File No. 210059 **Committee Item No.** 4
Board Item No. 20

COMMITTEE/BOARD OF SUPERVISORS

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Board of Supervisors Meeting: **Date:** May 4, 2021

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☐	☒	New Republic Article – February 25, 2021

Prepared by: John Carroll **Date:** April 16, 2021
Prepared by: John Carroll **Date:** April 29, 2021
Prepared by: John Carroll **Date:**

FILE NO. 210059 RESOLUTION NO.

[Supporting California State Senate Bill No. 110 (Wiener) - Recovery Incentives Act]

Resolution supporting California State Senate Bill No. 110, also known as the Recovery Incentives Act, authored by Senator Scott Wiener, and introduced on January 11, 2021, which would legalize the substance use disorder treatment known as contingency management, an incentive based program that gives financial rewards to those struggling with a substance use disorder if they enter substance use treatment programs and authorize Medi-Cal to cover it.

WHEREAS, The City and County of San Francisco experienced 699 fatal drug overdoses in 2020, which accounts for nearly 59 percent increase; and

WHEREAS, Synthetic opioids like Fentanyl were found in nearly 500 fatal overdose cases of 2020; and

WHEREAS, Fatal drug Overdose deaths were nearly tripled the number of COVID-19 deaths in the City and County of San Francisco in 2020; and

WHEREAS, On December 10, 2020, Supervisor Haney held a hearing regarding Overdose Death Reporting and Update on Overdose Prevention Program at Single Room Occupancy Hotels and the Office of the Medical Examiner reported 80 percent of the Preliminary Accidental Drug Overdose Data as of September 2020 were males and that two out of five victims were Black or Latinx and nearly 50 percent of all victims identified as white; and

WHEREAS, SB 110 seeks to address the worsening methamphetamine (meth) addiction crisis facing California and the City; and

WHEREAS, There is currently no form of Medication-Assisted Treatment for meth use and the only way to treat meth addiction is by practicing abstinence and contingency

management has been found to be highly effective in Veteran Affairs clients and San Francisco AIDS Foundation clients; and

WHEREAS, SB 110 recognizes stimulant use has rapidly grown in the LGBTQ and Black communities; and

WHEREAS, SB 110 is currently sponsored by the San Francisco AIDS Foundation, APLA Health, Equality California, City and County of San Francisco's Mayor London Breed and California Association of Alcohol and Drug Program Executives; and

WHEREAS, California State Senate Bill No. 110, the Recovery Incentives Act, was introduced by Senator Scott Wiener (SD-11) on January 11, 2021, which seeks to legalize the substance use disorder treatment known as contingency management, an incentive based program that gives those struggling with substance use disorder financial rewards if they enter substance use treatment programs, and authorizes Medi-Cal to cover it is that right steps in reducing the City overdose rates; now, therefore, be it

RESOLVED, That the City and County of San Francisco supports Senate Bill No. 110 which would legalize the substance use disorder treatment known as contingency management, an incentive based program that gives those struggling with substance use disorder financial rewards if they enter substance use treatment programs and authorizes Medi-Cal to cover; and, be it

FURTHER RESOLVED, That the San Francisco Board of Supervisors urges that Senate Bill No. 110 be amended to add an equity lens to legislation that specifically address the subgroups that are disproportionally impacted by substance abuse usage; and, be it

FURTHER RESOLVED, That the Clerk of the Board of Supervisors of the City and County of San Francisco distribute this Resolution to San Francisco's State Legislative Delegation and to California Governor Gavin Newsom.

SENATE BILL No. 110

Introduced by Senator Wiener
(Principal coauthor: Assembly Member Chiu)
(Coauthor: Assembly Member Friedman)

January 6, 2021

An act to add Section 14021.38 to the Welfare and Institutions Code, relating to Medi-Cal.

LEGISLATIVE COUNSEL'S DIGEST

SB 110, as introduced, Wiener. Substance use disorder services: contingency management services.

Existing law provides for the Medi-Cal program, which is administered by the State Department of Health Care Services, and under which qualified low-income individuals receive health care services, including substance use disorder services that are delivered through the Drug Medi-Cal Treatment Program and the Drug Medi-Cal organized delivery system. The Medi-Cal program is, in part, governed and funded by federal Medicaid program provisions.

To the extent funds are made available in the annual Budget Act, this bill would expand substance use disorder services to include contingency management services, as specified, subject to utilization controls. The bill would require the department to issue guidance and training to providers on their use of contingency management services for Medi-Cal beneficiaries who access substance use disorder services under any Medi-Cal delivery system, including the Drug Medi-Cal Treatment Program and the Drug Medi-Cal organized delivery system. The bill would provide that contingency management services are not a rebate, refund, commission preference, patronage dividend, discount, or any other gratuitous consideration. The bill would authorize the department to implement these provisions by various means, including provider

bulletin, without taking regulatory action, and would condition the implementation of these provisions to the extent permitted by federal law, the availability of federal financial participation, and the department securing federal approval.

Vote: majority. Appropriation: no. Fiscal committee: yes. State-mandated local program: no.

The people of the State of California do enact as follows:

SECTION 1. Section 14021.38 is added to the Welfare and Institutions Code, immediately following Section 14021.37, to read:

14021.38. (a) To the extent funds are made available in the annual Budget Act for this express purpose, substance use disorder services shall include contingency management services as a covered benefit, subject to utilization controls, as described in Section 14133. Contingency management services shall include all of the following components:

(1) Periodic urinalysis on patients.

(2) An incentive structure, which includes scaling rewards for continued evidence of specified behaviors or adherence to treatment goals, that rewards participants for specified behaviors, such as a negative urinalysis.

(3) Other supportive substance use disorder services, including counseling, therapy, or other proven medical alternatives, as necessary to meet the health needs of Medi-Cal beneficiaries.

(b) The department shall issue guidance and training to providers on their use of contingency management services for Medi-Cal beneficiaries who access substance use disorder services under any Medi-Cal delivery system, including, but not limited to, the Drug Medi-Cal Treatment Program and the Drug Medi-Cal organized delivery system.

(c) Contingency management services are not a rebate, refund, commission preference, patronage dividend, discount, or any other gratuitous consideration, as described in Section 51478 of Title 22 of the California Code of Regulations.

(d) Notwithstanding Chapter 3.5 (commencing with Section 11340) of Part 1 of Division 3 of Title 2 of the Government Code, the department may implement this section by means of a provider bulletin or similar instruction, without taking regulatory action.

(e) For purposes of implementing this section, the department shall seek any necessary federal approvals, including approvals of any state plan amendments or federal waivers, by the federal Centers for Medicare and Medicaid Services.

(f) (1) This section shall only be implemented to the extent permitted by federal law.

(2) This section shall be implemented only to the extent that federal financial participation is available and any necessary federal approvals have been obtained.

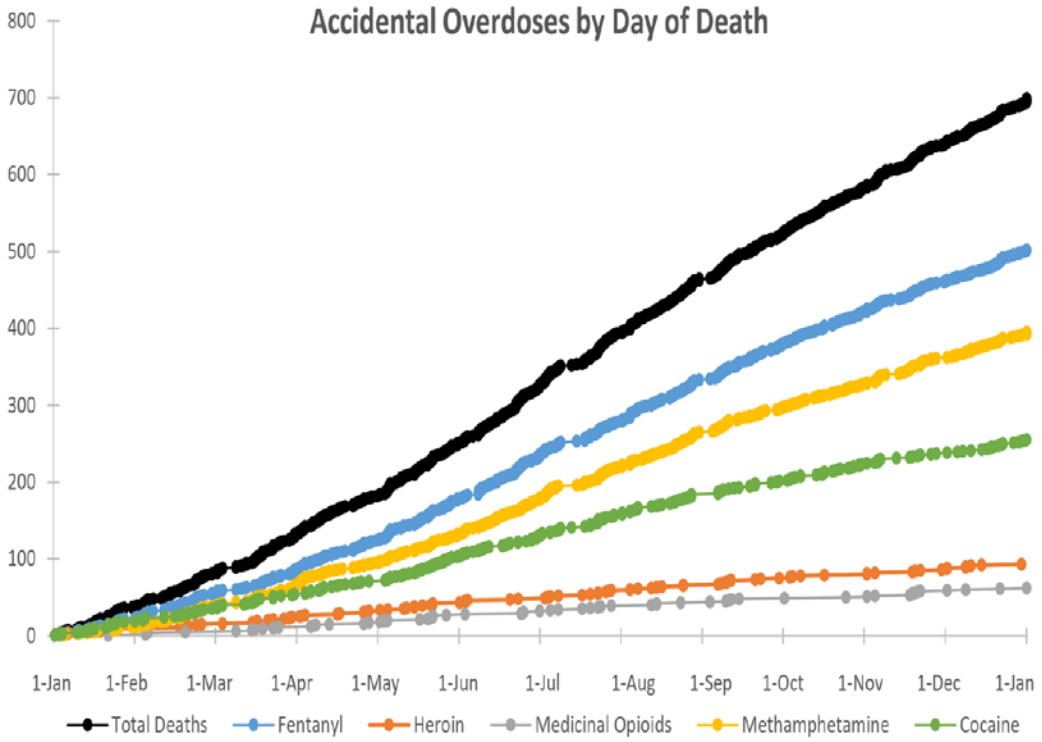
O

Senate Bill 110 (Wiener)

- Adds contingency management as a covered benefit for Medi-Cal
- Requires Medi-Cal to issue guidance and training to providers
- Specifies that contingency management does not violate anti-kickback regulations
- Co-sponsored by:
  - San Francisco AIDS Foundation
  - HealthRIGHT360
  - California Society of Addiction Medicine
  - California Association of Alcohol and Drug Program Executives
  - APLA Health
  - Equality California

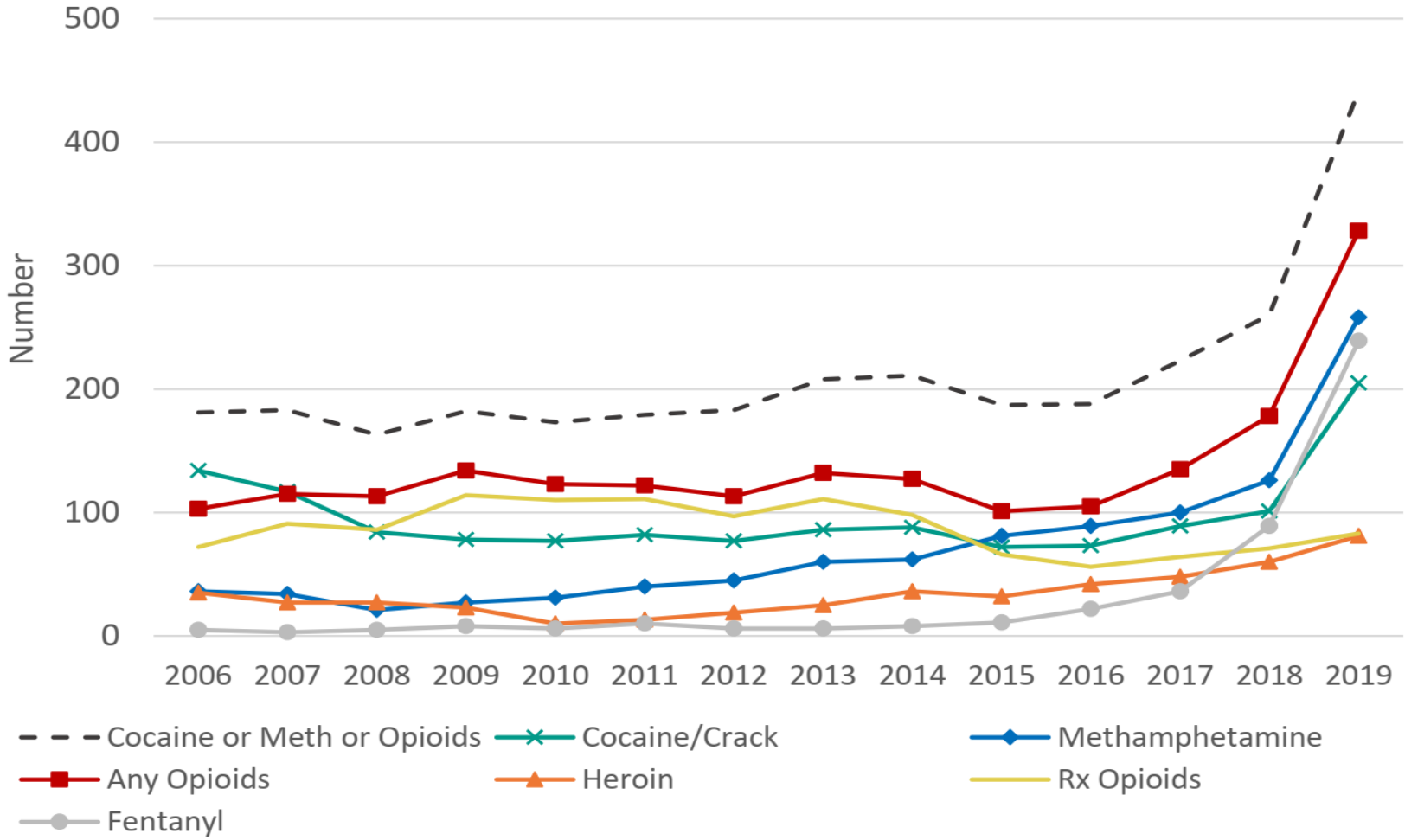
Methamphetamine Use in San Francisco

- Methamphetamine use is increasing
- Methamphetamine-involved overdose deaths increasing
- San Francisco Methamphetamine Task Force recommended addressing barriers and expanding contingency management – this bill is based on that recommendation
- SF Department of Public Health is funding contingency management services and proposing expansion of CM services to address overdose deaths via Our City Our Home funds



"Acc. Overdoses Open" cases do not have a final cause and manner of death classification; "Acc. Overdoses Closed" cases have a final cause and manner of death classification.
"No fixed address" denotes community members who may be experiencing homelessness.
"Residence" denotes address where decedent lived; "Location of Death" denotes the location where death was declared. For "Residence" and "Location of Death", the 4 most affected neighborhoods are represented, the "Others" category refers to all other zip codes within the City and County of San Francisco and any of out county residences.
"Gender" refers to gender at time of death.
"Total Deaths" denotes Accidental Overdoses where one or more drugs contribute to the cause of death; however, every point for each drug series is inclusive, but not necessarily exclusive, of that drug. "Total deaths" represents all accidental overdoses including ones for drugs not specified above.

