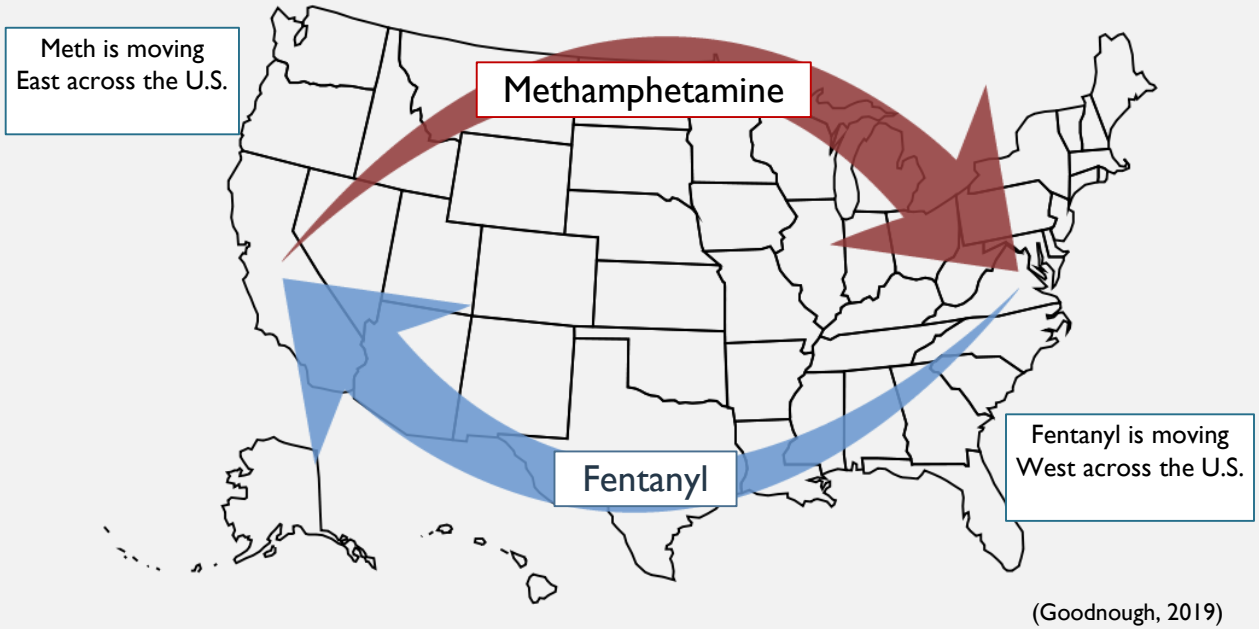
- Since the enactment of the 2005, Combat Methamphetamine Epidemic Act (CMEA), there has been an increase in purity of methamphetamine.
- The Iron Law of Prohibition



(Beletsky & Davis, 2017)

(Davis, 2017) (DEA, 2017)

THE MIGRATION OF METHAMPEHTAMINE



(Goodnough, 2019)

METHAMPHETAMINE ACTION

THE BASICS

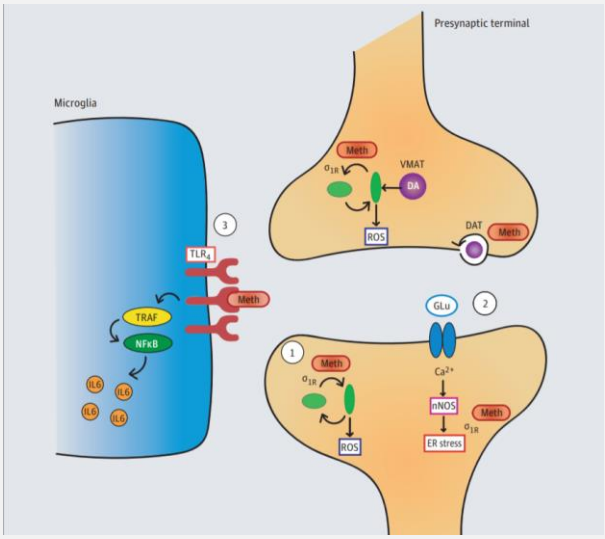
Drug Class: Stimulant

Route of Use: Inhaled, Intranasal, Intrarectal, Intravenous

Metabolized: Mostly renally excreted. Little is metabolized throughout the body.

