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Psychiatry and Addictions Case Conference
UW Medicine | Psychiatry and Behavioral Sciences

CONTINGENCY MANAGEMENT FOR STIMULANT USE

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UW Medicine
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Integrated Care Training Program
UW Psychiatry & Behavioral Sciences

project ECHO

SPEAKER DISCLOSURES

Funding sources relevant to CM:

✓ Individualizing Incentives to Maximize Recovery (NIH Grant # R01AA020248)

✓ Phosphatidylethanol-Based Contingency Management for Housing (NIAAA Grant # 1R21AA027045-01A1)

✓ Paid by the states of Montana, Washington, and California to train clinicians in Contingency Management

OBJECTIVES

1. Contextualize the psychostimulant (methamphetamine) drug use crisis, including desperate need for evidence-based treatment options.

2. Understand the psychological principals behind contingency management and key features that contribute to its efficacy.

3. Gain inspiration for adding this behavioral intervention to your toolbox (or referral network) and awareness of the challenges of CM implementation.

QUESTION

Please type answer number(s) in the the chat

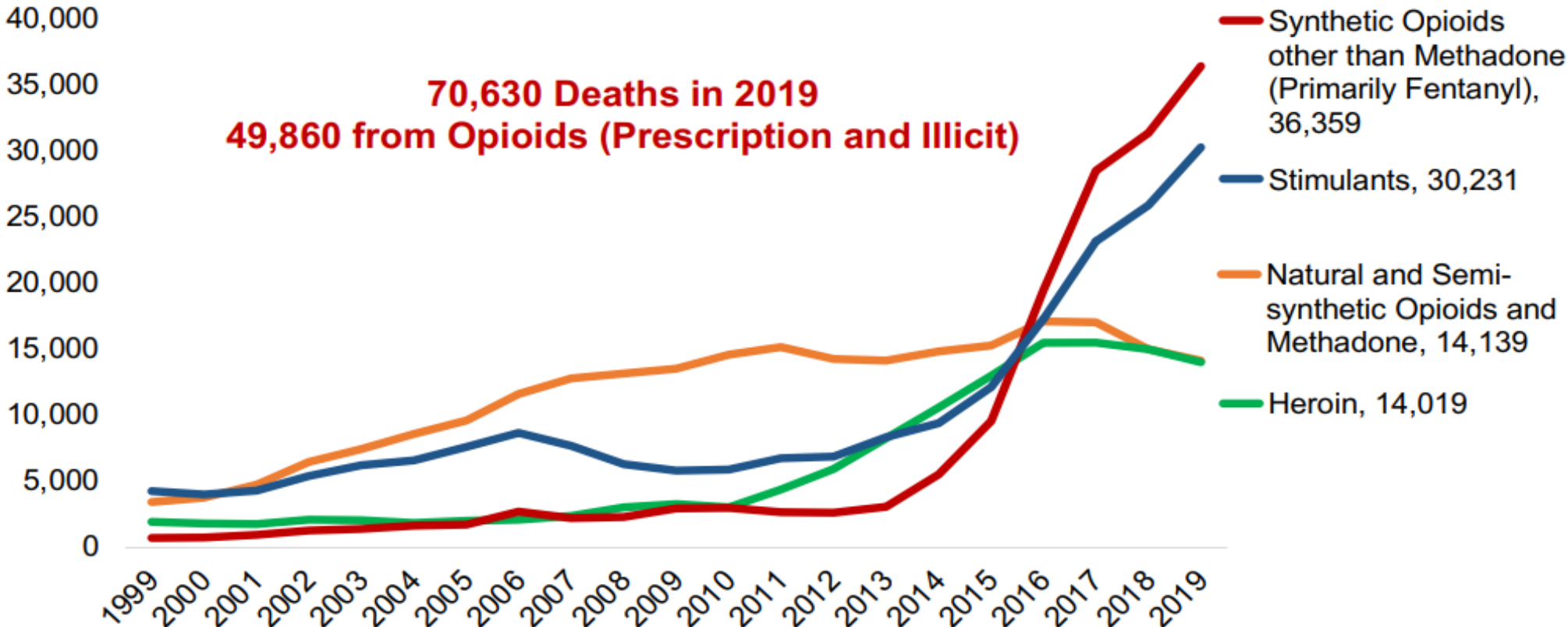**Which of the following most accurately describes you?:**

1. I've never heard of Contingency Management (CM)
2. I vaguely know what CM is– I'm here to learn more about it!
3. I'm aware of CM basics and want to know how to incorporate it into my toolbox/referral network.
4. I already use CM and am here to fine-tune my CM program/skills.
5. I'm not so sure I'm down with CM– convince me!

