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Contingency Management for Stimulant Use Disorder

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Abbreviations

AAAP	American Academy of Addiction Psychiatry
ASAM	American Society of Addiction Medicine
CI	Confidence interval
CoE	Certainty of evidence
CM	Contingency management
DSM-V	Diagnostic and Statistical Manual of Mental Disorders, 5th edition
GRADE	Grading of Recommendations, Assessment, Development, and Evaluation
HHS OIG	Department of Health and Human Services Office of Inspector General
N	Number
NCT	US National Clinical Trial
NR	Not reported
OUD	Opioid use disorder, a problematic pattern of opioid use leading to significant impairment or distress
RCT	Randomized controlled trial
RoB	Risk of bias
SAMHSA	Substance Abuse and Mental Health Services Administration
SD	Standard deviation
SMD	Standardized mean difference
US	United States

Executive Summary

Background

Psychostimulants are a class of drugs that act on the brain's reward system by altering the activity of neurotransmitters, including dopamine, norepinephrine, and serotonin.[1] Stimulant use disorder is diagnosed based on criteria in the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5).[1] Stimulant use disorder often co-occurs with other substance use disorders, including opioid and alcohol addiction, as well as mental health conditions, such as bipolar disorder, borderline personality disorder, and attention deficit hyperactivity disorder.[1,2] Stimulant misuse is associated with a range of cardiovascular issues, adverse psychological and neurological effects, and a heightened risk of human immunodeficiency virus, hepatitis B, and hepatitis C.[3]

There are currently no US Food and Drug Administration-approved medications to treat stimulant use disorders or suppress the intense cravings associated with cocaine and methamphetamine addiction.[4] Treatment relies solely on behavioral interventions,[4] including contingency management (CM; providing stimulant users with rewards for meeting goals), community reinforcement programs (a multipronged approach that incorporates functional analysis with coping skills training and other reinforcements), 12-step programs (guided self-help recovery from addiction), and cognitive behavioral therapy.[5-7] Contingency management is a psychosocial intervention (i.e., it combines both psychological and social elements) that uses motivational incentives (monetary or nonmonetary rewards) to elicit behavior change, such as abstinence from substance use, attendance at treatment sessions, or progress toward recovery goals.[8-11] Research suggests that CM stimulates the dopamine-activated reward pathway, similar to substances such as drugs, alcohol, and tobacco.[12] The brain's reward pathway is strongly influenced by reinforcement, which is one of the main contributors to addiction.[12,13] Contingency management leverages this mechanism by providing positive reinforcements for drug abstinence, stimulating the brain's reward pathway and making the decision to abstain from drug use easier and more habitual.[12,13]

Key Questions

KQ1. What is the clinical effectiveness of CM for individuals with stimulant use disorder?

KQ2. What are the harms of CM for individuals with stimulant use disorder?

KQ3. What are the results of relevant cost-analysis studies related to implementing CM for individuals with stimulant use disorder?

KQ4. What are the clinical practice guidelines for CM for individuals with stimulant use disorder?

KQ5. What are the relevant Medicaid program coverage policies and health plan policies on CM use in individuals with substance use disorder?

Methods

Researchers from the Center for Evidence-based Policy (Center) searched Ovid MEDLINE and other clinical evidence sources for randomized controlled trials (RCTs), cost and cost-effectiveness studies, and clinical practice guidelines. Inclusion and exclusion decisions were made by consensus of dual screeners, with additional dual screening of risk of bias assessment.

Accuracy of data abstracted from included clinical studies was verified by a second researcher. We applied the Grading of Recommendations, Assessment, Development, and Evaluations (GRADE) approach to rate the certainty of evidence for each primary and secondary outcome from the data we abstracted from trials that compared CM with standard treatment or no treatment for stimulant use disorder. To identify relevant coverage policies, we searched 10 state Medicaid program websites, 8 health plan websites, and the Centers for Medicare & Medicaid Services (CMS) for local and national coverage determinations of CM for stimulant use disorder, supplemented with a review of all Medicaid Section 1115 Substance Use Disorder Demonstration waivers for references to CM.

Summary of Clinical Evidence and Recommendations

We identified 17 publications from 17 eligible trials with effectiveness outcomes and 6 relevant ongoing trials. Studies varied widely in design and reported outcomes, using different definitions of abstinence and retention, as well as various measurement scales (e.g., days, weeks, sessions, urine tests). Table 1 presents a summary of effectiveness outcomes from RCTs with sufficient similarity for comparison across different outcomes (Appendix Table E2 provides additional information on the GRADE rating system). Certainty of evidence was generally low across most outcome measures, primarily due to a high risk of bias in individual studies and differences in study design, populations, and methods for handling missing data.

While abstinence and retention were the primary outcomes in most studies included in this review, RCTs reported these outcomes inconsistently, making comparisons across studies difficult. In an attempt to assess the effect of CM on abstinence and retention, the Center carried out meta-analyses on the subset of studies for which effect sizes could be standardized to a common metric for comparison. Four RCTs were included in a random-effects meta-analysis comparing the duration of abstinence during the CM intervention period with a psychosocial control.[14-17] To account for variation in measurement scales (e.g., number of negative samples, days or weeks without a positive sample) and intervention duration, effect sizes from different trials were converted into standardized mean differences (SMDs). Standardized mean difference allows for pooling of data from studies that assess the same outcome (such as longest duration of abstinence) but measure it in different ways (such as mean number of samples or mean number of weeks). The analysis identified a medium effect in favor of CM (SMD = 0.57, 95% CI, 0.39 to 0.75). When the meta-analysis was restricted to the 3 RCTs that used a CM design contingent on abstinence rather than attendance, the effect size increased slightly but remained in the moderate range (SMD = 0.65, 95% CI, 0.44 to 0.87).[14,15,17] In 3 RCTs that reported urinalysis results during follow-up periods ranging from 9 months to 12 months after randomization, none found evidence of a persistent effect on abstinence beyond the end of the intervention.[15,17,18] Six RCTs were included in a meta-analysis assessing the effect of CM on treatment retention, with a medium effect (SMD = 0.67, 95% CI, 0.40 to 0.95) in favor of CM.[14-17,19,20]

Table 1. Summary of Findings (GRADE) for Effectiveness of CM

Outcome No. of Studies Participant N	CoE	Relationship	Rationale for CoE Rating
Duration of abstinence for CM intervention with an abstinence or treatment attendance contingency compared to psychosocial control 4 RCTs[14-17] N = 494	●●○○ Low	Medium effect size in favor of CM. Pooled SMD = 0.57 (95% CI, 0.39 to 0.75).	Downgraded for high risk of bias (-1) and differences between study designs and populations (-1 for indirectness).
Duration of abstinence for CM interventions with an abstinence contingency compared to psychosocial control 3 RCTs[14,15,17] N = 353	●●●○ Moderate	Medium effect size in favor of CM. Pooled SMD = 0.65 (95% CI, 0.44 to 0.87).	Downgraded for moderate to high risk of bias in contributing studies (-1). No further downgrade for differences in study design or handling of missing data, because studies contributing the majority of observations were similar in these aspects.
Abstinence at longest follow-up 3 RCTs, 4 study arms[15,17,18] N = 508	●●○○ Low	An odds ratio of 0.89 (95% CI, 0.62 to 1.27) indicated no persistent effect of CM on abstinence beyond the end of the intervention (9 to 12 months post-randomization).	Downgraded for high risk of bias (-1) and limitations in how missing data were handled that could lead to serious imprecision.
Treatment retention 6 RCTs[14-17,19,20] N = 740	●●○○ Low	Medium effect size in favor of CM in MA that pooled effects of 6 studies comparing CM contingent on abstinence to a psychosocial control. SMD = 0.67 (95% CI, 0.40 to 0.95) but heterogeneity was high (I^2 = 68%). Of 6 RCTs, 5 found an effect in favor of CM, while 1 found no difference between CM and control.	Downgraded for high risk of bias (-1) and differences in populations and study designs that led to serious indirectness (-1).

Abbreviations. CI: confidence interval; CM: contingency management; CoE: certainty of evidence; MA: meta-analysis; No.: number; SMD: standardized mean difference.

Ongoing Trials

We identified 5 ongoing trials, all being conducted in the US, that met the inclusion criteria for this review. None have posted or published results, and all are estimated to be completed between 2025 and 2026. Of these, 2 trials from DynamiCare are exploring the use of a mobile application to monitor substance use and provide CM on escalating and de-escalating schedules.

The remaining 3 trials compared different CM interventions. Additionally, 1 trial in Canada compares usual care to an undefined variety of CM.

Harms of CM

The most commonly discussed harms related to CM include gambling relapse triggered by the prize-based nature of CM intervention, interpersonal conflict related to disappointment or jealousy over prize amounts (particularly in fishbowl draws), and selling of incentives. Of the 17 RCTs included in evidence review, only 6 reported on CM-related adverse events, and none reported any study-related adverse events.

Cost and Cost-Effectiveness

Across the 17 RCTs included in this evidence review, only 8 studies reported both the maximum amount earnable for the CM condition(s) and the mean amount earned by participants.[17,19-26] On average, participants earned only 39% of the available rewards. Estimating maximum reward costs per participant was challenging due to the extensive use of fishbowl CM designs, which introduced uncertainty about the maximum value of rewards available to the average participant, even if they met every contingency goal.

