

Review of Evidence for Treatment of Methamphetamine Use Disorder

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No Disclosures



Learning Objectives

- Be aware of strength of evidence for psychosocial interventions for methamphetamine use disorder
- Be aware of evidence supporting the use of specific medications for methamphetamine use disorder

For patients on buprenorphine for OUD who are also wrestling with Methamphetamine Use

- Don't give up on them
- Resist requiring methamphetamine-free urine as a requirement to continue buprenorphine treatment
- Continuing buprenorphine will reduce mortality regardless of methamphetamine use
- Always co-prescribe naloxone (Narcan) with buprenorphine

Psychosocial Interventions for Methamphetamine Use Disorder

Motivational Interviewing

Empathy through reflective listening, identifying discrepancies, avoiding arguments/confrontations, adjusting to resistance, supporting self-efficacy and optimism

- Strong Evidence
- reduced # of days of stimulant use
- reduced amount of stimulant used per day

Psychosocial Interventions for Methamphetamine Use Disorder

Cognitive Behavioral Therapy

Short-term, goal-oriented, insight can lead to changes in thinking and behavior

- Strong Evidence
- reduced quantity of stimulant used per week
- reduced frequency of stimulant use
- reduced risky sexual behaviors

Psychosocial Interventions for Methamphetamine Use Disorder

Community Reinforcement Approach

Originally developed for AUD - modified for stimulant use disorder

Identifies behaviors reinforcing use and works toward lifestyle changes (relationship counseling, job skills)

- Strong Evidence
- reduced addiction severity
- reduced number of weeks of usage
- reduced frequency per week

Psychosocial Interventions for Methamphetamine Use Disorder

Contingency Management

Operant Conditioning - desired behaviors are reinforced with prizes, privileges or cash

- Strong Evidence
- Reduced number of days of stimulant use
- Reduced stimulant cravings
- Reduced HIV risk behaviors

Contingency Management

Nancy Petry's "Fishbowl technique"

- Cards indicating prizes drawn from fishbowl
- Based on number of methamphetamine-free urines
- Escalating reward
- 1 card for first meth-free urine
- 2 cards for second sequential meth-free urine
- 3 cards for third sequential...etc
- Start over if meth + urine



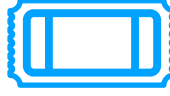

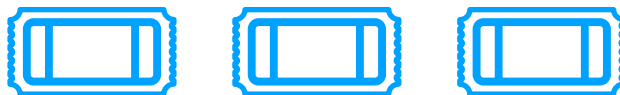






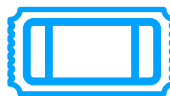

The Prize Bowl

- Inexpensive fish bowl (ideally plastic), large enough to reach a hand into
- 500 square 3 inch x 3 inch pieces of paper (all the same dark color)
- Most slips of paper (about half) would say: “small” - worth around 2-3 dollars
- About 100 slips would say: “medium” - worth around 5-8 dollars
- About 40 slips would say: “large” - worth around 25-50 dollars
- 1 or 2 slips would say: “jumbo” - worth 100-200 dollars
- Remaining slips would say “good job”



Contingency Management

How Clients Earn Slips: Escalating Reward

1st Visit regardless of Utox results	
2nd Visit if Utox negative	
3rd Visit if Utox negative	
4th Visit if Utox negative	
5th Visit if Utox negative	
6th Visit if Utox negative	
7th Visit if Utox negative	
8th Visit if Utox negative	
9th Visit if Utox negative	
10th Visit if Utox POSITIVE	
11th Visit if Utox negative	
12th Visit if Utox negative	