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Evolution of Drivers of Overdose Deaths, All Ages

Analgesics ➡ Heroin ➡ Fentanyl ➡ Stimulants

70,630 Deaths in 2019
49,860 from Opioids (Prescription and Illicit)

Synthetic Opioids other than Methadone (Primarily Fentanyl), 36,359

Stimulants, 30,231

Natural and Semi-synthetic Opioids and Methadone, 14,139

Heroin, 14,019

(Y-axis: 0 to 40,000 in increments of 5,000; X-axis: years 1999 to 2019)

Source: The Multiple Cause of Death data are produced by the Division of Vital Statistics, National Center for Health Statistics (NCHS), Centers for Disease Control and Prevention (CDC), United States Department of Health and Human Services (US DHHS).

Increased Overdose Death Rates During COVID-19

12-months Ending June 2020 Compared to 12-months Ending June 2019

	ALL DRUGS	HEROIN	NAT & SEMI – SYNTHETIC	METHADONE	SYNTHETIC OPIOIDS	COCAINE	OTHER PSYCHO-STIMULANTS (mainly meth)
June-19	68,711	14,856	12,148	2,863	33,164	14,894	14,583
June-20	83,335	14,480	12,966	3,195	48,006	19,215	20,318
% Change	21.3%	-2.5%	6.7%	11.6%	44.8%	29.0%	39.3%

*Predicted Number of Deaths
Source: NCHS Provisional Drug Overdose Death Counts:
https://www.cdc.gov/nchs/nvss/vsrr/drug-overdose-data.htm (Accessed on 1-18-2021)

https://www.cdc.gov/nchs/nvss/vsrr/drug-overdose-data.htm

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META-ANALYSIS OF SUBSTANCE TARGETED AND DROPOUT

Treatment Target	Dropout Rate
Heroin	25.1
Tobacco	25.5%
Alcohol	26.1%
Cocaine	48.7%
Methamphetamine	**53.5%**

- Meta-analysis of in-person psychosocial SUD treatment.

- Drop out rates in first 90 days of treatment

- 151 studies, with 26,243 participants.

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LIMITATIONS OF EXISTING STIMULANT USE DISORDER TREATMENT

- No FDA approved pharmaceutical medications for stimulant use disorders
- Moderate evidence for CBT as a treatment for stimulant use disorders
- Contingency management has strong evidence but it not widely available
  - Only evidence-based treatment for methamphetamine use
- Standard outpatient addiction treatment does not typically include evidence-based intervention for stimulant use disorders

ENTER… CONTINGENCY MANAGEMENT

- Decades of research

- "New" to the real world

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QUESTION

Contingency Management is based primarily on the principles of:

1. Learning Theory
2. Classical Conditioning
3. Operant Conditioning
4. Psychodynamic theory
5. Biosocial theory

Wait for my signal, then type responses in the the chat

Review: Operant Conditioning

	Reinforcement (Increase / maintain behavior)	**Punishment** (Decrease behavior)
Positive (add stimulus)	**Add** pleasant stimulus to **Increase / maintain** behavior	**Add** aversive stimulus to **Decrease** behavior
Negative (remove stimulus)	**Remove** aversive stimulus to **Increase / maintain** behavior	**Remove** pleasant stimulus to **Decrease** behavior

