Methamphetamine

Taking a Comprehensive Approach: Working with Meth-Involved Users in Treatment Courts

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Methamphetamine Basics

What Is Methamphetamine?

Methamphetamine is a *long lasting* central nervous system stimulant

The mechanism is different from cocaine because it not only blocks the re-uptake processes from the synapses, but it floods the synapse with excessive amounts of dopamine (NIDA)

Methamphetamine is neurotoxic, resulting in a different type of damage to the brain.

With treatment, the key is retention. The key to methamphetamine retention is combined high intensity motivational and reward-stimulated services. *That's why treatment courts work so well with them*

Methamphetamine	Cocaine
Stimulant	Stimulant and local anesthetic
Man-made	Plant-derived
Smoking produces a long-lasting high	Smoking produces a brief high
50% of the drug is removed from the body in 12 hours	50% of the drug is removed from the body in 1 hour
Increases dopamine release and blocks dopamine re-uptake	Blocks dopamine re-uptake
Limited medical use for ADHD, narcolepsy, and weight loss	Limited medical use as a local anesthetic in some surgical procedures

NIH, 2019

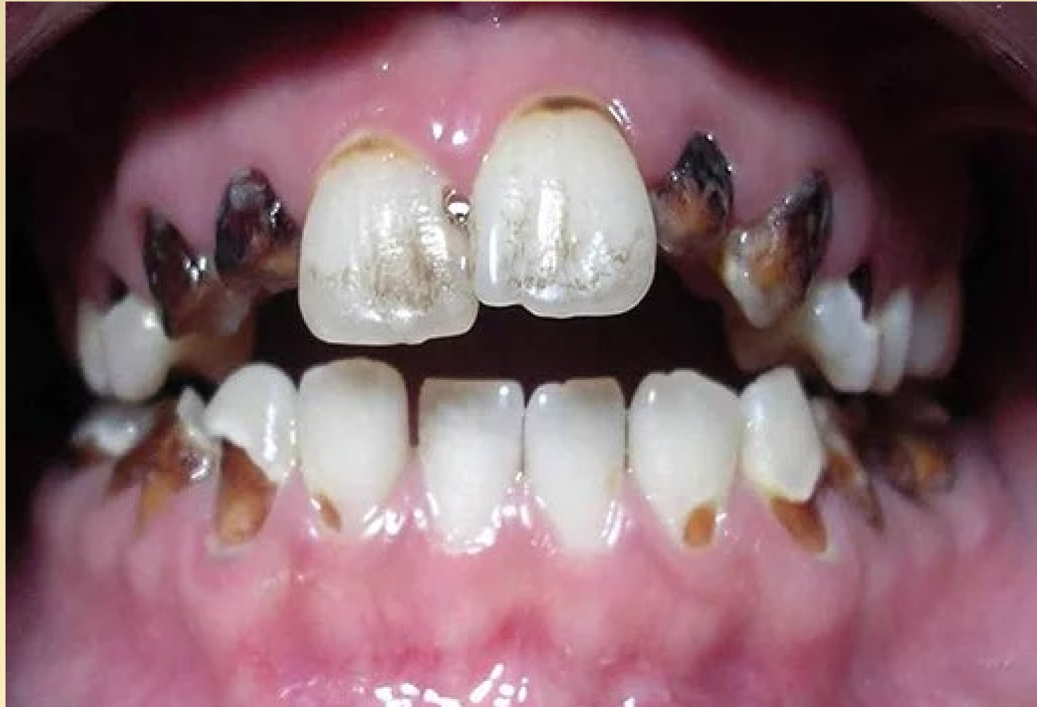
Methods of Meth Ingestion

- Smoking
- Swallowing a pill
- Snorting
- Injecting dissolved powder

Short-Term Effects of Meth

- Rapidly releases dopamine
- Intense high
- Increased wakefulness
- Increased physical activity
- Faster breathing
- Rapid or irregular heartbeat
- Increased blood pressure and body temperature
- Stroke
- Heart attack

Long-Term Effects of Meth



- “Meth mouth”
- Extreme weight loss
- Intense itching leading to sores from scratching
- Anxiety
- Changes in brain structure and function
- Confusion
- Memory loss

More Long-Term Effects of Meth

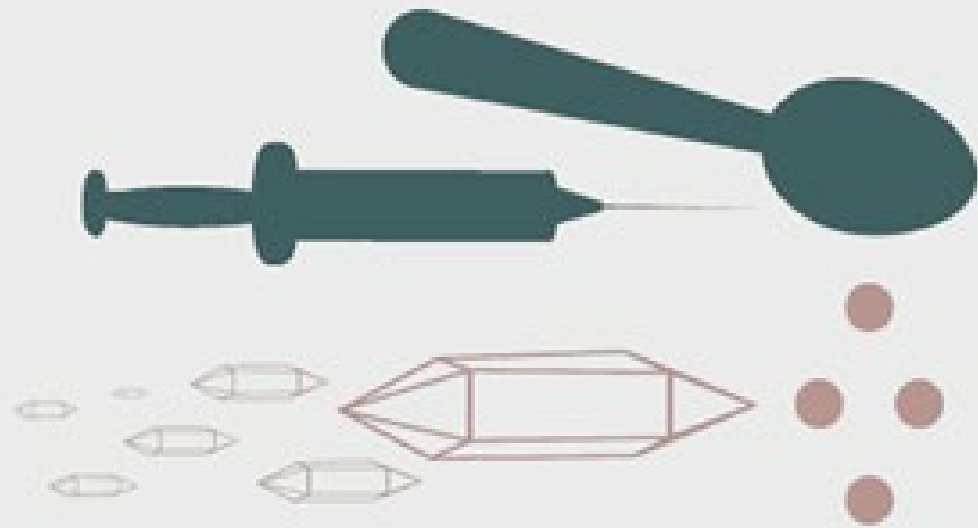
- Insomnia
- Violence
- Paranoia
- Hallucinations
- Psychosis (36.5%-42.7%, Ellis et al., 2018)
- Impaired judgment
- Risk of HIV and Hepatitis B and C
- Dependence

- Dependence
- Emotional problems
- Cognitive problems
- Risk of developing Parkinson's Disease

Serious physical problems

- Chronic methamphetamine abuse can result in inflammation of the heart lining.
- Among users who inject the drug, damaged blood vessels and skin abscesses.
- Significant danger of stroke, birth defects.
- Malnutrition, dental disease, Hepatitis
- *We must advocate and facilitate medical care.*

These clients are *really* physically sick, and their brains have been insulted by this drug.
They feel intense shame and hopelessness.



SIGNS OF METH USE

- OVERHEATING
- DECREASE IN APPETITE
- IRREGULAR HEART RATE
- SUDDEN VIOLENT TENDENCIES
- INCREASED IN PHYSICAL ACTIVITY
- FASTER THAN NORMAL BREATHING

Recognizing Meth Use

Hot, flushed or sweaty skin

Severe headaches

Chest pain

Unsteady walking

Difficulty breathing

Psychotic symptoms

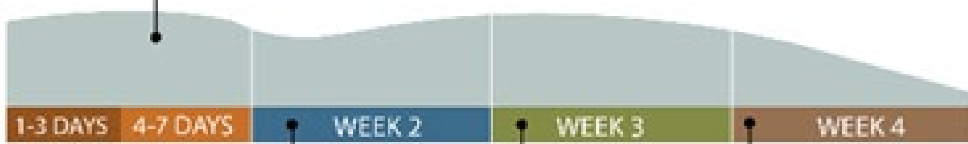
Feeling panicked or very agitated

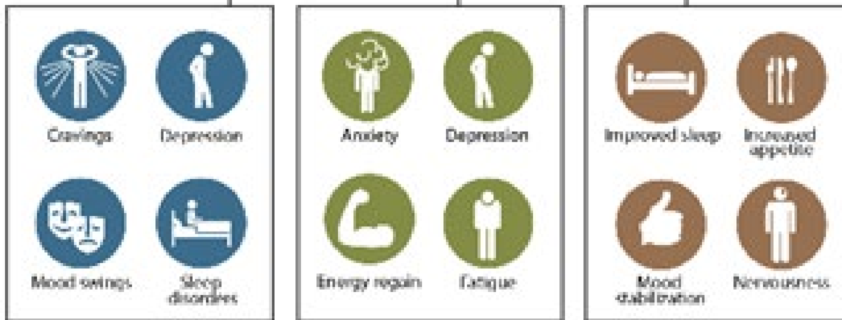
Confusion or disorientation

Tremors, spasms, jerky movements or seizures

Recognizing a Meth Overdose

DURATION OF WITHDRAWAL METH

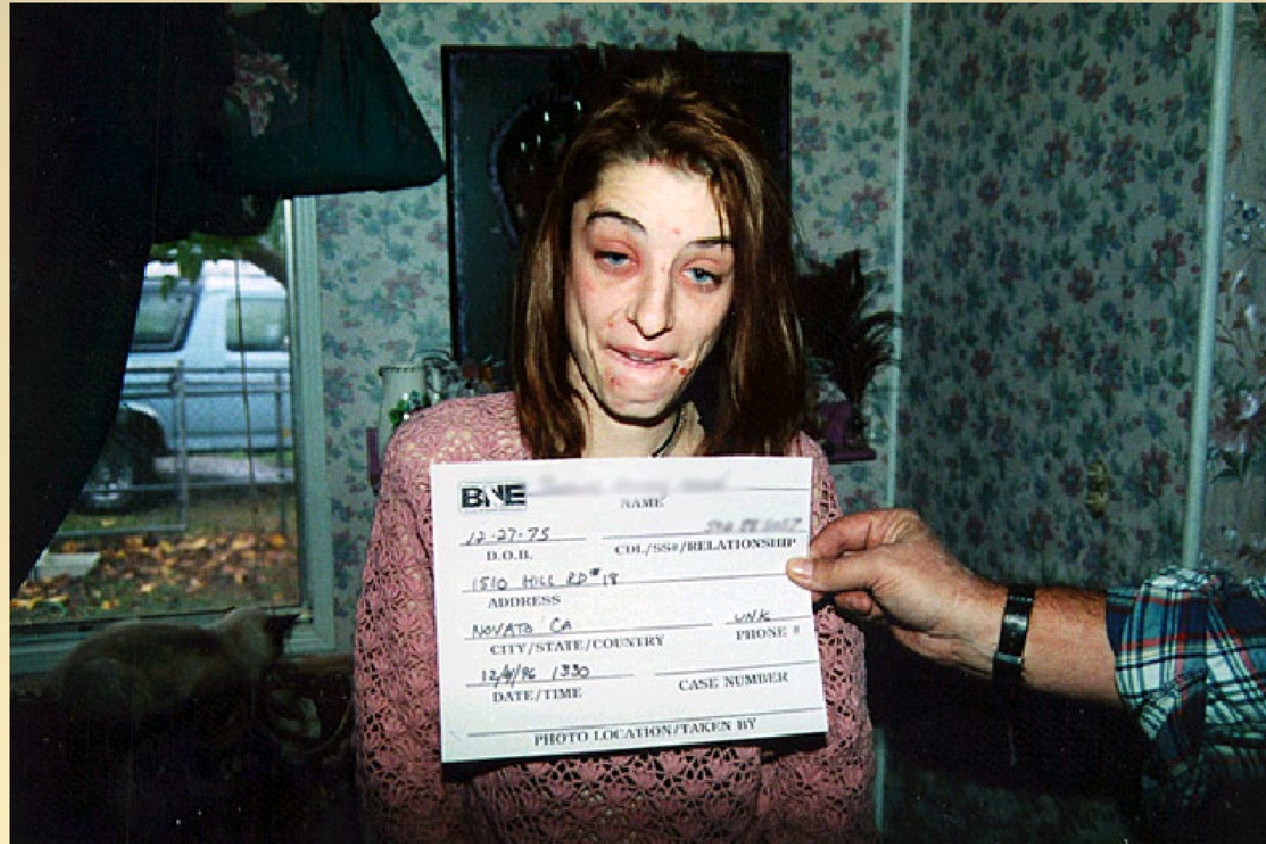




POST ACUTE WITHDRAWAL SYNDROME (PAWS)