Figure 1: Number of Opioid, Cocaine, and Methamphetamine Overdose Deaths by Non-Mutually Exclusive Substance Category in CCSF, 2006–2019



Substance-related overdose deaths were identified using textual cause of death fields, determined by the San Francisco Office of the Chief Medical Examiner. Homicides and suicides were excluded.

Sources: Overdose mortality obtained from the California Electronic Death Registration System (CA-EDRS) via the Vital Records Business Intelligence System (VRBIS).

Contingency Management

- Effective substance use disorder treatment intervention
- Provides rewards for positive behavior changes
  - Gift card or other rewards
  - Drawing for rewards (fishbowl)
- Improves engagement and retention in treatment
- Improves treatment outcomes
- Effective for a broad range of populations
- Extensively researched
- Recognized by SAMHSA, US Department of Justice, ASAM as effective
- Department of Veterans Affairs has widely implemented across the country

San Francisco AIDS Foundation's Contingency Management Program

- Positive Reinforcement Opportunity Project (PROP)
  - Gay, bi, trans men, and other men who have sex with men, and trans women
  - HIV prevention funding
  - **Effective: 63% stopped using stimulants and another 19% reduced their use**
  - Pivot during pandemic to virtual program
- PROP For All
  - Expanded to broader population of people who use drugs
  - Same approach, adapted for a different population
- https://newrepublic.com/article/161325/pay-people-stop-using-drugs

Senator Scott Wiener, 11th Senate District

Senate Bill 110 – The Recovery Incentives Act

SUMMARY

SB 110, the Recovery Incentives Act, addresses a crisis in California that has only worsened through the COVID-19 pandemic: methamphetamine (meth) use disorder. According to a report from the laboratory Millennium Health, urine samples from patients across the U.S. tested positive for methamphetamines at a roughly 20 percent higher rate between March and May of 2020 than previous samples taken between January and March 12, the day before the federal government declared a national emergency over the coronavirus pandemic. Deaths due to methamphetamine overdose have also risen dramatically in the last few years.

There is no medicine available that treats meth use disorder, unlike with opioid addiction where methadone is available. One of the only evidence-based, scientifically-proven treatments for meth addiction is called contingency management (CM) intervention. Despite the urgency and intensity of the meth crisis, this treatment is not available in most areas in the state, and programs that employ this treatment cannot access state funding through Medi-Cal. CM is thus functionally prohibited under state law. Now more than ever, it is critical to use every evidence-based tool at our disposal to treat substance use disorder.

SB 110 will require Medi-Cal to reimburse CM interventions as a covered benefit, as it covers other substance use disorder treatments. This bill also clarifies that these CM programs are not in violation of state laws prohibiting profiteering or "kickbacks" from courses of treatment.

BACKGROUND

Our nation is in the midst of an overdose and substance use disorder crisis. Overdose deaths have continued to rise across the country; we lost more than 70,000 people in 2019 with massive increases being seen during the first few months of 2020. More people die from overdoses than motor vehicle accidents. In San Francisco in 2019, roughly 60% of all overdose deaths were meth-related, and in Los Angeles County between 2008 and 2017, the number of meth poisoning deaths and meth-related overdoses rose 707%.

The long-term impact of COVID-19 on unemployment and mental health will likely continue to result in rising rates of meth and other drug addiction. A survey of more than 1,000 people conducted by the Addiction Policy Forum found that 20 percent of participants said they or a family member have increased substance use since COVID-19 began. Noting this, unlike most other drugs including opioids, there are no approved medication options for treating methamphetamine addiction and few forms of pharmacotherapy that work for stimulant use disorder. The lack of effective medication leaves limited options for treatment for those with a meth addiction.

PROBLEM

Contingency management is a form of cognitive behavioral therapy that encourages positive behavior through rewards or incentives. For example, a

participant could receive gift cards or vouchers in exchange for a negative drug test, remaining in a treatment program, meeting health goals, or reducing substance use. CM can be used in conjunction with other forms of therapy, including pharmacotherapy, but does not require medication. CM can be provided as a low-threshold intervention, welcoming people who may not feel ready for, or in need of, more intensive treatment programs.

CM programs have shown significant levels of effectiveness in addressing substance use disorders, particularly methamphetamine and other stimulants, and alcohol. It has been used by the Veterans Administration for years and is recognized by the National Institute of Justice as an effective intervention. Multiple research studies have found strong evidence of its effectiveness at reducing substance use.

One program offering CM in San Francisco has showed that in one year 63% of their patients stopped using methamphetamines entirely, with 19% reducing their usage.

Currently, CM programs are not eligible for reimbursement under Medi-Cal, leaving many programs without viable funding sources from which to provide lifesaving services. Additionally, current interpretation of "anti-kickback" laws has put a chilling effect on the initiation of new CM programs for fear of violating state law.

SOLUTION

This bill will require Medi-Cal to cover contingency management programs as a covered benefit. This bill also clarifies that these CM programs are not in violation of state law that prohibits profiteering or "kickbacks" from courses of treatments.

This bill will equip California with another tool to combat the substance use and overdose crises raging in our communities.

SUPPORT

- San Francisco AIDS Foundation (Co-Sponsor)
- Equality California (Co-sponsor)
- HealthRIGHT360 (Co-sponsor)
- APLA Health (Co-sponsor)
- CA Association of Alcohol and Drug Program Executives (Co-sponsor)

FOR MORE INFORMATION

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We are the Drug Policy Alliance.

Contingency Management

January 2021

Contingency management (CM) is a highly effective model of substance use disorder (SUD) treatment that involves providing incentives for behavioral outcomes aligned with treatment goals. Hundreds of peer-reviewed research articles spanning over thirty years have consistently demonstrated the positive impacts of CM, including reductions in drug use, increased treatment retention, compatibility with other forms of treatment, and effectiveness across diverse populations. CM should be widely implemented in SUD treatment settings across the U.S.

The Need for Evidence-Based Substance Use Disorder Treatment

In 2018, over 20 million United States residents were estimated to have a substance use disorder (SUD), but only about 3.7 million accessed treatment (less than 20 percent of those in need).[1] Only a small fraction of those who access treatment receive interventions backed by scientific research.[2] This helps explain why less than half of people who access treatment actually complete it, as implementing evidence-based care is known to increase treatment engagement.[3]

Contingency Management: A Highly Effective Substance Use Disorder Treatment

Contingency management (CM) is a behavioral intervention that uses tangible (usually monetary) rewards to reinforce positive behavior change. In the context of SUDs, CM involves providing an incentive, such as a voucher, prize drawing, or cash, for behavior aligned with treatment goals, such as attending treatment or submitting a negative urine drug test. Rewards increase with consistent demonstration of the target behavior.

CM is one of the most effective behavioral therapies available for SUD treatment.[4] Both the Substance Abuse and Mental Health Services Administration (SAMHSA)[5] and National Institute on Drug Abuse (NIDA)[6] recognize CM as an established evidence-based intervention, and the Department of Veterans Affairs has incorporated it into their health services throughout the United States.[7]

Contingency Management Significantly Improves Treatment Outcomes

CM implementation vastly improves a wide variety of treatment outcomes, including:

- Significant reductions in drug use while in treatment;[8]
- Improved treatment attendance and participation, key indicators of long-term success;[9]
- Reductions in risky drug use;[10]
- Reductions in risky sexual behavior;[11]
- Reductions in drug cravings;[12]
- Increased medication adherence;[13] and
- Increased physical activity.[14]

Contingency Management Works for a Variety of Substance Use Disorders

Research suggests that CM is effective in treating stimulant (e.g., cocaine and methamphetamine),[15] opioid,[16] marijuana,[17] nicotine,[18] and polydrug use disorders.[19] It also shows promising results in the treatment of alcohol use disorders.[20] CM can be used to prioritize reducing use for a specific drug or class of drugs while not requiring abstinence from other drugs, helping to tailor treatment to individual needs. The Department of Veterans Affairs encourages this method for reducing stimulant use among people who access its SUD services.[21]

Contingency Management Is the Most Effective Treatment for Stimulant Use Disorders

Currently, there are no FDA-approved medications for the treatment of stimulant use disorders, which includes addiction to cocaine and methamphetamine. This makes implementing effective behavioral interventions all the more important for the 2.6 million people living with a stimulant use disorder.[22]

CM is the most successful treatment available for the treatment of stimulant use disorders.[23] A recent meta-analysis found that CM alone and CM in conjunction with other treatments were the only interventions that consistently produced better results for methamphetamine and cocaine use disorder treatment.[24] One study found CM doubled the likelihood of urine samples that tested negative for stimulant drugs like cocaine or methamphetamine compared to those who did not receive CM.[25] CM should be widely available for people with stimulant use needs.

Contingency Management Can Be Implemented in Any Setting

Studies have found that CM can be applied in a range of treatment settings and in conjunction with other treatment methods.[26] It can be built into varying intensities of substance use disorder treatment, from outpatient to residential. It works with other psychosocial interventions like cognitive-behavioral therapy, often improving the effectiveness beyond what the other intervention would have achieved alone.[27] CM also works as an adjunct to medications for addiction treatment (MAT), including methadone and buprenorphine.[28]

Contingency Management Works for Diverse Populations

Research shows that CM is effective for many patient demographics including racial and ethnic minority groups, varying socio-economic groups, and clients with existing health conditions and diverse presenting problems.[29] It has been found to work for people who live with both a SUD and serious mental health needs.[30] CM also improves outcomes for people with criminal legal system involvement and/or who are unemployed or homeless.[31] While all SUD treatment should be tailored to the unique needs of individuals, CM may be a valuable tool regardless of background.

Contingency Management Is Cost-Effective

The benefits of CM likely offset the costs of implementation. Reduced risky use and associated behaviors will result in societal benefits, and research shows that investing additional amounts in CM up front can result in great benefits down the line.[32] The Washington State Institute for Public Policy recently estimated that CM is likely to cost only about $600 per participant but produce benefits of over $23,000 per participant, including over $15,000 in reduced mortality, over $4,000 in health care costs, and nearly $4,000 in labor market earnings.[33]

Despite the Evidence, Barriers Prevent Widespread Adoption of Contingency Management

CM remains the least implemented evidence-based SUD treatment.[34] Barriers to CM access range from philosophical to practical, including wrongly assumed incompatibility with other models (e.g., 12-Step), lack of provider knowledge and training, and concerns over implementation costs.[35] Notably, insurance rarely covers the costs of CM.[36] The expansion of technology, including web-based CM and remote drug testing tools, may help to alleviate these barriers,[37] but policies and investment of resources supporting CM adoption are sorely needed.

Recommendations to Increase Contingency Management Utilization

These recommendations would support implementation of this highly effective treatment intervention:

- Federal and state laws should exempt CM for SUD treatment from fraud and anti-kickback statutes, allowing for Medicare and Medicaid reimbursement.
- Public and private health insurance should adequately reimburse providers for providing CM.
- Federal and state health agencies should adopt organization-wide support and implementation procedures for CM in services they provide and contract for third parties to provide, like the Department of Veterans Affairs has done.
- Federal and state governments should remove barriers to telehealth and support use of technologies to facilitate remote CM utilization.
- Addiction and other health professional organizations should prioritize dissemination to ensure all of their members are trained and supported to provide CM.
- Research should continue to investigate the societal benefits of CM, including reductions in health care, law enforcement, and other social costs.

Contact

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Endnotes

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Substance Abuse and Rehabilitation

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REVIEW

A review of contingency management for the treatment of substance-use disorders: adaptation for underserved populations, use of experimental technologies, and personalized optimization strategies

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Abstract: This review of contingency management (CM; the behavior-modification method of providing reinforcement in exchange for objective evidence of a desired behavior) for the treatment of substance-use disorders (SUDs) begins by describing the origins of CM and how it has come to be most commonly used during the treatment of SUDs. Our core objective is to review, describe, and discuss three ongoing critical advancements in CM. We review key emerging areas wherein CM will likely have an impact. In total, we qualitatively reviewed 31 studies in a systematic fashion after searching PubMed and Google Scholar. We then describe and highlight CM investigations across three broad themes: adapting CM for underserved populations, CM with experimental technologies, and optimizing CM for personalized interventions. Technological innovations that allow for mobile delivery of reinforcers in exchange for objective evidence of a desired behavior will likely expand the possible applications of CM throughout the SUD-treatment domain and into therapeutically related areas (eg, serious mental illness). When this mobile technology is coupled with new, easy-to-utilize biomarkers, the adaptation for individual goal setting and delivery of CM-based SUD treatment in hard-to-reach places (eg, rural locations) can have a sustained impact on communities most affected by these disorders. In conclusion, there is still much to be done, not only technologically but also in convincing policy makers to adopt this well-established, cost-effective, and evidence-based method of behavior modification.