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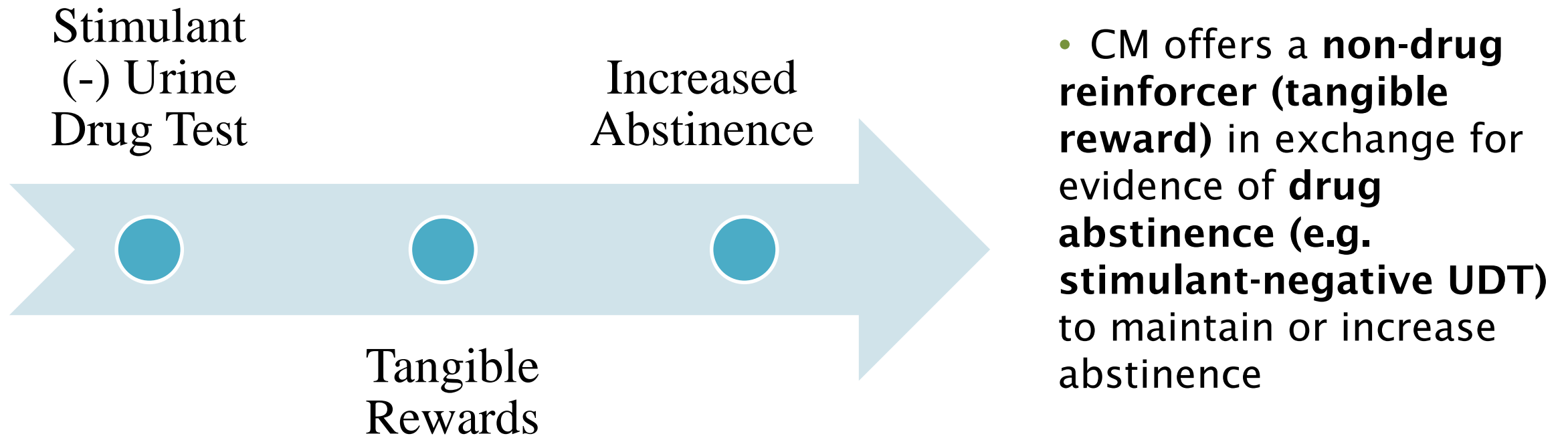
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REVIEW: PHARMACO-BEHAVIORAL THEORY OF SUBSTANCE USE

Psychoactive drugs:
– Feel good (positive reinforcement)
– Remove negative feelings (negative reinforcement)
– Drug use result in loss of many other reinforcers (job, family, friends)

Conclusion: drugs are highly reinforcing and hijack the reward pathway in our brain

CM USES *POSITIVE REINFORCEMENT* TO RECLAIM *REWARD PATHWAY!*

Stimulant (-) Urine Drug Test

Increased Abstinence

Tangible Rewards

- CM offers a **non-drug reinforcer (tangible reward)** in exchange for evidence of **drug abstinence (e.g. stimulant-negative UDT)** to maintain or increase abstinence

KEY ELEMENTS OF CM

Target Behavior:

- Objective

- Measurable

- Achievable

- Feasible

- Consistent

CM Rewards:

- Contingent

- Immediate

- Tangible

- Desirable

- Escalating

CM FOR STIMULANTS: TARGET BEHAVIOR

Stimulant Abstinence: Stimulant-Negative Urine Drug Test (UDT)

– **Objective:** we don't rely on self-report

– **Measurable:** urine drug test

– **Achievable:** 2-4 day detection period

– **Feasible:** point-of-care tests are cheap and provide immediate results

– **Consistent:** 2 times a week

– **Focused:** do not require abstinence from other substances

CM FOR STIMULANTS: REWARDS

- **Contingent:** only provide reward when UDT is stimulant-negative

- **Immediate:** reward right after UDT result

- **Tangible:** prizes or gift cards

- **Desirable:** things people want/need and amount that will be motivating
  - Minimum $10 /neg UDT, total of at least $500 for 12 weeks

- **Escalating:** gets bigger the longer they are abstinent

REINFORCEMENT SCHEDULE: ESCALATION, RESET, RECOVERY

- **Escalation:** earn bonus rewards with continuous abstinence

- **Reset:**

  – positive or missed UDT results in no reward

  – next negative UDT is reset to initial level (bonus rewards are temporally suspended)

- **Recovery:** bonus rewards can be recovered after 1 week of abstinence

Use a Positive Approach

- Refocus use of UDTs
  - Celebrate negative UDTs rather than punish positive UDTs
- Lack of punishment/negative consequences
  - Stay encouraging by focusing on next opportunity
- Great for therapeutic alliance!