Recognizing Withdrawal from Meth

Devastating physical effects: She is 21 years old



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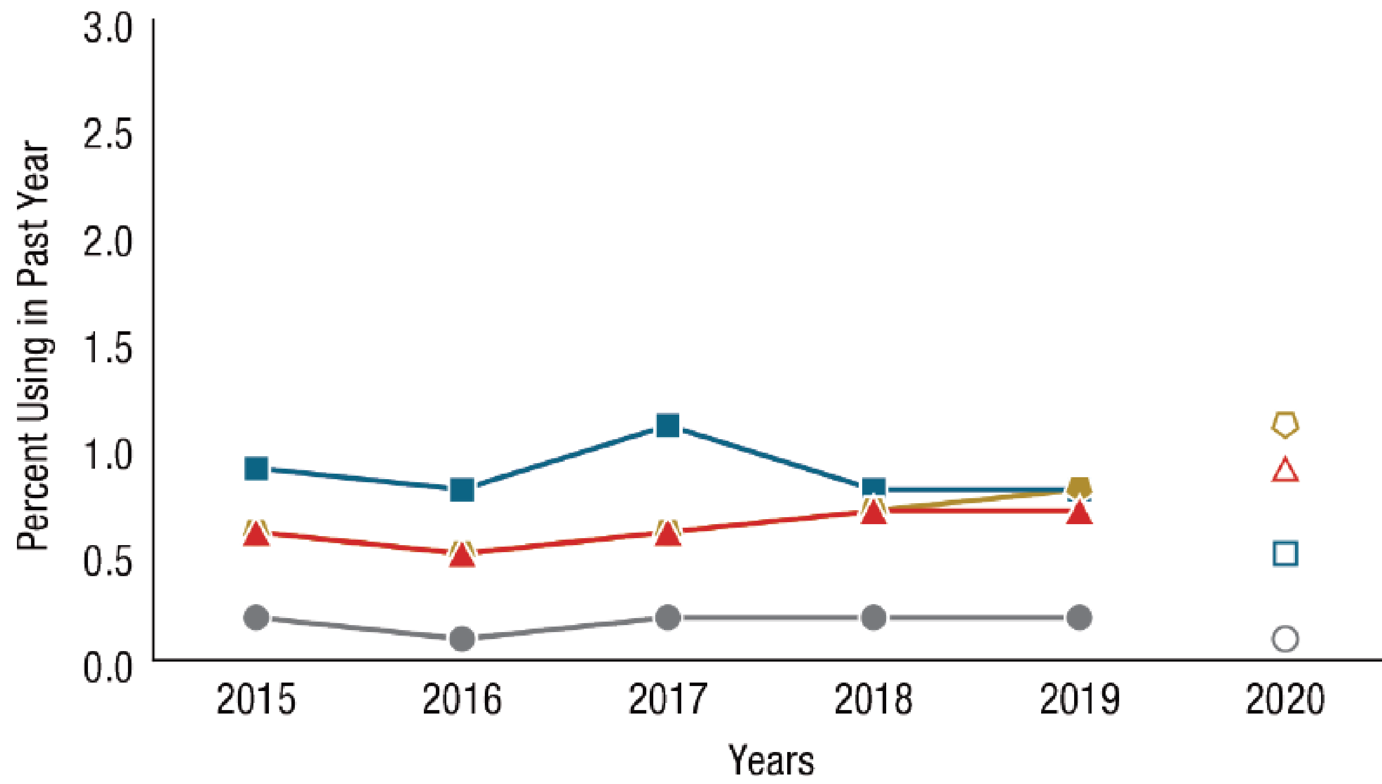
Past Year Methamphetamine Use: Among People Aged 12 or Older; 2015-2020



Age	2015	2016	2017	2018	2019	2020
12 or Older	0.6	0.5	0.6	0.7	0.7	*0.9*
12 to 17	0.2	0.1	0.2	0.2	0.2	*0.1*
18 to 25	0.9	0.8	1.1	0.8	0.8	*0.5*
26 or Older	0.6	0.5	0.6	0.7	0.8	*1.1*

Note: There is no connecting line between 2019 and 2020 to indicate caution should be used when comparing estimates between 2020 and prior years because of methodological changes for 2020. Due to these changes, significance testing between 2020 and prior years was not performed.

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Meth Overdoses

- Meth purity has increased from 39% in 2007 to 97% today
- Half of those whose deaths involved meth also had opioids in their systems (The Economist, 3/19/19)

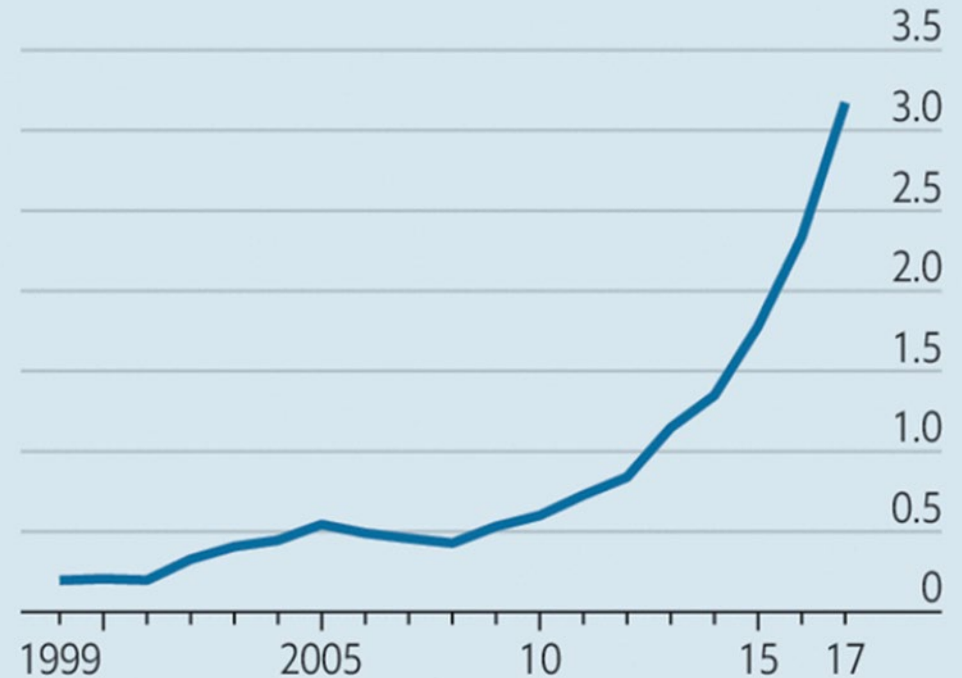
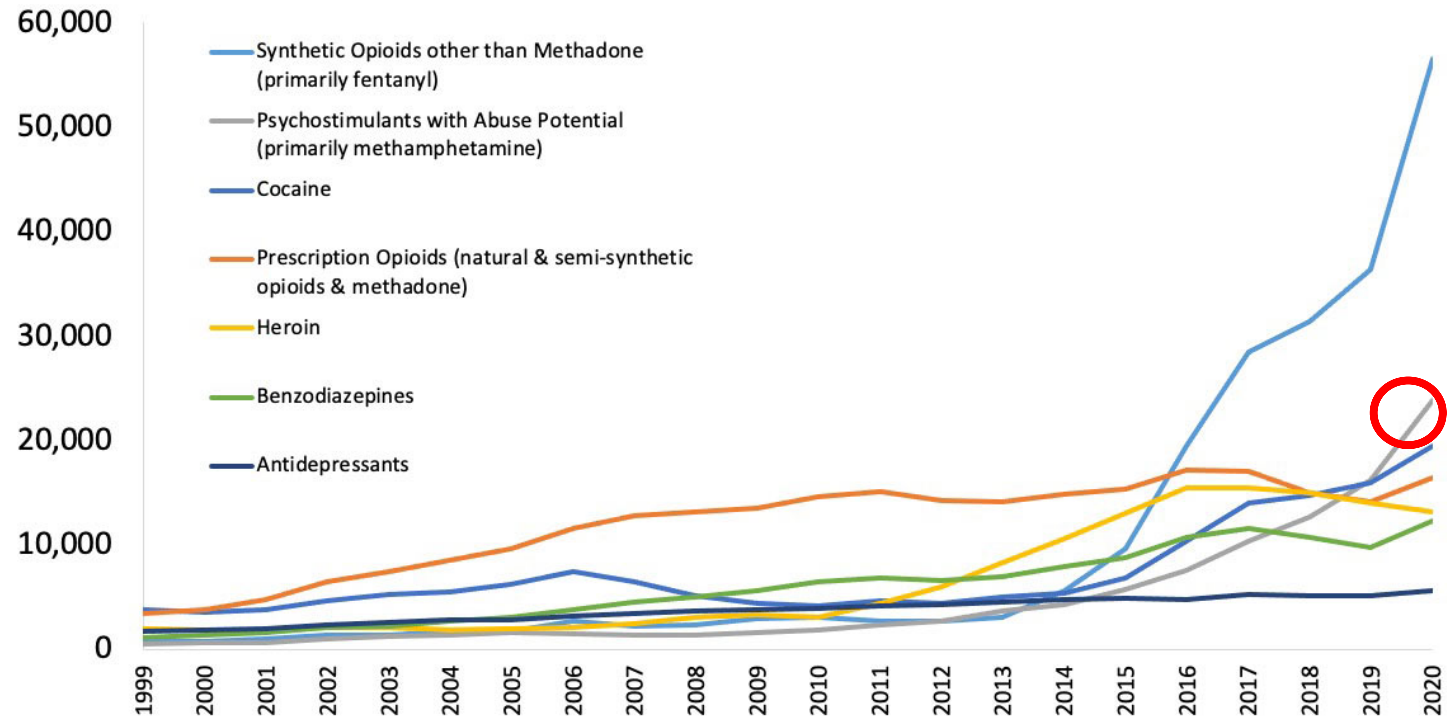
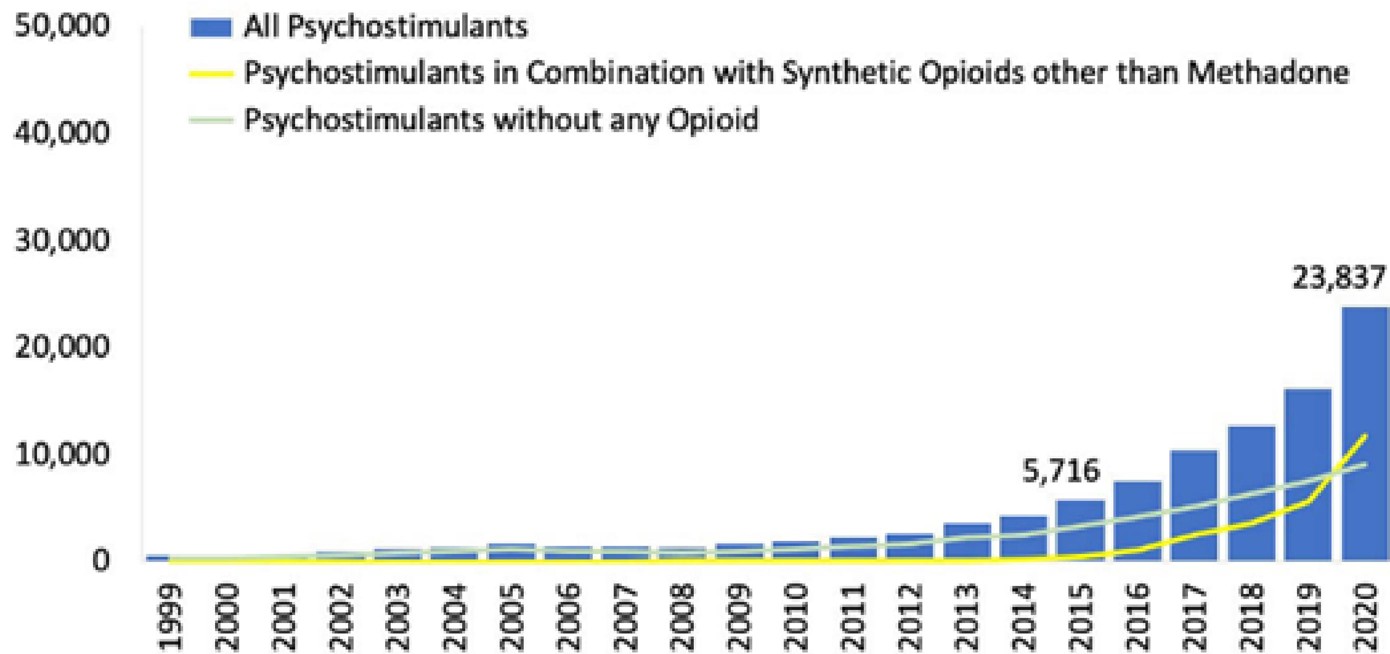