Keywords: contingency management, novel substance-use treatment technologies, drug- and alcohol-use biomarkers, substance-use disorder treatment

Introduction

Contingency management (CM) is an effective behavioral treatment approach commonly applied to substance-use disorders (SUDs). CM has a long history in basic and clinical research and a deep theoretical background for virtually all types of use disorders.[1] Interestingly, while CM was applied first to the field of alcohol-use disorders,[2–5] only now, after a protracted dormancy in that field, is CM being applied in a manner consistent with what has become a largely standardized approach in the field of drug abuse (ie, delivery of reinforcers in exchange for biochemically verified abstinence) to increase abstinence significantly and consistently.[6,7]

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Early on, after being utilized for alcohol-use disorders, CM was applied among students with intellectual disabilities.[8] Following that, it was used for smoking[9] and has since then been used primarily for SUD-treatment development.[10] It has also been used to alter a variety of other behaviors, some closely related to substance use, but increasingly among broader, related health behavior, such as HIV-risk behavior.[8] Given the considerable evidence that has accumulated over many decades, CM has been demonstrated clearly to be one of the most effective behavioral interventions for initiating and maintaining abstinence from alcohol and drugs.[11] CM's history in the field of alcohol-use disorder-treatment research is noted herein while discussing innovations in remote technology and biomarker development that may be major antecedents for key developments in the implementation of CM across SUD treatment generally.

We briefly discuss the background of CM and how it has been used. We then spend most of this review discussing innovative developments within the SUD-treatment literature and how CM can play a unique and increasingly significant role in SUD treatment if political and implementation barriers can be overcome. Our core objective is to review, describe, and discuss three critical advancements of CM currently happening (ie, adapting CM for underserved populations, CM with experimental technologies, and optimizing CM for personalized interventions). We close by speculating on possible future directions and methods of maximizing the impact of CM, an area we view as largely underdeveloped.

Conceptual background of CM

CM-based treatments for SUDs originate in basic behavioral science, namely the operant-conditioning literature. Operant conditioning is a type of learning where the operant (ie, behavior) is maintained or modified via behavioral consequences. CM was born out of the early observation that SUDs largely exemplify reinforced operant behavior. As such, these behaviors can be modified effectively through altering the behavioral consequences. In such a framework, consequences are classified as positive reinforcements (ie, delivering tangible consequences to increase desired behavior), negative reinforcements (ie, removing an aversive stimulus to increase desired behavior), positive punishments (ie, delivering a punishing consequence to reduce an undesired behavior), or negative punishments (ie, removing a positive reinforcer to reduce an undesired behavior). Three key principles of CM are the rate of reinforcement (ie, the amount of reinforcement per behavior), immediacy of the reinforcer being delivered (ie, exchange delays), and the magnitude or size of the reinforcer. These three elements were identified in the behavior-modification literature long before CM was introduced, and they have shaped several lines of work within the CM literature.[12,13] While there has been much work on these three principles in both animal and human laboratories that we will not cover here, this work has often given way to more or less "standard" uses of CM as part of "treatment as usual" packages for various experimental treatments.[14]

CM typically modifies behavior by delivering tangible reinforcements (eg, prizes, vouchers, or monetary reinforcement) in exchange for evidence of the desired behavior (eg, abstinence, decreased drug use, consumption of prescribed methadone) or by withholding those reinforcers in instances of undesired behavior (eg, drinking).[15] The reinforcers are dependent on objective evidence of the desired behavior, such as biochemically verified alcohol or drug abstinence, treatment attendance, or medication adherence. Importantly, this underlying rationale does not eliminate other sources of influence on drug-abuse behavior, but it does provide key opportunities for modification in an effort to decrease drug and alcohol abuse or drug self-administration. Although both reinforcing and punishing contingencies can be effective for treatment of SUDs, punishing contingencies can worsen undesirable behaviors without thoughtful development of this contingency.[16] The vast majority of CM treatments for SUDs apply positive reinforcement. The efficacy of CM has been shown repeatedly in the treatment of SUDs; however, two key multisite clinical trials definitively demonstrated the efficacy of CM for stimulant-use disorder, both in a psychosocial treatment setting and in methadone-maintenance settings across several nationally distributed sites.[17,18]

The immediacy of the reinforcer in CM may work as a result of the removal of delay discounting in substance users. Delay discounting, the tendency to devalue positive reinforcement that a subject must wait for, is common in drug-abusing persons.[19] This may be a result of an imbalance in neural systems within the drug abuser.[20,21] Specifically, it is theorized that the planning and forward looking to reinforcement or consequence of the prefrontal cortex is overridden by an overactive amygdala system, which promotes the subject's interest in immediate reinforcement.[22]

Current evidence base and rationale for review

CM has an extraordinarily strong evidence base and is a demonstrably cost-effective technique[23–28] that has been used successfully for decades to promote abstinence from benzo-

diazepines,[29] cocaine,[30] tobacco,[31] opiates,[32,33] alcohol,[6,7] marijuana,[34,35] and methamphetamine.[13,36,37] Several large clinical trials and three meta-analyses support its efficacy.[18,38–40] In fact, one meta-analysis found that CM resulted in successful treatment episodes 61% of the time compared to 39% for other modalities.[38] There have been some clinical trials that have found that CM leads to reductions in drug use that persist for 12–18 months after treatment completion,[41–44] although results have not been consistent across all studies. Longer-term effects of CM are one important area in need of additional research. Notably, relapse is common among people who suffer from SUDs, regardless of the treatment they receive.[45–48] Further, it is important to note that CM's consistent, statistically significant treatment effects across diverse clinical trials may be indicative of CM also being associated with better long-term treatment outcomes compared to other psychosocial interventions. This is in part due to an evidence base indicating that longer abstinence during SUD treatment is associated with better long-term treatment outcomes.[49–51]

We focus on current, novel innovations within the field of SUD treatment with CM that have unique capacities to be leveraged by existing CM behavior-science techniques. We also discuss several populations for which CM may be adapted and/or modified for specific comorbidities or other complications. Moreover, it is also possible that because of these innovations, CM could be exceptionally well positioned to be modified and adapted to create a new generation of CM techniques that could be used to produce behavior change in a scalable fashion for hard-to-reach populations, such as those living in areas where both financial resources and clinical expertise are scarce. This is the rationale that shaped our primary objective of this systematic review: to review, describe, and discuss three critical advancements of CM currently happening: adapting CM for underserved populations, CM with experimental technologies, and optimizing CM for personalized interventions.

Methods

Search strategy

In September 2017, we sought publications in the PubMed database, the search engine of the US National Library of Medicine, and Google Scholar, a free and openly available database for biomedical researchers. The search period was specified for the years 2000–2017. Articles had to be written in English and involve human subjects. The search strategy encompassed three broad a priori themes across CM: CM treatment in underserved populations, novel CM-technology applications, and personalized CM interventions. Research articles were retrieved using the following search terms for the aforementioned years and databases: CM, CM addiction treatment, CM treatment for underserved populations, CM and SUD treatment, CM and alcohol-use biomarkers, personalized CM interventions, CM medication adherence, mobile CM delivery, novel substance-use treatment technologies, and novel CM technologies. Once unique publications had been identified, we reviewed their reference lists for additional relevant literature.

We culled the initial list extensively for relevance before deciding which articles to include in our review. In addition to the specified search criteria, we included meta-analyses and a couple of noted classic CM works prior to the year 2000. This was done because there were some CM-optimization strategies tested before 2000, but that work has not been picked up to any degree of finality since then. We include those works here in an effort to help shape the review and discussion of how best to optimize CM, especially in light of emerging technology and reaching underserved populations (our other two themes of this review). In addition, we searched reference sections of review papers and CM meta-analyses that have been published. Authors worked in pairs to review articles for inclusion, and discrepancies were resolved through discussion. In the end, all articles were reviewed and approved for inclusion by the authors involved in writing this review prior to paper finalization.

Search results

The final 31 studies included in this review are categorized by our three overarching themes of CM treatment in underserved populations (Table 1), novel CM-technology applications (Table 2), and personalized CM interventions (Table 3). We discuss these three themes extensively, and each table includes critical study characteristics for our three themes.

Results

Adapting CM for underserved populations

Co-occurring SUDs and serious mental illness (SMI)

CM has been an effective strategy for reducing alcohol and drug use in several clinical trials conducted among individuals with co-occurring SUDs and SMI.[6,18,52–54] In their definitive multisite national clinical trial, Peirce et al demonstrated that CM can significantly increase cocaine (and alcohol) abstinence among patients receiving methadone maintenance compared to those receiving methadone maintenance alone. In this study, the cost of the incentives used to increase

Table 1 Literature reviewed for the "Adapting contingency management for underserved populations" section

Study	Age (years)	n	SUD type	CM type	CM duration (weeks)	Primary outcome
Angelo et al[57]	43.5 (SD 9.31)	96	Stimulant-use disorder	RCT, usual CM	12	Stimulant-negative urine test, psychiatric severity, and rates of outpatient-treatment utilization
Barry et al[66]	Age reported by ethnicity: African-American 42.5 (SD 6.6) Hispanic 37.2 (SD 6.6) White 41.1 (SD 7.3)	191	Stimulant-use disorder	RCT, usual CM	12	CM participants had longer continuous cocaine abstinence and submitted more negative urine samples for cocaine; ethnicity not related to treatment outcomes, and there was no significant interaction between treatment and ethnicity
Bellack et al[53]	42.7 (SD 7.10)	129	Drug (cocaine, heroin, cannabis)-dependence disorder	Usual CM	24	Urinalysis results from biweekly treatment sessions
Helmus et al[60]	43.7 (SD 7.1)	20	Any SUD	A-B-A, usual CM	12	CM participants had higher rates of attendance than UC, but no effect on alcohol use
Kelly et al[55]	40.2 (SD 10.4)	160	Substance abuse and comorbid psychiatric disorders	Usual CM	6	CM participants attended more treatment days compared to UC group
McDonell et al[6]	45.38 (SD 10.20)	79	Alcohol-use disorder	RCT using EtG urine tests, usual CM	12	CM participants 3.1 times more likely to submit EtG-negative urine tests compared to those in the control group
McDonell et al[52]	CM 43.01 (SD 9.27) UC 42.45 (SD 9.97)	176	Stimulant-use disorder	RCT using urine tests, usual CM	12	CM participants significantly less likely to complete treatment period than those assigned to control group (42% vs 65%); CM participants 2.4 times more likely to submit stimulant-negative urine test during treatment
McDonell et al[56]	41.8 (SD 9.2)	126	Stimulant-use disorder	RCT using carbon monoxide breath samples, usual CM	12	CM participants 79% more likely to submit a smoking-negative breath sample compared to UC group
Miguel et al[67]	CM 35.3 (SD 8.7) UC 35.4 (SD 8.5)	65	Stimulant-use disorder	RCT using urine and breath samples, usual CM	12	CM participants more likely to remain in treatment and submit negative crack-cocaine, alcohol, and THC samples compared to UC participants
Oluwoye et al[63]	45.38 (SD 10.2)	79	Alcohol-use disorder	RCT using EtG urine tests, usual CM	12	Heavy drinkers with major depression more likely than those with schizophrenia-spectrum and bipolar disorders to submit EtG-positive urine samples during treatment
Peirce et al[18]	CM 42.5 (SD 8.9) UC 41.6 (SD 8.3)	388	Stimulant-use disorder	RCT using EtG urine tests, usual CM	12	Total number of stimulant- and alcohol-negative samples provided and longest duration of abstinence, retention, and counseling attendance
Ries et al[54]	Not reported	41	Any SUD	RCT, usual CM	27	CM condition used alcohol for few weeks; no significant differences between groups for drug use

Abbreviations: SUD, substance-use disorder; CM, contingency management; RCT, randomized controlled trial; EtG, ethyl glucuronide; EtG, ethyl glucuronide.

Table 2 Literature reviewed for the "Leveraging contingency management with experimental technologies" section

Study	Age (years)	n	SUD type	CM type	CM duration (weeks)	Primary outcome
Alessi and Petry[78]	Monitoring-only group 44.5 (SD 14.3) Monitoring and CM group 34.2 (SD 10.4)	30	Frequent alcohol users who were not dependent	Escalating reinforcement with reset contingency	4	Percentage of negative breath-alcohol tests and longest duration of abstinence both significantly greater with CM
Dallery et al[79]	36 (SD not listed)	94	Cigarette smokers	Escalating reinforcement with bonuses	7	Significant differences found in point prevalence between abstinent-contingent and submission-contingent groups at 4 weeks
Reynolds et al[80]	Abstinence-contingent group 16.58 (SD 1.54) Submission-contingent group 16.71 (SD 1.32)	62	Cigarette smokers	Five-phase shaping design, escalating reinforcement with bonuses	5	Active-treatment condition reduced breath-CO levels significantly more than controls
Budney et al[81]	35.9 (SD 10.5)	75	Cannabis-use disorder	Escalating reinforcement with bonuses	10	Both interventions containing CM (therapist and computer) had longer abstinence than non-CM intervention; therapist and computer interventions did not differ from each other in longest abstinence
Barnett et al[85]	32 (SD 9.9)	13	Heavy drinkers	Escalating reinforcement	2	Self-reports of percentage of days abstinent, drinks per week, transdermal measures of average and peak transdermal alcohol concentration, and area under the curve declined significantly in weeks 2–3
Alessi et al[86]	42 (SD 10)	100	Alcohol-use disorder	Not detailed in manuscript	12	84% of participants provided 12 weeks of data, and 96% of SCRAM bracelets returned fully intact; 94 equipment tampers occurred, affecting 2% of monitoring days; 56% (67) of tampers coincided with detected drinking
Raiff et al[88]	45 (SD not reported)	3	Non-SUD (diabetes mellitus)	Escalating reinforcement with bonus and reset contingencies	4–5	Significant increase in precision with which participants took their daily doses in designated time window
Sorensen et al[90]	43.3 (SD 7.55)	66	Methadone maintenance	RCT, escalating reinforcement with reset contingency	12	Significant mean adherence differences between voucher and comparison groups

Abbreviations: SUD, substance-use disorder; CM, contingency management; RCT, randomized controlled trial; SCRAM, secure continuous remote alcohol monitor.