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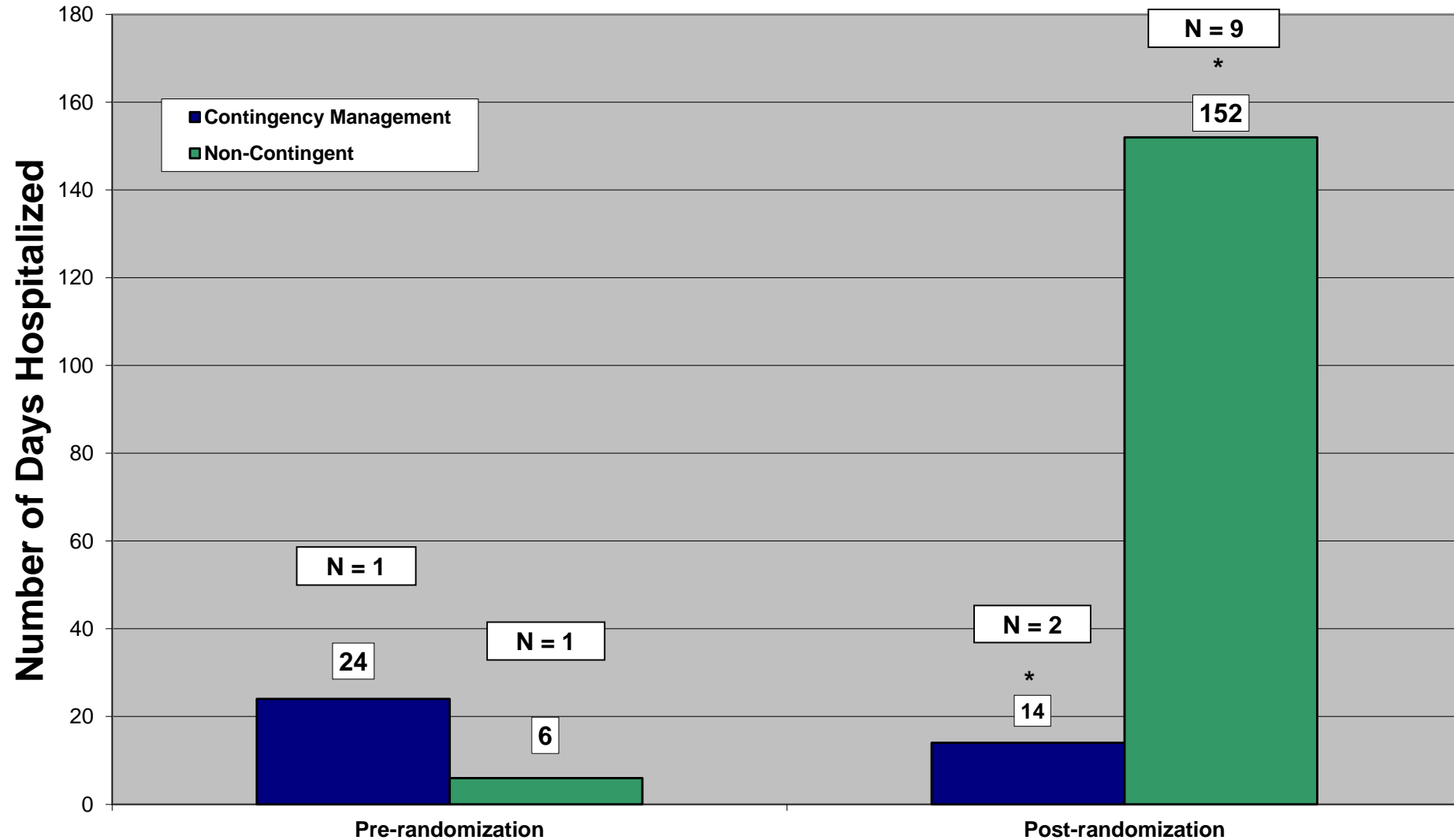
Percent of Participants with Stimulant Drug-Negative Samples