We identified 1 systematic review of cost-effectiveness analysis for CM and 1 individual cost-effectiveness analysis published after the systematic review. The systematic review included 9 published studies, all conducted in the US.[27] None of the studies included economic decision analysis models, and 6 took a narrow perspective, focusing only on costs to the drug clinic.[27] Differences in the targets, incentives, and CM implementation methods, both within and across studies, prohibited direct comparison of incremental cost-effectiveness ratios (ICERs) across studies and limited the generalizability of cost-effectiveness estimates beyond the settings and populations of each individual study.[27] The individual RCT accounted for some additional health care-related costs beyond direct intervention costs, including (non-study) outpatient mental health and chemical-dependency visits, as well as inpatient psychiatric and substance abuse treatment days.[28] However, variability in costs and wide confidence intervals led to low certainty of evidence related to the cost-effectiveness of the CM intervention.[28]

Clinical Practice Recommendations

We identified 4 clinical practice guidelines, 2 of which were published in the US. The American Society of Addiction Medicine (ASAM) and the American Academy of Addiction Psychiatry (AAAP) published joint national practice guidelines in 2023, identifying CM as the current standard of care for treating stimulant use disorders in adults.[11] ASAM guidelines recommend using CM for adolescents when it is applied in a developmentally appropriate manner and considering CM to incentivize attendance among pregnant and postpartum women with stimulant use disorder, despite acknowledging mixed evidence on its effectiveness.[11]

A 2021 clinical practice guideline from the US Department of Veterans Affairs (VA) and US Department of Defense strongly recommends using CM, alongside other evidence-based interventions, for treating cocaine use disorder. However, it provides only weak recommendations for using CM to treat amphetamine and methamphetamine use disorders.[29] The guideline summary advises that CM is most effective when the contingent condition is abstinence monitored by urine drug screen, when higher-value incentives are used, and when a

longer intervention time frame is used, although the optimal values and duration are not specified.[21]

Key Policy Findings

We did not identify any health plans with coverage policies for CM for stimulant use disorder. Of the 10 state Medicaid programs we routinely search for in Evidence Based Benefit Review Advisory Committee reports, we identified 2 state Medicaid programs, California[30,31] and Washington,[32] that have approved section 1115a substance use disorder waivers that include CM programs. To expand our results, we reviewed all state 1115a substance use disorder waivers for references to CM and identified an additional 3 states with approved applications for CM (Delaware,[33] Hawaii,[34] and Montana[35]), 2 states with pending applications (Michigan[36] and Rhode Island[37]), and 1 state with a rejected application for coverage of CM (West Virginia[38]).

Conclusions

Recommendations from ASAM, the AAAP, the US Department of VA, and the Substance Abuse and Mental Health Services Administration recognize CM as an evidence-based treatment method for stimulant use disorder, particularly cocaine use disorder.[11,29,39] While the clinical studies included in this evidence review varied significantly in design, CM duration, type, contingency, and value, we found an overall effect in favor of CM during the treatment period. However, this effect did not persist at the longest follow-up (9 to 12 months after the end of the intervention). Few studies acknowledged or measured potential risks associated with CM for treating stimulant use disorder. Differences in targets, incentives, and implementation methods for CM limit the ability to construct generalizable cost-effectiveness estimates. Most existing cost-effectiveness studies lacked economic decision analysis models and took a narrow perspective that focused solely on drug clinic costs. We did not identify any health plans with coverage policies for CM for stimulant use disorder. All of the policies we identified were in state Medicaid programs and authorized as part of 1115 demonstration projects. Despite differences in the populations targeted, CM program lengths, and financial incentive structures, much of the policy language was similar, suggesting that CMS has developed standardized protocols for Medicaid CM programs.

Background

Description of the Condition

Psychostimulants are a class of drugs that act on the brain's reward system by altering the activity of neurotransmitters, including dopamine, norepinephrine, and serotonin.[1] They are prescribed to treat attention deficit hyperactivity disorder, narcolepsy, and treatment-resistant depression, and may also be used in diet aids.[40] Psychostimulant abuse can derive from the misuse of prescription drugs or use of illicit drugs, such as cocaine and methamphetamine.[40] As drugs of abuse, stimulants can create a sense of exhilaration, reduce appetite, and prolong wakefulness.[40] Methamphetamine acts as an agonist of noradrenaline, dopamine, and serotonin receptors, while cocaine creates its euphoric effect by inhibiting dopamine reuptake and increasing dopamine receptor activation.[2] Chronic stimulant use can result in agitation, hostility, panic, suicidal thoughts, paranoia, and hallucinations.[40]

Diagnosis of stimulant use disorder is based on criteria established in the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5), as well as information derived from patient history, urine toxicology screening, and clinical observation.[1] To be diagnosed, a patient must meet at least 2 of the 11 DSM-5 criteria, which include an inability to reduce stimulant use despite wanting to, cravings to use a stimulant, continued stimulant use despite relationship problems, and needing increasing stimulant amounts to achieve the desired effect.[41] Stimulant use disorder often co-occurs with mental health conditions, such as bipolar disorder, borderline personality disorder, and attention deficit hyperactivity disorder.[1] Co-use of opioids is also common.[2] Misuse of stimulants is associated with a range of cardiovascular issues, adverse psychological and neurological effects, and increased infection risk.[3] Stimulant use disorder is also associated with a heightened risk of human immunodeficiency virus (HIV), hepatitis B, and hepatitis C, through both increased likelihood of risky sexual behaviors and the reuse or sharing of needles and other drug paraphernalia.[3]

Unlike opioid use disorder, which can be treated with US Food and Drug Administration (FDA)-approved medications like methadone and buprenorphine, there are currently no FDA-approved medications to treat stimulant use disorders or suppress the intense cravings associated with cocaine and methamphetamine addiction.[4] Disulfiram, a drug used to treat problem drinking, has been tested as a medication for treatment of cocaine use disorder. However, a Cochrane review by Traccis and colleagues (2024) included 13 RCTs and concluded that disulfiram had little or no effect on the frequency or amount of cocaine use, continued abstinence, or treatment dropout.[42] Other drugs alone or in combination have been trialed for treatment of methamphetamine use disorder, although studies have been limited by small sample sizes, restricted populations, and low treatment retention and completion rates.[43-46] Existing evidence-based treatment relies solely on behavioral interventions,[4] including contingency management (CM; providing stimulant users with rewards for meeting goals), community reinforcement programs (a multipronged approach that incorporates functional analysis with coping skills training and other reinforcements), 12-step programs (guided self-help recovery from addiction), and cognitive behavioral therapy (CBT).[5]

Prevalence of Stimulant Abuse Disorder in New York State

In the 2021–2022 National Survey on Drug Use and Health, an estimated 364,000 New Yorkers aged 18 and older reported using cocaine in the past year and 83,000 reported using methamphetamine.[47] An analysis of 2021 substance use disorder treatment admissions to programs certified by the New York State Office of Addiction Services and Supports showed that 2.5% of adults in New York reported past-year cocaine use, exceeding the national average of 1.9%. In contrast, past-year methamphetamine use among adults was lower than the national average (0.6% compared to 1.0%).[48]

The 2024 Addiction Data Bulletin from the New York State Office of Addiction Services and Supports estimates a statewide rate of 3.3 deaths from psychostimulant overdose per 100,000 residents.[48] The highest rates of psychostimulant-involved drug overdose deaths occurred in counties clustered along or near the New York-Pennsylvania border: Chautauqua (22.9 deaths per 100,000 residents), Broome (22.8), Chemung (13.2), Steuben (12.9), and Tompkins (11.4).[48]

Description of Intervention

CM is a psychosocial intervention that uses positive reinforcements to elicit behavior change, such as abstinence from substance use or treatment attendance.[8-11] CM is based on operant conditioning principles and offers motivational incentives (monetary and nonmonetary rewards) to encourage specific behavioral goals.[49-51] Research indicates that CM stimulates the dopamine-activated reward pathway in the brain in a manner similar to substances such as drugs, alcohol, and tobacco.[12] The brain's reward pathway is strongly influenced by reinforcement, which is one of the main contributors to addiction.[12,13] CM leverages this mechanism by providing positive reinforcements for drug abstinence, stimulating the brain's reward pathway and making the decision to abstain from drug use easier and more habitual.[12,13] CM has been used to reinforce behaviors such as substance abstinence, treatment attendance, and medication adherence for opioid, stimulant, tobacco, cannabis, and alcohol use disorders.[5,8,11,12,49,51-78]

CM interventions are highly structured and follow a protocol based on core behavioral principles associated with efficacy: reward magnitude, immediacy of reward delivery, frequency of reward opportunities, and an escalating reward schedule.[69] The "fishbowl method" is one of the most well-known and widely used methods of CM.[8,53,54] In this method, participants with a negative toxicology screen (e.g., urine drug test) draw a token from a fishbowl for a chance of winning a prize equal to the value of the token, generally ranging from "good job," "small," "large," or "jumbo" (e.g., $0, $1, $20, $100).[8,51,53,54] CM can also be conducted using the voucher method, where patients earn vouchers redeemable for retail items,[12,55,79] or the point-and-level system, in which participants accumulate points based on their daily behavior or completed activities, with points corresponding to certain reward levels. Providing reinforcement as soon as possible following objective confirmation of drug abstinence, and linking abstinence to escalating prize earnings are associated with better outcomes in CM.[57,73,80-82] The following sections describe CM as an intervention for individuals with substance use disorder and address these contextual questions (CQs):

- CQ1: How does CM contribute to the management of individuals with substance use disorder? What are considerations for patient selection, monitoring, and follow-up for CM?

- CQ2: What is the federal guidance for implementing CM for individuals with substance use disorder?
- CQ3: What are the published findings from evaluations of state Medicaid programs' implementation of CM for individuals with substance use disorder?
- CQ4: What are the health equity considerations for providing CM to individuals with substance use disorder?
- CQ5: What are the challenges or barriers to implementation of CM?