Prize Cabinet

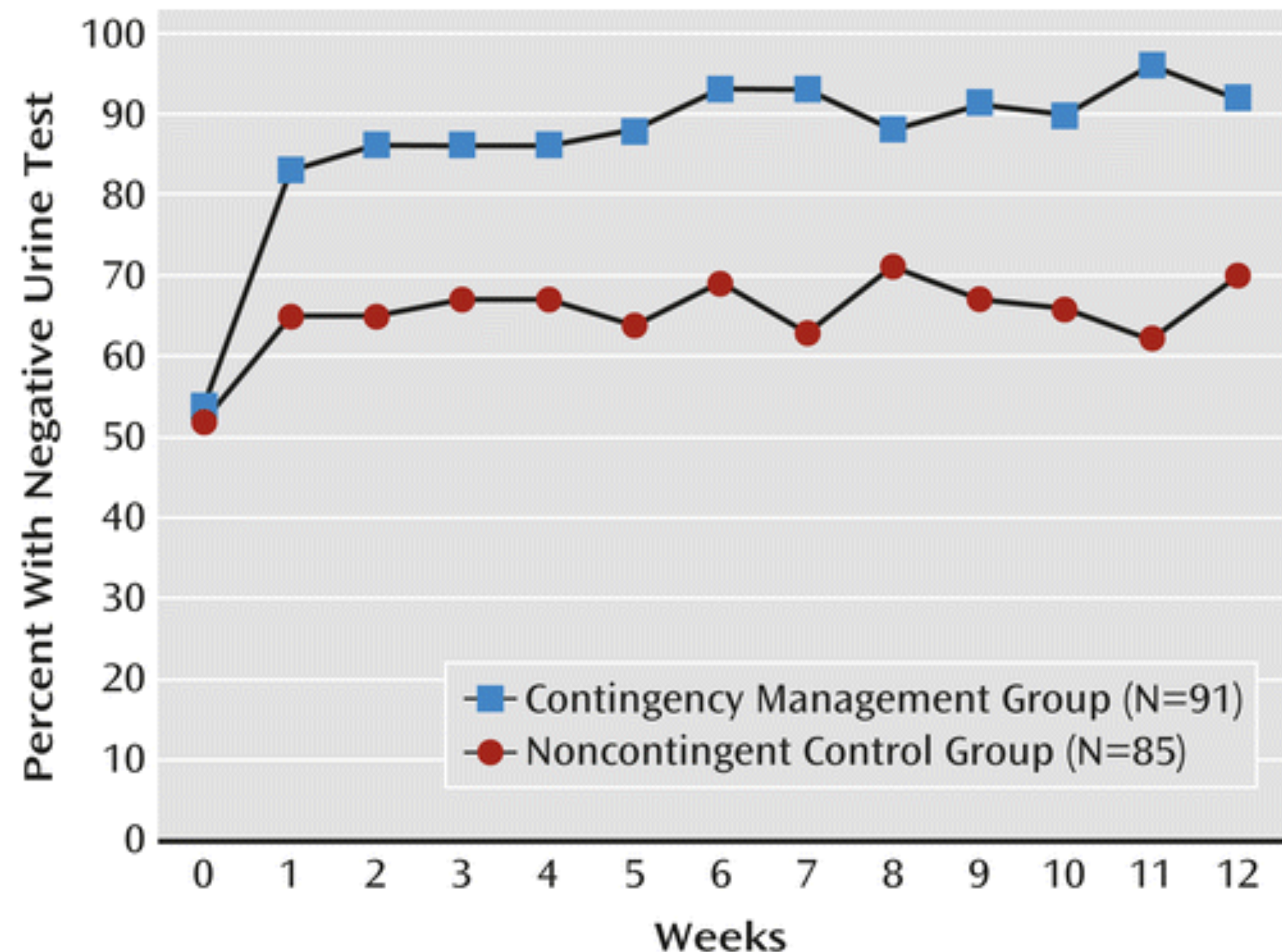


- Small slips worth 2-3 dollars
- Medium slips worth 5-10 dollars
- Large worth around 25-50 dollars
- Jumbo slips worth 100-200 dollars

Petry N. Contingency Management for Substance Abuse Treatment, A guide to implementing this evidence-based practice. Routledge, Taylor & Francis Goup 2012.

<http://www.routledgejournalhealth.com/contingency-management-for-substance-abuse-treatment-9780415882897>

Contingency Management for Stimulant use in Patients with Serious Mental Illness



- Those in CM group were 2.4 times as likely to submit negative urine.
- $P < 0.05$

FIGURE 1. Percent of Participants With Stimulant-Negative Urine Samples, From Baseline Through the 12-Week Treatment Period^a

McDonnell M, et al. Randomized Controlled Trial of Contingency Management for Stimulant Use in Community Mental Health Patients with Serious Mental Illness. *American Journal of Psychiatry*. 2013 January

Questions?