Major Risks: Cardiovascular incident, Hyperthermia, Rhabdomyolysis, Psychosis

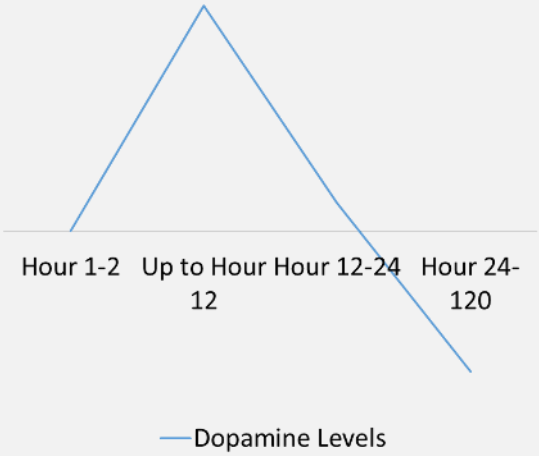
DOPAMINE

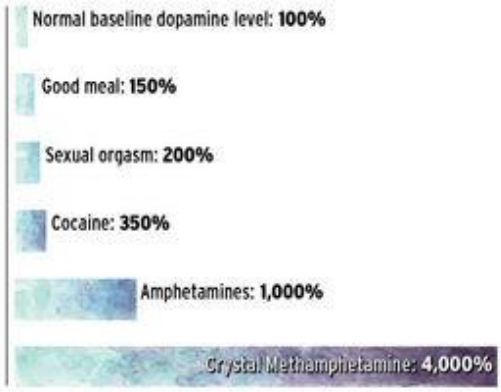


- Unlike other stimulants, methamphetamine both increases dopamine in the synaptic terminal and it prevents its reabsorption.
- The excessive dopamine is responsible for many of the symptoms of intoxication.
- Alternatively, lack of dopamine during withdrawal is the cause of many of the symptoms experienced by patients.

(Paulus & Stewart, 2020)

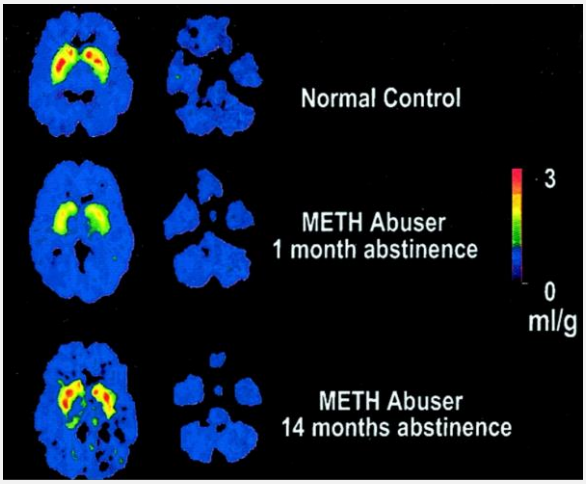
DOPAMINE





Kaiser, K., 2015

BRAIN INJURY

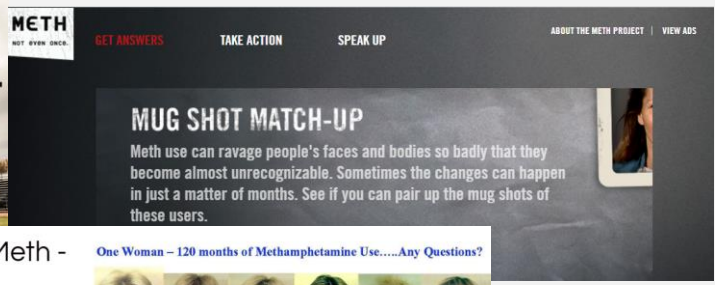


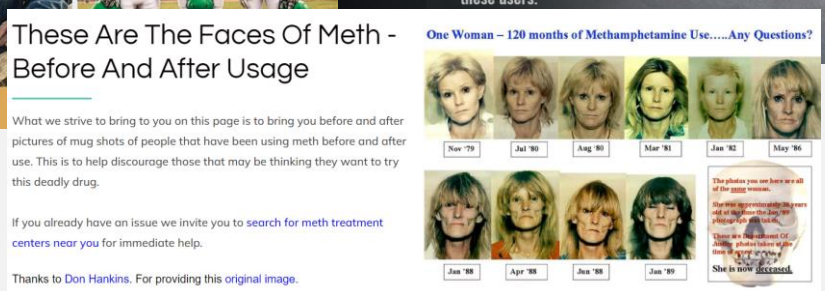
Source: Volkow, N,

Though Dopamine terminals are able to recover in patient's that use meth, the extent of damage and time to recovery is correlated with the extent and frequency of drug use.

STIGMA

STIGMA IN THE MEDIA




These Are The Faces Of Meth - Before And After Usage

What we strive to bring to you on this page is to bring you before and after pictures of mug shots of people that have been using meth before and after use. This is to help discourage those that may be thinking they want to try this deadly drug.

If you already have an issue we invite you to search for meth treatment centers near you for immediate help.

Thanks to Don Hankins. For providing this original image.

Stigma about what meth is and who uses it goes beyond the discrimination and 'othering' that we see with other SUDs.