CQ1. Place of CM in Substance Use Disorder Care Pathway and Population Considerations

CM can be implemented alone or in combination with other therapeutic interventions and pharmacotherapy.[49,83] It can be combined with other psychosocial interventions (which address psychological, social, and environmental factors that contribute to addiction) and behavioral therapies, such as counseling, the community reinforcement approach, and CBT.[11,84] According to 2024 guidance from the American Society of Addiction Medicine (ASAM) and the American Academy of Addiction Psychiatry (AAAP), CM is the current standard of care for treating stimulant use disorders.[11] ASAM and AAAP recommend that CM serve as the primary component of a stimulant use disorder treatment plan in conjunction with other psychosocial treatments.[11] This recommendation aligns with the 2021 and 2015 Veterans Affairs (VA) and Department of Defense clinical practice guideline recommendations for stimulant use disorder treatment.[29,84] Furthermore, ASAM and AAAP recommend that clinicians consider using CM to incentivize prenatal appointment attendance among pregnant clients with stimulant use disorder, if feasible.[11]

A review of outpatient behavioral treatments for adolescent substance use found that multicomponent interventions incorporating CM as an adjunct to other psychotherapies are likely more effective than single-therapeutic interventions.[85] For example, youth with cannabis use disorder demonstrated a larger reduction in cannabis use when receiving CM in combination with other services, such as family engagement or multisystemic therapy, compared with youth receiving standard substance use disorder treatment services, such as drug treatment court programs, or usual outpatient care in the community.[53,86-93] Similarly, a meta-analysis of 2,340 participants with opioid use disorder (OUD) found that CM, both alone and combined with CBT, produced better OUD-related outcomes than other interventions such as relapse prevention.[10,51]

CQ2. Legal Considerations and Federal Guidance

Historically, state Medicaid programs have not included CM due to severe restrictions imposed by federal and state laws.[50] Under federal statute 42 USC §1320a−7b(b) (Anti-Kickback Statute) and 42 USC §1320a−7b(a)(a)(5) (civil monetary penalty; CMP), incentives such as those provided in CM were considered kickbacks or inducements if they exceeded nominal monetary values.[50,78,94-98] The Department of Health and Human Services Office of the Inspector General (HHS OIG) set annual limits on incentives to Medicare and Medicaid beneficiaries at a maximum monetary value of $75.[50,99,100] States have enacted similar laws limiting the annual monetary incentive amounts available through state-funded health insurance plans.[50] These laws are intended to prevent fraud, waste, and abuse in state and federally funded health insurance

programs while penalizing providers who attempt to induce patients into unnecessary services or direct them toward a specific treatment program or health insurance plan.[50] In a 2020 ruling, the HHS OIG clarified that "inexpensive gifts of nominal value" were interpreted to mean no more than $15 per item or $75 in aggregate; however, "gifts that implicate the Beneficiary Inducements CMP [civil monetary penalty] that exceed these dollar limits are not prohibited but are analyzed on a case-by-case basis for compliance under the statute."[101] The OIG further clarified that there is no OIG-imposed $75 limit on CM incentives.[101] In 2022, the OIG responded to an advisory opinion request from DynamiCare Health, a health technology company, regarding its smartphone and smart debit card technology for CM. The OIG concluded that the arrangement between DynamiCare Health, its customers (i.e., health care providers and suppliers), and members (i.e., patients) posed a minimal risk of fraud and abuse under the federal Anti-Kickback Statute and Beneficiary Inducements CMP. Therefore, the OIG decided not to impose sanctions under the Beneficiary Inducements CMP.[102] Among the reasons the OIG provided for their decision[102] were the evidence-based nature of the CM program, the use of a smart debit card with built-in antirelapse protections (i.e., funds cannot also be converted to cash at ATMs or gas stations), and the lack of direct relationship between DynamiCare's revenue and the volume or value of federally reimbursable services. In a 2023 report to Congress, the HHS Workgroup on Implementation Strategies for Contingency Management identified uncertainty around the application of the federal Anti-Kickback Statute and Beneficiary Inducements CMP as a barrier to the use of CM.[78] The workgroup recommended that federal agencies and other funders adjust their funding limits to allow higher-value incentives for CM programs.[78]

In guidance issued in January 2025, the Substance Abuse and Mental Health Services Administration (SAMHSA) clarified its position on using SAMHSA funds to implement CM.[39] Recognizing the evidence-based nature of CM for treating substance use disorders, SAMHSA now allows recipients of a SAMHSA grant that authorizes SAMHSA-approved CM activities to provide motivational incentives of up to $750 per patient per year.[39] However, not all SAMHSA grants allow for CM services, and the advisory does not authorize or permit new CM activities unless confirmed by a grant's Project Officer.[39] To mitigate the risk of fraud or abuse, SAMHSA requires grant recipients to comply with the following requirements and safeguards[39]:

- Implement an evidence-based protocol for delivering CM (either prize-based or voucher-based) for individuals ≥18 years of age with a minimum duration of 12 weeks that is consistent with the needs of the target population.
- Provide incentives immediately following verification that the incentivized behavior is achieved.
- For CM interventions that use abstinence as an incentivized behavior, conduct rapid point-of-care drug testing in-person using an FDA-approved test to verify the behavior.
- For CM interventions that use treatment attendance as an incentivized behavior, services may be delivered via telemedicine and other related evidence-based technological interventions (e.g., quitlines).
- Ensure that a health care practitioner authorized to provide substance use disorder treatment services in their state conducts the assessment and provision of incentives. While peer specialists are recognized as important members of the care team, they are not permitted to deliver CM.

- Maintain fidelity to evidence-based practice by requiring all individuals who implement, administer, and supervise CM interventions to complete CM-specific training prior to services starting. Training must be provided by an advanced degree-holder with experience in evidence-based CM implementation.
- Ensure grantees adhere to prescribed rules governing the maintenance of written documentation, clinician referrals, CM incentive restrictions, CM marketing, repeat courses of CM, and readiness attestations that must be provided to Project Officers.

SAMHSA rules specifically prohibit the use of cash, unrestricted cash equivalents, parenting time, and enhanced or expedited access to substance abuse disorder treatment or recovery support services as incentives.[39] The advisory notes that eligible grantees may supplement the $750 per patient per year amount with funding from other nonfederal sources.[39]

CQ3. Implementation Approaches

Veterans Affairs

The first large-scale implementation of CM in a real-world setting was carried out by the Veterans Health Administration (VHA).[66] In 2011, the VHA launched an initiative to expand patient access to CM for treating substance use disorders across all intensive outpatient treatment settings.[57,66] The initiative included seed funding for CM costs and regional trainings for VHA providers.[70] The VHA also encouraged programs to include individuals who used or misused stimulants in their CM protocols, as there is no accepted pharmacotherapy for stimulant use disorder. The VHA guidance advised that implementation of CM interventions was more straightforward when they focused on a single drug misusing population and target abstinence from a single substance.[66] From June 2011 through December 2015, the VHA implemented CM at 94 sites, reaching 2,060 patients and significantly expanding access to CM within the VHA system.[57,66]

Coughlin and colleagues used the VHA electronic health record to determine the treatment course (e.g., number of visits, duration of treatment) and characteristics of patients receiving CM for substance use disorders from January 2018 to September 2022.[103] During this time period, 2,844 patients received CM; for reference, 154,815 patients had a visit with a stimulant use disorder diagnosis during the same period.[103] Almost all of the patients who received CM had been diagnosed with more than 1 substance use disorder (97.5%), including stimulant use disorder (84.0%), alcohol use disorder (74.1%), tobacco use disorder (65.9%), and opioid use disorder (33.5%).[103] Patients attended a median of 8 CM sessions, with a median of 4 days between each session and median duration of CM services of 45 days.[103] When patients who attended only 1 CM session were removed, the median number of sessions attended was 10 and the median duration of CM services was 58 days.[103] Contingency management visits took place at 120 sites in 90 Veterans Affairs Health Care Systems.[103]

The standard CM protocol used to train VHA providers involved a 12-week treatment program. It consisted of rapid, onsite stimulant testing twice weekly and provided a structured system of increasing prize incentives for each stimulant-negative sample.[57,66] Twice weekly testing schedules were recommended as they aligned with most clinical treatment schedules and the 48 to 96-hour detection window for urine toxicology screening of stimulant use.[57] The CM protocol used the fishbowl method of incentive delivery, offering incentives of varying magnitudes.[57]

The prize bowl contained 500 prize slips, half of which had written praise (e.g., "good job!"); 209 were small value ($1), 40 were large value ($20), and 1 slip was a jumbo prize ($100).[103]

Staff participation in coaching and maintaining fidelity to the CM protocol was key to the success of the VHA initiative.[57,70] Several elements of the initiative were designed to encourage fidelity, including a standardized protocol with supporting documents, participation in coaching with a subject matter expert (4 meetings in the first 6 months, then biannual meetings), submission of implementation forms at each coaching meeting, centralized disbursement of incentives for patients, and use of a CM note template in the electronic health record.[103] Flexibility also contributed to success.[57] Programs could either implement the standard CM protocol within their existing clinical structure or modify certain aspects, such as intervention duration, testing frequency, maximum number of prize draws, or prize types.[57] Programs could also choose to prioritize drug abstinence or treatment attendance as the target behavior.[70] In 2018, the VHA started providing incentives for adherence to medications for opioid use disorder and alcohol use disorder.[103] Additional factors that have contributed to the success of the VHA CM program include a Department of Veterans Affairs (VA) and Department of Defense clinical practice guideline supporting CM for stimulant use disorder and VA leadership supporting CM implementation.[103] The VHA is currently focused on ways to deliver CM remotely.[103]

State Implementation

Some states have begun covering CM in their Medicaid programs, most notably for treating stimulant use disorder (California, Montana, Washington).[32,104,105] California and Washington are implementing CM programs of 24-weeks duration, while Montana's CM benefit is a 12-week program.[32,104,105] States are largely using the voucher method of CM, delivering low-denomination electronic gift cards to beneficiaries upon confirmation of a negative urine drug test.[32,104,105] States are integrating their CM benefit into outpatient settings alongside substance use disorder treatment services already covered by their Medicaid programs.[32,104,105]

California

In 2023, California became the first state to cover CM as a Medicaid benefit and evaluate the effectiveness of the treatment at scale.[106,107] California implemented Medi-Cal coverage of CM services through their California Advancing and Innovating Medi-Cal (CalAIM) 1115 Demonstration in 24 Drug Medi-Cal Organized Delivery System pilot counties covering 88% of the state's Medicaid population.[105-108] The Recovery Incentives Program, launched in the first quarter of 2023, is available to Medi-Cal members living with stimulant use disorder in participating counties in outpatient, intensive outpatient, narcotic or opioid treatment programs, and partial hospitalization settings.[107-109] The pilot period was slated to end in March 2024, but the California Department of Health Care Services decided to extend it through at least the duration of the CalAIM 1115 Demonstration period, ending December 31, 2026.[108,110] At least 15,000 individuals are expected to be treated in the Recovery Incentives program over the implementation period.[111]

Implementation of the Recovery Incentives Program has been led by the University of California, Los Angeles Integrated Substance Use and Addiction Programs, with additional consultation from subject matter experts.[111]