Figure 2. National Drug-Involved Overdose Deaths*,
Number Among All Ages, 1999-2020

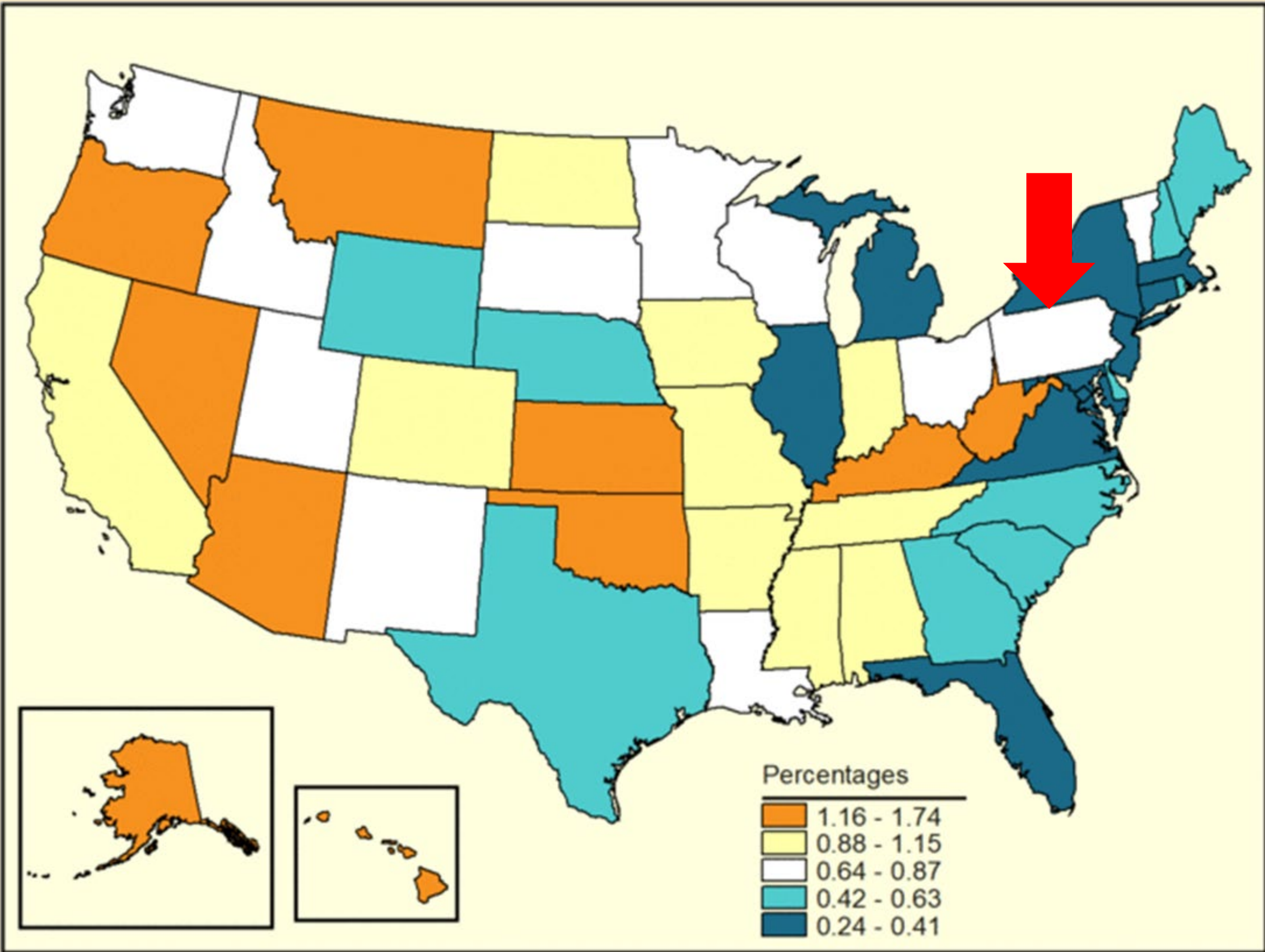


*Includes deaths with underlying causes of unintentional drug poisoning (X40–X44), suicide drug poisoning (X60–X64), homicide drug poisoning (X85), or drug poisoning of undetermined intent (Y10–Y14), as coded in the International Classification of Diseases, 10th Revision. Source: Centers for Disease Control and Prevention, National Center for Health Statistics. Multiple Cause of Death 1999-2020 on CDC WONDER Online Database, released 12/2021.

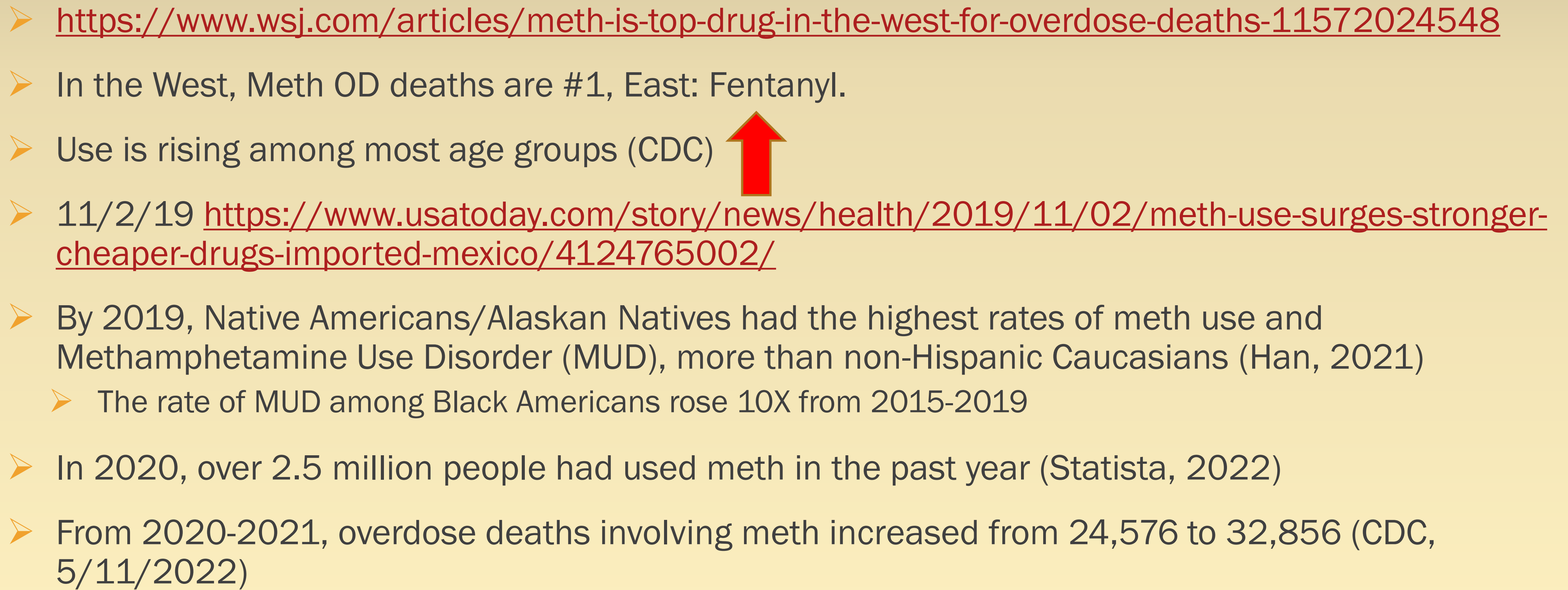


Psychostimulant deaths rose from 547 in 1999 to 23,837 in 2020, a 4,400% increase (CDC, 2021)

Methamphetamine Use in the Past Year among Individuals Aged 12 or Older, by State: Percentages, Annual Averages Based on 2018 and 2019 NSDUHs



Recent data

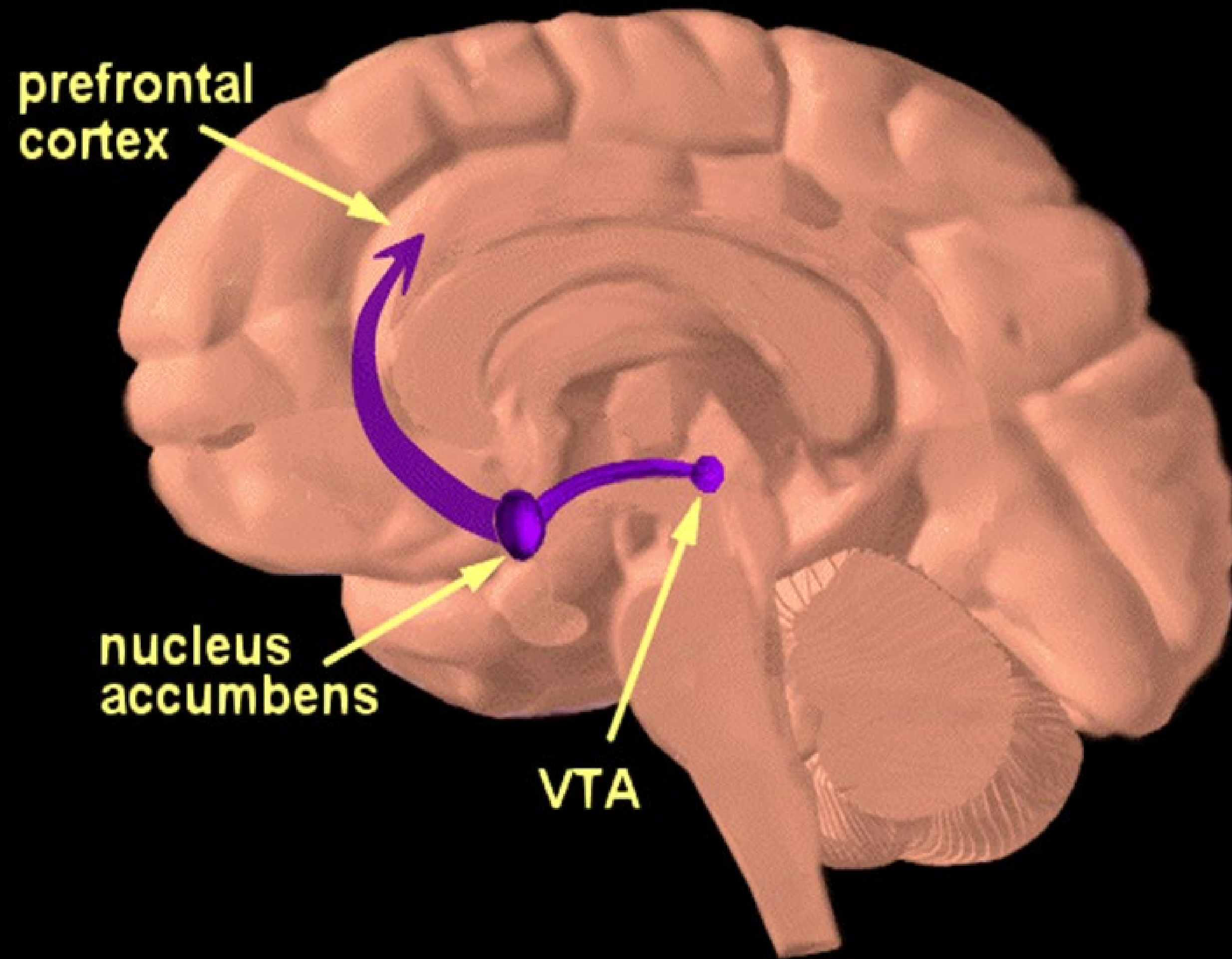


Opioids + Meth

- The “next gen speedball”
- Emerging evidence suggests that meth is used to obtain a synergistic high or balance the effects of opioids, especially fentanyl (Ellis, Kasper, & Cicero, 2018)
- Combining meth with opioids can create a more potent effect than either used alone
- More than half of meth-involved deaths mix meth with opioids (CDC)
- In 2017-18, Meth was present in 63% of people who died of an opioid overdose (Gladden et al., 2019)