Fear mongering that patients using meth are 'Soul-less' and hopeless pervades even SAMHSA.

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

METHAMPHETAMINE USE AND TREATMENT

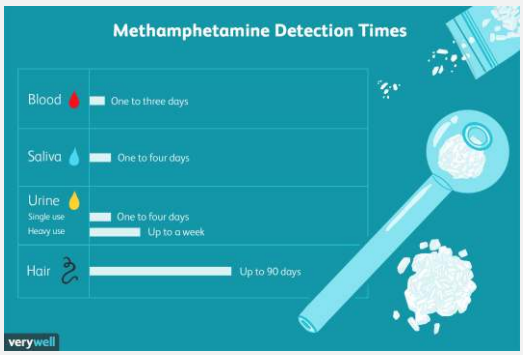
METHAMPHETAMINE: HOW ITS USED

Slam=IV

Smoked/Puffed=IH

Sniff/Snort= IN

Booty Bump=IR



- Injection
- Inhaled
- Intranasal
- Intrarectal

Methamphetamine Use

Intoxication

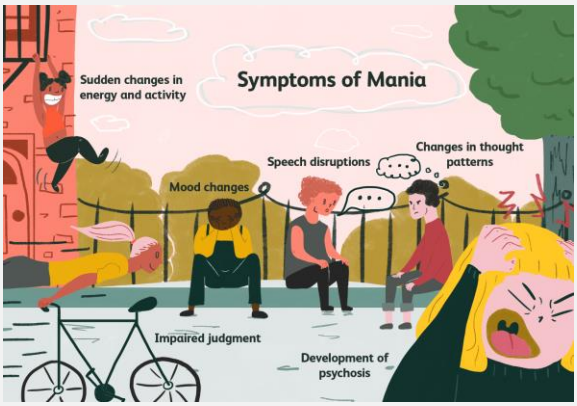
Mania

Altered Thinking

Hyper-sexuality

Hyper-focused

Folks are 'out to get them'



Methamphetamine Withdrawal

Acute Withdrawal

0-10 Days

Fatigue

Depression

SI

Irritability

Hallucinations

Subacute Withdrawal

10-21 Days

Fatigue/Exhaustion

Depression

Mood Swings

Aggression

Brain Fogginess

Disturbed Sleep

Protracted Withdrawal

21 days- 12months

Anhedonia

Depression

Sexual Dysfunction

Decreased Libido

TREATMENT OPTIONS

Inpatient treatment may be advisable for those with severe disease or who struggle to engage in outpatient treatment.

Inpatient treatment programs with experience are the best options. Could consider CSS, TSS, dual diagnosis, ATS if other substances used, or other residential treatment.

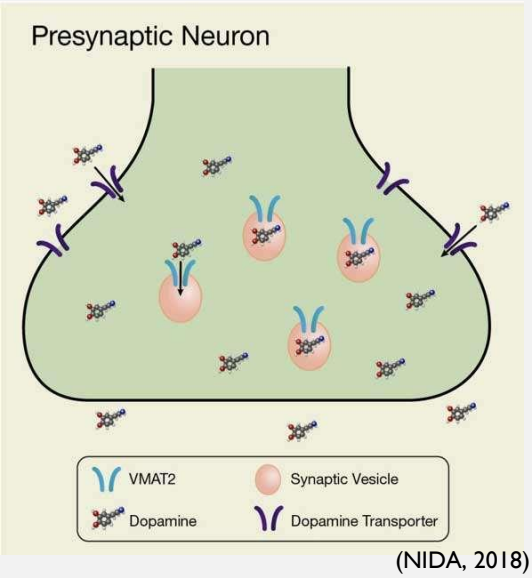
Mandating treatment groups can be difficult in early methamphetamine withdrawal because of the associated fatigue and depression patients experience

MEDICATIONS TO TREAT MUD

There are currently **NO** FDA approved medications to treat methamphetamine use disorder.

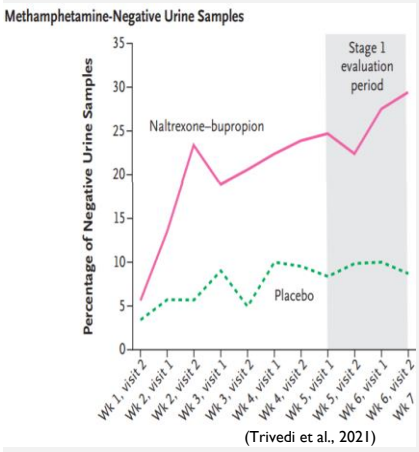
Mainstays of medication treatment include keeping the patient safe, regulating sleep, and treating psychotic symptoms.

