Caring for Patients Using Methamphetamines

John Nusser MD MS
Faculty Physician
Family Medicine SW WA Residency
Peace Health Southwest
Vancouver, Wa

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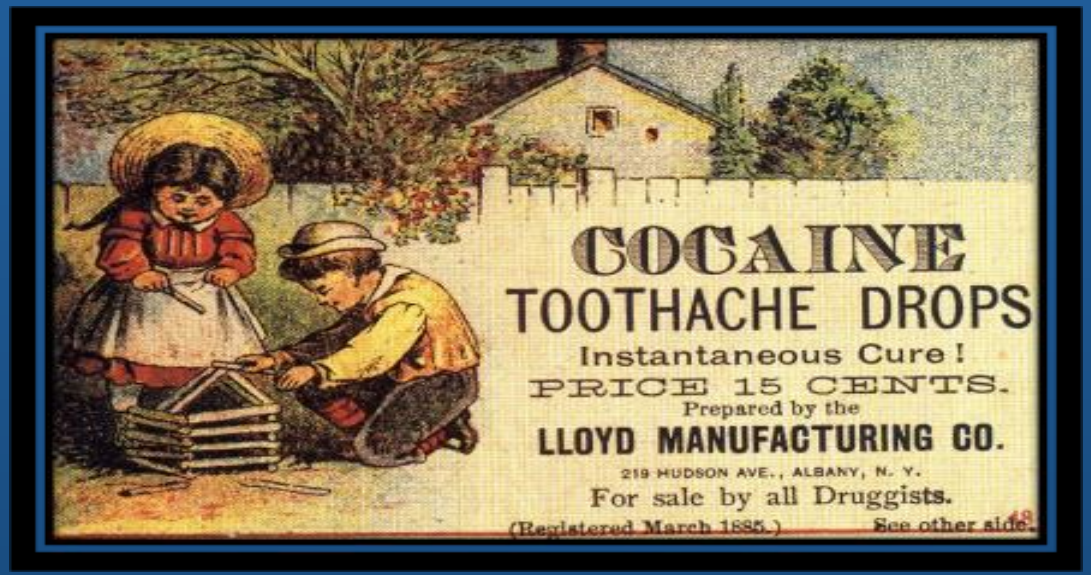
Disclosures

No conflicts of interest or relationships to disclose. I will discuss some non-FDA approved treatments.



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AETC AIDS Education & Training Center Program Mountain West

Objectives

- Clarify the epidemiology of methamphetamines & HIV.
- Review evidence-based interventions (non-pharmacologic).
- Discuss evidence-based meds for methamphetamine use disorder.

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Meth and the Body

- **Activates sympathetic nervous system. Releases vast dopamine, & serotonin, norepinephrine. Very neurotoxic to dopamine and serotonin neurons.**
- Brain: psychosis (27% heavy users) inc. impulsivity, etc.
- Heart: cardiomyopathy, MI, arrhythmia
- Teeth: decreased saliva ("meth mouth")
- Nephro: AKI, rhabdo
- GI: gut ischemia, constipation, dec thirst & hunger
- GU: increased sex drive, delayed orgasm

http://www.tweaker.org/body/index.html

Kish, SJ CMAJ. 2008 Jun 17; 178(13): 1679–1682.

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The evolution of methamphetamine

- Meth originally produced from ephedrine
- phenyl-2-propanone—P2P seen in 80's
- (2003 in PNW: more P2P meth from Mexico)
- 2012 96% of meth made with P2P
- Enantiomers now are separated: Inc potency
- Many associate new meth w incr. psychoses

S. Quinones. https://www.theatlantic.com/magazine/archive/2021/11/the-new-meth/620174/

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“I don’t know that I would even call it meth anymore.” Sam Quinones
[Meth] “continues to have high purity, potency, reflecting high availability” DEA

A resident of Skid Row, in Los Angeles, holding crystal methamphetamine, in August 2021 (Rachel Bujalski for The Atlantic)

https://www.theatlantic.com/magazine/archive/2021/11/the-new-meth/620174/
https://www.dea.gov/documents/2021/03/02/2020-national-drug-threat-assessment