No Matter What, Meth Harms

Methamphetamine and the Brain

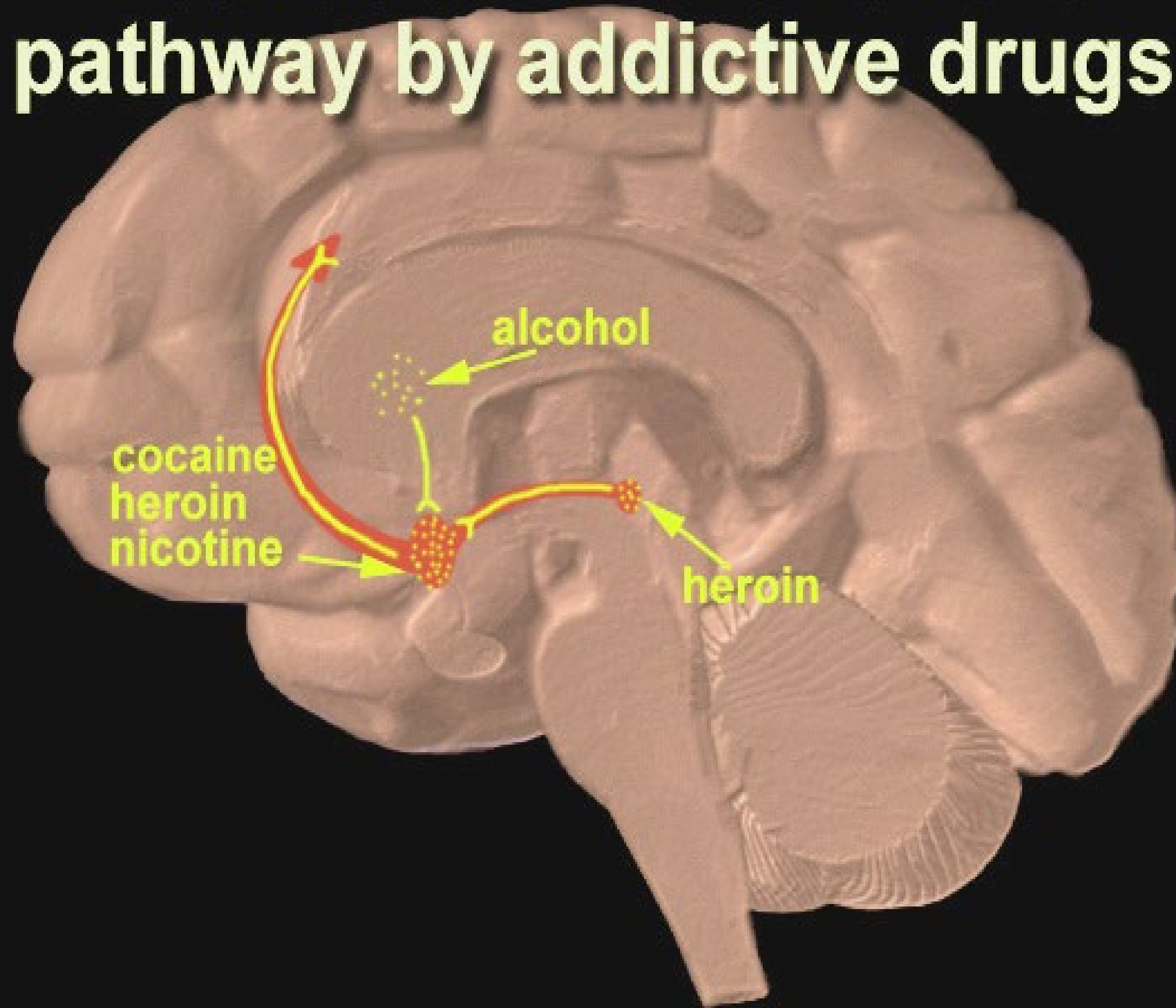


Neural Circuitry of Reward System

- Present in all animals
- Produces pleasure for behaviors needed for survival:
  - Eating
  - Drinking
  - Sex
  - Nurturing

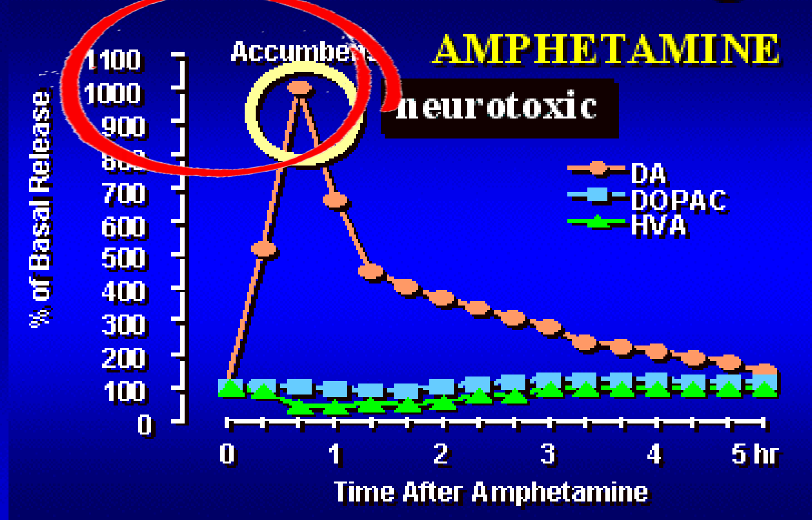
Robeck, 2013

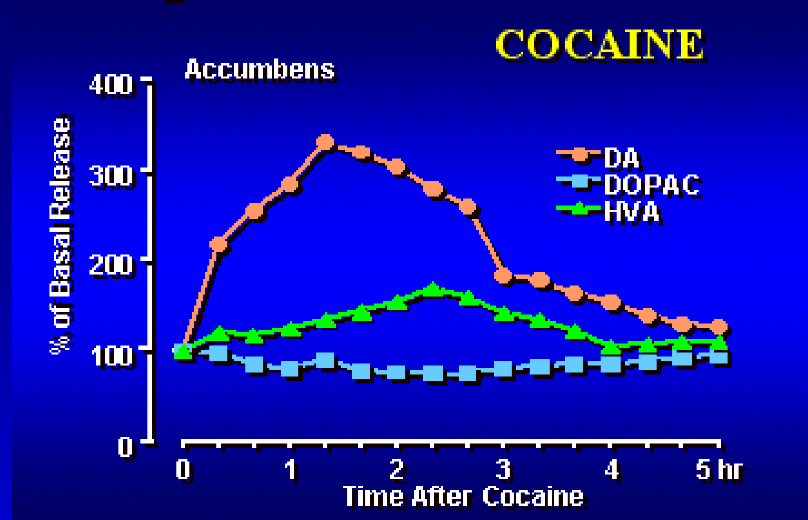
Activation of the reward pathway by addictive drugs

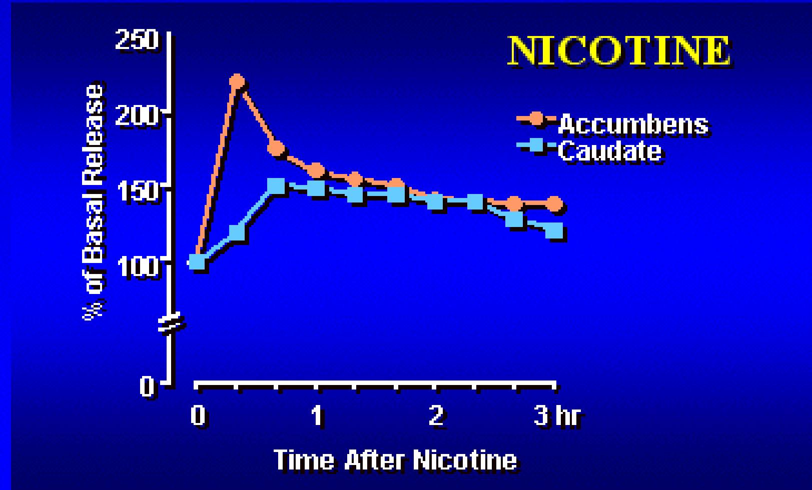


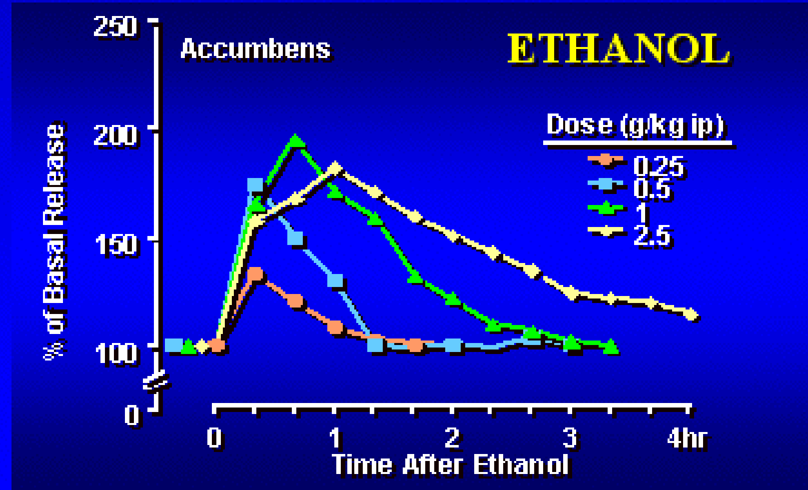
Impact of Different Drugs on the Brain

Effects of Drugs on Dopamine Levels



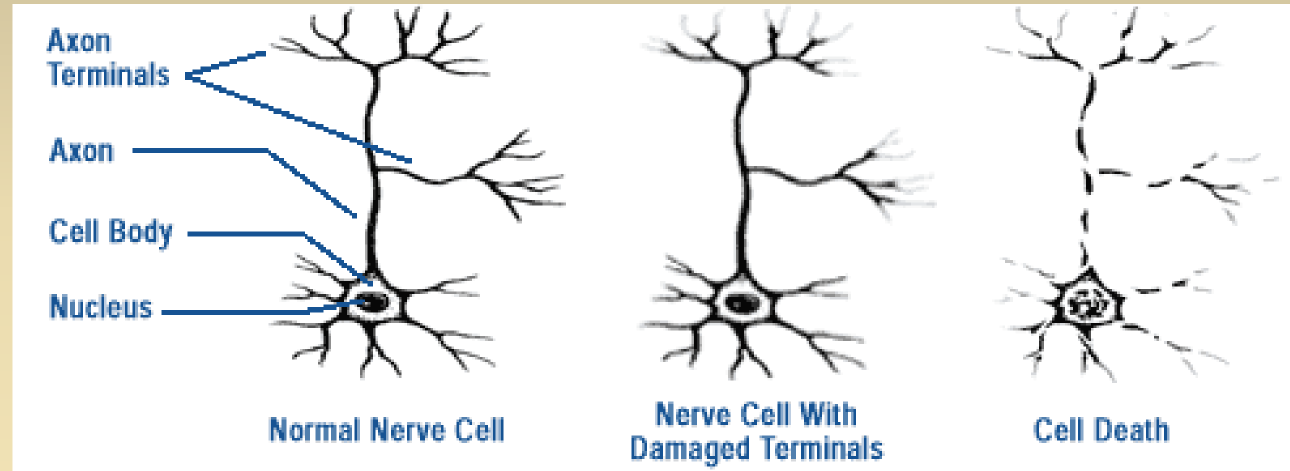






Source: Di Chiara and Imperato

Neurotoxic Effects of Methamphetamine

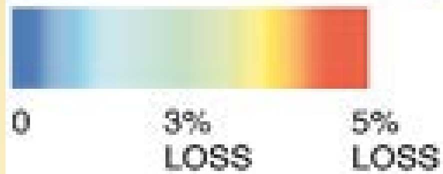


Previous research showed that methamphetamine damages the nerve terminals of dopamine-producing brain cells. The new research shows methamphetamine also triggers a natural mechanism called apoptosis that prompts the complete disintegration and death of additional nerve cells in other brain regions.

Eroding the Mind

Researchers have mapped brain decay caused by methamphetamine use. The damage affected memory, emotion and reward systems.