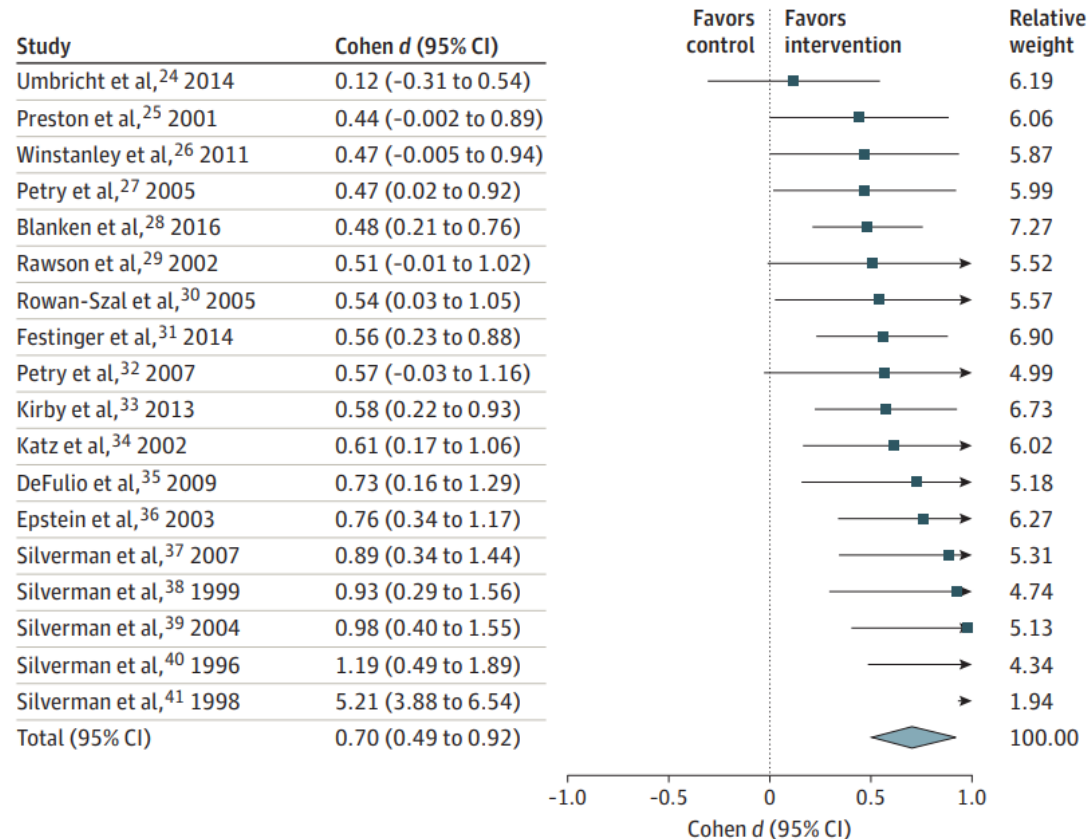
(across the 12-week treatment period)
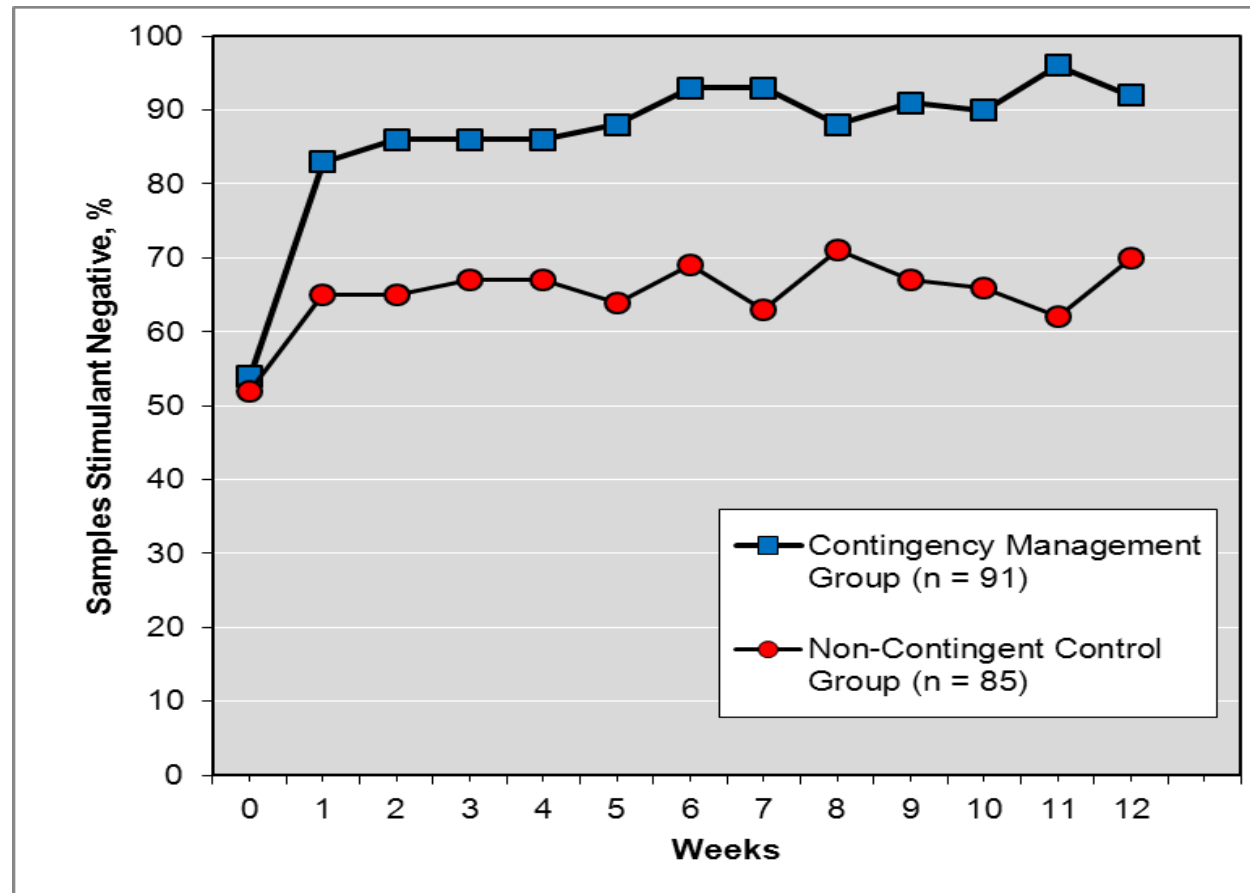
OR = 2.40, CI = 1.89-3.05 (McDonell et al., 2013, Am. J. Psychiatry)