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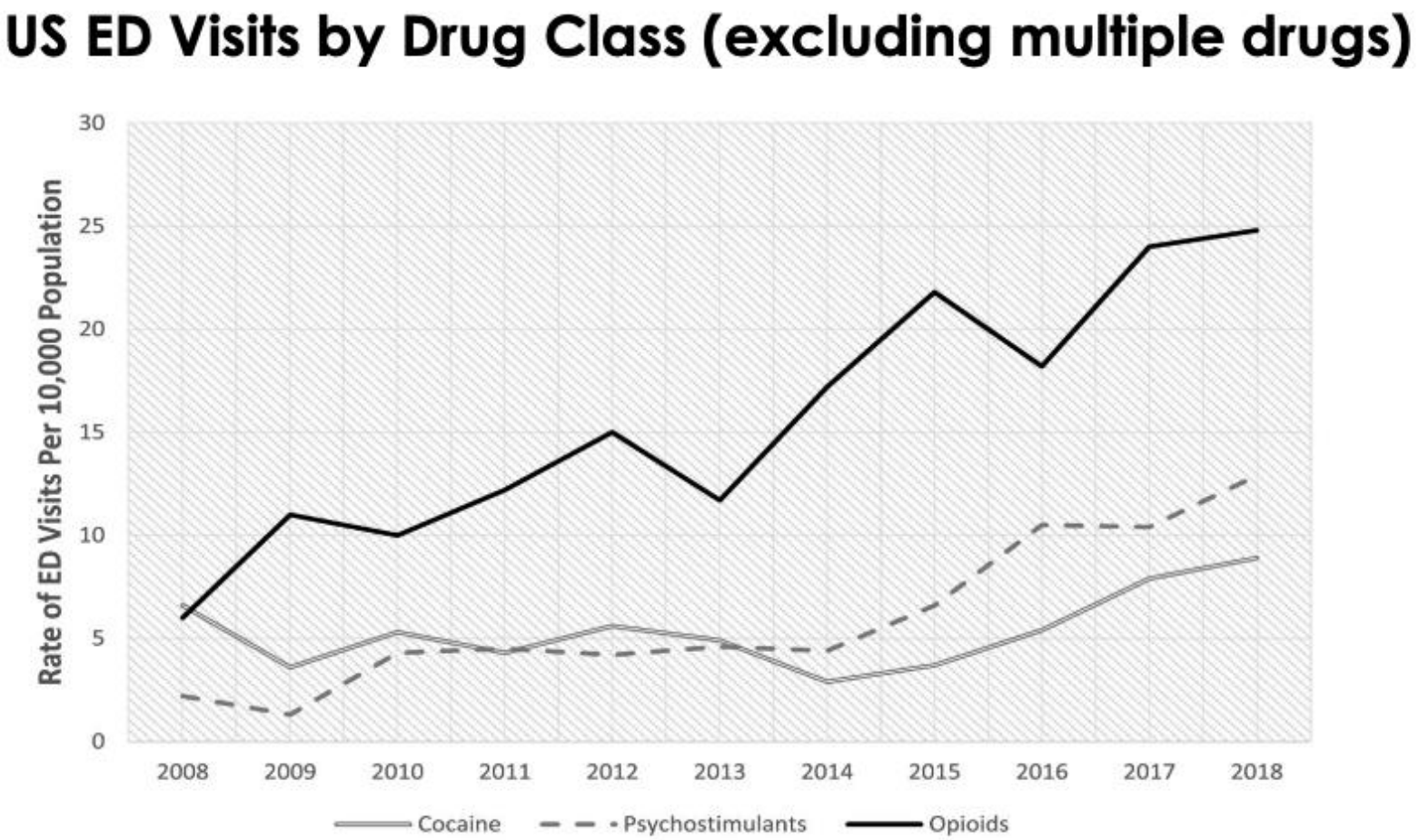
Meth stats

2 million used meth in 2019

55% of users have SUD!

20% inject.