(S3 Practice Guidelines, 2016)

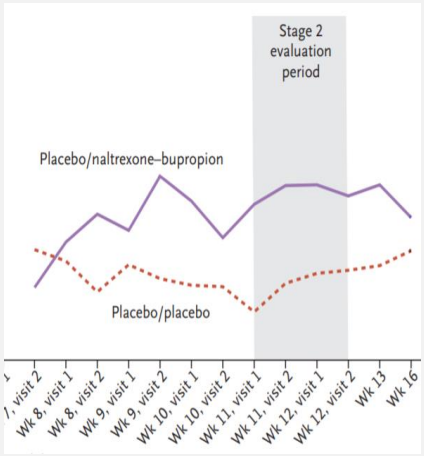


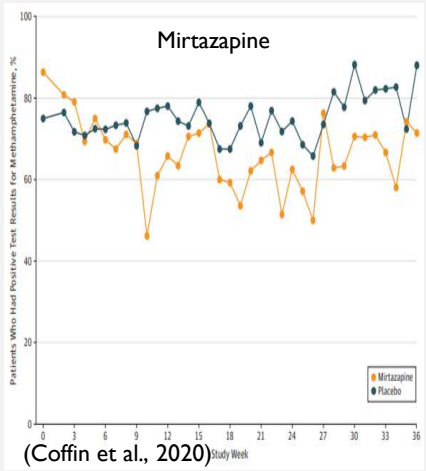
(NIDA, 2018)

MEDICATIONS WITH PROMISE



(Trivedi et al., 2021)





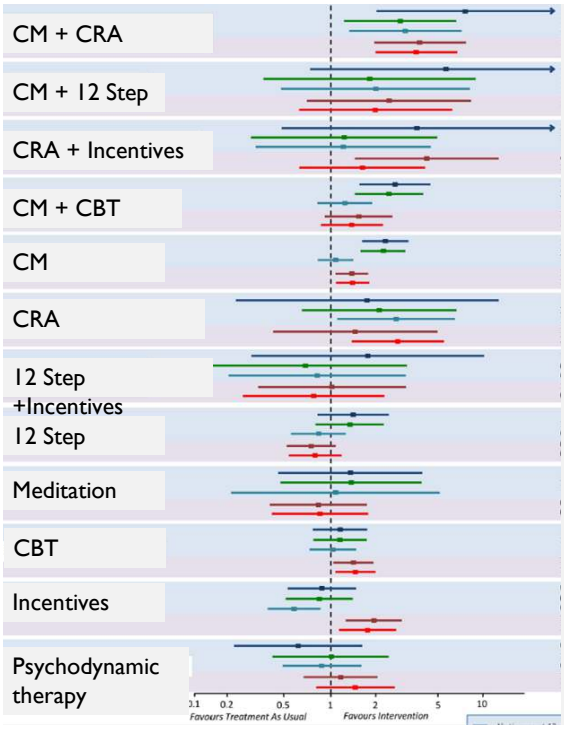
(Coffin et al., 2020)

STRENGTH-BASED RECOVERY MODELS

- Recent data suggests that punitive treatment programs prohibit long term recovery.
- Models of care that work to develop recovery capital and build on patient strengths have the most efficacy in methamphetamine treatment.
- Settings that are trauma-informed and emphasize safety and growth, but do not mandate specific treatment models may be the best suited.

TREATING METHAMPHETAMINE USE DISORDER

Evidence-Based Treatments	Description of Treatment
Contingency Management	Provides incentives ($, gift cards, motivational encouragement, etc) for treatment attendance and expected urine toxicology screens.
Matrix Model	An 8-16-week highly structured intensive outpatient group that utilizes relapse prevention, group therapy, connection to self-help, and exploration of underlying causes of disease. Regular UDS screening.
Exercise Supported Recovery	Varying exercise programs have been described, but those with a combination of daily aerobic and anaerobic exercise are associated with positive correlation for long term recovery.
Trauma-Informed Care Seeking Safety	A therapeutic model for the treatment of co-occurring PTSD and SUD that emphasizes the need to be safe in order to explore and cope with trauma.



COMPARING BEHAVIORAL HEALTH APPROACHES

Combination behavioral health approaches are the best at producing abstinence at 12 weeks.

***Contingency management combined with additional behavioral health approaches plays a key factor in this model.

(DeCrescenzo, et al, 2018)

CONTINGENCY MANAGEMENT

A therapeutic treatment program based on the principles of behavior analysis

aka

Positive Behavior = Reward.

In addition to therapy patients receive rewards (usually monetary) for continued abstinence verified by UDS results and for engaging in recovery based activities.