Table 3 Literature reviewed for the "Optimizing contingency management for personalized interventions" section

Study	Age (years)	n	SUD type	CM type	CM duration (weeks)	Primary outcome
Packer et al[12]	30 (SD 9.98)	103	Tobacco-use disorder	Varying durations of CM High vs low magnitude No-delay vs lump sum	1	High-magnitude reinforcement provided immediately, but in incremental amounts was associated with longer intervals to relapse during treatment in comparison with high-magnitude reinforcement provided in a single lump sum after a delay; low rates of responding in the low-magnitude conditions made interpretation of the impact of delay in those conditions difficult
Roll et al[13]	32 (SD 9.53)	118	Methamphetamine-use disorder	Fishbowl CM with 1, 2, or 4 months CM	16	Participants more likely to remain abstinent through the 16-week trial as CM duration increased; longer CM doses more effective at maintaining methamphetamine abstinence
Higgins et al[30]	Voucher group 31.8 (SD 3.9) No-voucher group 30.9 (SD 6.1)	40	Cocaine-use disorder	Voucher exchangeable for retail items	12	Average durations of continuous cocaine abstinence presented via urinalysis during treatment significantly longer for group with vouchers vs group without vouchers (P =0.03); 24 weeks after treatment entry, voucher group showed significantly greater improvement than no-voucher group on the ASI drug and psychiatric scales
Stitzer et al[31]	32.7	34	Tobacco-use disorder	Standard CM With a 5-day reduction period before CM (escalated rewards based on percentage reduction from baseline levels)	4	Participants who earned more during cut-down period had greater levels of absence and length of absence
Higgins et al[32]	Contingent group 32.6 (SD 5.7) Noncontingent group 33.2 (SD 7.0) Control group 31.4 (SD 6.3)	39	Opioid-use disorder	Standard CM with a 3-week methadone-stabilization period	8	Contingent group presented significantly lower opiate-positive urine samples during weeks 8–11 (14% positive) than the noncontingent (38% positive) or control (50% positive) groups
Robles et al[33]	40.73 (SD not reported)	48	Opioid-use disorder	Voucher exchangeable for retail items	22	Participants given CM for attendance or abstinence; participants in CM for abstinence had significantly longer periods of opiate abstinence and lower rates of cocaine use
Budney et al[34]	32 (SD 8.5)	60	Cannabis-use disorder	Voucher exchangeable for retail items	14	Treatment-seeking individuals saw significantly more weeks of continuous cannabis abstinence when given CM in conjunction with MBT
Kadden et al[35]	32.7(SD 9.6)	240	Cannabis-use disorder	Standard CM paired with either CBT and motivational enhancement or CM only	9	Those in the two CM groups provided significantly more urine-negative samples than therapies alone; only CM had higher rates of abstinence at 1 year posttreatment; CM with CBT + MET had higher follow-up rates
Lamb et al[93]	37 (SD not reported)	102	Tobacco-use disorder	Escalating reinforcement reset Treatments delivering incentives for breath COs at or below the 10th, 30th, 50th, or 70th percentile of recent CO values	12	Shaping successful in decreasing CO values across groups; all participants in all groups reached desired CO level at least once

Lamb et al[94]	38 (SD 11.9)	71	Tobacco-use disorder	Escalating reinforcement with reset Participants received incentives for providing breath samples with CO levels that were <4 ppm or that were at or better than the best 60th percentile within a four- or nine-visit window	12	CO levels substantially reduced and readiness-to-quit measure increased in both groups; however, more individuals in four-sample window group achieved CO <4 ppm, indicating recent abstinence; these individuals did so more rapidly and for a greater number of visits
Lamb et al[95]	39.2 (SD 11.7)	146	Tobacco-use disorder	Escalating schedule with reset Standard CM or CM shaping CM shaped abstinence by providing incentives for CO levels lower than the seven lowest of the participant's last nine samples or <4 ppm	12	Participants were determined to be hard to treat or easier to treat (reached absence during baseline). Participants who were in easier-to-treat and standard CM did significantly better than those who were harder to treat; his difference did not exist in the CM-shaping group

Abbreviations: SUD, substance-use disorder; CM, contingency management; CBT, cognitive behavioral therapy; MET, motivational enhancement therapy.

abstinence was also noteworthy, costing on average US$120 per patient.[18] In another clinical trial, Bellack et al used a cognitive behavioral therapy (CBT) intervention that included CM to treat outpatients with SUDs and SMI. Participants randomized to the treatment condition had higher rates of drug abstinence, improved quality of life, and lower rates of inpatient-treatment episodes compared to those randomized to the control condition.[53]

In a smaller study of just 41 adults with SMI and SUDs, individuals who received access to Social Security benefits contingent on alcohol and drug abstinence achieved higher rates of abstinence than those randomized to the control condition.[54] Among a sample of 160 adults with dual diagnoses that included co-occurring SUDs, participants enrolled in the CM condition received prizes or reinforcement in exchange for treatment attendance. Participants enrolled in the CM condition were approximately twice as likely to remain in treatment longer than those in the control condition.[55] However, this study found no significant differences between participants in the CM and control conditions in levels of depression, anxiety, stress, drug cravings, coping ability, or number of drug-abstinent days. In a larger study reported by McDonell et al in 2013, outpatients with SMI receiving CM for stimulant drug abstinence, participants randomized to the CM condition were 2.4 times more likely than controls to submit a stimulant-negative urine sample during treatment.[52] Reductions were also found in alcohol use, injecting drugs, and cigarette smoking. These findings revealed lower levels of psychiatric symptoms, and participants were five times less likely to experience psychiatric hospitalization.[52,56] Furthermore, participants who submitted a stimulant-positive sample before randomization attained briefer abstinence during CM than participants whose prerandomization samples were negative.[57]

Research investigating CM for alcohol use has been limited, in part due to methodological limitations related to alcohol breath tests being capable of assessing only very recent use (up to 12 hours).[58,59] For example, one team investigated the impact of CM on treatment attendance and alcohol use in 20 patients,[60] and no effect of CM on alcohol use was observed (ie, no breath tests were positive for alcohol use throughout the 5-month study period, despite frequent clinical reports of alcohol use). Recently however, urinary ethyl glucuronide (uEtG; biochemical measure of alcohol use) has been used as the basis for a CM intervention for alcohol abstinence among 79 adults with SMI. With a period of detection of up to 5 days, EtG is an ideal biomarker for a CM intervention focused on initiating abstinence in

conjunction with standard intensive outpatient addiction treatment where individuals attend treatment multiple times a week.[61,62] This study found that participants randomized to the CM condition were 3.1 times more likely to submit uEtG-negative samples across a 12-week treatment period.[6] More specifically, a recent secondary-data analysis assessed the interaction of type of SMI diagnosis and pretreatment drinking severity among adults randomized to a CM condition.[63] Findings revealed that among heavy drinkers randomized to the CM condition, individuals diagnosed with major depression were more likely than individuals diagnosed with bipolar disorder or schizophrenia to submit uEtG-positive samples during treatment.

Lastly, and in line with some of the observations among patients with co-occurring addictions or MI, there is another line of developing inquiry focused on examining the "off-target" effects of CM on co-occurring addiction behavior in an effort to leverage such observed crossover effects. In published examples of this effect, CM exhibited an apparent off-target effect on smoking among smokers who were undergoing methamphetamine-use-disorder treatment[64] and a population of smokers who were also patients with SMI undergoing treatment for psychostimulant use[56] and alcohol-use disorder.[6] It has also been demonstrated that CM indirectly reinforces treatment attendance when attendance is mandatory in order to provide the required urine sample.[65] While these off-target effects are modest and likely insufficient to be considered adequate treatment options on their own, these preliminary findings offer promising pathways for additional development. We discuss this further in our conclusions at the end of this review.

CM in diverse communities

CM is effective among a diverse range of socioeconomic groups, racial and ethnic populations that include African-American adults, and low- and middle-income countries.[66,67] Indeed, there are some existing adaptations that are ongoing and worthy of note in an effort to demonstrate how CM can be easily tailored and personalized for a variety of different communities. Overall, SUD-treatment researchers have struggled to design efficacious treatment options in several diverse communities.

American Indian (AI)/Alaska Native (AN) adults have some of the highest alcohol-abstinence rates compared to the general US population.[68,69] However, many AI/AN communities continue to suffer from alcohol-related health inequities. In the largest clinical trial for alcohol-use disorders among AI/AN adults, three tribal communities partnered with university researchers to adapt and implement CM for alcohol-use disorders. As described by McDonell et al,[7] using components of community-based participatory research and community engagement, 400 AI/AN adults will be randomized in the ongoing trial.

In another CM example, African-American adults are three times more likely to use drugs and alcohol relative to whites.[70–72] African-American adults show significantly less improvement during treatment and are less likely to adhere to treatment compared to whites. These findings are not likely to be due to genetic variation, but possibly to a lack of critical preliminary work designed to address important treatment components unique to African-American communities (eg, health-behavior, cultural, and environmental factors).[73–76] To our knowledge, only one study has examined the efficacy of CM for cocaine abstinence among a predominantly Hispanic (n=79) and African-American (n=76) population (whites, n=36).[66] Although CM increased abstinence among African-Americans, Hispanics, and whites compared to those in the control condition, these racial and ethnic minorities still reported a shorter duration of cocaine abstinence than whites (mean 4.1 days vs mean 5.5 days).

There has been limited research focused on determining if CM interventions are differentially effective for racial, ethnic, and other groups for whom CM could benefit from adaptation (eg, patients with co-occurring SMI, rurally dwelling patients, and patients with co-occurring SUDs) to maximize its effectiveness in treating SUDs. More preliminary work is needed to improve the acceptability and efficacy for populations with unique barriers and needs. New research is emerging, but additional research is needed to examine the efficacy and necessary adaptation of CM among several populations.

Leveraging CM with experimental technologies

Technologies to monitor health outcomes

In spite of its effectiveness, one barrier to be overcome for CM has been the common necessity of participants to attend visits for biochemical monitoring of recent substance use and delivery of immediate behavioral consequences (ie, obtain reinforcers). In many applications of CM, staff must be on hand to meet participants frequently, which can be time-intensive and costly, and participants must travel to the site to supply specimens, which can be difficult in rural areas and for participants who do not have access to transport. However, mobile phones are increasingly becoming a part of everyday life,[77] paving the way for new technologies to bridge this gap and allowing for progressively easier remote

monitoring and incentive delivery through the Internet. While most technology-based CM is in the feasibility stage, significant progress has been made in remote monitoring of participants, intervention delivery, and incentive delivery through a variety of technologies.

In 2013, a randomized study assessed the feasibility and efficacy of a technology-based CM intervention to reinforce alcohol abstinence.[78] This study included 30 frequently drinking adults that were given a mobile phone and portable breathalyzer and trained on how to video-record themselves giving their breath samples. Participants were randomized to either a control group that received moderate compensation for submitting timely breath samples regardless of the result or a treatment group that received the same compensation as the control group, but in addition also received CM with escalating vouchers for timely alcohol-negative breath samples. Study staff texted participants daily reminders when their breath samples were due. They found medium–large effect sizes in which CM was associated with increased alcohol abstinence, alcohol-abstinence duration, and decreases in self-reported days of drinking and drinking-problem severity during the intervention.[78]

Another example is a recently published smoking-cessation trial that compared the efficacy of an Internet-based CM intervention to an Internet-based monitoring and goal-setting control intervention that did not include CM. The CM intervention delivered through the Internet improved short-term smoking-abstinence rates compared with the control condition. Distribution of funds happened nearly instantly after submission of negative carbon monoxide (CO; biochemical measure of recent smoking) samples.[79] Another Internet-based "video-observed CO submission" program was developed specifically for Appalachian adolescents, who tend to have smoking rates that are significantly higher than the national average (ie, another population in need of adapted CM interventions). In this trial, 62 participants were asked to submit three daily video recordings showing them submitting their breath samples through a manual CO breathalyzer. For those in the CM condition, provision of a negative sample would earn participants electronic vouchers that could be redeemed for prizes, while those randomized to the control condition received incentives only for submitting video recordings. Although this study was carried out remotely, it still required study staff to review the video for accuracy before reinforcement was delivered.[80]

Another recent example of CM-related experimental technology was a computer-assisted behavioral therapy that incorporated CM for cannabis-use disorder. This trial compared motivational enhancement therapy (MET) to a combination of MET therapy, CBT, and CM that was delivered either by a therapist or by a computer. MET-CBT-CM was superior to MET alone and was just as efficacious in abstinence rates and reduction in days of use over time when delivered by computer as it was when delivered by a therapist.[81] In addition, the computer-based intervention cost an average of $130 per participant, which was significantly less than the cost of administration by a therapist. Though this intervention was not delivered online, it provides support for the continued efficacy of CM with limited human contact and could potentially be delivered remotely, resulting in increased access. Moreover, per patient costs were similar to previously reported "low-cost" CM clinical trials, speaking again to the cost-effectiveness of CM.