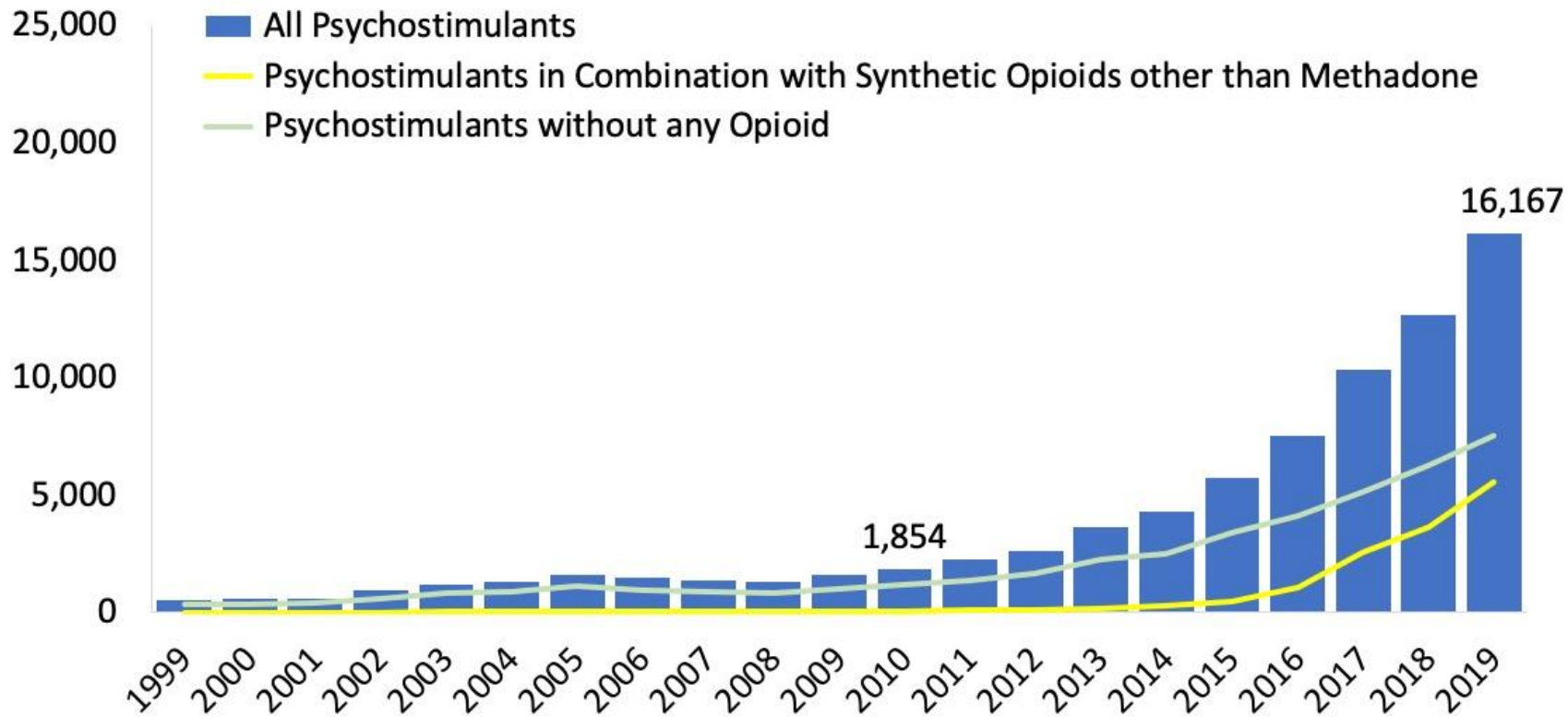
Meth use is increasing.



Suen BMC Emerg Med, 2022.

Figure 6. National Drug Overdose Deaths Involving Psychostimulants with Abuse Potential (Primarily Methamphetamine)*, by Opioid Involvement

Number Among All Ages, 1999-2019



*Among deaths with drug overdose as the underlying cause, the psychostimulants with abuse potential (primarily methamphetamine) category was determined by the T43.6 ICD-10 multiple cause-of-death code. Abbreviated to *psychostimulants* in the bar chart above.
Source: Centers for Disease Control and Prevention, National Center for Health Statistics. Multiple Cause of Death 1999-2019 on CDC WONDER Online Database, released 12/2020.