Requirements for eligible sites include[111]:

- Obtain a Clinical Laboratory Improvement Amendments (CLIA) Certificate of Waiver from Centers for Medicare & Medicaid Services (CMS) and State Lab Registration from the California Department of Public Health to allow for use of point-of-care urine testing
- Identify existing staff or hire new staff to fill the CM Team roles of CM supervisor, CM coordinator, and back-up CM coordinator
- Complete CM Overview and 2-part Implementation Training
- Complete Readiness Assessment consisting of a self-study questionnaire, practice cases, and an interview with the University of California, Los Angeles Training and Implementation Team

Between February 2023 and January 31, 2024, a total of 505 and 468 staff members (CM Team members, other site staff, and county staff involved in overseeing the Recovery Incentives Program) attended parts 1 and 2, respectively, of the required implementation trainings.[111] As of January 31, 2024, a total of 99 Readiness Assessment self-studies had been issued, and 76 Readiness Assessment interviews were conducted.[111] Common reasons for delay in completing the Readiness Assessment self-study or initiating services once the Readiness Assessment interview had been completed included wait for CLIA or State Lab certification and difficulty procuring drug testing supplies.[111] As of January 31, 2024, 70 sites had been approved to provide CM services.[111]

The Recovery Incentives Program uses a single research-based protocol for all participating sites, which is designed to ensure that the Recovery Incentives program is implemented with fidelity and in compliance with HHS OIG guidance.[111] In the Recovery Incentives Program, eligible Medi-Cal members participate in a structured 24-week outpatient program, followed by at least 6 months of additional recovery support services.[107,108] Participants meet with a trained CM coordinator twice weekly for the first 12 weeks of the program, then weekly from weeks 13 to 24, to complete a drug test.[108] Participants receive an incentive each time they test negative for stimulants, verified by point-of-care urine drug testing (UDT), and can earn up to $599 per year.[108,109,112] Incentives are distributed as low-denomination gift cards via a web-based and mobile incentives manager.[113] The Recovery Incentives Program is intended to complement substance use disorder treatment services and other evidence-based practices for stimulant use disorder already offered by Drug Medi-Cal Organized Delivery System providers, such as CBT and motivational interviewing. These services meet the definition of rehabilitative services as defined by 1905(a) of the Social Security Act and CFR 440.130(d).[106,110]

A preliminary evaluation by the University of California, Los Angeles reported training, technical assistance, and implementation lessons learned during the early stages of the pilot from February to June 2023.[109] The report focused on the first 4 months of program implementation, which consisted primarily of training and readiness activities.[109] As of June 16, 2023, the pilot had enrolled 156 beneficiaries, representing 0.29% of Medi-Cal beneficiaries receiving treatment for stimulant use disorder statewide, and 0.32% of eligible beneficiaries in the 24 counties participating in the pilot.[109] A report describing the implementation activities during the first 10 months of the Recovery Incentives Program was published in September 2024.[111] From April 1, 2023 through January 31, 2024, the Recovery Incentives Program enrolled

1,649 individuals.[111] Staff implementing the Recovery Incentives Program reported challenges in several key areas, including eligibility requirements, enrollment (e.g., difficulty recruiting participants from outside of the clinic), logistical challenges of scheduling and incentive delivery (e.g., adjusting testing schedules during holidays, stores not honoring gift card incentives), and staffing.[109] Feedback during coaching calls conducted by the University of California, Los Angeles Integrated Substance Use and Addiction Programs Implementation Team (CM Team members are required to attend 1 coaching call each month) was positive, with CM staff indicating excitement about the program and the progress seen in participating clients.[111]

Washington

In July 2023, Washington state's 1115 waiver request was approved by CMS, allowing the state Health Care Authority to pilot a CM benefit for Apple Health (Medicaid program in Washington state) beneficiaries.[32,114] Washington is piloting the CM benefit in 2 projects: the Opioid Treatment Network Hub and Spokes (5 counties), and the State Opioid Response Opioid Treatment Network (23 sites).[114]

Washington's CM benefit consists of a structured 24-week outpatient program in which beneficiaries receive motivational incentives for meeting the target behavior of substance abstinence, verified through point-of-care testing, in addition to other substance use disorder treatment services already offered by Apple Health.[32] Weeks 1 through 12 of CM treatment serve as the education, reset, and recovery period, during which beneficiaries are asked to visit the treatment setting at least twice per week.[32] Weeks 13 through 24 serve as the maintenance period, during which beneficiaries are asked to visit the treatment setting for testing at least once per week.[32] Incentives start at $10 for the first negative urine sample and increase by $2 each week.[32] The maximum total motivational incentive a beneficiary can receive is $528 during the initial 12-week period and $564 during the maintenance period.[32] Incentives are computed and delivered electronically via a web-based program.[32]

For the purposes of the CM pilot, the motivational incentives are considered a Medicaid-covered item or service and are used to reinforce objectively verified recovery behaviors using a clinically appropriate CM protocol consistent with evidence-based research.[32] As such, neither the federal Anti-Kickback Statute (42 U.S.C. § 1320a-7b(b)) nor the CMP provision prohibiting inducements to beneficiaries (42 U.S.C. 1320a-7a(a)(5)) are implicated.[32] As of March 12, 2025, no program evaluation or assessment is publicly available.

Montana

In 2024, CMS approved Montana's 1115 demonstration, Healing and Ending Addiction through Recovery and Treatment (HEART), which provides expenditure authority for CM services to state Medicaid beneficiaries diagnosed with a stimulant use disorder.[104] Similar to the CM benefits offered by California and Washington, Montana's CM benefit will be offered alongside other therapeutic interventions.[104] Montana's CM benefit includes a 12-week program in which participating beneficiaries receive incentive payments, per an established schedule, for testing negative for identified stimulants.[104] Participants will be asked to visit the treatment setting in-person for a minimum of 2 visits per week.[104] Motivational incentives, provided as an electronic gift cards, start at $12 for the first negative urine drug test and increase by $2 each subsequent week.[104] The maximum annual incentive a participant can receive is $596.[104] As CM is not

treated as a hypothetical expenditure for budget neutrality, the state will finance the CM benefit with savings from Montana's other 1115 demonstration, the Waiver for Additional Services and Populations demonstration.[104] Montana will evaluate the overall impact of the CM program, including cost-effectiveness and its effects on beneficiary health and recovery outcomes.[104]

Montana's prior experience piloting a CM treatment model likely informed the structure of the model proposed in the state's 1115 waiver.[115] Previously, the Behavioral Health and Developmental Disabilities Division of the Montana Department of Public Health and Human Services used State Opioid Response grant funding to develop and pilot the Treatment for Individuals who Use Stimulants (TRUST) model.[115] The CM protocol, developed in 2018, included twice weekly visits for 12 weeks, with an escalating schedule of gift card incentives contingent on stimulant-negative urine samples.[115] TRUST was a multicomponent treatment program incorporating exercise, group therapy, and individual therapy, with content guided by CBT and the Community Reinforcement Approach.[115] In addition to State Opioid Response funds, the Behavioral Health and Developmental Disabilities Division used state alcohol excise tax dollars to fund CM incentives.[115] Seven sites were included in the TRUST pilot and a total of 70 clients participated in the program.[115] A published evaluation of the program focused on staff impressions of initial implementation but did not report on client health and recovery outcomes or cost-effectiveness.[115] Interviews with staff highlighted the value of integrated technical assistance, as well as concerns about staff retention and loss of expertise.[115]

CQ4. Ethical Considerations

Experts emphasize that CM should only be implemented in environments where enhanced drug testing would not result in punitive consequences.[66] For example, patients under legal supervision whose urinalysis results are shared with legal authorities may face penalties if their CM samples test positive.[66] Similarly, some residential treatment programs enforce no-tolerance policies on substance use,[66] meaning individuals in these programs who participate in CM could lose their housing if their urine samples test positive.[66] Further research is needed to determine if CM can be used for justice-involved patients and those in residential treatment programs without exposing them to penalties.[66]

Critics argue that CM frames substance use as an individual choice, overlooking the social, physical, economic, and policy factors that contribute to addiction.[116] In focus groups and interviews, community treatment providers expressed concerns about the exchange-based treatment model in CM and its potential impact on the therapeutic relationship.[116-118] Providers often felt that CM distilled the goal of treatment to a narrow focus on abstinence, reinforced the power imbalance between patient and provider, and could exacerbate shame and stigma in patients.[116-118] In interviews, some providers expressed worry that the offer of cash or cash-alternatives (vouchers) could coerce financially vulnerable individuals into attending treatment sessions for the wrong reasons.[117] Providers also emphasized equity issues, noting that patients with transportation or work-related challenges are often unable to participate in CM programs due to the frequent clinic visits required for testing.[117]

CQ5. Implementation Challenges

The limited adoption of CM is one of the most pronounced research-to-practice gaps in the substance use treatment field.[119] State Medicaid programs may wish to employ multilevel

strategies to address provider-level and organizational-level challenges to CM implementation.[119] In a review of lessons learned implementing CM in real-world practice settings, Becker and colleagues (2023) suggest implementation science approaches to addressing barriers to implementation at both the counselor and organization levels, detail the need for ongoing training and support to achieve successful implementation, and suggest plans for dealing with high staff turnover rates to increase the likelihood that CM can be implemented and sustained in a manner that improves the quality of care in substance abuse treatment programs.[119]

Provider Understanding and Perceptions of CM

Substance use disorder treatment providers are often unfamiliar with CM.[119,120] In a study of 43 opioid treatment providers, Becker and colleagues (2023) found that less than half defined CM correctly, and a similar percentage did not associate incentives with achieving treatment goals.[83] Some providers may philosophically object to the idea of providing clients with incentives for meeting specific CM goals, such as abstinence or treatment attendance, particularly when they fail to meet other treatment goals.[119-123] In interviews and surveys, some providers also expressed discomfort with their role in determining who qualified for a prize, whether a draw from the fishbowl or a voucher.[116,118] Providers expressed ethical concerns about what they described as the deceptive nature of fishbowl CM, which is designed to make clients think they will win large sums of money or high-value prizes if they succeed in meeting abstinence or treatment plan goals when, in reality, the probability of large rewards is extremely low.[118] As a result, treatment providers must then help clients manage their disappointment and minimize potential harms, rather than concentrating on supporting clients through their recovery journey.[116,118,121]