Lastly, a systematic review examining 39 CM-based remote-monitoring studies (18 targeting substance use, ten targeting medication adherence or home monitoring, and eleven targeting diet, exercise, or weight loss) reported that 71% of the reviewed studies resulted in significant and substantial treatment effects. These results support the benefits of remote, technology-based CM interventions for SUDs and other health behavior.[82] In fact, the US Food and Drug Administration has cleared a mobile CM app for substance abuse (Pear Therapeutics Reset).[83] Others are currently in development, some of which are through National Institute of Health Small Business Innovation Research and Small Business Technology Transfer programs.

In addition to experimental software technologies, there are also emerging hardware technologies that could help leverage the strengths of CM. For example, BACtrack is a battery-operated breath-alcohol analyzer that can be connected to participants' mobile phones via Bluetooth (KHN Solutions, San Francisco, CA, USA).[84] This technology has not been used in conjunction with CM yet, but could be a valuable tool that would allow alcohol use to be monitored in much the same way as the portable CO analyzer utilized in the aforementioned studies. Another hardware tool for remotely monitoring alcohol use is transdermal alcohol monitoring, which removes the need for a staff member or clinician to collect a patient's samples, as the SCRAM (secure continuous remote alcohol monitoring) bracelet continuously monitors the participant's alcohol levels through an ankle monitor.[85,86] This technology has been used in conjunction with CM, but in the most recent investigations where CM was used to reinforce abstinence or treatment attendance in the two randomized groups, there were no differences in the primary outcomes of alcohol abstinence or attendance

between the two groups.[86] However, there have been promising data recently published about the feasibility and utility of transdermal monitoring of alcohol use.[78,86]

Technologies for attendance and medication adherence

There are also emerging technologies designed to monitor medication adherence remotely, including biosensors and pill-bottle electronic monitors,[87,88] another area where CM has been effectively applied in the treatment of SUDs.[82] These make for encouraging developments, because treatment attendance and medication adherence are major barriers to the delivery of efficacious treatments across therapeutic areas.[89] For example, a recent study assessed the feasibility of a remote medication-adherence-monitoring system with CM to target antidiabetic medication adherence in three adults with type 2 diabetes. Adherence to medication was recorded remotely in real time using the Wisepill,[88] a portable electronically monitored pill dispenser. Monetary incentives were dependent on evidence of timely, daily medication adherence. Results indicated that adherence increased for all participants.[79] CM has also shown promise in improving medication adherence in HIV-positive methadone patients.[90] This trial randomized participants to a comparison group (biweekly medication-adherence coaching sessions) or a voucher group (medication-adherence coaching coupled with CM). The CM voucher group had significantly higher medication adherence compared to the comparison group.[90]

A 2012 systematic review of research on incentive-based interventions targeting medication adherence concluded that although CM shows promise in this field, it had been understudied.[91] While a comparison among studies showed that CM interventions increased medication adherence on average by 20%, effect sizes varied greatly, which may be the result of CM being applied nonuniformly.[91] In addition, adherence to medications tended to diminish significantly after cessation of CM interventions.[91] Importantly, this evidence is not dissimilar from a variety of efficacious pharmacotherapies: they work well when being used, but the effect wears off quickly when not taken. Long-term behavior change with CM and several promising SUD therapies is an area that remains understudied.

Optimizing CM for personalized interventions

Alternative versions or optimizations of CM have been used to adequately address population-specific or tailored interventions for individuals that may need different rates, magnitudes, or schedules of reinforcement to improve SUD-treatment outcomes significantly. For example, initial studies of CM in smokers who used cocaine demonstrated that abstinence from cigarettes or cocaine, respectively, can be better achieved by increasing the magnitude of reinforcement (ie, high-magnitude CM) or by reinforcing progressively closer estimates of abstinence (ie, shaping CM) in comparison to requiring 100% abstinence only.[26–32,68–70] Some studies have utilized these methods of CM in an effort to provide varying doses of reinforcement for uniquely difficult addictions, or for individuals who have uniquely low levels of naturally occurring reinforcement and need a greater level of reinforcement to offset the highly reinforcing effects of substance use. Studies with methamphetamine-use disorder patients have also investigated whether or not altering the duration of CM (eg, CM for 2 months versus 4 months) or the schedule (eg, continuous schedule of reinforcement versus predictable intermittent) of CM can significantly improve long-term abstinence rates.[13,37] While there is evidence that altering the rate, magnitude, and schedule can be beneficial, not all evidence points to such modifications as being different from or more beneficial than one another. We now review these optimization strategies.

Several studies have investigated the efficacy of high-magnitude CM in people with severe addictions. In one, nonresponders to a CM intervention for cocaine were exposed to high-magnitude CM (up to $3,480) and usual CM (up to $382). During high-magnitude CM, 45% attained ≥4 weeks of abstinence, while only 5% achieved this goal during standard-magnitude CM.[32] In another study, high-magnitude CM increased drug abstinence in eleven treatment-resistant cocaine and opioid users.[31] In both studies, participants also submitted more opiate- and benzodiazepine-negative urine samples during high-magnitude CM relative to usual-CM or usual-care conditions. In a third study, participants who submitted a pretreatment cocaine-positive urine samples (ie, a proxy measure indicating greater severity of use disorder) were randomized to usual CM (reinforcer value $240), or high-magnitude CM (reinforcer value $560). For those assigned to high-magnitude CM, the duration of abstinence was more than twice as long than for those in usual care and about a week and a half longer than for those in standard CM. Lastly, a study conducted by Packer et al found that among 103 cigarette smokers, high-magnitude CM and lower preintervention smoking severity (ie, measured via cotinine, a biochemical measure of smoking severity) were both correlated with higher rates of smoking abstinence during CM.[12,92]

Shaping CM is an optimization strategy that reinforces reductions in use in a stepwise fashion (eg, 25% reduction

in use during week 1, 50% reduction in use during week 2) toward eventually requiring 100% abstinence. It has been associated with better treatment outcomes in people who do not respond to CM interventions that required 100% abstinence for the entire treatment period.[26–28] One study randomized 95 adults to receive either 8 weeks of CM or 3 weeks of a shaping CM for cocaine use, in which participants were initially required to reduce cocaine metabolite levels by 25% to receive reinforcers, and then received 5 weeks of CM for 100% abstinence.[27] Participants in the shaping condition had significantly higher rates of abstinence compared to the 100%-abstinence group. In a series of studies conducted by Lamb et al,[93–95] they reported consistent, statistically significant support for shaping CM among treatment-resistant smokers. Lamb et al used preintervention CO levels to personalize targets for subsequent shaping-CM schedules. In one of these trials, patients who received shaping CM submitted six times as many smoking-negative samples compared to those in the 100%-abstinence CM group.[95]

Finally, there have been two recent investigations into the duration of CM to compare whether 1, 2, or 4 months of CM produced higher levels of methamphetamine abstinence among methamphetamine-use-disorder patients who were attending psychosocial treatment. As expected, in a stepwise fashion, longer duration of CM consistently produced proportionally better treatment outcomes not only in methamphetamine-negative urine-sample submission but also in treatment attendance.[13] In a similarly designed trial, the schedule of reinforcement was manipulated to be continuous, predictable intermittent, unpredictable intermittent, or the standard CM condition. In this study, over 100 methamphetamine-use-disorder patients who were receiving psychosocial treatment found that the different schedules essentially did not impact treatment outcomes (eg, abstinence rates, attendance rates).[37] This is important to consider when modifying and personalizing future interventions and further illustrates the flexibility of CM in treating SUDs. Many of these optimization strategies have not been examined in depth through additional Phase II or Phase III clinical trials across substances or different populations; however, such studies could help enormously to personalize treatment for SUDs better.

Discussion

We have reviewed in depth three core themes across the use of CM for multiple SUDs: adapting CM for underserved populations, CM with experimental technologies, and optimizing CM for personalized interventions. It is our hope that this will help inform future iterations of CM being utilized in multiple settings. For example, while some of the early work on magnitude, delay, and shaping produced promising results, we still do not know for whom these schedules work best or for which SUDs it may or may not work best. Additionally, there has not been enough work done on mobile-based CM systems to provide a systematic review of those studies, but this is emerging quickly, which will hopefully act as an accelerant to new and promising CM adaptations when combined with the aforementioned optimization strategies that need additional research.

Similar to all reviews, this review has its limitations, with two notable weaknesses. First, this review did not focus on much of the promising work on combining CM with various psychotherapies and medications. This is an important emerging area that will likely leverage further some of the developments discussed herein, as it adds a layer of optimization potential for different patient populations (eg, those with more than one addiction). Another possible limitation of this review is that we chose not to conduct a quantitative meta-analysis. Such reviews can be instrumental when wanting to quantify the effect of a treatment across settings, samples, and other factors. In this review, we deliberately chose to focus our review on three a priori-selected themes in an effort to build on the excellent work already published on the consistent, strong effects of CM across various factors. Our objective with this review was to build on that work and expose readers to novel possibilities in the application of CM across SUDs.

One of the biggest barriers to utilizing CM in real-world treatment situations effectively is not a scientific one, but a political one. Convincing policy makers of why this should be more broadly integrated into drug- and alcohol-use-disorder treatment has proven difficult. However, CM interventions are being applied in clinical practices throughout the US and UK. For example, CM is being increasingly used as the SUD treatment of choice within the US Veterans Administration system.[96] Since 2011, the Veterans Administration has successfully integrated CM into 70 of its intensive outpatient substance-abuse-treatment clinics for veterans.[96] At the same time, the National Health Service in the UK has also implemented CM into its SUD-treatment guidelines.[97] Investigations of CM dissemination are under way, including studies designed to understand systemic and clinician variables that impede or facilitate CM implementation better.[98–104] One of the most important pieces of evidence that has emerged in the CM literature, especially in light of the political challenges, is that it is a cost-effective treatment option.[23–26,28] In theory,

this should lead to greater adoption across the US health care system, in desperate search of economically viable alternatives in the face of scarce and diminishing resources. More economic work on CM is under way that should contribute to this discussion.

Finally, one last important aspect of CM that makes it amenable to several different adaptations and optimizations using the aforementioned emerging utilities is that CM produces virtually no adverse events. In fact, Petry et al[96] examined 260 serious adverse events across two large[105] national multisite CM trials (along with two other psychosocial intervention investigations) and found that none was judged by the Data Safety and Monitoring Board to be related to the CM intervention. This makes CM both effective and amenable to ongoing experimentation and optimization efforts across a diverse array of settings and populations that will only be leveraged further by ongoing technological developments.

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The national implementation of Contingency Management (CM) in the Department of Veterans Affairs: Attendance at CM sessions and substance use outcomes

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Abstract

Background: In 2011, the Department of Veterans Affairs launched an initiative to expand patients' access to contingency management (CM) for the treatment of substance use disorders, particularly stimulant use disorder. This study evaluates the uptake and effectiveness of the VA initiative by presenting data on participation in coaching, fidelity to key components of the CM protocol, and clinical outcomes (CM attendance and substance use).

Methods: Fifty-five months after the first VA stations began offering CM to patients in June 2011, 94 stations had made CM available to 2060 patients. As those 94 VA stations began delivering CM to Veterans, their staff participated in coaching calls to maintain fidelity to CM procedures. As a part of the CM coaching process, those 94 implementation sites provided data describing the setting and structure of their CM programs as well as their fidelity practices. Additional data on patients' CM attendance and urine test results also were collected from the 94 implementation sites.

Results: The mean number of coaching calls the 94 programs participated in was 6.5. The majority of sites implemented CM according to recommended standard guidelines and reported

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Conflicts of interest

No conflict declared.

high fidelity with most CM practices. On average, patients attended more than half their scheduled CM sessions, and the average percent of samples that tested negative for the target substance was 91.1%.

Conclusion: The VA's CM implementation initiative has resulted in widespread uptake of CM and produced attendance and substance use outcomes comparable to those found in controlled clinical trials.

Keywords

Contingency management; Stimulants; Department of Veterans Affairs

1. Introduction

Making evidence-based treatments for substance use disorders (SUD) available to Veterans is a mission priority of the Department of Veterans Affairs (VA) (Karlin and Cross, 2014). Contingency management (CM), which rewards healthy behaviors such as abstinence from substances to increase their probability of recurring, is one such evidence-based practice (Benishek et al., 2014; Kiluk and Carroll, 2013; Dutra et al., 2008; Lussier et al., 2006; Prendergast et al., 2006). In response to a VA-sponsored Capstone Report by the Altarum Institute and RAND Corporation indicating that CM was insufficiently available to veterans with SUD (Watkins et al., 2011), VA launched an initiative in February 2011 to implement CM in its SUD specialty care programs (Schoenhard, 2011). The VA initiative is the largest implementation of CM in history and thus provides a unique opportunity to assess adoption efforts in clinical programs and outcomes of patients.