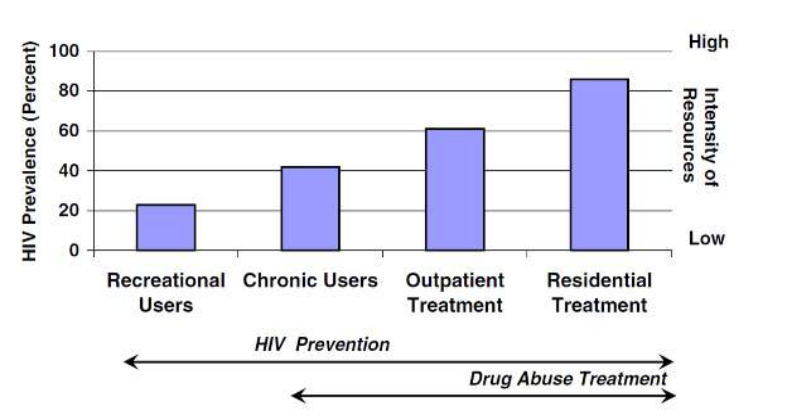
As patients continue in treatment and remain abstinent, the magnitude of reinforcement provided increases until completion of the treatment program.

For homeless patients monetary rewards not only reinforce the periods of abstinence, but also provide assistance in building the quality and quantity of resource availability for sustained recovery capital.

(Petry, 2011)

SYNDEMIC EPIDEMICS

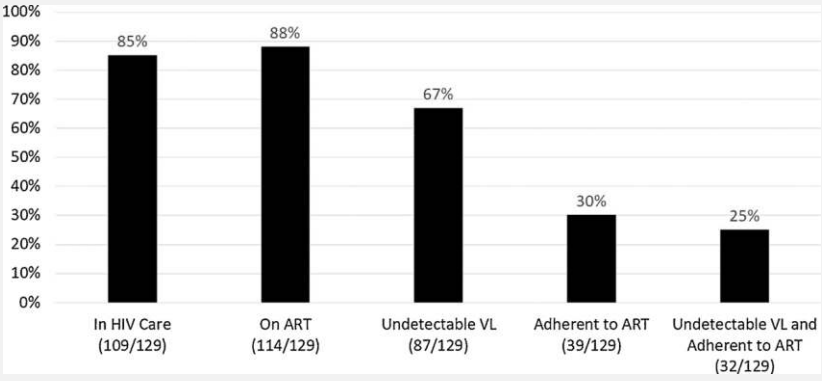
POPULATIONS DISPROPORTIONATELY AFFECTED



HIV acquisition among MSM who use methamphetamines is a "Time-to-Event" association.

(Reback & Shoptaw,

TREATMENT AS PREVENTION



Despite lower levels of HIV engagement in care, and self-reported lower levels of ART adherence, we still see a fairly robust level of undetectable VLs.

Jin, et.al. 2018

HIV PREVENTION

PrEP= Pre-exposure prophylaxis

Once daily pill

TDF/FTC

U=U, Undetectable=Untransmissable

2-3 pills once daily

TDF/FTC + DTG, many others

nPEP= Non-Occupational Post-Exposure Prophylaxis

2-3 pills once daily

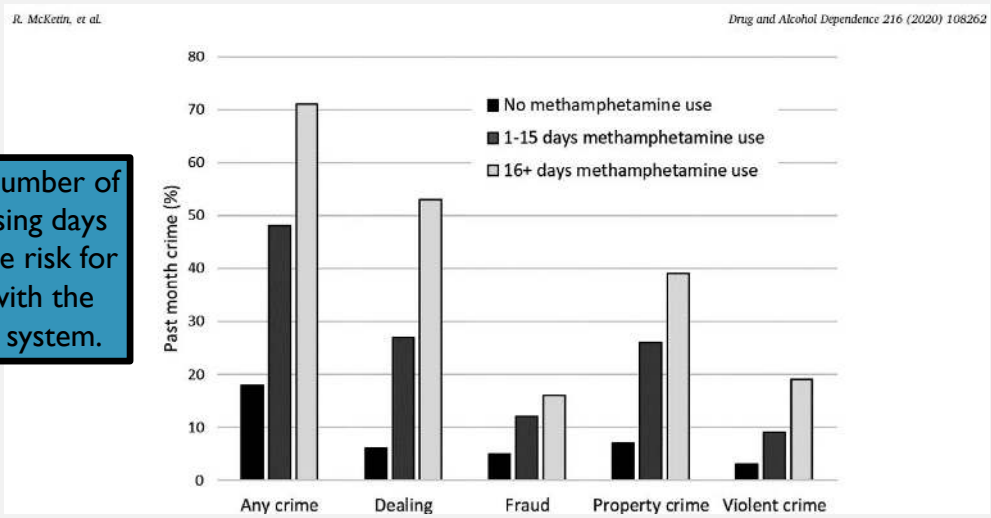
TDF/FTC + DTG

People who use drugs are able to take medicines to prevent HIV and are able to take medicines to treat HIV!!!