Average difference in brain tissue volume of methamphetamine users, as compared with non-users:

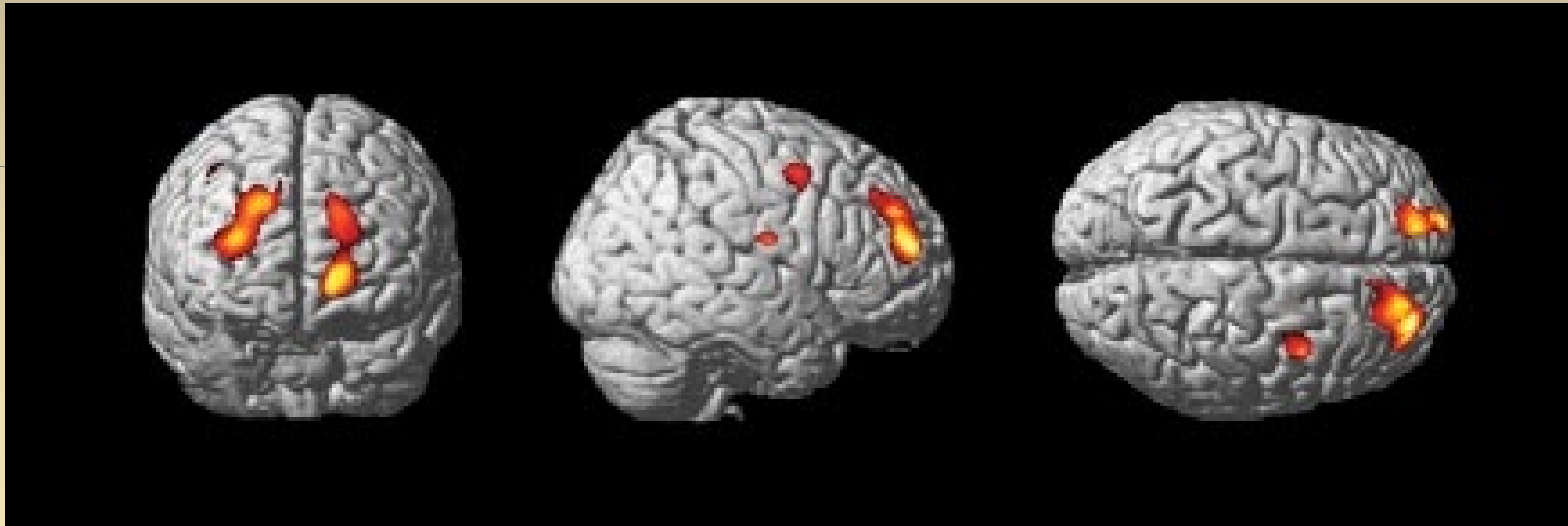


AREAS OF GREATEST LOSS

Emotion, reward (limbic system)

Memory (hippocampus)

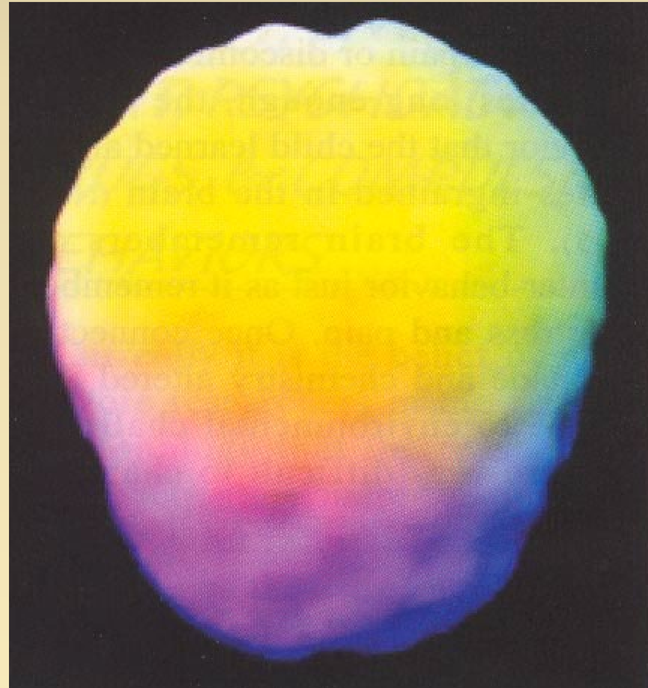
Source: Dr. Paul Thompson, U.C.L.A.



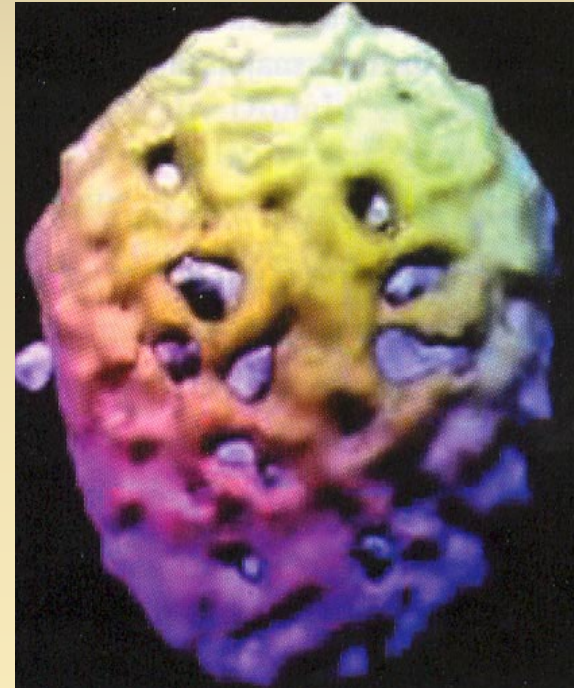
MRI: Methamphetamine reduces gray matter. The yellow and red area in the central brain view indicates reduced gray matter density in the right middle frontal cortex (Kim et al., 2005). The same deficit is shown from other perspectives in the flanking views.

The Bottom Line: Meth Exposure Causes Brain Injury

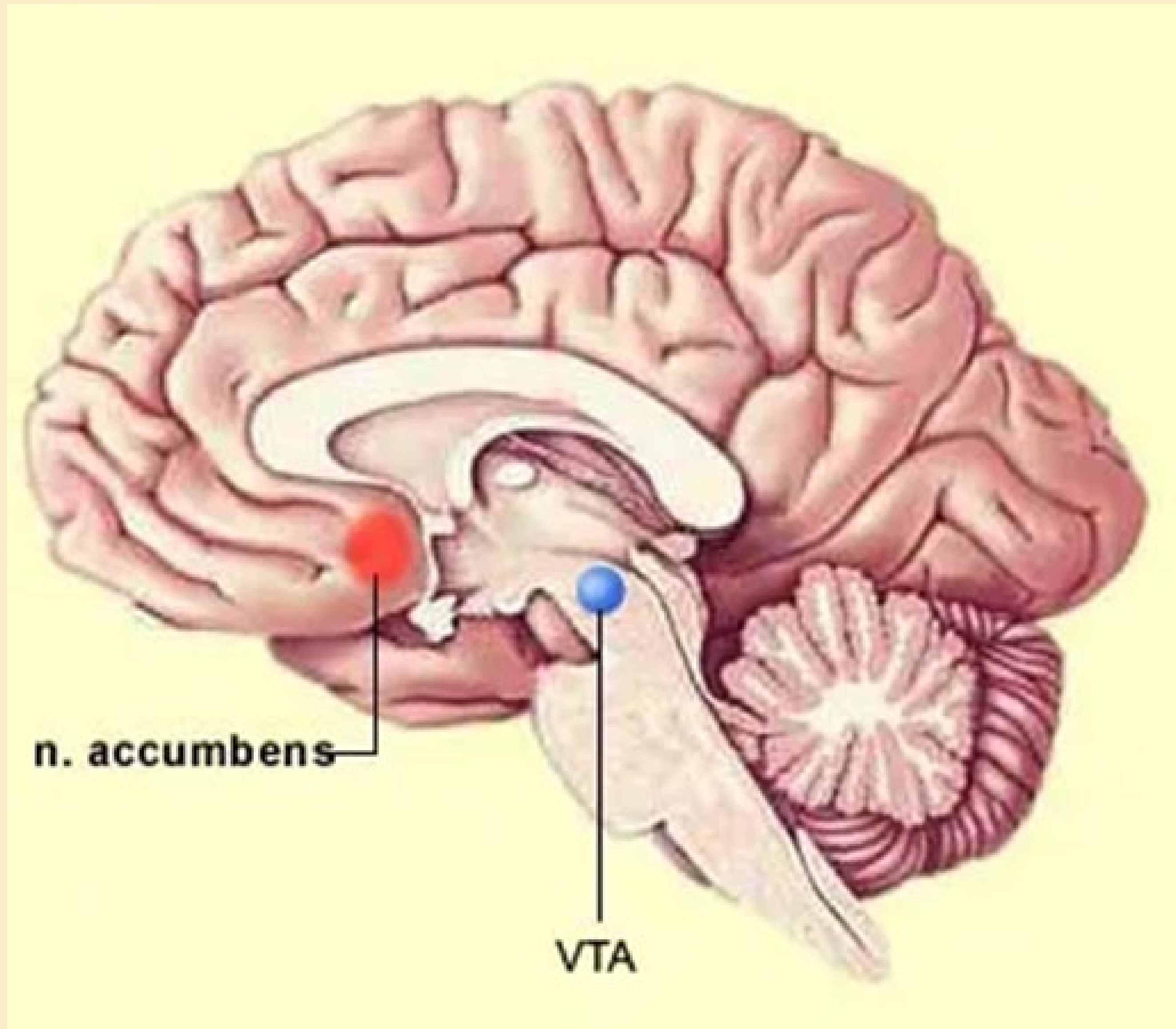
SPECT Scans



Control brain



Methamphetamine



Decreased Motivation

- Motivation and pleasurable response are both governed in part by activities in one specific region of the brain, the nucleus accumbens.
- The lack of motivation lasts longer than 2 years. We need to help with that.

Working with Meth Users

The Impact of Meth

- Extremely slow and difficult engagement.
- More violations of probations/rules of treatment courts.
- Comprehensive and complex interventions, with little MAT assistance.
- Challenging medical issues, often throughout the course of treatment.
- Tremendous drain on the treatment resources due to the length of treatment.
- More violence.
- More drug-endangered children cases, more elder abuse.

What Difference Does That Make to Me?

- Diminished understanding.
- Imbalanced emotion & depression, poor bonding.
- Physical capabilities & coordination compromised.
- Reduced memory & sequenced thought.
- Collateral violence and sexual misconduct.
- Officer safety concerns.

Learning Capacity Is Reduced and Slower to Return

- Delays in treatment impact- *you need to be patient*
- Delays in engagement- *you need to really push engagement and MI*
- Need to focus on brief, frequent and *supportive* contacts.
- Need by team to allow for trial and error. They will make mistakes and have thinking challenges that are not just criminal thinking errors. They are cognitive impairment due to brain damage. *The issue is your response to the depth of their brain injury.*

What Does This Mean in Practice?

- Reduced verbal learning capacity- *you need to go slowly and repeat*
- Significant and repeated episodes of anxiety- *will surprise them, too*
- Confused thinking: *on and off for a significant amount of time*
- Short term memory problems are ACUTE. *Repeat, write everything down, remind where to look.*
- Depression is ACUTE, and they are often suicidal. *Believe them.*
- Some, not all, will have visual and auditory hallucinations for a long time, remitting and returning. Some will feel “bugs” under their skin, resulting in “punding”.
- They may experience “clumsy” behavior and are often banged up in early recovery.

Understand the Drug

- It is important for us to understand how methamphetamine works because it informs our response to client behaviors.
- Memory deficits, depression, energy deficits, confusion, and hallucinations are a part of their lives. We must respond with these behaviors in mind.
- *Patience, repetition, and engagement* are the tools which lead to success.

Understand the Disease

- Engagement is critical.
- Encouragement is critical.
- Accountability is critical. Certainty of detection and immediacy of response is critical.
- Monitoring behavior is critical.
- Addiction will do ANYTHING to remain active within the host (your participant).
- NEVER underestimate the power of this disease.

Bad News

- Methamphetamine is now commonly cut with fentanyl and people are dying sooner and suddenly.
- Working with methamphetamine-involved offenders requires a significant level of cultural competency on your part as a drug court team.
- 61% of clients with Meth addictions relapse within 12 months (Brecht & Herbeck, 2014)
  - Another 14% relapse by 5 years

I am always struck….

- By the lack of hope impacting these folks.
- By the sense that recovery is not possible.
- By the sense of futility.
- By the level of their pain.
    - *<u>And by their incredible courage.</u>*

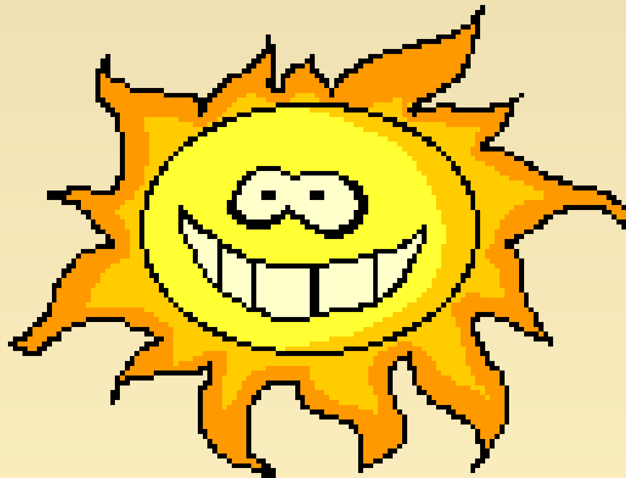
You must maximize engagement and teach pro social activity- even though your client wants to hide under their covers and not come out!