Number of Inpatient Days by Group Over Pre-Randomization (3 months) and Post-Randomization (6 months) Periods

CONTINGENCY MANAGEMENT FOR MOUD PATIENTS

Figure 2. Forest Plot of Treatment Effect Sizes of Contingency Management vs Controls: Abstinence From Psychomotor Stimulant Use

Study	Cohen d (95% CI)	Relative weight
Umbricht et al,[24] 2014	0.12 (−0.31 to 0.54)	6.19
Preston et al,[25] 2001	0.44 (−0.002 to 0.89)	6.06
Winstanley et al,[26] 2011	0.47 (−0.005 to 0.94)	5.87
Petry et al,[27] 2005	0.47 (0.02 to 0.92)	5.99
Blanken et al,[28] 2016	0.48 (0.21 to 0.76)	7.27
Rawson et al,[29] 2002	0.51 (−0.01 to 1.02)	5.52
Rowan-Szal et al,[30] 2005	0.54 (0.03 to 1.05)	5.57
Festinger et al,[31] 2014	0.56 (0.23 to 0.88)	6.90
Petry et al,[32] 2007	0.57 (−0.03 to 1.16)	4.99
Kirby et al,[33] 2013	0.58 (0.22 to 0.93)	6.73
Katz et al,[34] 2002	0.61 (0.17 to 1.06)	6.02
DeFulio et al,[35] 2009	0.73 (0.16 to 1.29)	5.18
Epstein et al,[36] 2003	0.76 (0.34 to 1.17)	6.27
Silverman et al,[37] 2007	0.89 (0.34 to 1.44)	5.31
Silverman et al,[38] 1999	0.93 (0.29 to 1.56)	4.74
Silverman et al,[39] 2004	0.98 (0.40 to 1.55)	5.13
Silverman et al,[40] 1996	1.19 (0.49 to 1.89)	4.34
Silverman et al,[41] 1998	5.21 (3.88 to 6.54)	1.94
Total (95% CI)	0.70 (0.49 to 0.92)	100.00

- Meta-analysis of **60 studies** of CM for MOUD patients

- CM Targets:
  - **Stimulant use (Large Effect Size Cohen d=0.7)**

Bolívar HA, Klemperer EM, Coleman SRM, DeSarno M, Skelly JM, Higgins ST. Contingency Management for Patients Receiving Medication for Opioid Use Disorder: A Systematic Review and Meta-analysis [published online ahead of print, 2021 Aug 4]. *JAMA Psychiatry*. 2021;e211969. doi:10.1001/jamapsychiatry.2021.1969

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THE VA CM PROGRAM:
A REAL-WORLD LARGE-SALE EXAMPLE

- 94 VAs have implemented CM

- >50% CM sessions attended

- 91% UDTs drug negative

DePhilippis D, Petry NM, Bonn-Miller MO, Rosenbach SB, McKay JR. The national implementation of Contingency Management (CM) in the Department of Veterans Affairs: Attendance at CM sessions and substance use outcomes. *Drug Alcohol Depend*. 2018;185:367-373. doi:10.1016/j.drugalcdep.2017.12.020

https://www.sunshinebehavioralhealth.com/veterans/

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Challenges

- Provider/community resistance to the idea of incentives and/or targeting abstinence

- Challenges of tracking escalation bonus, reset, and recovery

- Where does the funding for incentives come from?