Organizational Capacity

Organizational-level barriers, such as insufficient funding for incentives, limited time for training, and the absence of an integrated system for documenting and tracking CM progress are substantial barriers for organizations implementing CM.[119,124-127] In a 1-year study of 60 opioid treatment programs, Becker and colleagues found that counselors who did not implement CM reported organizational-level barriers more often than counselor- or patient-level barriers.[119,120] One important factor in the VA's successful implementation of CM was the commitment from VA leadership to endorse and fund high-fidelity implementation.[66,119] For example, VA leadership provided financial support by providing vouchers for the VA's canteen.[119] Efforts to implement CM in opioid treatment programs and other outpatient substance use disorder treatment settings continue to face contextual barriers, including a lack of leadership commitment, insufficient funding and time for training, and lack of integrated medical records.[119,122,128,129]

It is important to assess an organization's implementation capacity prior to initiating efforts to implement CM.[119] Several readiness assessment tools are available, with the Texas Christian University Organizational Readiness for Change being particularly relevant to the substance use disorder field.[119,130] The Organizational Readiness for Change includes 115 items across 18 dimensions and assesses constructs such as organizational motivation for change, institutional resources, staff personality attributes, and organizational climate.[119,130] Additional measures also assess staff perceptions of an organization's readiness to implement a new innovation.[119,131]

Provider Training

Training providers in CM using low-touch methods, such as webinars, workshops, or seminars is insufficient for sustaining CM implementation.[119] A "one-shot" approach, or a single training session, even when incorporating state-of-the-art approaches (e.g., active learning, behavioral rehearsal) is also unlikely to produce meaningful and lasting change.[119] The New England Addiction Technology Transfer Center has identified key lessons from nearly a decade of research in this area.[119] In a 52-week quasi-experimental study comparing the effectiveness of a didactic workshop to a multicomponent implementation strategy across 18 opioid treatment programs, counselors who received the multicomponent training had a higher likelihood of adopting CM in the long term, adopted CM more quickly, and used it 70% more often than counselors who received didactic training alone.[119,132,133] The success of the multicomponent implementation strategy may be attributed to its ability to address both provider- and organizational-level barriers to change. Key components included performance feedback on CM delivery and external facilitation from a technology transfer specialist who advised staff (e.g., nurses, counselors, front-desk personnel) on how to integrate CM into their workflow.[133,134]

Ensuring Evidence-Based Models

When implementing a CM program, it is crucial to ensure that it is evidence-based.[119] Meta-analyses and trials consistently show that the magnitude of reinforcement matters and below a certain threshold, the effects are similar to treatment as usual.[80,119,135] In a study on prize-based CM, Petry and colleagues (2004) found that CM programs in which patients could earn up to $240 were significantly more effective than treatment as usual.[119,136] However, a lower-cost prize-based CM model, in which patients could earn up to $80, had no effect on patient outcomes.[119,136] Rash and colleagues (2024) revisited the data from the 2004 study and conducted a re-analysis examining the impact of low-magnitude rewards on nonengagement with treatment, reaffirming the benefits of higher-value incentives over lower-value incentives.[137] SAMHSA guidance issued in January 2025 limits the motivational incentives provided with SAMHSA grant funds to $750 per patient per year.[39] In addition to reward magnitude, factors such as frequency, escalation, and immediacy of incentives also influence the success of CM programs.[69,119] The latest guidance from SAMHSA on implementing evidence-based CM requires that SAMHSA-funded CM interventions have a minimum treatment duration of 12 weeks.[39]

Incentive Payments and Medicaid Eligibility

Three of the 5 approved 1115a waivers for CM have language stating that incentive payments will be excluded from eligibility assessments for participating Medicaid members, including both modified adjusted gross income (MAGI)-based eligibility determinations, non-MAGI-based eligibility determinations, and share of cost determinations when determining an individual's eligibility for Medicaid.[31,32,35] Delaware and Hawaii's approved waivers do not include specific language about continued Medicaid eligibility; such language may be included in the states' forthcoming protocols for the CM program that CMS has yet to approve.[33,34]

Methods

This review is based on key questions (KQs) and CQs identified by the New York State Department of Health. CQs were addressed above. Search parameters, KQs, and methodologies

for identifying, assessing, and reporting evidence are described in the following sections. Additional detail is available in the Evidence Based Benefit Review Advisory Committee (EBBRAC) Methods Manual online.

Key Questions

The following KQs are addressed in the clinical evidence review and payer policies sections:

KQ1. What is the clinical effectiveness of CM for individuals with stimulant use disorder?

a. Does clinical effectiveness vary by patient characteristics (e.g., age, sex, comorbidities, pregnancy status), disease characteristics (e.g., length of time since diagnosis, combinations of substances used), or provider characteristics?

b. Does clinical effectiveness vary by characteristics of the CM intervention, such as type and amount of incentive offered, setting (e.g., in-person versus remotely delivered), duration of the program, or credentials of staff implementing the intervention?

KQ2. What are the harms of CM for individuals with stimulant use disorder?

a. Do harms vary by patient characteristics (e.g., age, sex, comorbidities, pregnancy status), disease characteristics (e.g., length of time since diagnosis, type of substance used), provider characteristics, or setting?

b. Do harms vary by characteristics of the CM intervention, such as type and amount of incentive offered, setting (e.g., in-person versus remotely delivered), duration of the program, or credentials of staff implementing the intervention?

KQ3. What are the results of relevant cost-analysis studies related to implementing CM for individuals with stimulant use disorder?

KQ4. What are the clinical practice guidelines for CM for individuals with stimulant use disorder?

KQ5. What are the relevant Medicaid program coverage policies and health plan policies on CM use in individuals with substance use disorder?

Eligible Studies

Table 2 summarizes the study inclusion and exclusion criteria. Recognition and perception of individuals with substance use disorders have changed over the past several years and reports of earlier studies may not provide sufficient information for complete data abstraction; therefore, studies were limited to those published within the past 15 years for KQ1, KQ2, and KQ3. Further inclusion and exclusion criteria details can be found in Appendix B.

Table 2. Key Study Inclusion Criteria

Study Component	Inclusion Criteria
Populations	• Adults or adolescents with stimulant use disorder (e.g., amphetamine, methamphetamine, cocaine)
Interventions	• CM, with or without standard interventions (e.g., psychotherapy)
Comparators	• Standard care (e.g., psychotherapy) • Inpatient treatment

Study Component	Inclusion Criteria
	• Head-to-head comparisons of CM programs or modalities, with or without adjunctive psychotherapy or pharmacotherapy
Outcomes	Critical • Use of substance of interest (e.g., longest duration of abstinence, number or percent of samples positive for substance of interest) • Treatment retention Important • Serious adverse events • Emergency department utilization • Incarceration • Patient-reported quality of life
Timing and follow-up	• Outcomes collected at the end of CM intervention • Outcomes collected 6 to 12 months after intervention ends
Setting	• In-person or telehealth (e.g., video conferencing, mobile application) delivery in an outpatient setting • Studies conducted in the US
Study design	KQ1 • RCTs KQ2 • RCTs • Nonrandomized comparative trials KQ3 • Comparative studies and economic evaluations • Cost-effectiveness analyses • Economic modeling studies KQ4 • Evidence-based clinical practice guidelines that provide specific treatment recommendations
Sample size	• Minimum sample size of 20 participants per group within study
Publication type	• Peer-reviewed publication of primary study results • Published in the English language • Ancillary publications with additional comparative follow-up or prespecified subgroup analysis

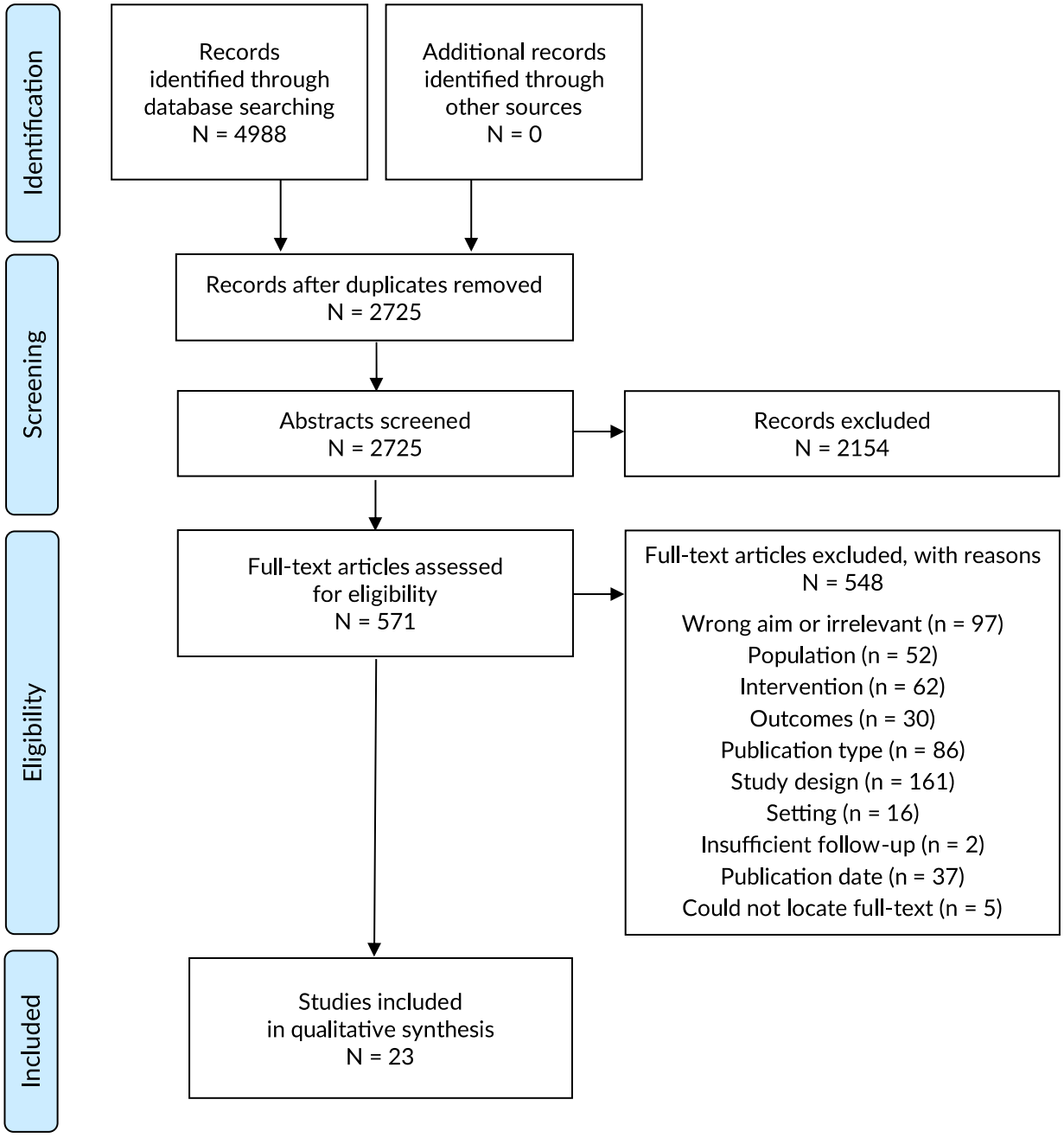
Abbreviations. CM: contingency management; KQ: key question; RCT: randomized controlled trial; US: United States.