https://www.drugabuse.gov/drug-topics/trends-statistics/overdose-death-rates

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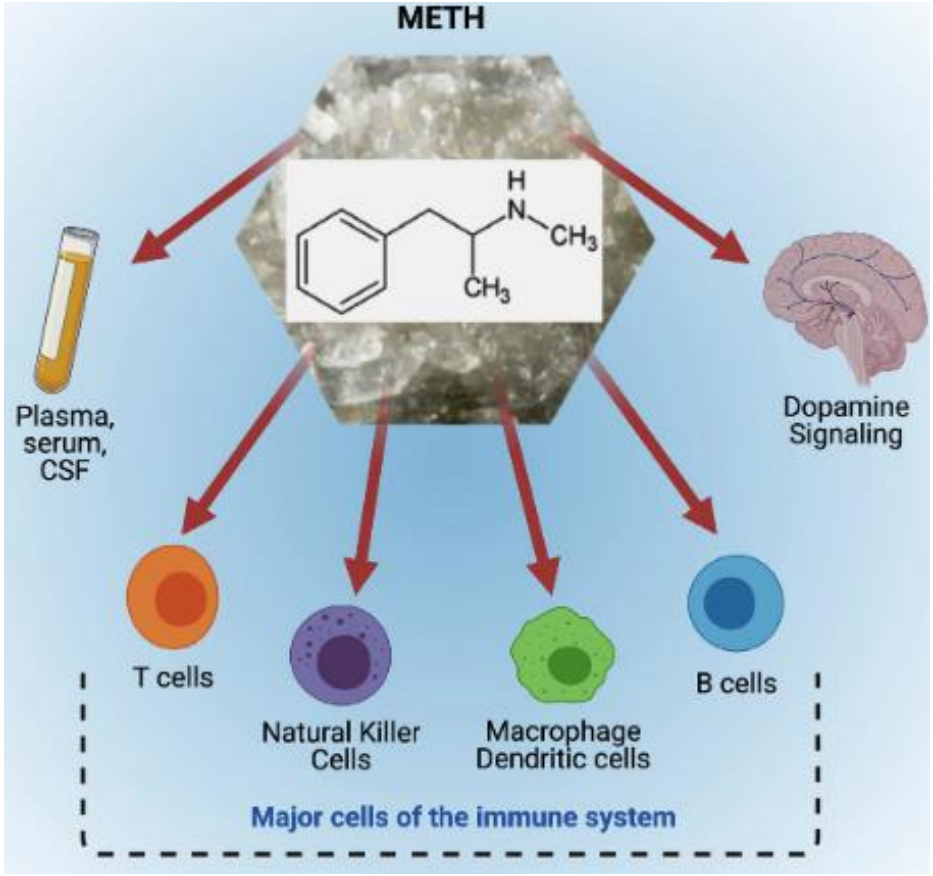
Mechanisms that increase HIV infection risk & worsen control

- Increases risk of acquiring HIV for MSM by 15% (Explore1) to 30% (MACS2)
- 1 mechanism is chemsex, associated w/ less barriers, more partners, etc.
- Another is skin & mucosal breakdown
- Neuro cog effects make ART adherence challenging
- Meth directly affects immune system & T cells via inflammatory cytokines & oxidative stress, **favoring HIV replication**



Koblin et al., 2006, AIDS, 20: 731-739
Ostrow et al., 2009, JAIDS, 51: 349-355
Chem sex info from Ignacio Labayen de Inza; Fast Track Cities Conference, 2019
Macur and Ciborowski, 2021, Current Neuropharmacology, 19: 2067-2076

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Chronic meth use, cognition & hope-based messaging

- Psychosis is common.
- Largest cognitive impairments from meth are episodic memory, executive function, and processing speed.
- Auditory memory is especially poor.
- Delayed depression off meth, very common.
- Brain function & mood can improve significantly with time away from meth.
- This takes time.