Understand the Incredible Power of Hope

Use Placebo… (15% bounce in outcomes)

Maximize engagement

SMILE !!!!



Bottom Line…..

Methamphetamine abusers recover slowly-you need to work with them longer and expect setbacks.

- And they are aware of it.
- They know when they are not doing as well as non-meth users in group.

What does that mean to you?

Positive tests are not a shocker when they happen.

Setbacks will occur: just dust off jeans and try again.

Do not give up unless program integrity is threatened.

Expect self sabotage.

Expect lots of IOP and sober living demand increases.

Have an evidence-based response and time-line in place for these clients. (NOT the opiate or alcohol timeline.)

Give them hope and do not give up.

Roles of the Court Team Members

Prosecutor Engagement

- Instill hope
- Educate and engage
- Smile and support
- LISTEN to treatment
- Let probation and treatment run the show
- Protect due process and public safety
- Do not give up, and don't get your power up unless it is necessary
- Protect your public defender and team

How can a Defense Attorney make a difference?

- Steve Trenholme:
- TAKE THE TIME TO TALK WITH FOLKS!
  - Develop a relationship such that the client trusts you. That takes TIME.
  - Teach how to be successful and how to fail.
  - Use metaphors. Tell stories.
  - Repetition: SHOW UP, SHOW UP, SHOW UP
  - BE A COUNSELOR AT LAW
  - SHOW UP, SHOW UP, SHOW UP, SHOW UP

Probation's Support Is Crucial!

- Assess often-they are changing.
- Identify and address criminogenic issues-MRT etc.
- Focus on *dosage of contact* with probation
  - Address sequential case management in order of assessment and importance
  - Pro-social habilitation before adaptive habilitation
- Proactive field services to support recovery and address intermediate incentives and sanctions
- Conduct drug testing –and don't reduce it!
- Constant communication with treatment and team

Are there hidden issues?

- Gang membership
- Domestic violence
- Child abuse
- Elder abuse
- Financial abuse
- Mental illness
- Acute poverty
- Educational challenges
- Child care problems
- Parenting deficits
- Developmental disabilities
- Unsafe housing
- Lack of transportation that is reliable
- Lack of problem-solving skills
- Secrecy and fear over auditory and visual hallucinations

Tools

- Encourage & support
- **Repeat** everything
- **Reaffirm**
- **Remind** of next contact, reaffirm message of other treatment team members
- Repeat consistent message of “show up”.
- **Require** repeat backs
- **Write** it/them down, reaffirm.

K.I.S.S. !!!

- Build foundation, don’t push too fast
- Add tasks as foundation firms
- Constantly assess stages of change
- Focus on hope, tiny steps of success
- Frequency of instilling hope and incentives

Critical Assists:

- Community supervision and testing
- Diet improvement-malnutrition is the rule.
- Smoking cessation
- Vitamins
- Pharmacotherapy & MAT
  - Depression/Wellbutrin
  - Anti-psychotics as needed
  - Montana experiment: Vivitrol off label.
- **EXERCISE** is crucial-after initial clumsy period-exercise bikes in group
- Life skills training-*including how to have fun*

Simple tools to build baby steps to success

- Calendars
- Reminder slips, orders in duplicate to look at.
- Gold stars & stickers
- Candy bars
- 12 step materials

- Written tasks
- Written step work
- Vouchers for points
- ALL STAR lists
- Praise
- TEXT AND VIDEO reminders and encouragement!

Can your team do all of this? Nope…

Consider your community partners

- Vitamin suppliers
- Health educators
- Food stores for nutrition classes
- Banks for money management
- Exercise programs from police, fire, schools, gyms, hospitals.
  - Stalcup used to buy exercise bikes and use them in group.
- Physicians in the community.
- Faith community
- Everyone for incentives! *[Fish bowl?]*

Community supervision is critical!

- Proactive supervision
  - Reinforces recovery
  - Provides initial refusal skills
  - Protects clients from their own poor judgment
  - Detects challenges in client lives that they may not know about, or don’t tell you about
  - Monitors the recovery environment
  - Is on the front line of incentives and sanctions
  - Can reliably detect desired and undesired behavior

Critical Functions of Community Supervision

- Use Risk-Need-Responsivity principles and sequenced case management based on capacity of the participant
- Rapid communication with Treatment on all issues involving the participant
- Identifying threats to recovery, and telling Treatment
- Taking action when public safety demands it
- Confirming and informing team on objective observations
- Intermediate incentives and sanctions
- Obtain warrants to search as necessary or use your 4th Amendment waiver and conduct field visits

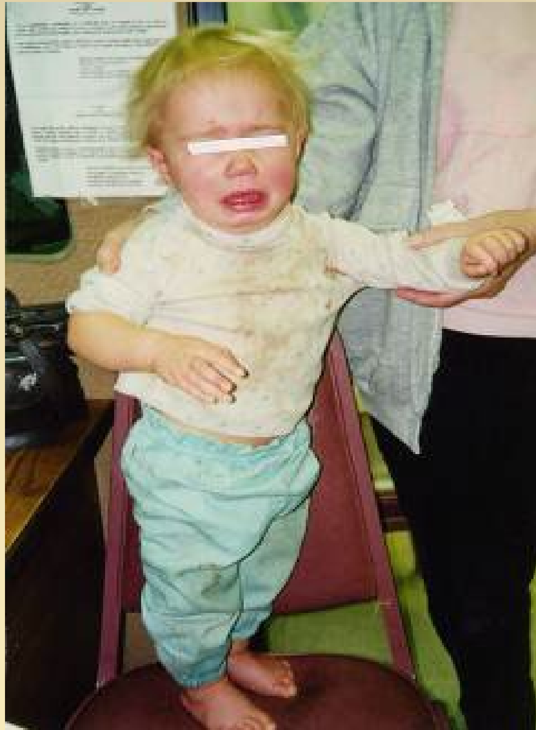
More Critical Functions of Community Supervision

- Understand what to look for!
  - Sexual abuse is common in meth homes.
  - Physical abuse is common in meth homes.
  - Elder abuse is common in meth homes.
  - Child abuse is common in meth homes.
- This will often come out later on in treatment…and may cause relapse (delayed disclosure).
- Always scan the environment in the home.
- If there are problems, we must intervene.
- For existing clients, it is additional help.
- For newly identified victims, it is intervention.

Field Services are a must!

- Get out of your office
- Get into the community
- Examine the recovery environment
- Look for lifestyle changes
- *Catch them doing right and reinforce the good behavior.*

You must look at the home and assess the risk.



Child neglect

Meth labs in refrigerators used by kids

Community Supervision

- Is the eyes for the whole team.
- Needs to partner with other law enforcement agencies to stretch supervision hours and capabilities.
- Provides critical information for Treatment.
- Ensures the safety of the public.
- Supports recovery.
- Detects desired and undesired behavior quickly. (Behavior modification is *essential.*)

Assess the recovery environment

- It is ASAM critical
- It changes
- Self report is insufficient
- People and things happen
- Stay alert! Officer safety is important.
- Focus on nights and weekends as a performance measurement.
- Test 7 days per week, and evenings.

Sometimes living arrangements must change for recovery to happen

Focus on Forcing Treatment

- You must coerce treatment.
- Drug Courts are best at this
- Repeat the proximal goal of showing up as paramount. REPEAT.
- INCENTIVIZE showing up!
- You must detect good and bad behavior-and address both.
- You must use cognitive restructuring principles, and praise for achievements.
- DO WHAT WORKS!

Treatment of Meth Users

Treatment Phases

- Effective meth treatment requires more intensive, phase-specific support over a longer period of time:
  - Stabilization: “Brief” residential (<10 days), then 3-5 clinic contacts per week for 90 days
  - Dose: High frequency over a period of 6-9 months
  - Retention: Aggressive engagement
  - Monitoring: Therapeutic urinalysis
  - Incentives: Rewards for attendance, clean UA
  - Medications: Symptom relief (depression, lethargy, cravings, suicidal thoughts, insomnia, psychosis)

Arizona ATTC

Initial course of treatment….

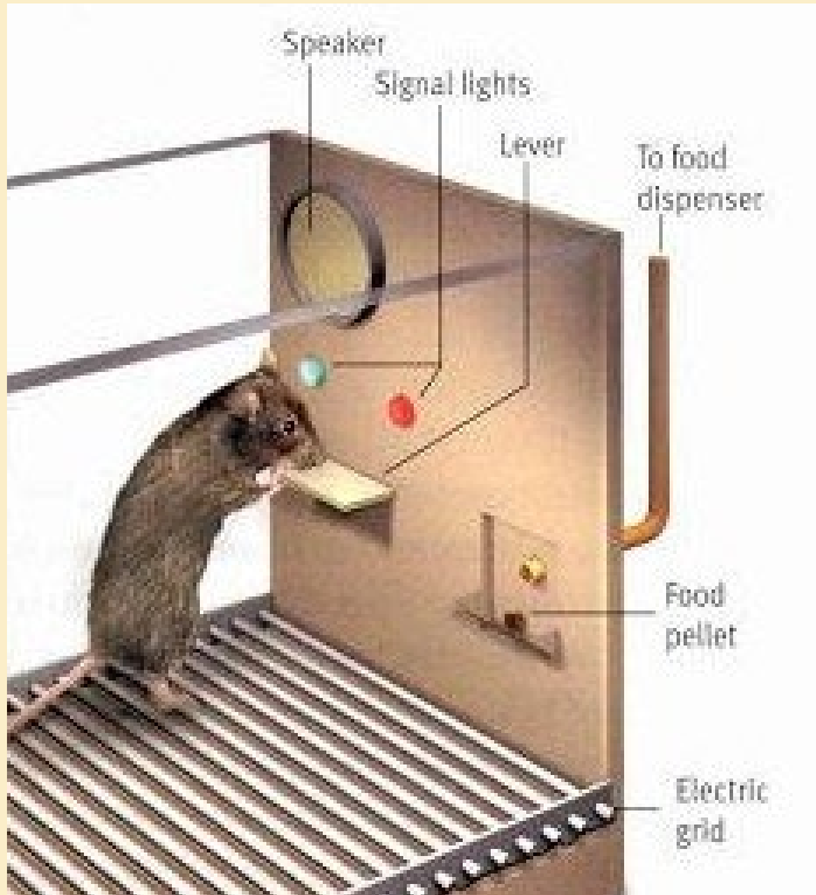
- **"Cognitive regeneration"**
- Engagement strategies - MI/MET
- First 4-6 weeks, CBT… **but CBT "lite".** Due to the cognitive impairment, memory challenges, and restlessness, short frequent treatment is better. 30 minutes more often is better than 1 hour less often.
- Further, ***visual aids and brain exercise help*** (e.g.: map out relapse prevention by drawings; do puzzles, crosswords, play cards, learn dance moves, learn new skills, play music, meditate, etc.)