Evidence and Policy Searches

We searched Ovid MEDLINE, Cochrane Central Register of Controlled Trials, Cochrane Database of Systematic Reviews, PsycInfo, and other information sources for randomized controlled trials (RCTs), registry studies, cost and cost-effectiveness studies, and clinical practice guidelines. We identified 2,725 potentially relevant publications for the KQs of clinical evidence, harms, cost-effectiveness, and clinical practice guidelines (Figure 1). We also searched trial registries for relevant ongoing trials. A full list of searched sources and search strategies is provided in Appendix A. We did not conduct systematic searches to identify publications to answer contextual questions.

Researchers from the Center for Evidence-based Policy (Center) searched 10 state Medicaid program websites, 8 health plan websites, the Medicaid State Waivers List, and CMS for local and national coverage determinations of CM. Appendix A lists the search terms we used to identify relevant policies, as well as the sources we searched.

Figure 1. PRISMA Diagram With Details



Screening and Inclusion

Two Center researchers used the DistillerSR systematic review software platform to screen publications identified in the searches using the detailed inclusion and exclusion criteria listed in Appendix B. Disagreement about inclusion was resolved through discussion. Appendix C lists included studies, and Appendix D lists studies excluded during full text screening along with the primary reason each study was excluded. Figure 1 shows the numbers of studies screened and included or excluded at each step.

Risk of Bias Assessment

Two Center researchers assessed each included RCT for risk of bias using standard forms. Appendix E has detailed tables with criteria considered for assessing risk of bias or methodological quality. Disagreement between the researchers was resolved through discussion.

Data Abstraction

One Center researcher used a standard form to extract all data presented in tables, and a second researcher verified each data point against the original publication to ensure accuracy. One Center researcher assessed the suitability of outcome data for meta-analysis, and a second researcher reviewed outcome data and confirmed final decisions regarding meta-analysis.

Synthesis

Careful review of outcome data across the included studies was used to determine the feasibility of meta-analysis. However, the high degree of heterogeneity in study designs and measures of abstinence and retention prevented pooling of data from all or most of the 17 included studies. We primarily provide a qualitative synthesis of the evidence, applying the Grading of Recommendations, Assessment, Development, and Evaluations (GRADE) approach to rate the certainty of evidence for each outcome from the data we abstracted from the trials that compared CM with standard treatment or no treatment for stimulant use disorder.

We conducted a meta-analysis for the subset of CM studies that compared abstinence-based CM with a therapeutic control, using RevMan (Review Manager) version 5.4 software. As heterogeneity was anticipated, a random-effects model was used for all analyses. Sensitivity analysis compared results from random-effects models with fixed-effects models. Due to differences in how studies measured and reported outcomes (e.g., mean days or weeks in treatment or percent completing the intervention for retention outcomes), the correlation coefficient Cohen's d was calculated for use as the summary effect size metric. Cohen's d, which is a measure of standardized mean difference (SMD), allows for pooling of studies that use different scales in meta-analysis.[138] The SMD represents the distance, in standard deviation units, between the average person in the treatment group and the average person in the comparison group for the outcome variable. Where sufficient data were available to calculate effect sizes for both the intervention and control groups, we estimated pooled effect measures with meta-analyses of data abstracted from the included studies and reported the findings with figures, tables, and text. We interpreted effect sizes as small (0.2 to 0.49), medium (0.5 to 0.79), or large (≥ 0.8) using Cohen categories.[139]

Evidence Review

We identified 17 publications from 17 eligible trials with effectiveness outcomes, 1 systematic review of cost-effectiveness analyses for CM, 1 individual cost-effectiveness analysis published subsequent to the systematic review, and 4 clinical practice guidelines. We identified 6 relevant ongoing trials. The clinical evidence review is organized by KQ and then by comparison group.

KQ1. Effectiveness

We identified 17 clinical trials evaluating the efficacy of various CM interventions. There were significant variations in study design, including differences in CM duration, type, and value, as well in the behaviors on which awards were based. For clarity and ease of reading, programs are categorized by review type (e.g., short-duration escalating fishbowl with attendance CM). Categories are defined in Table 3. While some CM interventions base rewards on participants' self-reported abstinence, this review only includes biochemically verified abstinence outcomes.

Table 3. CM Intervention Reference Table

Duration	CM Type	CM Value	Behavior on which Reward is Based (Contingency)
Short (< 3 months) **Medium** (3 to 6 months) **Long** (> 6 months)	**Cash** = participant earned cash payment **Fishbowl** = participant earned opportunity to draw a slip from a bowl, with the majority of slips containing a supportive message, a smaller number equating to a voucher of varying small values ($1 to $5), an even smaller number equating to a voucher with a moderate value (~$20), and a very small number equating to a voucher with a high value ($80 to $100) **Voucher** = participant earned a voucher worth a prespecified amount that could be exchanged for goods or services but not for cash	**Fixed** = value remained static throughout the intervention (same cash or voucher value or same number of draws from fishbowl) **Escalating** = value increased if participant met contingency goals (higher cash or voucher value or increased number of draws from fishbowl) **Escalating with reset** = value increased when participant met goals but returned to baseline when a participant failed to meet a goal	**Abstinence** = reward based on provision of urine samples testing negative for stimulants **Attendance** = reward based on attendance at appointments to provide urine sample or attendance at therapy sessions **Progress toward goals** = reward based on meeting prescribed treatment plan goals

Abbreviations. CM: contingency management.

Of the 17 identified RCTs, 8 tested fishbowl CM interventions,[15-18,22,62,140,141] 7 tested voucher interventions,[19,20,24-26,142,143] 1 included both voucher and fishbowl arms,[23] and 1 compared cash-based CM and voucher-based CM.[14] Eleven recruited individuals with cocaine addiction,[14-

[17,19,20,22-24,141,143] 3 recruited individuals with methamphetamine addiction,[25,140,142] and the remaining 3 recruited individuals with any type of stimulant use disorder.[18,26,62] In 5 RCTs, participants were recruited from methadone maintenance clinics, indicating a co-occurring opioid addiction,[14,15,23,24,143] including the sole RCT to recruit pregnant women.[24] The majority of articles compared CM with a psychosocial intervention, although 1 RCT compared 2 CM interventions without any non-CM control[143] and another used no treatment as a control condition.[25] The majority of studies were of medium duration (12 to 26 weeks) and used an approach in which rewards escalated when participants met contingency goals but reset to baseline when they did not. Rewards were solely contingent on abstinence in the majority of studies (14 of 17), although awards were contingent on attendance or progress toward goals in a small number of studies.[16,20,141] Table 4 categorizes the study designs across the 17 trials, while Table 5 describes the characteristics of individual included RCTs. Most studies included psychosocial treatments in both intervention and control arms. Psychosocial approaches like CBT, interpersonal therapy, and dialectical behavioral therapy address psychological, social, and environmental factors that contribute to addiction.[76] Percent abstinent was defined differently across studies, including the percentage of days abstinent, the percentage of samples that were negative for the substance of interest, or the percentage of participants who were abstinent at a particular point in time, such as the end of the intervention or a follow-up visit.

General guidance on implementing CM advises that rewards should focus solely on abstinence from the target substance rather than multiple substances.[4,53,70] Among the 8 studies in this review that used abstinence-based contingency for cocaine addiction, 4 based rewards on provision of cocaine-negative urine samples,[14,19,22,143] but the remaining 4 required abstinence from multiple substances to earn rewards.[15,21,23,24] Among the 3 studies that used abstinence-based contingency for individuals with methamphetamine addiction, 2 based rewards solely on provision of methamphetamine-negative urine samples,[140,142] while the other required abstinence from both methamphetamine and cocaine.[25]

Four trials were rated as having a moderate risk of bias,[16,19,141,143] while the remainder were rated as high risk. Ratings of moderate risk primarily resulted from unclear allocation concealment and lack of blinding for analysts. Ratings of high risk of bias largely resulted from unclear randomization procedures, concerns about allocation concealment, lack of blinding for analysts, high or unclear attrition rates, absence of intent-to-treat analysis, undisclosed potential conflicts of interest, and other questions related to study protocols or analytic methods. Blinding of participants and CM providers is not possible in these types of studies and no studies were downgraded for this reason. More information about the risk of bias decision-making process is provided in Appendix E. Details about risk of bias ratings for the included studies are provided in Appendix F.