What have you seen work / not work in treating methamphetamine use disorder?



Bonus Slides!

Medications for Methamphetamine Use Disorder

VA finds (2015) there is insufficient evidence to recommend for or against use of any pharmacotherapy.

American Society of Addiction Medicine Handbook (2016):

- psychosocial interventions appear to be effective for selective individuals.
- no medical agent has consistently been shown to be effective...

Mirtazapine vs Placebo in 60 MSM patients with MUD

Urine Positivity decreased from 67% to 63% in placebo group

Urine Positivity decreased from 73% to 44% in Mirtazapine group

NNT to achieve a negative weekly urine test result was 3.1

Methamphetamine contributes to HIV transmission among MSM

High risk sexual behaviors significantly decreased among Mirtazapine group vs placebo:

of male partners with whom methamphetamine was used (P=.009)

of male partners (P=.04)

episodes of unprotected anal sex with unprotected partners (P=.003)

Mirtazapine 30mg vs Placebo in 120 cisgender men and transgender women with MUD who had sex with men

	Methamphetamine + Urine	Changes in sexual risk behaviors	Depression and Insomnia
12 weeks	RR 0.67	No significant change	No significant change
24 weeks	RR 0.75	Fewer partners and fewer episodes of condomless anal sex with serodiscordant partners	Depression reduction (P=.01) Insomnia reduction (P=.05)

Coffin P, et al. Effects of Mirtazapine for Methamphetamine Use Disorder Among Cisgender Men and Transgender Women Who Have Sex With Men: A Placebo-Controlled Randomized Clinical Trial. *JAMA Psychiatry* 2020 March 1;77(3):246-255.



Bupropion 300mg vs Placebo for 12 weeks in 150 patients with Methamphetamine Dependence

Overall difference between Bupropion and Placebo was not statistically different (P=0.09)

Analysis of those with lower-level of meth use (less than 18 of last 30 days) at baseline showed reduction in use (P<0.001)

This was regardless of comorbid depression

Elkashef AM, et al. Bupropion for the treatment of methamphetamine dependence. *Neuropsychopharmacology*. 2008 April 33(5): 1162-70

Bupropion 300mg daily vs placebo for 12 weeks in 73 patients with Methamphetamine Dependence.

No effect on heavier users

Increased likelihood of methamphetamine-free week among lighter users

(Odds Ratio=2.81, $p < 0.001$)

Shoptaw S, et al. Randomized, placebo-controlled trial of bupropion for the treatment of methamphetamine dependence. *Drug and Alcohol Dependence* 2008 Aug; 96(3):222-32



Bupropion + Naltrexone

Bupropion XL rapidly raised in 3 days to 450mg

+

Naltrexone extended-release injectable 380mg Q3 weeks

12-week trial at 8 sites

403 patients randomized

Bupropion + Naltrexone

Twice Weekly Utox was obtained

Response: at least 3 methamphetamine negative samples out of 4 obtained at the end of 6 weeks