Petry and colleagues (Petry, 2012; Petry et al., 2000) developed prize CM, in which patients earn chances to win prizes based on periods of sustained and confirmed abstinence. This reinforcement system consistently yields benefits with respect to reducing substance use at relatively low costs, with average earnings under $200 per patient over a 12-week course of treatment (Petry et al., 2012a,c, 2005b, 2000). Therapists have learned to implement the prize CM approach (Becker et al., 2016; Hartzler et al., 2014; Petry et al., 2010a; Squires et al., 2008), and it is efficacious when applied by community-based providers (Petry et al., 2012a,b).

The VA trained 187 providers from 113 SUD treatment programs on the prize CM approach at one of four regional trainings in 2011 (Petry et al., 2014). An additional 16 VA programs that did not participate in the 2011 CM trainings later received implementation training and support bringing the total number of potential CM implementation programs to 129. Between June 2011 and December 2015, 116 (89.9%) of the 129 programs began implementing CM.

Reinforcing abstinence has the strongest evidence base for improving outcomes of stimulant use disorders (VA/DoD, 2015; Dutra et al., 2008; Petry et al., 2005b), for which no effective pharmacotherapy exists (VA/DoD, 2015; Schoenhard, 2011). Thus, the training emphasized reinforcing stimulant abstinence. Because requiring abstinence from several substances reduces effectiveness of CM (Lussier et al., 2006; Prendergast et al., 2006) and there is no

evidence that CM targeting a single substance leads to increases in other substance use (Kadden et al., 2009, Petry et al., 2000), clinicians were encouraged to target only a single substance or substance class (i.e., all stimulants). Specifically, in regions where stimulant misuse included a variety of substances (e.g., methamphetamine and cocaine), programs were advised to target abstinence from all stimulants, whereas in regions in which one stimulant was misused exclusively (e.g., cocaine only in many New England areas), programs could reinforce abstinence from that stimulant alone.

Twenty-two (17%) of the 116 programs chose to reinforce treatment attendance rather than stimulant abstinence. Their decision was made in response to the low numbers of stimulant-misusing patients presenting for treatment and/or unavailability of same day drug test results. The data from these 22 programs that reinforced attendance are not included in the remainder of this report. This paper presents implementation and clinical outcome data from the 94 VA programs that began delivering CM targeting abstinence from illicit substances.

Some practices appear important in the effectiveness of CM. Providing reinforcement as immediately as possible following objective verification of abstinence (Lussier et al., 2006) and linking abstinence to escalating earnings (Roll and Shoptaw, 2006; Roll and Higgins, 2000; Roll et al., 1996) are associated with better outcomes in CM. Competent delivery of CM, which includes reminding patients of reinforcement possible and discussing desired prizes to be purchased with one's earnings, also is associated with better outcomes in CM (Petry, 2012; Petry et al., 2012a; Petry et al., 2010a). We describe the range in CM settings, structure, and practices and provider-reported performance of these four practices across the 94 implementation sites. We also outline clinical outcomes: treatment attendance and substance use.

2. Methods

2.1. Standard prize CM protocol

The standard prize CM protocol on which VA providers were trained is 12 weeks in duration, consists of rapid, onsite testing for stimulants twice weekly (e.g., Monday–Thursday, Monday–Friday, Tuesdays–Fridays), and provides increasing opportunities for winning prizes for each stimulant-negative sample (Petry et al., 2014; Petry, 2012). Twice weekly schedules were recommended because they aligned with most clinical treatment schedules and with the 48–96 h detection window for urine toxicology testing of stimulant use (Moeller et al., 2008). For each sample that tests negative, the patient earns draws from a fishbowl containing 500 prize slips of varying magnitudes: 250 state "Good job!" (no prize value), 209 state "Small" ($1), 40 state "Large" ($20), and one "Jumbo" ($100). Draws start at one for the first stimulant-negative sample and increase by one for each consecutive negative sample up to a maximum of eight draws. Prize slips are replaced after drawings so chances remained constant, and patients were aware of probabilities. A refused, stimulant-positive, or missed sample (i.e., an unexcused absence on a testing day) resets draws for the next negative sample down to one with escalation resuming for sustained abstinence. With these probabilities and magnitudes, each draw costs on average $2.22, and patients can earn 164 draws over 12 weeks, with an average expected maximum of about $364 in prizes. Programs could elect to implement this standard CM program if it fit within the existing

clinical structure or they could make modifications (duration of intervention, frequency of testing, maximal number of draws, and types of prizes, etc.). In no cases were programs expected or encouraged to alter their existing program structure to fit CM.

One modification that most clinics employed related to the nature of the reinforcers. Although prize CM usually entails maintaining an inventory of on-site prizes in a large cabinet, the Veterans Canteen Service (VCS) operates retail stores at many VA locations, with Coupon Books available as tender. Consequently, CM implementers could disburse VCS coupons as prizes. Nevertheless, some programs without VCS stores maintained prize cabinets, and some programs provided a hybrid approach stocking prizes unavailable at VCS retail stores.

2.2. Participants: VA SUD treatment programs implementing CM

The data presented in this paper come from the 94 VA SUD treatment programs targeting abstinence from illicit substances from June 6, 2011 (when the first of the 94 programs began delivering CM) to December 31, 2015. The 94 participating VA programs covered the contiguous United States from White River Junction, Vermont to Seattle, Washington.

2.3. Procedure: CM coaching calls and CM implementation forms

Beginning in August 2011, programs were invited to participate in four Coaching Calls within the first 6 months of beginning CM delivery and once every 6 months thereafter. CM programs were asked to submit completed Implementation Forms (see Appendix A) prior to each call so that feedback on their execution of CM could be tailored to their experiences (Petry et al., 2014). The Implementation Form gathers data on CM settings, structure, outcomes (urine samples collected and results), and fidelity to the aforementioned practices associated with CM efficacy (e.g., linking abstinence to escalating earnings, immediacy of reinforcement, reminding patients of reinforcement possible, and discussing desired prizes to be purchased with one's earnings). The latter two practices were selected from and served as proxies for the CM Competence Scale (CMCS; Petry et al., 2010a) because (a) they are among the most reliable items in the CMCS, (b) burdening clinicians with recording and rating CM sessions with the full CMCS might inhibit some sites from implementing CM, and (c) insufficient resources were available to the authors for rating recorded sessions from the 94 implementation sites. CM setting and structure items included platform program (e.g., outpatient psychosocial, opioid replacement, residential), targeted substance(s), testing frequency and length of CM course, and type of reinforcer (VCS coupon books, prize cabinets or both). For each of the four fidelity items, programs that replied affirmatively on every Implementation Form were classified as "Always" using that practice. Programs that replied negatively to a fidelity item on every submitted Form were classified as "Never" using that practice. If a program's response to a fidelity item changed between submitted forms, then that program was classified as "Sometimes" using the practice.

Some data on CM program structure were not available on the Implementation Form, i.e. patient CM eligibility criteria and urine testing method (VA laboratory or via point of care (POC) urine dipstick or rapid screening test cups). To ascertain this information, the authors queried programs during the coaching calls.

2.4. Outcome measures

The Implementation Form includes two clinical outcomes: attendance and substance use. Attendance was defined conservatively and consistently as the number of urine samples provided by each patient divided by the total possible sessions (i.e., 24 in a 12 week twice weekly program). This index does not adjust or accommodate for patients who, through no fault of their own, have truncated expectations of care due to inpatient hospitalizations, moving, or obtaining employment, for example. Reasons for early treatment termination were not consistently coded. The proportion of submitted samples testing negative for the targeted substance was the index of abstinence.

Twenty-one patients (1.0%) across ten (10.6%) programs were permitted, by mistake or clinician intention, to remain in CM longer than the course offered by those programs. We excluded these cases from the attendance analyses (remaining N = 2039) because we could not determine each patient's actual number of possible sessions. Nevertheless, the analyses of the substance use outcomes included these 21 patients (N = 2060).

2.5. Data analysis

The first three sets of analyses summarize descriptive data on (1) setting and structure of the 94 CM programs, (2) participation in the CM coaching calls by the 94 CM implementation programs, and (3) fidelity to the four practices associated with CM efficacy. For each program characteristic (treatment setting and CM structure), the summary statistics of the number and percentage of programs is presented. For programs that provided the eligibility criterion used for CM enrollment, the number and percentage also are presented. Summary statistics on the number of calls in which each program participated and number of Implementation Forms received from each program are presented. The third set of descriptive analyses presents the percentages of the 94 programs that always, sometimes, and never engaged in the four fidelity practices. Finally, we conducted descriptive analyses of the outcome measures (proportion of CM sessions attended and proportion of samples testing negative for the targeted substance). We present these two outcomes aggregated at the national and at the program level; the former indicates CM's overall outcomes, and the latter reflects variance in outcomes by programs. Analyses were performed on IBM SPSS Statistics (Version 20).

3. Results

3.1. CM program settings and structure

Table 1 presents the descriptive data on CM setting and structure from the 94 CM programs. The majority of CM programs were operational for over 40 months of the 55-month period since CM training ($\overline{X}$= 40.6 months, SD = 13.4, Median = 46.1, Range = 0.8–54.8). Most targeted cocaine only, with about a third reinforcing abstinence from all stimulants, and a handful reinforced abstinence from all substances concurrently, such as from stimulants, opioids, marijuana and benzodiazepines. Over two-thirds of clinics integrated the standard course of CM (12 weeks of twice weekly sessions targeting stimulants with an 8-draw cap) in an outpatient SUD treatment setting. Most used VCS Coupon books as the sole reward,

and the few sites that did not have Canteen stores onsite used prize cabinets. About two-thirds of programs used lab-administered testing, and the remainder point-of-care testing.

Ninety-two (97.9%) of the 94 programs provided information on the eligibility criteria used in their CM program. Of these, 59 (64.1%) required the patient to have a SUD diagnosis for the targeted substance, while 33 (35.9%) admitted patients to CM if their clinical records included objective evidence of targeted substance misuse such as prior toxicology evidence of targeted substance misuse in the past 12 months, even without a SUD diagnosis for the targeted substance. It is important to note that patients in all programs could have additional co-occurring SUDs and/or psychiatric illnesses, and no program excluded patients from CM based on other mental disorders or substance use problems.

3.2. Participation in CM coaching calls

Programs participated in 610 coaching calls between August 1, 2011 and December 31, 2015. The mean and median number of coaching calls attended by the 94 programs was 6.5 and 7.0, respectively (SD = 2.7). The number of calls convened with each program ranged from a high of 11 to a low of 1. Over 74% (70 of 94) of the implementation programs participated in at least 5 Coaching Calls for at least 12 months after beginning delivery of the treatment.

3.3. Implementation forms submitted

In total, 460 Implementation Forms were submitted for review prior to the calls. The mean and median number of Implementation Forms submitted by the 94 programs is 4.9 and 4.0 respectively (SD = 2.5). The number of submitted Forms range from a high of 10 to a low of 1.

3.4. Implementation fidelity

Table 2 presents data on the four indices of CM implementation fidelity. The highest rate (95.7%) of adherence among implementation programs was reported for the practice of relating patients' efforts at abstinence to their chances of earning prizes. The lowest level of fidelity (57.4%) was observed for same-day test result availability being always available. This issue impacted only sites that used laboratory testing.

3.5. Clinical outcomes

Table 3 presents the attendance and substance use outcomes. The programs provided CM to an average of about 22 patients each over the study period, Range = 1–136. A total of 27,850 urine samples were collected and tested across the 94 programs (M = 296.3 samples per program, SD = 294.0; Median = 187.0, Range = 3–1684). Excluding the 21 patients for whom we could not determine the total number of available CM sessions due to varying course durations, the remaining 2039 patients attended 27,233 (55.5%) of their 49,104 possible CM sessions. Aggregated at the program level, the average proportion of CM sessions was 55.9%. Among the 94 CM programs, the 25th percentile in average proportion of CM sessions attended was 43.2%, the 50th percentile was 55.6%, and the 75th percentile was 67.5%. Sixty-one programs (64.9%) had an average proportion of sessions attended above 50%.

Of the 27,850 submitted samples, 25,593 (91.9%) tested negative for the targeted substance(s). Aggregated at the program level, the average percent of samples that tested negative for the targeted substance was 91.1%. The 25th percentile in percent-negative rate aggregated at the program level was 89.1%, the 50th percentile was 95.0%, and the 75th percentile was 98.0%. Sixty-seven programs (71.3%) had percent-negative rates above 90%.

4. Discussion

Beginning in 2011, VA initiated a large-scale implementation of CM that provided training and support to SUD treatment personnel from 129 VA SUD programs across the United States. Since that implementation effort began, CM has been made available at 90% (116) of those 129 VA programs, 94 of which used CM to reinforce abstinence from illicit substances. The training that was included in this rollout of CM across the VA is described in two other publications (Petry et al., 2014; Rash et al., 2013). In this manuscript, we presented adoption practices and clinical outcomes from those CM programs reinforcing abstinence.