Less

More

SAMHSA. 2021. TIP 33 Treatment for Stimulant Use Disorders. https://store.samhsa.gov/sites/default/files/SAMHSA_Digital_Download/PEP21-02-01-004.pdf

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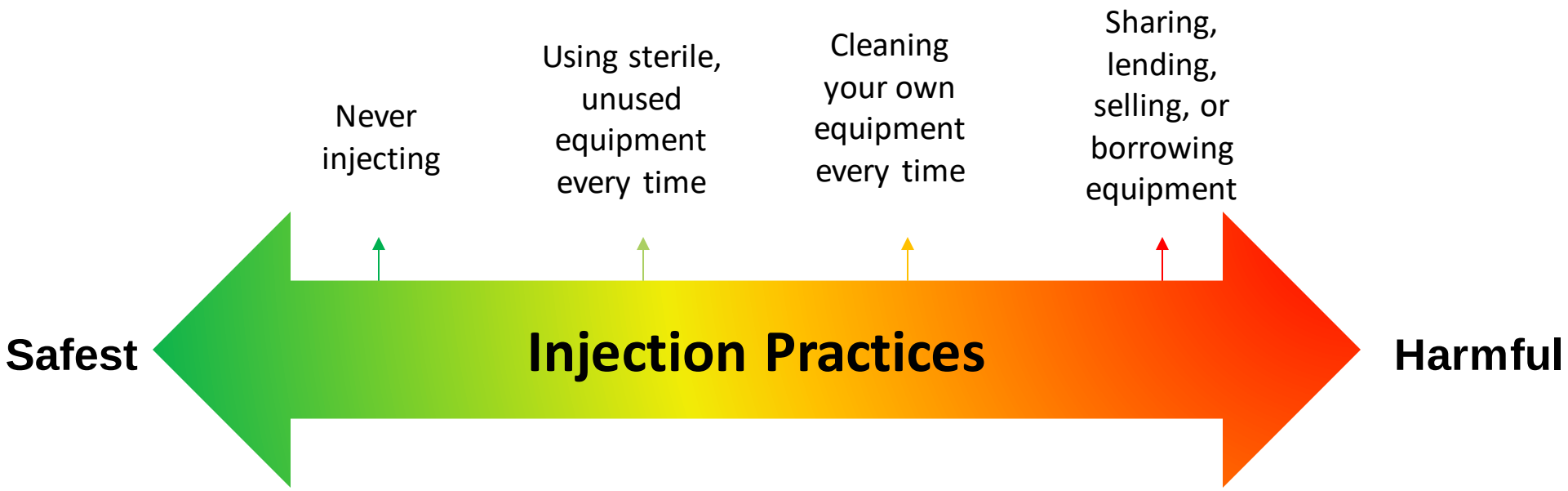
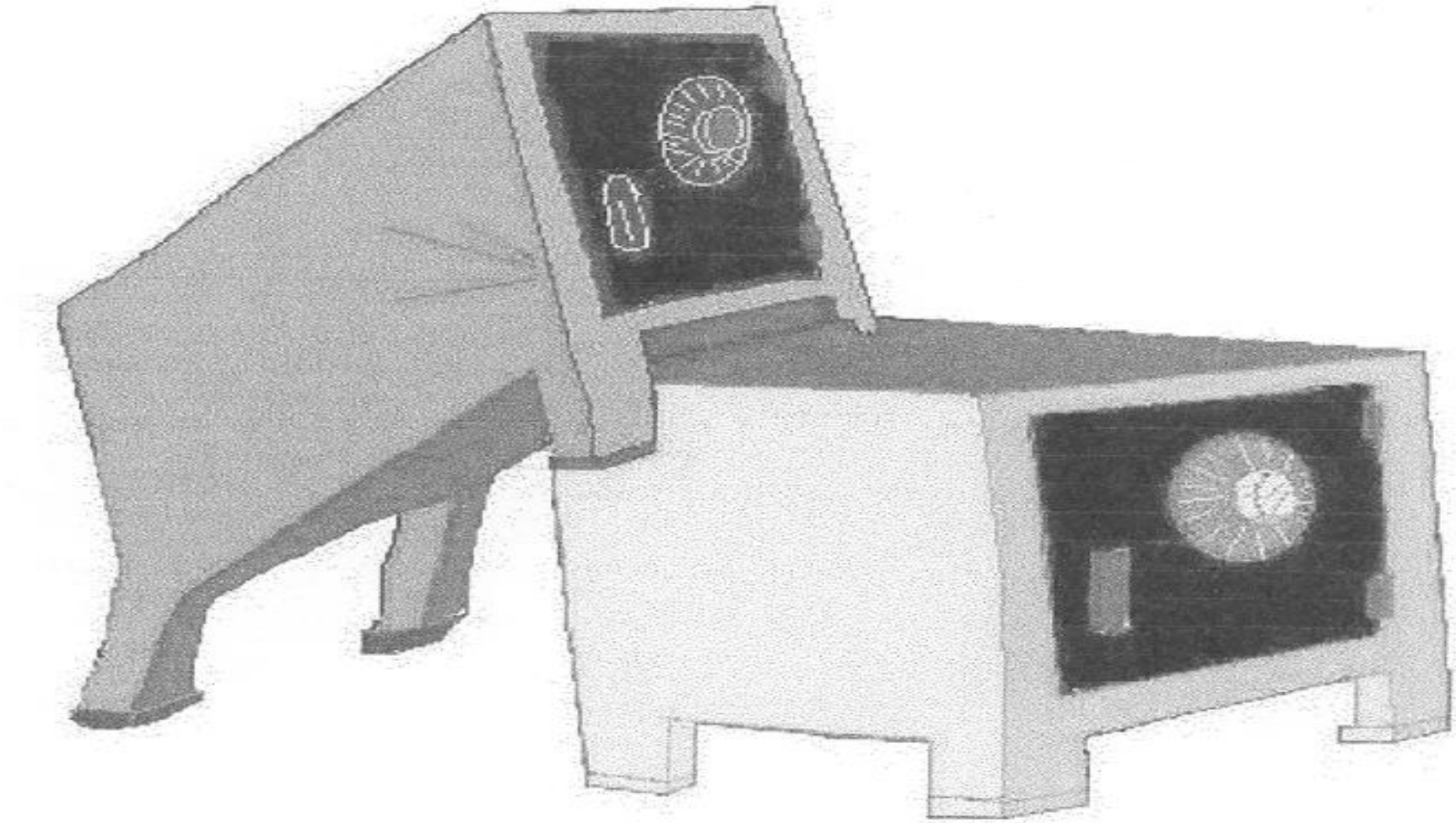
The Language of Harm Reduction