- **<u>Office of the Inspector General</u>** prohibits the use of incentives to pay clients for billable encounters. Anti-kick back regulations.
    - Use of any kind of incentive (no matter the source of funding) must comply with an IOG defined Safe Harbor

CM and Safe Harbor Requirements: Our Advice

- Do not advertise use of rewards

- Document need for CM in treatment plan

- Use a research-based CM program

- Carefully document that rewards are linked to client outcomes
  - Must closely document each UDT result and the corresponding reward that was given for that UDT negative test

- Rewards cannot exceed > $599 annually

- Regularly evaluate the impact of CM on client outcomes
  - Do quality improvement to document CM effectiveness

- Avoid tying CM with another Medicaid/Medicare billable encounter

What Client's Say about CM

"When I'm at home and see them [prizes] I think 'hey I got this for staying sober.' "

"Something to do besides thinking about everything wrong with the world, and being negative… it gave me a little peace of mind"

"I don't care about the prizes, seeing myself getting clean, it helped me"

"I still wanted to be clean, even though I knew it wouldn't be held against me and it wouldn't be shared. I was conscious of that."

"It gave me something to look forward to, a schedule."

"This program [CM] made me feel power*ful* not power*less*."

THANK YOU!
QUESTIONS?

More Resources:

- Free 1 hour on-demand CM Overview: https://wsu.cloud-cme.com/course/courseoverview?P=0&EID=160

- Free 4-hour live "CM Nuts and Bolts" webinar on March 2nd: https://wsu.zoom.us/meeting/register/tJYvduiprDsrEtEMMl4BCajWRgc3hfzvAVB

- Email me: sara.parent@wsu.edu

Case Study #1

- 50 yo non-Hispanic white female; co-occurring recurrent major depressive disorder, severe alcohol use disorder, and mild stimulant use disorder; experiencing homelessness x 3 years; unemployed

- Prior to CM, experienced at least 1 heavy drinking episode per week. Since beginning CM, has had 100% EtG-negative urine drug tests x last 3 months

- Almost every UDT has been positive for methamphetamine, despite participant not identifying it as her primary concern

- After 3 months of alcohol abstinence, she is starting to consider addressing her stimulant use (in our case, a referral)

- "I'm going to write a book and you guys are going to be in it, because you're part of my story now."

Case Study #2

- 58 yo non-Hispanic black male; co-occurring schizophrenia and moderate alcohol use disorder; experiencing homelessness x ~2 years; receives SSI benefits

- Prior to start of the study drank 9+ standard drinks daily. Was very distrustful of doctors/ medical care. Avoids healthcare providers and declines all medication.

- Completed 4 month CM study, attended 30/32 visits (94%) and was negative for EtG (<150 ng/dl) at 27/30 visits (90%)

- Was in our "high magnitude" arm and ended up receiving >$1700 in treatment phase rewards
  - Spent on nice clothing, cologne, items for eventual apartment ("now I don't feel homeless")

- Was positive for THC at every visit and likely would not have engaged in study if he was required to be abstinent from cannabis

- Secured housing by the end of treatment phase of the study!! Came back to visit us before his first follow-up appointment. "You guys are actually happy to see me!" (At 1 month f/u: maintained abstinence; EtG = 13ng/dl)

Case Study #3

- 48 yo non-Hispanic white male; co-occurring bipolar II and severe alcohol use disorder; stably housed; RN; no other substance recent substance use (in past year and during study duration)

- Prior to start of the study drank 8+ standard drinks daily, most days >15 standard drinks.

- Took > 1 month to achieve abstinence (first EtG negative UDT was on 14th treatment phase visit) "Be patient with me, I'm going to get there."

- Sought medical support for withdrawal symptoms (missed a few study visits around that time)

- Attended 81% of visits and was EtG negative at ~73% of visits after he achieved his initial abstinence

- Was in the "high-magnitude" arm of the study and received ~$800 in treatment-phase rewards

- Was still abstinent at 1 month post-CM intervention, but has returned to use before his 3 month post-intervention visit