Currently There Is No Pharmacotherapy That Works for MUD

- There are no medications for that counteract the effects of Meth, that reduce the use of Meth, or that prolong abstinence from Meth (NIDA, 2019)
  - A recent review of pharmacotherapy for MUD (Lee et al. , 2018) concluded that none of the drugs that have been tried showed sufficient or consistent evidence of effectiveness to recommend for use iin routine treatment
  - Many have been tried, including naltrexone and buproprion, but none have been shown to be effective (Trivedi et al., 2021)
- Benzodiazepines (time-limited) may play a role in decreasing withdrawal symptoms
- Because of the co-morbidity of Meth and opioid use, naltrexone may be considered by a physician to decrease the likelihood of fatality

The Most Effective Psychosocial Treatments for MUDs

- Contingency Management
- Cognitive-Behavioral Therapy
- Motivational Interviewing
- Matrix Model



Contingency Management

- CM provides tangible rewards to reinforce positive behaviors such as attendance in treatment and abstinence
- Patients with drug-free urine samples obtain vouchers with a monetary value (that can increase over time)
- Prize incentive CM rewards are provided on a variable reinforcement schedule from a fishbowl
- This is operant conditioning (Skinner, 1938)

Contingency Management Works for MUD

- Recent literature reviews have concluded that Contingency Management is the most effective form of treatment for MUDs (NIDA, 2019; AshaRani et al., 2020)
- A recent meta-analysis of multiple psychosocial interventions for MUD found that only Contingency Management + community reinforcement increased the number of abstinent patients by the end of treatment (DeCrescenzo et al., 2018)
- CM shows better outcomes than other behavioral interventions (Okafor et al., 2019; Roll et al., 2013; Shoptaw et al., 2005)

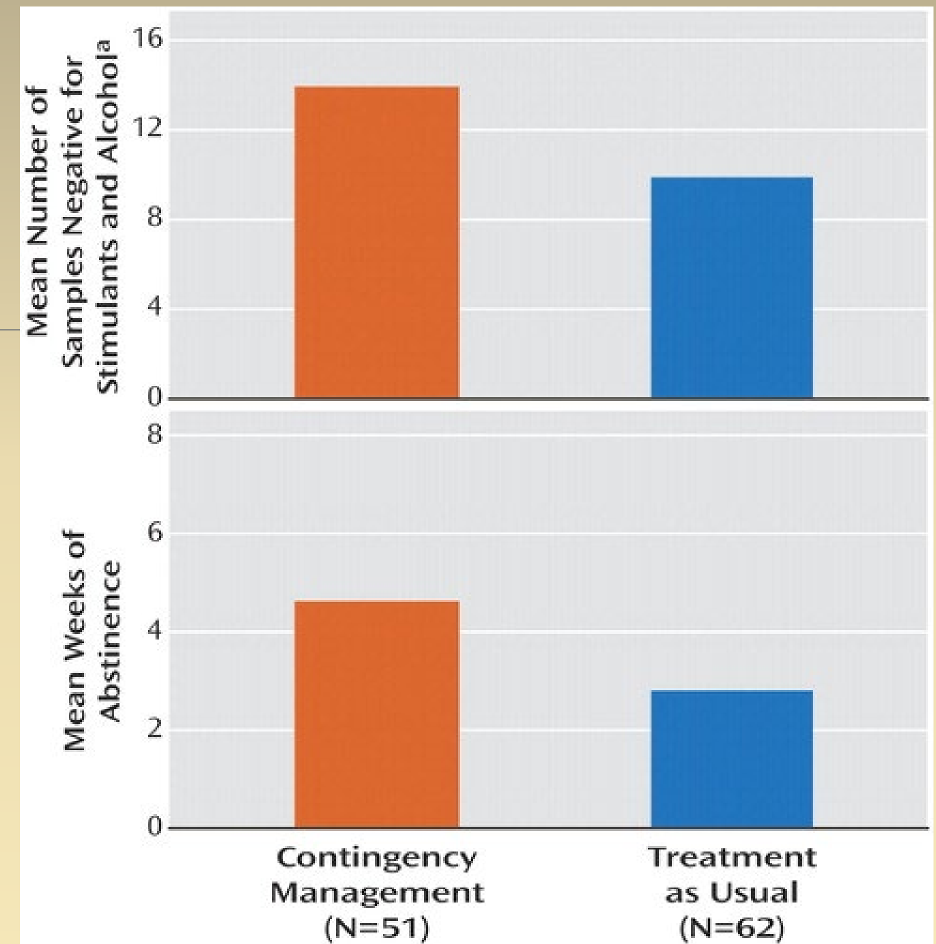
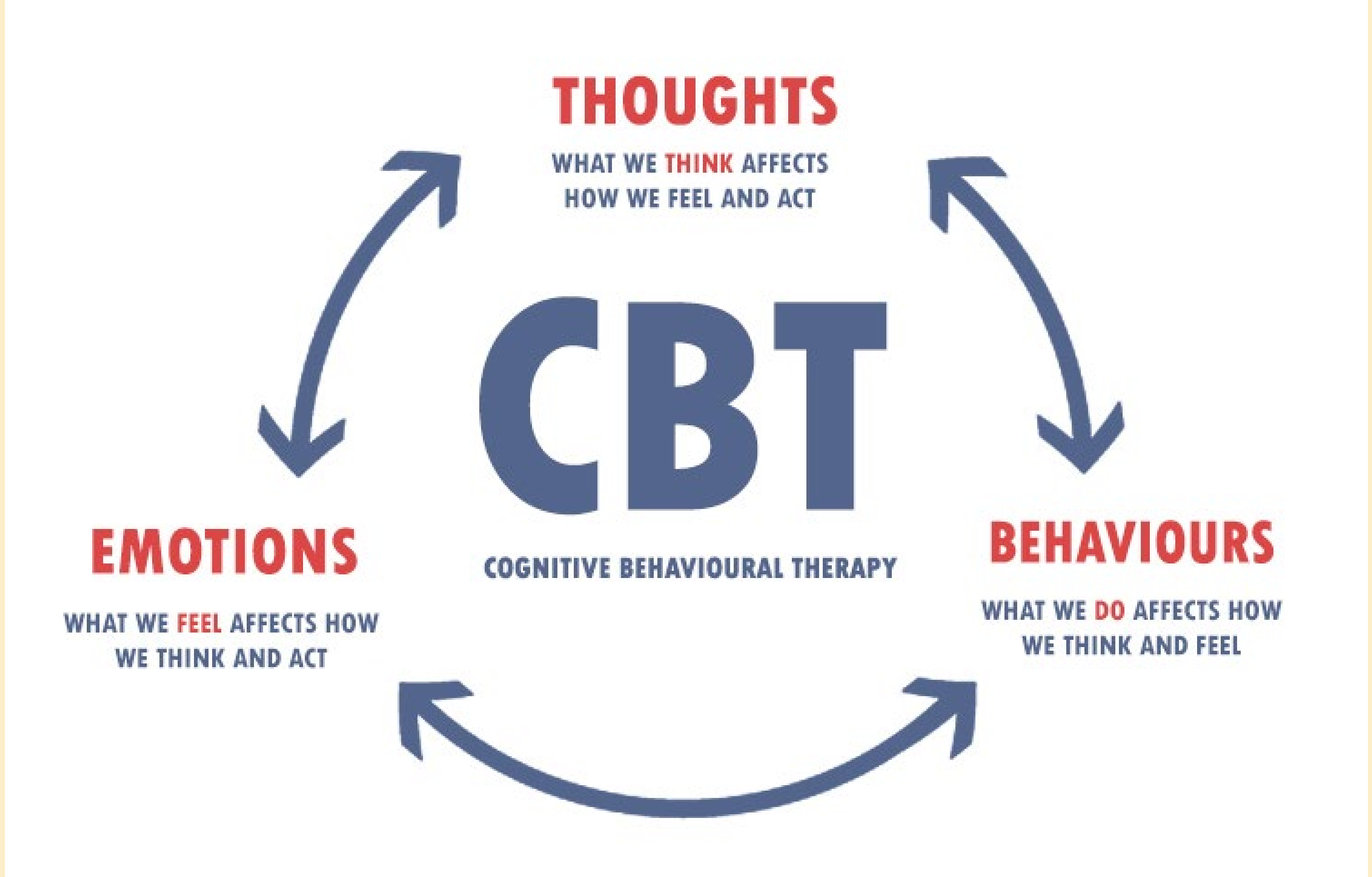


Figure 1. Outcome Measures for 113 Patients With Methamphetamine Use Disorders After 12 Weeks of Usual Treatment With or Without Contingency Management (Roll et al., 2006)

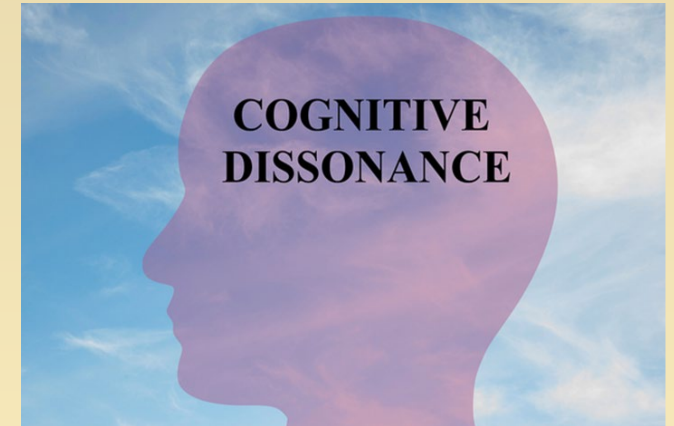


Cognitive-Behavioral Therapy

Research shows that CBT is effective in the treatment of Methamphetamine Use Disorder (cf., AshaRani et al., 2020)

Motivational Interviewing

- "MI is a client-centered, directive method to enhance motivation by exploring and resolving ambivalence" - Miller & Rollnick, 2002
- Uses reflective listening
- Is empathic
- Avoids arguments
- Supports client autonomy and self-efficacy
- Enhances internal discrepancies between goals and behaviors
- Evokes change talk

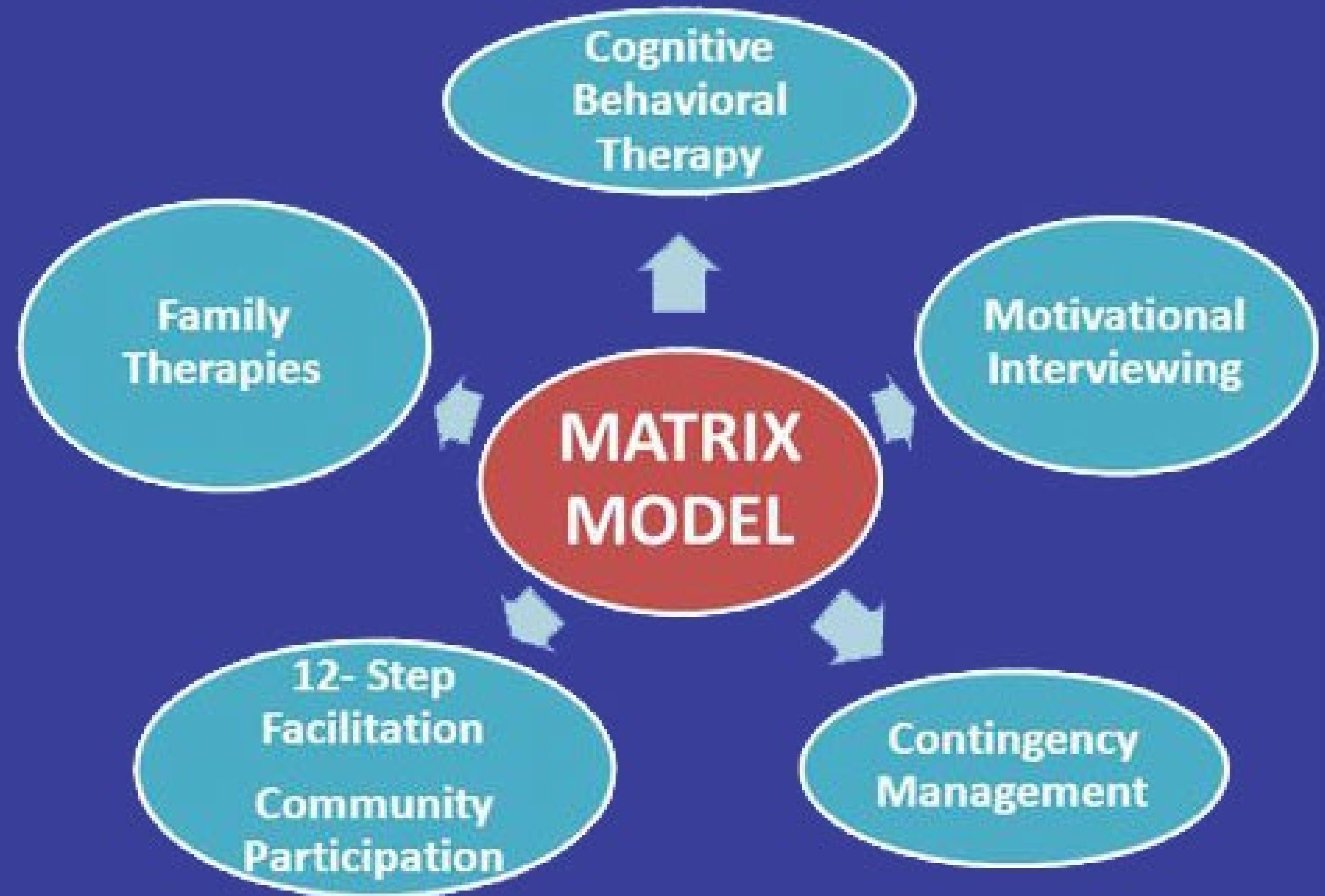


MI Is Effective

- Meth use decreases motivation, so we need to increase it
- MI, even in brief amounts (1-4 sessions) can be effective in reducing the amount of Meth a client uses

The Matrix Model

- A comprehensive, multi-modal set of treatments that are used to treat addiction together (SAMHSA, 2013)
- Usually delivered in IOP
- Matrix results improved when combined with drug court supervision (Marinelli-Casey et al., 2008)



Matrix Model Components

- Individual therapy
- Early recovery groups
- Relapse prevention groups
- Family education groups
- 12-Step meetings
- Social support groups
- Relapse analysis
- Urine testing

Additional Aspects of Treatment

- Prepare to treat them *a long time*
- More intensive treatment has greater impact (Stuart et al., 2020)
- Used validated manualized CBT at the level of treatment needed to get the job done
- Look to MRT part way through
- Look to concurrent trauma-focused treatment (prior to discharge) (note that 44% have moderate to severe childhood abuse or neglect - Chen, Zhang, & Sun, 2019)
- Engage in extensive recovery planning and relapse prevention.
- WHY? We can see difficulty in the dopamine systems over 5 years out on brain scans. Strong recovery planning must be in place.