(Hoenigl, et al 2018)

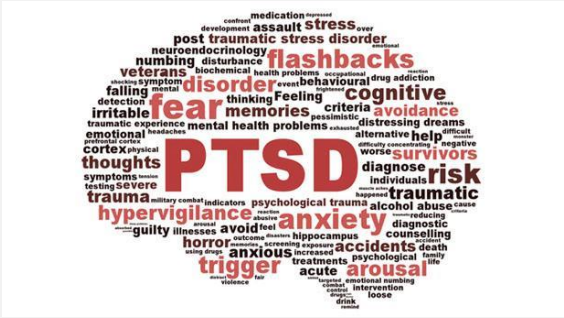
REDUCING CRIMINAL-LEGAL INVOLVEMENT

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



METHAMPHETAMINE RELATED TRAUMA

- About 70% of some sub-populations experienced physical abuse as children. (Barati et. Al., 2014)
- Upwards of 30% of all patients presenting for MUD treatment report sexual assault during intake. (Schafer et.al, 2013)



METHAMPHETAMINE RELATED TRAUMA

Table 2
Associations between methamphetamine use and violence outcomes (age 18–35) after adjustment for confounding and time-dynamic covariate factors.

Outcome	*Odds ratio* (95 % *CI*)[a]	
	Model 1: adjusted for confounding factors[c,e]	Model 2: adjusted for confounding factors + time-dynamic covariates[d,e]
Violence perpetration[b]	2.42*** (1.56, 3.76)	1.60* (1.01, 2.54)
Violence victimization[b]	2.64*** (1.74, 4.01)	1.57* (1.00, 2.47)
Intimate Partner Violence Perpetration	1.87** (1.27, 2.74)	1.55* (1.04, 2.30)
Intimate Partner Violence Victimization	1.43* (1.06, 1.93)	1.09 (0.80, 1.49)

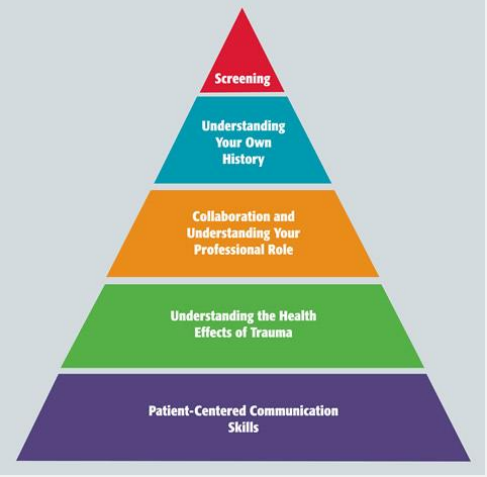
People who use methamphetamines are both the perpetrators of violence and the victims of violence.

There is a significant dose-response relationship between violence perpetration, victimization and methamphetamines use.

Sexual Trauma is common among patients that misuse methamphetamines. Trauma-informed care should be the standard of care for all patients.

TRAUMA-INFORMED CARE

- Assume that everyone has experienced some kind of trauma and ask questions accordingly.
- Preface questions with the reason you are asking them.
- Don't ask for details related to a particular trauma. Ask for the bare minimum of what you need to know to carry forward exceptional care.



(SAMHSA, TIP 57)

TRAUMA INFORMED COUNSELING PEARLS

- Disclosure of trauma is not the goal!!!
- Focus on emphasizing the importance of resiliency.
- Help build in protective factors to the patient's life and network.
- Anticipate off-hours or unscheduled crises that require an appropriate and timely response.

(SAMHSA, TIP 57)

TRAUMA INFORMED COUNSELING PITFALLS

- Early or ungrounded exploration of traumatic events can lead to relapse or unintended mental health complications.
- Characterizations of perpetrators of violence or trauma may trigger realizations of actions of the patient as perpetrator.
- While healing touch is appropriate for some patients it is not appropriate for all situations. Never assume. Seek consent.

(SAMHSA, TIP 57)