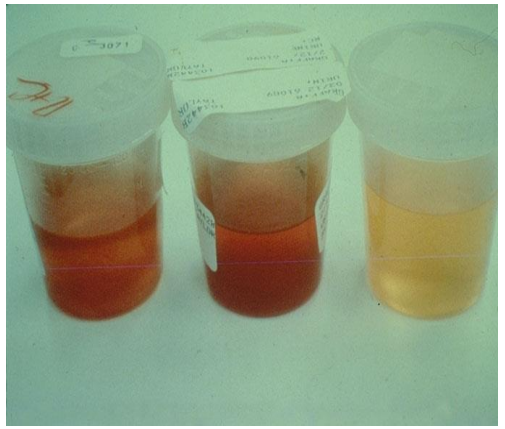


SAFE SEX

Contingency management (CM) works well!

CM: Giving rewards/incentives for stimulus control.

Reimbursed by CMS, $75 per pt in WA per SAMHSA.



- D is a message of effect size (0.2 is small, 0.5 medium, 0.8 is large)
- d=0.46 (Benishek et al., 2014, *109:*1426-1436)
- d=0.58 (Dutra et al., 2008, *Am J Psychiatry 165*:179-187)
- d=0.52 (Griffith et al., 2000, *Drug Alc Dep 58*:55-66)
- d=0.40 (Prendergast et al., 2006, *Addiction 101*:1546-1560)

Lakens, Front Psychol. 2013; 4: 863. SAMHSA. 2021. TIP 33 Treatment for Stimulant Use Disorders.

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Behavioral Pearls

- Start with harm reduction.
- Brief MI can reduce sex risk behaviors in people using meth.
- Contingency Management: THE most effective tool to reduce meth use among MSM.
- CBT is also effective.
- Can combine with meds.