Keep reasonable expectations!

- You will be treating them longer
- You need to supervise them closely
- They will require constant engagement and reengagement
- You need to be creative about avoiding burn out and boredom
- You need to expect setbacks and relapses

CHANCE SETBACKS WILL HAPPEN = 100%

USEFULNESS IN PRETENDING OTHERWISE = 0

Always treat for

- Malnutrition
- Vitamin deficiencies
- Depression
- Memory deficits (exercises)

Probable Co-morbid Problems

- Sexually Transmitted Diseases
- Trauma and PTSD
- Prior sexual assault (male and female)
- Hepatitis
- Infections of a variety of types
- And, of course, dental problems.

Exercise for the brain….

Drawing

Puzzles

Writing

Games

Flash cards

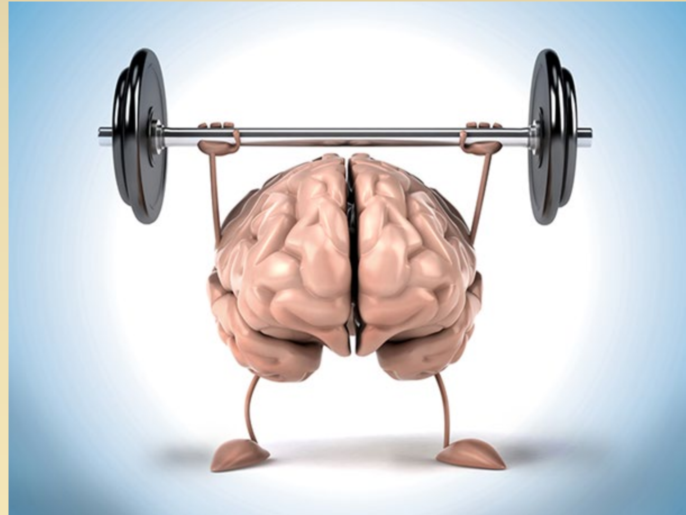


Table tennis

Eye-hand coordination

Coins

Simple math

Playing music

Once the fog clears, exercise the body

- Bike riding - Stalcup uses exercise bikes in group for fidgety folks
- Walking
- Hiking
- Swimming
- Gyms
- Yoga

- Whatever suits their interests - but get them moving
- Studies have found that exercise is an effective adjunct treatment for MUDs and adds to the effect of other interventions (Rawson et al., 2015; Wang et al., 2016)

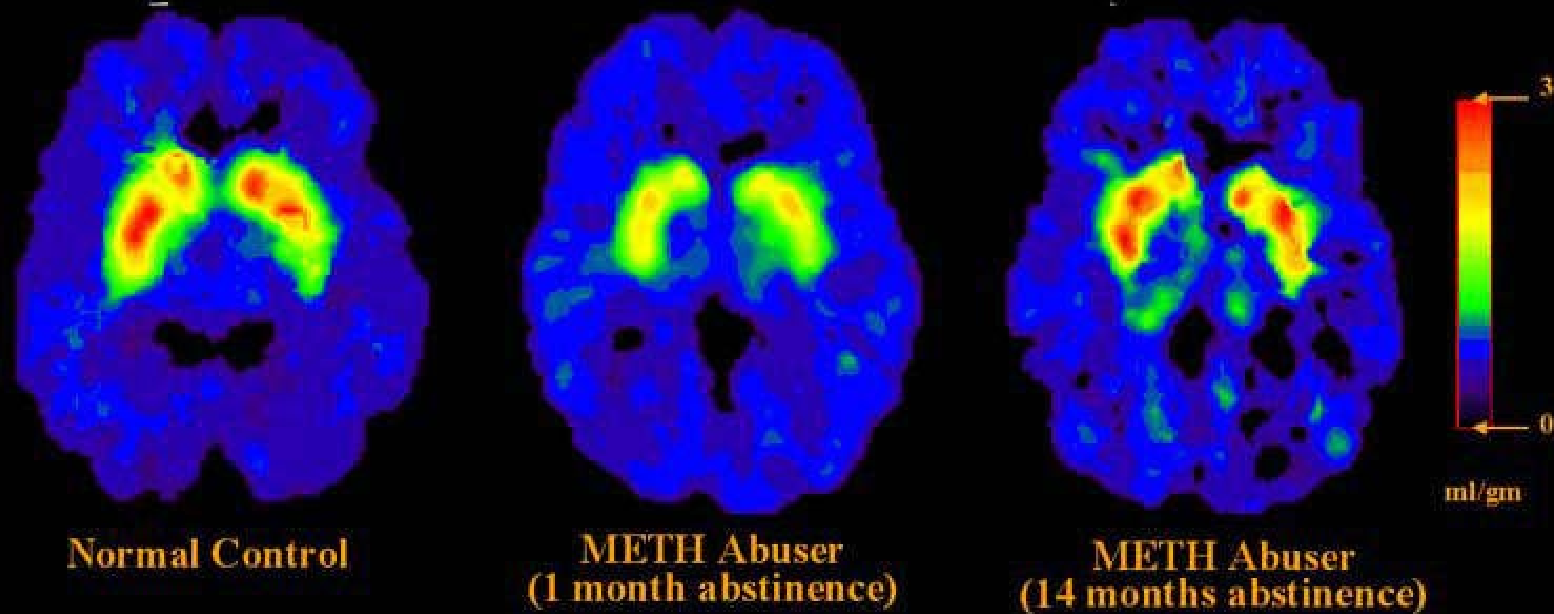
There is good news

Working with methamphetamine involved offenders is not hopeless. In fact, you can ***EXPECT*** success.

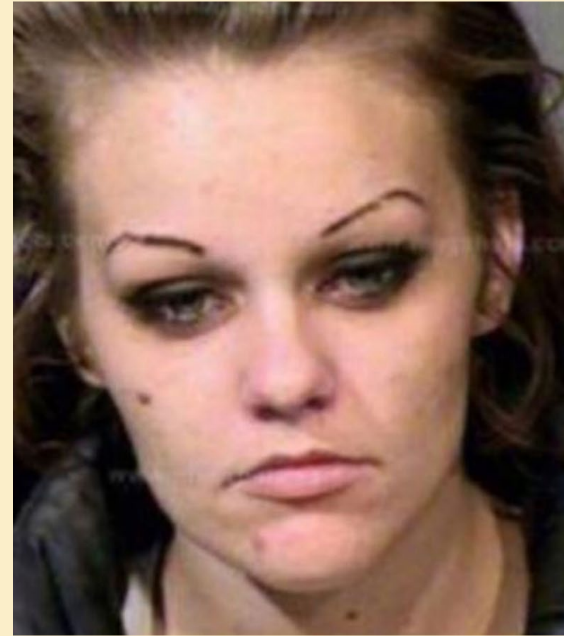
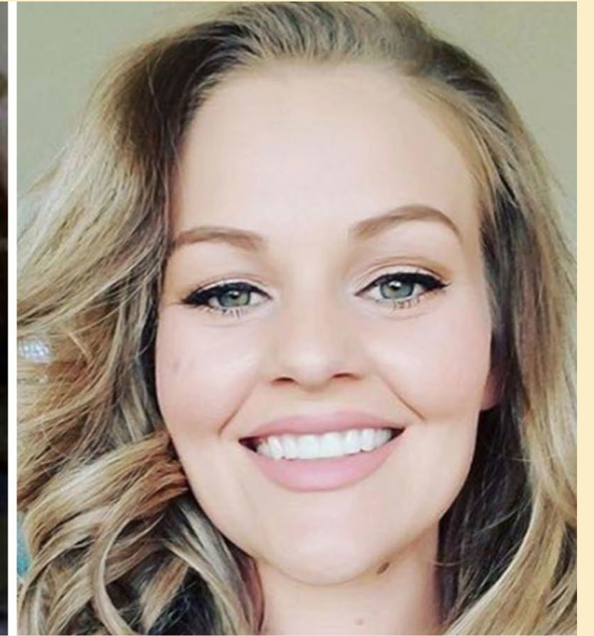
Research shows that treatment courts work best with participants who are meth users (Perkins& Carey, 2012) ***This is the right place for them!***

There are benefits to working with this group of offenders

- The level of denial is quite different. They **know** how sick they are. They are very crabby and unpleasant at first, but they have been trying to feel "less bad" for a very long time.
- They are grateful for recovery in a profound and lasting way.



Their Brains Can Heal

They Can Recover

This is a marathon, not a sprint.
Do not give up, and don't let them give up.

Resources

Contingency Management

Contingency Management in Substance Abuse Treatment (2007), by Stephen Higgins, Kenneth Silverman, and Sarah Heil (eds.)

Motivating Behavior Change among Illicit Drug Abusers: Research on Contingency Management Interventions (1999), by Stephen Higgins and Kenneth Silverman

Contingency Management for Substance Abuse Treatment: A Guide to Implementing This Evidence-Based Practice (2011) by Nancy Petry

Cognitive-Behavioral Therapy for SUDs

Cognitive-Behavioral Therapy of Addictive Disorders (2022), Bruce Liese and Aaron Beck

Cognitive-Behavioral Coping Skills Therapy Manual (1998), Project MATCH

Cognitive Therapy of Substance Abuse (2001), Aaron Beck and Fred Wright

Overcoming Alcohol Use Problems: A Cognitive-Behavioral Treatment Program Therapist Guide (2009), Elizabeth Epstein and Barbara McCrady

Motivational Interviewing

Motivational Interviewing, 3rd ed. (2012), William Miller and Sam Rollnick

Motivational Interviewing in Groups (2012), Christopher Wagner and Karen Ingersoll

Motivational Interviewing in the Treatment of Psychological Problems (2007), Hal Arkowitz and Henny Westra, eds.

Finding Your Way to Change (2015), Allan Zuckoff and Bonnie Gorscak

Building Motivational Interviewing Skills, 2nd Ed.: A Practitioner Workbook (2017), David Rosengren

http://www.motivationalinterviewing.org/

http://www.motivationalinterviewing.org/sites/default/files/MATCH.pdf

http://mid-attc.org/accessed/mi.htm

Matrix Model

- Matrix Intensive Outpatient Treatment for People with Stimulant Use Disorders: Counselor's Treatment Manual, (2013), SAMHSA
- Matrix Intensive Outpatient Treatment for People with Stimulant Use Disorders: Client's Treatment Companion, (2013), SAMHSA
- Matrix Intensive Outpatient Treatment for People with Stimulant Use Disorders: Client's Handbook, (2013), SAMHSA
- Matrix Intensive Outpatient Treatment for People with Stimulant Use Disorders: Counselor's Family Education Manual with CD, (2013), SAMHSA

All available FREE at https://store.samhsa.gov/product/Matrix-Intensive-Outpatient-Treatment-for-People-With-Stimulant-Use-Disorders-Counselor-s-Treatment-Manual/SMA13-4152

- The Matrix Model for Criminal Justice Settings, (2015), Hazeldon

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