Table 4. Summary of Study Designs (n studies)

Intervention and Control	CM Type	CM Duration and Value	Behavior on Which Reward was Based (Contingency)
Psychosocial with noncontingent awards vs.	Fishbowl (2)[62,141]	Medium, escalating with reset (2)[62,141]	Progress toward goals (1)[141]
			Abstinence (1)[62]
	Voucher (1)[24]	Medium, escalating with reset and fixed arms (1)[24]	Abstinence (1)[24]

Intervention and Control	CM Type	CM Duration and Value	Behavior on Which Reward was Based (Contingency)
psychosocial with CM (4)[23,24,62,141]	Voucher and fishbowl arms (1)[23]	Medium, escalating with reset (1)[23]	Abstinence (1)[23]
Psychosocial without awards vs. psychosocial with CM (11)[14-20,22,26,140,142]	Fishbowl (6)[15-18,22,140]	Medium, escalating with reset (5)[15-17,22,140]	Abstinence (3)[15,22,140]
			Attendance (1)[16]
			Abstinence and attendance arms (1)[17]
		Short, escalating with reset (1)[18]	Abstinence (1)[18]
	Voucher (4)[19,20,26,142]	Medium, escalating with reset (2)[19,142]	Abstinence (2)[19,142]
		Medium, fixed (1)[26]	Abstinence and goals arms (1)[26]
		Long, fixed (1)[20]	Attendance (1)[20]
	Cash and voucher arms (1)[14]	Medium, escalating with reset (1)[14]	Abstinence (1)[14]
Comparison of CM types without non-CM control (1)[143]	Voucher (1)[143]	Medium or long, escalating with reset (1)[143]	Abstinence (1)[143]
CM vs. no treatment (no psychosocial intervention) (1)[25]	Voucher (1)[25]	Medium, escalating with reset (1)[25]	Abstinence (1)[25]

Abbreviations. CM: contingency management.

Table 5. Characteristics of Included RCTs

Primary Publication Author, Year Trial Identifier (If Available) Length of Intervention Length of Follow-Up Post-Intervention CM Type	Population Description N Randomized Participants N Analyzed Participants % Female Age (Years)	Risk of Bias Outcomes of Interest Reported
CM compared to psychosocial intervention with noncontingent rewards		
Petry et al., 2015[23] Intervention 12 weeks Follow-up 52 weeks Fishbowl and voucher arms, escalating with reset	Adults with diagnosis of cocaine dependence Randomized N = 240 Analyzed N = 240 % Female = 47.4 Mean age = 40.5 (SD 9.8)	High RoB Abstinence • Percentage abstinent • Longest duration of abstinence
McDonell et al., 2013[62] NCT000809770 Intervention 12 weeks Follow-up 12 weeks Fishbowl, escalating with reset	Adult mental health outpatients with serious mental illness and stimulant dependence Randomized N = 176 Analyzed N = 176 % Female = 34 Mean age = 43.0 (SD 9.27)	High RoB Abstinence • Percentage abstinent Retention • Percentage completed intervention • Length of time spent in treatment

Primary Publication Author, Year Trial Identifier (If Available) Length of Intervention Length of Follow-Up Post-Intervention CM Type	Population Description N Randomized Participants N Analyzed Participants % Female Age (Years)	Risk of Bias Outcomes of Interest Reported
Tuten et al., 2012[24] Intervention 13 weeks Follow-up none Voucher, fixed arm and escalating with reset arm	Opioid-dependent pregnant women with cocaine addiction Randomized N = 133 Analyzed N = 133 % Female = 100 Mean age = 28.8 (SD 5.3)	High RoB Abstinence • Longest duration of abstinence Retention • Length of time spent in treatment
Petry et al., 2010[141] Intervention 24 weeks Follow-up 28 weeks Fishbowl, escalating with reset	HIV-positive patients with cocaine or opioid use disorders Randomized N = 170 Analyzed N = 170 % Female = 31.1 Mean age = 34.1 (SD 7.1)	Moderate RoB Abstinence • Longest duration of abstinence • Percentage abstinent
Fishbowl-based CM compared to psychosocial intervention		
Petry et al., 2018[16] Intervention 12 weeks Follow-up 24 weeks Escalating with reset	Patients with cocaine use disorders attending a substance abuse clinic Randomized N = 360 Analyzed N = 360 % Female = 54.1 Mean age = 40.5 (SD 9.8)	Moderate RoB Abstinence • Longest duration of abstinence • Percentage abstinent Retention • Length of time spent in treatment
Carroll et al., 2016[22] NCT00350870 Intervention 12 weeks Follow-up 52 weeks Escalating with reset	Adults with cocaine dependence. The primary goal of this study was to test combination of disulfiram and CM to reduce cocaine use. Across 4 study arms, all participants received either disulfiram or placebo, with or without CM, limiting comparability to other studies Randomized N = 99 Analyzed N = 99 % Female = 31.8 Mean age = 38.5 (SD 7.4)	High RoB Abstinence • Percentage abstinent Retention • Length of time spent in treatment
Hagedorn et al., 2013[18] Intervention 8 weeks Follow-up 52 weeks Escalating with reset	Veterans with clinical diagnosis of alcohol or stimulant dependence Randomized N = 322 Analyzed N = unclear % Female = 4.26	High RoB Abstinence • Percentage abstinent Retention • Length of time spent in treatment

Primary Publication Author, Year Trial Identifier (If Available) Length of Intervention Length of Follow-Up Post-Intervention CM Type	Population Description N Randomized Participants N Analyzed Participants % Female Age (Years)	Risk of Bias Outcomes of Interest Reported
	Median age = 50 (no SD)	
Roll et al., 2013[140] Intervention 16 weeks Follow-up 32 weeks Escalating with reset	Individuals seeking treatment for methamphetamine dependence Randomized N = 118 Analyzed N = 118 % Female = 48.3 Mean age = 32.8 (SD 10.1)	High RoB Abstinence • Percentage abstinent Retention • Percentage completed intervention
Petry, Alessi, et al., 2012[15] Intervention 12 weeks Follow-up 25 weeks Escalating with reset	Adults with dual cocaine and opiate addiction Randomized N = 130 Analyzed N = 130 % Female = 42 Mean age = 36.4 (SD 9.6)	High RoB Abstinence • Longest duration of abstinence • Percentage abstinent Retention • Length of time spent in treatment
Petry, Barry, et al., 2012[17] Intervention 12 weeks Follow-up 26 weeks Escalating with reset	Adults with cocaine dependence Randomized N = 442 Analyzed N = 442 % Female = 55.9 Mean age = 37.4 (SD 8.5)	High RoB Abstinence • Longest duration of abstinence Retention • Length of time spent in treatment
Voucher-based CM compared to psychosocial intervention		
Chudzynski et al., 2015[142] Intervention 16 weeks Follow-up 12 weeks Escalating with reset	Adults with methamphetamine use disorder Randomized N = 119 Analyzed N = unclear % Female = 48.2 Mean age = 34.8 (SD 10.1)	High RoB Abstinence • Likelihood of submitting a negative urine sample
Van Horn et al., 2011[20] NCT00685659 Intervention 52 weeks Follow-up 52 weeks Fixed (non-escalating)	Adults with cocaine addiction Randomized N = 195 Analyzed N = 195 % Female = 25 Mean age = 43.6 (SD 7.0)	High RoB Retention • Percentage completed intervention
McKay et al., 2010[19] Intervention 12 weeks Follow-up varied by arm Escalating with reset	Adults with current diagnosis of cocaine dependence who had completed an intensive outpatient program Randomized N = 100	Moderate RoB Abstinence • Percentage abstinent Retention

Primary Publication Author, Year Trial Identifier (If Available) Length of Intervention Length of Follow-Up Post-Intervention CM Type	Population Description N Randomized Participants N Analyzed Participants % Female Age (Years)	Risk of Bias Outcomes of Interest Reported
	Analyzed N = 100 % Female = 56 Mean age = 42.7 (SD 5.77)	• Length of time spent in treatment
Hall et al., 2009[26] Intervention 26 weeks Follow-up 0 weeks Fixed value	Adults participating in a court-ordered outpatient diversion drug treatment program Randomized N = 139 Analyzed N = 136 % Female = 20 Mean age = 32.6 (SD 8.6)	High RoB Abstinence • Longest duration of abstinence Retention • Length of time spent in treatment
Varied CM approaches compared to psychosocial interventions		
Festinger et al., 2014[14] Intervention 12 weeks Follow-up 0 weeks Escalating with reset, comparing cash- and voucher-based CM	Individuals with cooccurring opioid and cocaine addiction Randomized N = 222 Analyzed N = unclear % Female = 38 Mean age = 37.5 (SD 9.69)	High RoB Abstinence • Longest duration of abstinence Retention • Length of time spent in treatment
Alternate comparators		
Carpenedo et al., 2010[143] Intervention 12 or 36 weeks Follow-up 68 or 92 weeks Voucher, escalating with reset (comparing 2 durations of CM without non-CM control)	Cocaine-dependent, methadone-maintained individuals Randomized N = 131 Analyzed N = 131 % Female = 38.7 Mean age = 41 (SD 11)	Moderate RoB Abstinence • Longest duration of abstinence
Menza et al., 2010[25] NCT01174654 Intervention 12 weeks Follow-up 12 weeks Voucher, escalating with reset (comparing CM without psychosocial intervention to no treatment)	Methamphetamine-using men who had sex with other men Randomized N = 127 Analyzed N = 107 % Female = 0 Median age = 40 (range 18 to 60)	High RoB Abstinence • Percentage abstinent

Abbreviations. CM: contingency management; NCT: national clinical trial; RCT: randomized controlled trial; RoB: risk of bias; SD: standard deviation.