VA's national implementation of CM to reinforce abstinence has been successful as evidenced by wide-scale adoption, sustained participation in quality-control efforts, and clinical outcomes comparable to empirical trials of CM conducted in community clinics. Ninety-four new CM programs across all 21 VISNs adopted CM in 55 months since the first program started. VA's CM programs participated in over 600 post-implementation Coaching Calls, thus maintaining the high participation rate we observed for CM pre-implementation Planning Calls at the outset of the VA initiative (Petry et al., 2014). Furthermore, most programs participated in Coaching Calls for at least 12 months following the start of their CM program. Nearly three-quarters of the 94 programs adopted the standard prize CM protocol, suggesting it integrated well with the multitude of standard programs to which it was added. Indeed, with the exception of the targeted substance, testing method (laboratory based or point of care), and the eligibility criterion used, the variance in program characteristics was small (i.e. 75% or more of the 94 CM implementation sites were alike in six of the eleven setting and structural elements listed in Table 1). However, we note that these similarities reflect discussions and encouragement to adopt "standard" CM programs during the coaching calls when possible; many clinicians initially were unaware of digressions from behavioral principles they were planning, and the calls guided changes in these regards. For example, anecdotally, many clinicians initially wanted to alter the probabilities of prize slips and/or eliminate the jumbo or good job slips, test and reinforce urine samples daily, or require abstinence from all substances concurrently to earn any reinforcers. The calls reviewed the empirical basis and rationale for the standard protocol, encouraging only changes that were necessary to accommodate the existing clinical structures.

The most notable indicators of CM implementation success observed across the 94 programs have been the proportion of sessions attended and the proportion of samples that tested negative for the targeted substance(s). The 2060 participating veterans provided an average of 13.5 urine samples, and 92% of the nearly 28,000 urine samples tested negative for the targeted substance(s). This rate compares favorably to rates observed in several empirical

evaluations of CM involving patients and eligibility criteria similar to the VA initiative (Petry et al., 2012c, 2006, 2005a; Roll et al., 2006).

We observed that 55.9% of CM sessions were attended; this finding also compares favorably to published studies of prize CM using similar magnitudes of reward with patients akin to those who received CM in the VA initiative. The proportions of sessions attended for prize CM in the published literature range from 45% to 71% (Petry et al., 2012c, 2010b, 2006). Thus, adoption of CM in clinical programs appears to be yielding similar rates of success as CM does in controlled clinical trials. We note that patients enrolled in outpatient substance abuse treatment, at the VA and most other community-based clinics in which attendance is not mandated, rarely attend 24 sessions over 12 weeks, and typically the rate of treatment engagement without CM is far less than that sessions reported herein. In the CM programs instituted, fifty percent of CM patients completed 14 or more CM sessions within the designated treatment period (typically 12 weeks). In comparison, Oliva et al. (2013) found that only 42% of VA patients with an outpatient SUD treatment episode completed more than two sessions of care in a one year period.

Several study limitations warrant caution in interpreting the findings. It is possible that data supplied by clinics was impacted by biases; that is, the clinicians who completed the forms may have mis-represented information in the reports, intentionally or unintentionally. Another and related limitation was that we did not have recordings of CM sessions to assess adherence to the protocol or competence in CM delivery. Instead, we relied on proxy indices of adherence that may not have been sufficiently sensitive to digressions from efficacious CM practices. Nevertheless, most clinics reported not adhering to one of the four basic fidelity practices at one or more time points, suggesting no systematic biases in the recording of data. We note anecdotally that many of the clinics began planning or implementing CM incorrectly and likely would have persisted in not adhering to appropriate behavioral principles without these calls. These experiences highlight the importance of ongoing fidelity assessments and coaching in large scale CM implementation efforts.

Because toxicology testing inclusive of substances in addition to stimulants was not a required element of CM implementation, the present study cannot address the question of CM's effect on non-targeted substance use. Although sites that used laboratory-administered testing may have data on non-targeted drug use, two considerations warranted against requiring their collection and reporting from these sites. First, collecting and reporting data on non-targeted drug use would be an additional burden on sites and potentially contravene the interest in making CM available to as wide a swath of eligible patients as possible. Second, the expense of full-panel point-of-care testing could preclude sites from implementing this most rapid of testing methodologies. These considerations notwithstanding, we do not want to imply that VA's CM initiative ignored non-targeted substance use. On the contrary, in the training and coaching of CM, we provided guidance on how CM should address non-targeted drug use clinically, but apart from the reinforcement procedure. For example, when non-targeted drug use was evident either via self-report or testing, clinicians were encouraged to discuss with CM patients how such behaviors could undermine their stimulant abstinence efforts, and how their stimulant abstinence efforts could be applied to their non-targeted drug use (Petry, 2012).

Another important limitation of the present study is that it did not investigate the cost effectiveness of CM. An evaluation of cost effectiveness would have necessitated the collection of identifying information on CM patients so their health records could be searched for service utilization and post-treatment outcomes. Additionally, costs of provider time, testing costs, and costs of incentives would need to be gathered. As important a question as CM cost effectiveness is, it was subordinate to VA's goal of making CM available to patients who could benefit from it. Consequently, data on cost effectiveness of VA's national CM implementation were not collected. However, this issue should be pursued in future CM implementation research.

Finally, we did not have a control condition, which limits the conclusions that can be drawn regarding the efficacy of CM. However, the combination of high rates of sustained participation in CM and rates of drug negative urine samples exceeding 90% is certainly promising and consistent with rates reported in studies employing randomized designs and significant benefits of CM relative to usual care procedures.

In sum, this dissemination initiative, the largest undertaken in the history of CM and among the largest in the context of substance use treatment in general, is demonstrating effectiveness, as well as acceptability and feasibility. Other CM initiatives in the VA (Hartzler et al., 2012) and elsewhere (Becker et al., 2016; Petry et al., 2012a,c; Lott and Jencius, 2009; Squires et al., 2008) indicate that clinicians, with appropriate training and supervision, can and do implement CM appropriately and it improves patient outcomes (Petry et al., 2012a,c) and can even be cost effective (Lott and Jencius, 2009). The time is ripe for other health care systems to similarly adopt CM to improve outcomes of patients with substance use disorders. Health care systems that integrate insurance with their own care delivery settings, e.g., Community Health Network (Indianapolis, IN), CoxHealth (Springfield, MO), Geisinger Health System (Danville, PA), Henry Ford Health System (Detroit, MI), Intermountain Healthcare (Salt Lake City, UT), Kaiser Permanente (Oakland, CA), McLaren Health Care (Flint, MI), Memorial Hermann Healthcare Systems (Houston, TX), Mercy Health System (Janesville, WI), Northwestern Memorial HealthCare (Chicago, IL), Providence Health & Services (Renton, WA), and University of Pittsburgh Medical Center (Becker's Hospital Review, 2013, May 15), could implement CM in a manner similar to VA and may realize overall benefits. Successful adoption of CM will require that clinicians receive adequate training and ongoing support in implementing CM protocols that adhere to basic behavioral principles and the costs of incentives be appropriately covered (Petry et al., 2017), as they are in the VA.

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Appendix A

CM Implementation Form

Name of program: _____ Respondent: _____

We are reinforcing abstinence from: _____ in patients from our _____ program. We are collecting and testing samples _____ times per week for _____ weeks. The maximum number of draws per patient is _____.

We are using VCS coupon books or on-site prizes (or both) as reinforcers: _____.

Date first CM patient began treatment?	
How many patients have been enrolled in CM?	
For each patient, list the number of urine samples collected. Separate each patient's number of samples by a comma (e.g.,"8,6,5. and 3 samples," if 4 patients are enrolled).	
How many urine samples have tested negative for the targeted substance? (e.g., "8,6,5, and 3" if all patients have tested negative for all their samples)	
Have any patients tested positive for the target substance? If so, how was this handled?	
How often do you gel utox results back BEFORE patients leave the clinic for the day?	
How often have patients had excused absences from a testing day? If any. how was this handled?	
How often have patients had unexcused absences or refused samples on a testing day? If any, how was this handled?	
Are you/CM staff providing reminder slips at each visit stating how many draws patients can earn at their next visit?	
Are you/CM staff asking patients at each visit about what they are trying to work toward (what they desire to purchase at the VCS retail store, or prizes they want if you have a prize cabinet)?	
Are you/CM staff relating patients' efforts toward abstinence to chances of winning prizes/VCS coupon books?	
Are you/CM staff using the tracking forms or CM Progress Note Template, even if patients fail to attend a scheduled visit?	
Are patients signing for prizes awarded?	
How many staff are implementing CM?	
How many eligible patients refused to participate in CM?	
On average, how much time is it taking to implement CM per patient per testing day?	
What has gone well?	
What (if anything) do you have concerns about?	

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Table 1

Implementation program characteristics (N = 94 programs).

	N	(%)
Operational period		
12 or more months	88	(93.6)
6 to 12 months	2	(2.1)
Fewer than 6 months	4	(4.3)
Targeted substance		
Cocaine only	53	(56.4)
All stimulants	37	(39.4)
Multiple illicit substances	4	(4.3)
Standard course of CM[a]		
Yes	70	(74.5)
No	24	(25.5)
Length of CM course		
12 weeks	79	(84)
8 weeks	11	(11.7)
Other	4	(4.3)
Testing frequency		
Twice-weekly	85	(90.4)
Thrice-weekly	5	(5.3)
Mixed	4	(4.3)
Cap on draws		
Twelve	1	(1.1)
Eight	92	(97.9)
Six	1	(1.1)
Platform program		
Outpatient	85	(90.4)
Residential	6	(6.4)
Opioid replacement	3	(3.2)
Reinforcer		

Table 2

Fidelity to practices associated with CM efficacy (N = 94 programs).

	Always		Sometimes		Never	
	N	(%)	N	(%)	N	(%)
Test results immediately available?	54	(57.4)	38	(40.4)	2	(2.1)
Reminder slips distributed?	63	(67.0)	27	(28.7)	4	(4.3)
Asked about desired prizes?	76	(80.9)	17	(18.1)	1	(1.1)
Related prizes to abstinence?	90	(95.7)	4	(4.3)	0	(0)

Table 3

Attendance & substance use outcomes.

	$\overline{X}$	SD	MEDIAN	MIN	MAX
Patients treated[a]	21.9	20.7	16.5	1.0	136.0
Sessions attended per patient[a]	13.5	8.9	14.0	1.0	41.0
Proportion of sessions attended[b]	55.9%	19.1%	55.6%	8.3%	100%
Samples provided[a]	296.3	294.0	187.0	3.0	1684
Proportion of samples negative[a]	91.1%	11.2%	95.0%	40.3%	100%

Note.

[a]N = 2060 patients from 94 programs.

[b]N = 2039 patients from 94 programs.

What If We Pay People to Stop Using Drugs?

Traditional treatments often take place in expensive facilities, demand total abstinence, and rely on punitive methods of control. A harm reduction model turns all of that on its head.

ILLUSTRATION BY RAN ZHENG

Zachary Siegel / February 25, 2021

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and Tyrone was in his early twenties. He was HIV-positive, watching as the AIDS epidemic tore through his community in San Francisco. People he loved were dying. He wanted that feeling of euphoria.

Eventually, having HIV complicated his meth use. Tyrone had stopped taking antiretroviral medicine that suppressed the virus, triggering a series of acute health issues like lymphoma and vasculitis. After these health scares, he had a realization: He wanted help. "You've been doing this for 20-plus years, thinking that any minute now you're going to get sick and die," he remembered telling himself. "And that doesn't seem to be how this is going to work. You're going to be here for a while."

A psychiatrist at San Francisco General Hospital told Tyrone he needed to go to residential inpatient treatment for his meth use. This wasn't going to work. His husband had just had surgery and was recovering at home; he'd need Tyrone's help. The doctor still insisted on inpatient treatment. "I got really irritated with them," he said. "It's like, you're not even listening to me."

This wasn't the first time Tyrone felt belittled by the health care system as a gay Black man with HIV. He walked out of that appointment feeling frustrated, with no treatment plan in place. Then he met with his primary care doctor and told her about what had happened. She handed him a slip of paper with the acronym "PROP" written across the top and a phone number on the back.

PROP stands for Positive Reinforcement Opportunity Project, a treatment tailored for LGBTQ+ and nonbinary people who want to reduce their stimulant use. After

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Unlike traditional treatments for substance use disorders, which often take place in expensive residential facilities, demand total abstinence from all drugs, and rely heavily on group therapy and the 12 steps, PROP doesn't punish or control those who participate in the program. Instead, PROP holds substance use on a continuum and gives people the power to determine their own treatment goals: Some might want to be abstinent from all drugs; others might reduce their stimulant use to more manageable levels.

Counseling and group sessions are also part of PROP, but the program is grounded in a highly effective behavioral therapy called contingency management, which reinforces positive behaviors through delivering tangible, often monetary, rewards. "In PROP, I found community, I found support," Tyrone said. "And it was great to have that money."

Decades of research show that contingency management works—and is much more effective in treating stimulant use disorders than traditional addiction treatments. But a conservative impulse to punish those who use drugs instead of offering quality care has hardened into policies and laws that prevent contingency management from being more widely used. Instead of infantilizing people who use drugs—how many times have you heard the line about not giving out spare change because *they'll just use it to get high*?—PROP treats its participants like adults. People can use the money however they want.

The money can also mean greater freedom. Conventional addiction treatments tend to emphasize models of control—when yours truly was in treatment for an opioid

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use as if they can't make healthy decisions for themselves. Contingency management rejects this outright.

Recent surges in stimulant-involved overdose deaths—accelerated during the coronavirus pandemic—are creating more interest in contingency management programs, or at the very least exposing the urgency behind the treatment. More people now die from stimulants like cocaine and methamphetamine than from prescription opioids like oxycodone, and in 2018 more than a million people in the United States met the criteria for methamphetamine use disorder, which experts consider a massive undercount. Yet very few programs offer effective, science-based treatment. With a growing need for stimulant treatments that work, experts in the field are working to change laws that they see standing in the way of contingency management's wider adoption.