Stuart et al. J Subst Abuse Treat 2020; 109: 61-79
Lee, Rawson. 2008. Drug Alc Rev 27:309-317.
Mausbach, Strathdee, Patterson. 2007 Drug Alc Dep. 87:249-257
Mausbach, Strathdee, Patterson. 2007 Ann Beh Med. 34:263-274

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Medication Treatment Trials for Stimulants

(None FDA-Approved)

	Cocaine	Methamphetamines
Dextroamphetamine	+	+
Methylphenidate	-	-
Modafinil	+	+
Bupropion	-	++
Naltrexone	-	+/-
Mirtazapine	-	++
Topiramate	+	-
L-Dopa	-	-
Desipramine	-	
Imipramine	-	-
Sertraline	-	-
Aripiprazole		-
Ondansetron		-

Moszcynyska. 2021. Curr Neuropharmacol 19: 2077-2091 Recent med review
Naji et al. 2022. Drug Alcohol Depend 232:109295. Mirtazapine review

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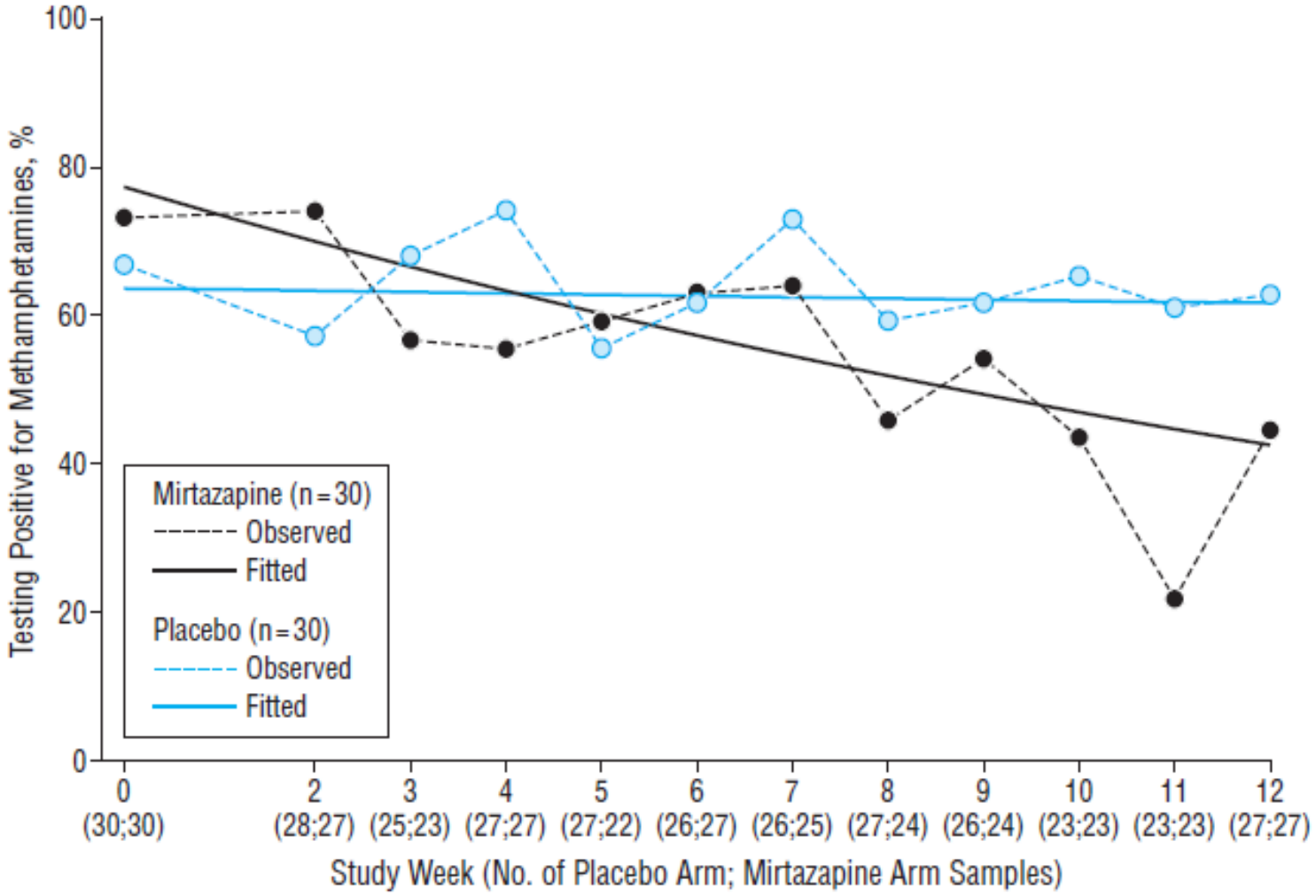
Pharmacotherapy for Stimulant Use: Mirtazapine 30 mg/day can decrease meth use