OVERAMPING: STIMULANT OVERDOSE

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DEFINING OVERAMPING

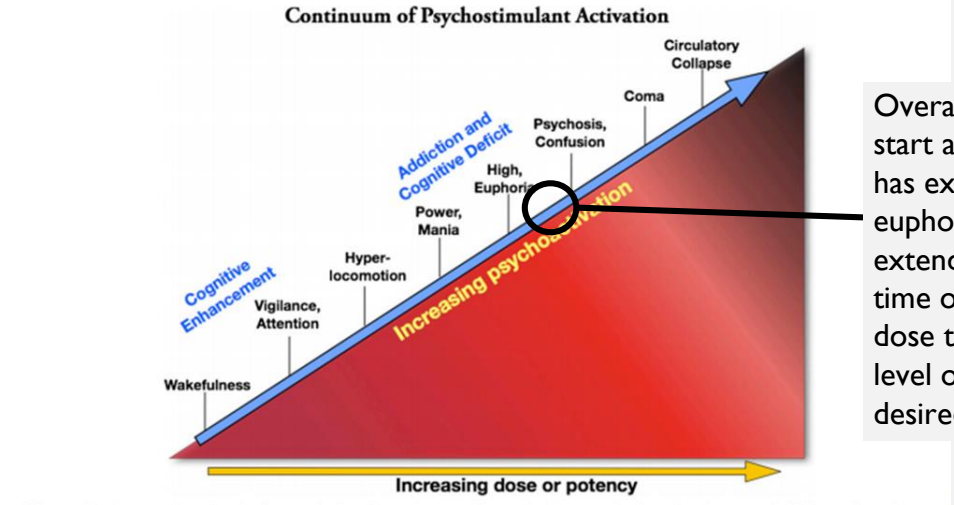


Fig. 10. Continuum of psychostimulant activation. Increasing cognitive activation as stimulant dose increases initially produces increase wakefulness and cognitive enhancement. These are the desired therapeutic effects. As dose increases, a sense of power and euphoria can ensue; these are the effects addicts seek and are accompanied by cognitive deficits. Higher doses can result in overdose, psychosis, coma, and eventual circulatory collapse.

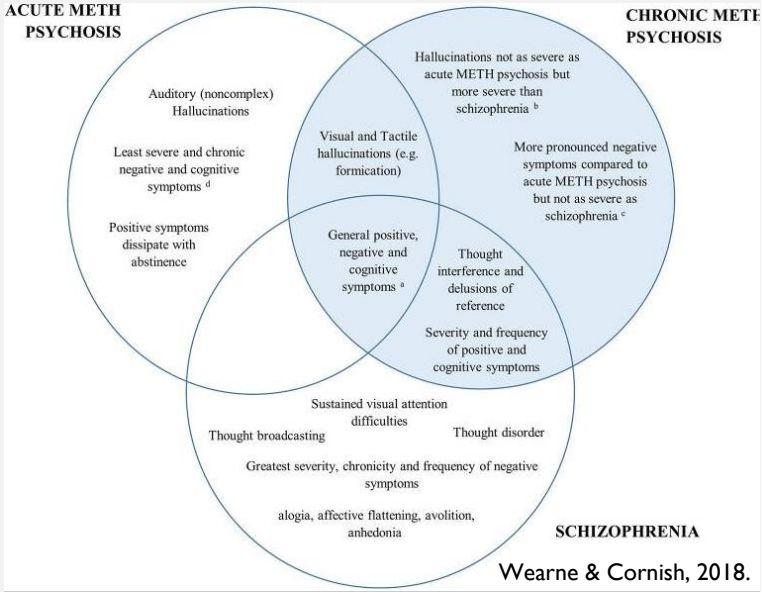
Overamping tends to start after someone has experienced euphoria for an extended period of time or has used a dose that exceeds the level of euphoria desired.

METHAMPHETAMINE PSYCHOSIS

Methamphetamine psychosis is caused by a combination of:

- Polysubstance use**
- Sleep Deprivation
- More frequent use
- Longer duration of use

(Wilkerson et al, 2018)



Wearne & Cornish, 2018.

PHYSICAL SIGNS OF OVERAMPING

- Headache
- Nausea/Vomiting
- Jaw grinding
- Spastic movements
- Choreiform (jerky) movements
- Dry mouth

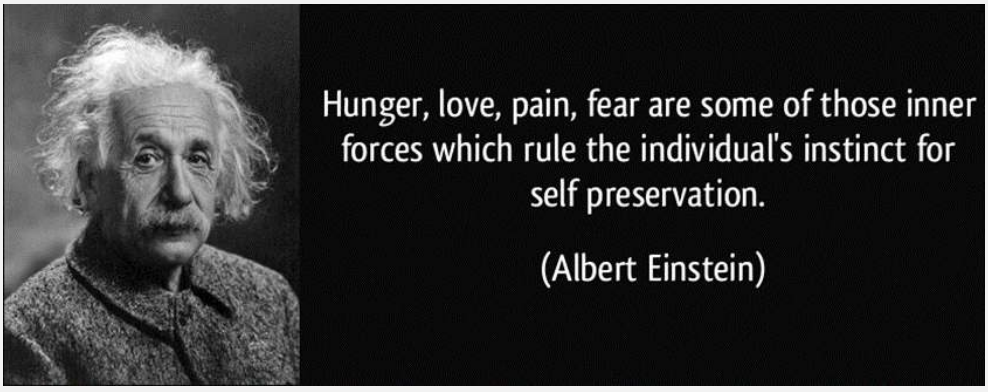
- Fast heart rate (tachycardia)
- High blood pressure (hypertension)
- Fever (hyperthermia)
- Chest pain
- Insomnia
- Seizure
- Passing out but still breathing***

PSYCHOLOGICAL SIGNS OF OVERAMPING

- Paranoia
- Altered perception of reality
- Persecutory perceptions of the world
- Restlessness
- Hallucinations
  - Visual, Auditory, or Tactile

- Trauma-response
- Psychosis
- Protective behaviors including:
  - Hypervigilance
  - Panic
  - Anxiety
  - Fear
  - Agitation
  - Increased sensory awareness

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.