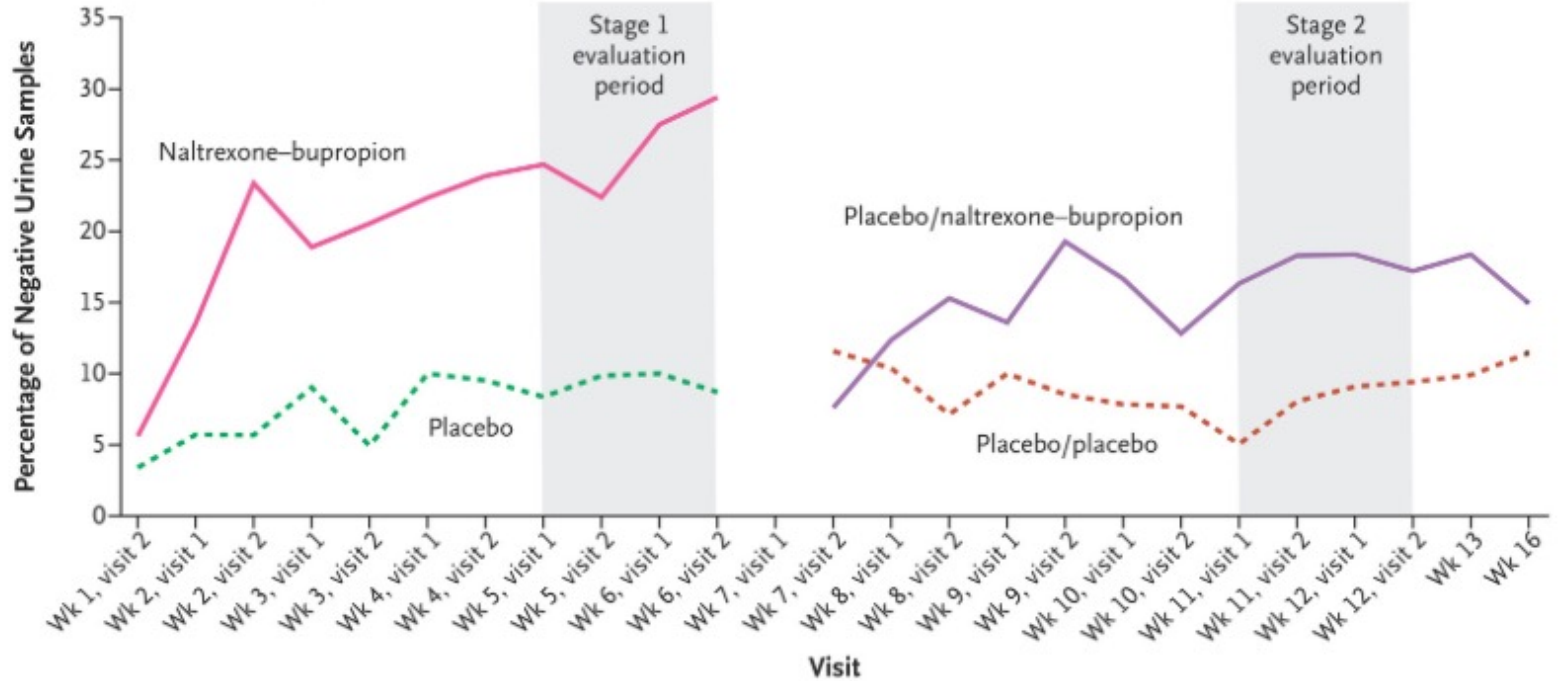
Stage 1: 16.5% of naltrexone+bupropion group had response vs. 3.4% of placebo

Stage 2: 11.4% of naltrexone+bupropion group had response vs. 1.8% of placebo

Weighted average response across the two stages was 13.6% vs 2.5%

Overall treatment effect of 11.1% ($P < 0.001$)

B Methamphetamine-Negative Urine Samples



No. of Urine Samples Obtained at Each Visit

	Stage 1											Stage 2												
Naltrexone-bupropion	89	96	77	90	73	85	67	81	67	80	68													
Placebo	265	280	229	266	223	260	210	239	203	240	207													
Placebo/naltrexone-bupropion												92	97	85	103	83	96	78	98	82	98	93	98	87
Placebo/placebo												95	106	84	100	82	102	91	99	87	99	85	101	96

Aripiprazole vs placebo for 12 weeks in 90 patients with Methamphetamine Dependence

No difference reduction in methamphetamine-positive urines

No reduction in sexual risk behavior

Coffin P, et al. Aripiprazole for the treatment of methamphetamine dependence: A randomized, double-blind, placebo-controlled trial. *Addiction*. 2012 November 108(4).



Other Medications

Disulfram	- some evidence
Modafinil	- some evidence
Naltrexone PO	- some evidence
Topiramate	- not supported by evidence
Adderall XR	- some evidence
Methylphenidate	- some evidence

Haile C, et al. Pharmacotherapy for Stimulant-Related Disorders. *Current Psychiatry Reports*. 2013 October. 15(415)

Ling W, et al. Sustained-release methylphenidate in a randomized trial of treatment of methamphetamine use disorder. *Addiction* 2014 October. 109(9) 1489-1500.

Questions

- Have you tried using medications to treat Methamphetamine Use Disorder?
- What have you seen work / not work?