Colfax et al. *Archives Gen Psych*, 2011. *68*(11): 1168-1175

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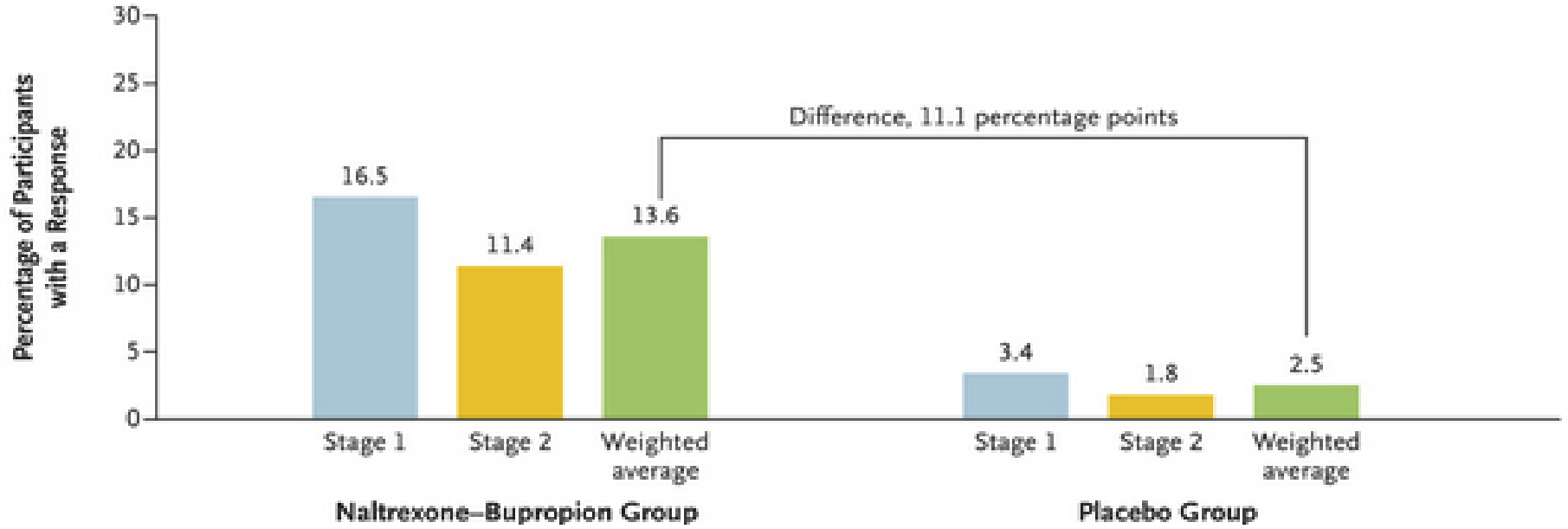
Naltrexone IM and high dose bupropion help

- Multicenter trial, 12 week trial, N=403,
- 380 mg IM naltrexone plus 450 mg bupropion
- High adherence (70%) to bupropion encouraged with CM ($3 a day)
- Success was defined as 3/4 neg urine drug screens.
- 16% vs 3.4 %
- NNT = 9



Trivedi et al. NEJM 2021. 384(2):140-153.

Primary Care Treatment Pearls

- Consider bupropion (XL 150mg qday, then increase to 450 mg qday) +/- naltrexone.
- If no contra-indications, can start mirtazapine at 15-30mg with goal of 30mg qhs.
- If patients are excited about a treatment option, use that optimism!
- Treat mental health conditions and other addictions.

- If HIV+, consider labs & visits q 3 months.
- Treat CV risks aggressively.
- Consider STI screen, Hep A & B vaccination.
- Don’t forget naloxone.
- To stay kind, be patient.

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