HOW TO RECOGNIZE A STIMULANT OVERDOSE

- Hyperthermia (patient may be really hot)
- Psychotic features (hearing voices or seeing things)
- Dilated pupils
- Rapid breathing
- Pulse rapid and potentially irregular.
- Uncontrollable jaw grinding or spastic movements

- **TIP**: If someone is yelling or screaming or exhibiting extremely bizarre behavior; approach with caution. Many patients experiencing stimulant overdose may react impulsively or even violently given their psychotic symptoms.

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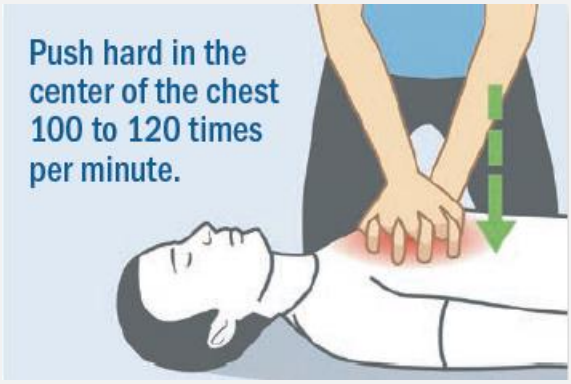
RESPONDING TO A SUSPECTED OVERDOSE

- 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.



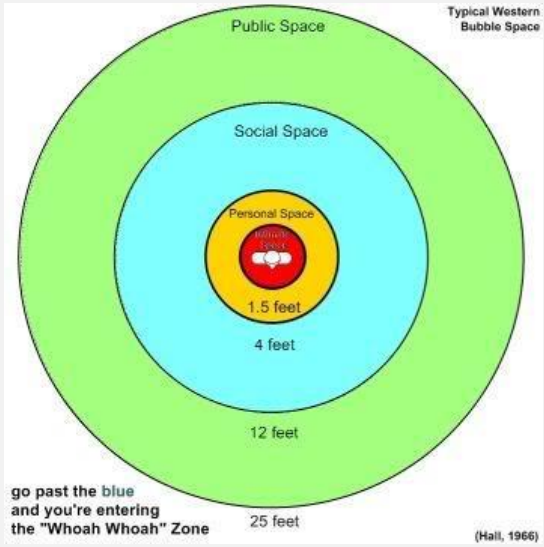
DE-ESCALATION

A	G	R	O	+
Assess	Gauge	Respond	Observe	Positive Reinforcement
Using a patient-centered focus, asses the cause of the patient's agitation. CALMLY engage the patient in conversation. (Australian Clinical Guideline CG284, 2019)	How are you feeling? Be mindful of the feelings that you may be projecting that may escalate or de-escalate the patient.	Be calm yet firm in your interactions. Use open ended questions and empathetic listening to respond to the patient's concerns.	Observe verbal and non-verbal cues. Is this working?	As the patient starts to de-escalate offer them something. A place to sit, a glass of water, a snack.

DE-ESCALATION

- Always be aware of your own safety.
- Never approach a patient with a weapon; instead speak from a safe distance.

(Australian Clinical Guideline CG284, 2019)



DE-ESCALATION

- Avoid prolonged eye contact.
- Avoid cornering or standing over the patient.
- Avoid sudden threatening gestures (this includes looking at your phone).

(Australian Clinical Guideline CG284, 2019)

DE-ESCALATION

- Minimize stimulation and distractions.
- Have an exit point and a discrete way to signal for assistance.
- Use open-ended questions focused on the patient's safety and well-being.

(Australian Clinical Guideline CG284, 2019)

THE KEY TO LONG TERM RECOVERY

A recent study examining the negative life events of patients using stimulants found that "**holistic, tailored interventions** and specialist treatment services are needed, as a single, simple intervention is unlikely to cover all the life domains affected" (Martens et.al, 2020)

Free education and support for teams caring for patients with substance use disorders

TRAININGS

TECHNICAL ASSISTANCE

Free education and support for providers in Massachusetts provided by:

OBAT TTA | Office Based Addiction Treatment Training and Technical Assistance

bmcobat.org

Free education and support for providers outside of Massachusetts provided by:

Opioid Response Network STR-TA

opioidresponsenetwork.org

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