Tyrone was referred to contingency management because he had little interest in other treatment approaches like the 12 steps, which center concepts like powerlessness and surrender. "I did this, I can undo it," he told me. "I'm not giving up control."

Here's how PROP's contingency management program works: Participants show up every Monday, Wednesday, and Friday for a drug test. Every time they screen negative for cocaine, amphetamine, or methamphetamine—all stimulants—they are rewarded with money that is deposited into an account managed by the San Francisco AIDS Foundation. Participants can request to cash out at any time. The deeper into the program you get, the more money comes in each deposit. After every three consecutive negative screens, there's a bonus. The more a behavior is rewarded, the theory goes, the more likely a person is to repeat it.

When Tyrone first entered PROP and heard about the money, he wasn't ready to commit to never using meth again. He thought, "I can do 12 weeks. And then when I'm done, I'll have 330 bucks to get high with." He stayed open-minded enough to engage with the treatment, and his response to it was surprising even to him.

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mean the difference between someone having the ability to pay their cell phone bill, which means they can keep their doctors appointments. They can make it to their meetings to keep their benefits."

In the beginning, the money from PROP was what helped 50-year-old Billy Lemon stay off methamphetamine. "Day one through Day 30 is rough. It's just rough," Lemon said. "But if you can get to four months, the difference between month one and month four is significant. The cash management system from PROP is what got me there."

With an extra $100 a month while going through treatment, Lemon paid his phone bill, a resource that he said kept him in touch with friends while going through the program. "That's a big fucking deal," he said. "It was the impetus that, like, maybe there is a way forward, maybe something is possible." Being rewarded for not using drugs was a foreign concept. "That somebody is just gonna give me a little bit of money to try and help me make my life better?" Lemon asked. "I can remember having a feeling like: *Where's the catch?*"

There wasn't one. Lemon remembers AIDS Foundation counselors being radically compassionate—they were rooting for him. He didn't expect it. "Somebody is willing to be on my side and coach me in a good direction, and pay my phone bill while I'm in rehab? With my past, with all the nonsense that I did? That seems like a win, an easy win for folks," Lemon said. "That we're not doing this more just seems kind of detached from reality." Today, eight years after PROP, Lemon is the executive director of Castro Country Club, a queer space that offers support and community for people in recovery.

That sense of understanding, even as it surprised Lemon, is core to the model. In contingency management, no one gets kicked out for using drugs, whether it's stimulants, alcohol, or cannabis. "I love the harm reduction model," Lemon, who also attends 12-step meetings, said. "I think it's much friendlier and kinder, in general."

In contingency management programs, a positive urine screen does not result in punishment the way it might in other treatment programs, especially when those are

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reinforcement in contingency management is that a positive urine screen means the reward cycle resets, along with the bonus count. You have to start over.

"People can come high," Mike Discepola, vice president of behavioral and substance use health at the San Francisco AIDS Foundation, said. The whole idea of the program is to match a participant's interest with their ability, Discepola explained. If someone is continually testing positive for stimulants, then treatment, counseling, and care are still available to them. If a participant tests positive, they're encouraged to discuss why they used, and counselors try to motivate them to keep showing up and try again. No one gets turned away, and no one gets punished for using again.

But that's exactly what conventional treatment, and the legal system, does. People who use drugs are often given an ultimatum to either comply with an abstinence-focused treatment program or go to jail. In Pennsylvania, one type of probation called "addict supervision" runs on a strict zero-tolerance approach where if participants test positive for drugs, or even miss a drug test, they're detained and potentially given an even harsher sentence than the one they are hoping to avoid by agreeing to supervision in the first place. All this, mind you, for low-level drug arrests and minor offenses. Federal data from 2012 shows that 44 percent of men aged 19 to 49 who are on probation or parole could benefit from addiction treatment, but just over one-quarter actually get it. Even when they do, it's hard to know if that treatment is truly grounded in compassionate health care or just punishment by another name.

No one gets rich off contingency management, but the money helps. Rick Andrews, the associate director of the AIDS Foundation's contingency management program, estimates participants make about $200 on average over the course of 12 weeks at PROP. The research shows the effects of contingency management can last longer than the 12 weeks, but some researchers argue that the option for indefinite use of incentives might be necessary for some. In medicine, when symptoms return after a treatment abruptly ends, that's a sign that the medicine was working. If someone remained abstinent during contingency management and later returns to using, perhaps that also means the treatment was working. So why cut it short?

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want to reduce their stimulant use, despite promising research showing people addicted to illicit stimulants can be effectively treated when they have a supply of pharmaceutical stimulants. That means behavioral therapies are all that's available, and research consistently shows contingency management to be one of the most effective.

Dr. Richard Rawson, professor emeritus at UCLA, has studied incentive-based treatment for stimulant disorders for nearly 30 years. Even as an expert in the field, he said he's unsure of how many true contingency management programs exist but added that "the number is very small." Federal regulations "have seriously discouraged anyone from doing C.M.," he said. "I've had experiences where people say they are doing C.M., but when I ask specifics I find they are using very low incentives: small gifts, certificates, and candy bars." That level of incentive is far below the threshold of what's been found to be effective.

Providing financial incentives is a common practice in health care and most of our regular lives. Employers offer their workers gym memberships and Fitbits to encourage certain behavior. If you've ever used points earned on a credit card or accumulated miles from traveling, that's an incentive, too.

Incentive structures are so ubiquitous because they work. Private insurance companies and even Medicaid offer financial rewards to achieve desirable health outcomes. Incentives can be used to help people quit smoking, adhere to HIV medicine, or engage in preventative care. California's state Medicaid program, Medi-Cal, implemented a successful incentive of $25 gift cards to low-income women who show up for preventative care like mammogram appointments; the incentive was found to improve appointment attendance.

Researchers and experts in the world of contingency management say that financial incentives aren't the main problem. Rather, it's who is being incentivized.

Prevailing stigmas and stereotypes label people who use drugs as selfish, irresponsible, and criminal. Why pay them money? Aren't they just going to buy

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consumption sites in *The New York Times,* saying the goal was to "fight drug abuse, not subsidize it."

Dr. Dominick DePhilippis, a clinical psychologist who helped lead the implementation of contingency management at Veterans Affairs medical centers across the country, has heard it all before. "It may seem a bit hairsplitting, but I don't even like the terminology of 'paying people,'" DePhilippis told me. "When I pay someone, I'm compensating them for a service that serves my best interest." But in contingency management, he said, we are reinforcing a behavior that the patient is choosing for themselves. Patients enrolling in contingency management treatment are told exactly how the program works and what's expected of them, setting an atmosphere of consent and transparency from the very start.

Since 2011, contingency management has been available to veterans at over 100 Veterans Affairs medical centers. "We are now in our tenth year of implementation, and we have served over 5,400 veterans, and those veterans have provided over 70,000 urine samples, and over 92 percent of those have tested negative for the target substance, typically stimulants," DePhilippis said. "That's a statistic we're very pleased with and very proud of at the VA; it's comparable to the outcomes seen in the empirical literature."

DePhilippis credits the success of the VA's contingency management program to the late Nancy Petry, a behavioral scientist and innovator in the field, who died in 2018 from breast cancer. "You really can't have a discussion about contingency management without mentioning Nancy Petry," DePhilippis said. "She was a giant in behavioral science and really revolutionized contingency management."

Petry is known for inventing the "fishbowl" method, which the VA adopted across its facilities. Instead of receiving a set reward after each negative urine screen, participants draw prize slips at random. Some slips are worth $1, others are worth $20, and there's one "jumbo" prize worth $100. But other slips have no monetary value and simply say, "Good Job!" After consecutive negative urine screens, the participant gets to draw more slips, increasing their chances of winning more money which is meant to reinforce abstinence over time. Veterans can earn a maximum of

"Holiday season is my favorite time of year for C.M.," DePhilippis said. "Patients who are doing well in C.M. are using their earnings to purchase gifts for loved ones, which is especially poignant because, in many cases, in prior holiday seasons when a patient is struggling, they're unable to have that joyous experience of buying their loved ones gifts."

"The need for C.M. is great," DePhilippis said, referring to rising stimulant-related overdose deaths and a spike in emergency room visits due to methamphetamine. Neither the growing need nor strong evidence has been sufficient to shift attitudes and practices of addiction treatment outside the VA. Because the VA is its own separate health care agency, federal Medicaid rules and regulations like the "anti-kickback statute" do not apply to contingency management programs.

But the "anti-kickback statute," a criminal law that prohibits "remuneration to induce or reward" patients with money or other gifts, is a huge barrier to implementing effective contingency management at scale. Under current Medicaid rules, remuneration is capped at $75 per patient, per year, and must be doled out in increments no larger than $15 at a time. Contingency management programs set their incentives much higher than that.

The research shows that the value of the incentive matters. Research by Petry shows contingency management programs lose their efficacy when the incentive is set too low. Disrupting a drug addiction requires hard work, and if the monetary reward does not match the effort being put in—abstaining, taking drug tests, showing up for appointments—then people stop responding to the treatment.

Strict rules regarding incentives and inducements stem from a genuine problem of fraud and dangerous practices that have plagued the loosely regulated field of substance use disorder treatment. For instance, the notorious Florida Shuffle is a fraud scheme where unethical "treatment" providers seek patients with robust insurance plans, which "providers" then bill for unnecessary and exorbitant fees while providing shoddy care, if any at all. California is another popular rehab haven, where "no degree, medical or otherwise," is required to get a license to run a treatment facility. Other predatory treatment facilities force their clients into "work

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Programs that engage in fraud and exploitation are nothing like ethical treatment programs that adhere to scientific evidence and are run by clinical professionals: Predatory treatment providers try to control their clients and extract money and labor from them, while contingency management gives people something—money, community, support.

Seeing the efficacy of contingency management, some private insurers and private companies are starting to fill the gap. Newer health-tech companies like DynamiCare, WEconnect, and reSET deliver a combination of therapy and contingency management through phone-based apps. These companies, and the San Francisco AIDS Foundation, can use contingency management because they are not billing Medicaid for the incentive payments. The big hurdle for both these new tech companies and existing programs is to get insurance companies to cover the cost of contingency management as though it's any other treatment a provider might bill for.

Changing laws and policy is Laura Thomas's job at the San Francisco AIDS Foundation. As the harm reduction policy director, she advocated for lawmakers to craft California Senate Bill 110, which would allow contingency management programs to bill Medi-Cal. "Part of what we're asking for is the state of California to make it clear to [Centers for Medicare and Medicaid Services] that this needs to change and these types of treatment services are essential in California—not a kickback, not a bribe; they are actually evidence-based treatments," Thomas said. "Objections to C.M. are essentially stigma turned into bureaucratic regulations."

There's no reason that should get in the way of a treatment that works. "I think contingency management is far more respectful of people's autonomy than some other kinds of treatment that may have a lot more rules, like in residential treatment," Thomas said. "There's this popular conception of people who use drugs as zombies, of having no will of their own, of not being able to think, of not being rational."

Contingency management turns popular myths of addiction on their head, like claims that drugs "hijack" people's brains, leaving them unable to make decisions for

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That philosophy is what attracted Tyrone to PROP's contingency management program in the first place. "You were never really penalized. They never took anything away from you. You were never told that you can't come back," Tyrone said. "There were times we'd be in the room and there would be guys bouncing off the wall because they were so amped up, and they were treated just as equally and made to feel as welcome as anyone else. For me, that was really important, to feel like, no matter what, I was welcome."

After completing PROP, Tyrone went back to school to become a counselor. Today, he works for the AIDS Foundation, counseling people who are where he once was. "By the end of that 12 weeks, getting high was the furthest thing from my mind," he said. That was 10 years ago.

Zachary Siegel @ZachWritesStuff

Zachary Siegel is a writer based in Chicago. His work has appeared in *The New York Times Magazine, The Atlantic,* Slate, and WIRED, among others.

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Introduction Form

By a Member of the Board of Supervisors or Mayor

Time stamp
or meeting date

I hereby submit the following item for introduction (select only one):

☑ 1. For reference to Committee. (An Ordinance, Resolution, Motion or Charter Amendment).

☐ 2. Request for next printed agenda Without Reference to Committee.

☐ 3. Request for hearing on a subject matter at Committee.

☐ 4. Request for letter beginning :"Supervisor _____ inquiries"

☐ 5. City Attorney Request.

☐ 6. Call File No. _____ from Committee.

☐ 7. Budget Analyst request (attached written motion).

☐ 8. Substitute Legislation File No. _____

☐ 9. Reactivate File No. _____

☐ 10. Topic submitted for Mayoral Appearance before the BOS on _____

Please check the appropriate boxes. The proposed legislation should be forwarded to the following:

☐ Small Business Commission ☐ Youth Commission ☐ Ethics Commission

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Note: For the Imperative Agenda (a resolution not on the printed agenda), use the Imperative Form.

Sponsor(s):

Safai and Stefani

Subject:

Supporting California State Senate Bill SB 110 (Wiener)- Substance use disorder services: contingency management services

The text is listed:

Resolution supporting California State Senate Bill SB 110, also know as the Recovery Incentives Act was introduced on January 11, 2021, by Senator Scott Wiener (SD- 11) and SB 110 would legalize the substance use disorder treatment known as contingency management, an incentive based program that gives those struggling with substance use disorder financial rewards if they enter substance use treatment programs and authorize Medi-Cal to cover it.

Signature of Sponsoring Supervisor: _____

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