CM With Psychosocial Intervention Compared to Psychosocial Intervention Without CM

Eleven RCTs compared a psychosocial intervention without CM to the same intervention with CM.[14-20,22,26,140,142] Table 6 provides details on abstinence and retention outcomes. The majority

of studies used a fishbowl CM design,[15-18,22,140] while 4 used voucher-based CM,[19,20,26,142] and 1 included both voucher and cash-based CM arms.[14]

Of the 6 studies employing a fishbowl design, 5 used medium-duration, escalating-with-reset designs[15-17,22,140] and 1 used a short-duration escalating-with-reset design.[18] In 4 RCTs, rewards were contingent on abstinence,[15,18,22,140] while in 1 RCT, rewards were contingent on attendance,[16] and in 1 RCT, rewards were contingent on both abstinence and attendance.[17] Three abstinence-based CM studies found that abstinence was higher in CM arms compared to the control.[15,22,140] However, in the 2 studies that included follow-up timepoints, differences in abstinence between the CM and control groups did not persist after the intervention ended.[15,140] An attendance-based CM study by Petry and colleagues (2018) compared 3 intervention arms against a control group: 1 received 12 weeks of CM, 1 received 6 weeks of CM followed by 6 weeks without CM, and 1 received 6 weeks without CM followed by 6 weeks with CM.[16] Only the group that received 12 weeks of CM demonstrated abstinence outcomes different from the control group.[16] The final fishbowl-based CM study, described by Petry and Barry (2012), employed a complex study design that categorized subjects based on their positive or negative urinalysis results for cocaine at the baseline visit.[17] Members of the cocaine-positive group were assigned higher or lower-value CM interventions, and only those assigned the higher-value CM achieved a significantly longer duration of abstinence relative to the control group.[17] Members of the cocaine-negative group were assigned to CM contingent on abstinence or attendance; both groups had a longer duration of abstinence relative to the control group, with no significant differences between the abstinence and attendance-based groups.[17] Results were mixed regarding whether CM groups had better retention rates than control groups[15,16,140] or whether there were no significant differences in retention between CM groups and control.[17,18,22]

Four RCTs compared voucher-based CM with a non-CM control.[19,20,26,142] Two were medium-duration interventions that used an escalating-with-reset approach in which awards were contingent on abstinence.[19,142] Two were medium-duration interventions that used a fixed award approach.[20,26] In 1 of these, vouchers were contingent on attendance,[20] while the other contained intervention arms that awarded vouchers based on abstinence or progress toward treatment goals.[26] Chudzynski and colleagues (2015) compared continuous intermittent CM, intermittent predictable CM, and intermittent unpredictable CM, finding that individuals in all CM conditions had higher odds of testing negative for methamphetamine than the non-CM control, with no significant differences in abstinence between CM conditions.[142] Hall and colleagues (2009) compared abstinence-based CM, goal-based CM, and combined abstinence and goal-based CM with a non-CM control, finding no differences in the longest duration of abstinence or the number of stimulant-negative urine tests.[26] McKay and colleagues (2010) found no difference between CM and control in mean number of negative urine tests over the 12 week study.[19] Van Horn and colleagues (2011) used attendance-based CM but did not capture any abstinence-based outcomes.[20] Retention-related outcomes were mixed, with 2 studies finding no differences in the percentage of sessions attended[142] or mean weeks attended,[26] while 2 found a significant effect in favor of CM in the percentage of participants completing intervention[20] and mean number of sessions attended.[19]

The final RCT, described by Festinger et al. (2014), compared voucher-based CM and cash-based CM with a non-CM control.[14] The study used a medium-duration, escalating-with-reset

approach, with rewards contingent on abstinence.[14] Both CM conditions resulted in significantly longer durations of abstinence and higher mean appointment attendance compared to the non-CM control, but there were no significant differences in abstinence or retention between the cash-based and voucher-based CM conditions.[14]

Table 6. Outcomes for Studies Comparing Psychosocial Intervention With or Without CM

Author, Year Target Substance Study Arms CM type Contingency (Substances for Abstinence Contingency) Handling of Missing Urine Samples Risk of Bias	Abstinence-Related Outcomes	Retention-Related Outcomes
Fishbowl-based CM		
Petry 2018[16] Cocaine 4 arms Medium duration, escalating with reset Attendance Missing samples considered positive Moderate RoB	Longest duration of abstinence, mean days (SD) • Control = 23.2 (27.8) • 12-week CM = 33.6 (28.9) • CM in last 6 weeks of 12-week intervention = 29.6 (26.7) • CM in first 6 weeks of 12-week intervention = 24.5 (23.9) • *P* control vs. 12-week CM = 0.02 • *P* control vs. CM in last 6 weeks = 0.17 • *P* control vs. CM in first 6 weeks = 0.71 Percent abstinent, mean % of 24 samples (SD) • Control = 31.1 (27.8) • 12-week CM = 46.6 (30.9) • CM in last 6 weeks of 12-week intervention = 41.7 (29.6) • CM in first 6 weeks of 12-week intervention = 35.4 (29.1) • *P* control vs. 12-week CM < 0.01 • *P* control vs. CM in last 6 weeks < 0.05 • *P* control vs. CM in first 6 weeks = 0.43	Mean days attended, % (SD) • Control = 68.4 (26.7) • 12-week CM = 81.7 (22.2) • CM in last 6 weeks of 12-week intervention = 75.6 (22.3) • CM in first 6 weeks of 12-week intervention = 70.4 (24.0) • *P* control vs. 12-week CM < 0.001 • *P* control vs. CM in last 6 weeks = 0.09 • *P* control vs. CM in first 6 weeks = 0.58 • *P* 12-week CM vs. CM in last 6 weeks = 0.08 • *P* 12-week CM vs. CM in first 6 weeks = 0.02

Author, Year Target Substance Study Arms CM type Contingency (Substances for Abstinence Contingency) Handling of Missing Urine Samples Risk of Bias	Abstinence-Related Outcomes	Retention-Related Outcomes
Carroll 2016[22] Cocaine 4 arms Medium duration, escalating with reset Abstinence (cocaine) Missing tests not imputed High	Percent cocaine-negative urine samples submitted during 12-week intervention, mean (SD) • CM + placebo = 60.5 (35.3) • CM + disulfiram (used for treatment of cocaine abuse) = 41.2 (40.3) • Placebo alone = 60.5 (35.3) • Disulfiram alone = 39.5 (40.8) • *P* value CM + placebo vs. placebo alone = 0.004 • *P* value CM + disulfiram vs. disulfiram alone = 0.88	Mean days in treatment (SD) • CM + placebo = 36.7 (33.4) • CM + disulfiram = 42.2 (35.7) • Placebo alone = 24.9 (31.0) • Disulfiram alone = 43.1 (37.5) • *P* value CM + placebo vs. placebo alone = 0.21 • *P* value CM + disulfiram vs. disulfiram alone = 0.99
Hagedorn 2013[18] Any stimulant 2 arms Short duration, escalating with reset Abstinence (cocaine, amphetamine, methamphetamine, alcohol) Missing tests presumed positive High	Longest duration of abstinence in 8-week intervention, median • CM = 4.75 weeks (no SD) • Control = 3.5 weeks (no SD) • *P* = 0.08 Mean percent of possible 16 urine samples negative for stimulants over 8-week intervention (SD) • CM = 10.41 (5.25) • Control = 9.84 (5.64) • *P* = 0.54 Proportion of participants testing positive for stimulants at 6-month follow-up • CM = 19.6% of 53 tested • Control = 25.5% of 48 tested • *P* = 0.48	Mean weeks of study retention (SD) • CM = 6.10 (2.54) • Control = 5.96 (2.76) • *P* = 0.76
Roll 2013[140] Methamphetamine 4 arms Medium duration, escalating with reset Abstinence (methamphetamine) Unapproved missing values presumed positive	Odds of negative methamphetamine urine analysis during the 16-week treatment period, compared to control (OR, 95% CI) • 1-month CM = 3.58 (2.41 to 5.32) • 2-month CM = 2.55 (1.73 to 3.75)	Percent completed intervention • Control = 37.93 • 1-month CM condition = 66.67 • 2-month CM condition = 53.33 • 4-month CM condition = 75.86 • *P* control vs. 1-month CM = 0.03 • *P* control vs. 2-month CM = 0.24

Author, Year Target Substance Study Arms CM type Contingency (Substances for Abstinence Contingency) Handling of Missing Urine Samples Risk of Bias	Abstinence-Related Outcomes	Retention-Related Outcomes
High	• 4-month CM = 7.25 (4.68 to 11.24) Odds of negative methamphetamine urine analysis during the follow-up period, compared to control, when missing values were presumed to be positive (OR, 95% CI). Measurements at 6, 8, 10, and 12-months post randomization • 1-month CM = 1.37 (0.65 to 2.87) • 2-month CM = 1.71 (0.80 to 3.60) • 4-month CM = 2.17 (1.01 to 4.66) Percent of patients who were 100% abstinent from methamphetamine throughout the 16-week intervention • Control = 3.4 • 1-month CM = 13.3 • 2-month CM = 20.0 • 4-month CM = 34.5 • *P* control vs. 1-month CM = 0.18 • *P* control vs. 2-month CM = 0.05 • *P* control vs. 4-month CM = 0.003 • *P* 1 month vs. 2-month CM = 0.49 • *P* 2 month vs. 4-month CM = 0.21	• *P* control vs. 4-month CM = 0.004 • *P* 1-month CM vs. 2-month CM = 0.30 • *P* 2-month vs. 4-month CM = 0.07
Petry, Alessi 2012[15] Cocaine 2 arms Medium duration, escalating with reset Abstinence (cocaine and alcohol) Missing values not imputed	Longest duration of abstinence during 12-week intervention, mean weeks (SD) • Control = 1.7 (2.7) • CM = 4.7 (4.7) • *P* < 0.001 Percent abstinent during 12-week intervention, mean (SD)	Mean weeks spent in treatment (SD) • Control = 6.7 (5.0) • CM = 9.5 (3.6) • *P* < 0.001

Author, Year Target Substance Study Arms CM type Contingency (Substances for Abstinence Contingency) Handling of Missing Urine Samples Risk of Bias	Abstinence-Related Outcomes	Retention-Related Outcomes
High	• Control = 29.4 (33.3) • CM = 57.7 (40.0) • *P* < 0.001 Percent of samples testing negative for cocaine and alcohol at 9-month follow-up, when missing samples were treated as positive • Control = 55.9% • CM = 49.3% • *P* = 0.45 Percent of samples testing negative for cocaine and alcohol at 9-month follow-up, when missing samples were omitted • Control = 71.7% • CM = 54.7% • *P* = 0.07	
Petry, Barry 2012[17] Cocaine 6 arms Medium duration, escalating with reset Abstinence (cocaine, alcohol, opioids) and attendance arms Missing tests presumed positive High	Longest duration of abstinence over 12-week intervention, mean weeks (SD), group testing positive for cocaine at baseline • Lower-value abstinence-based CM = 2.0 (3.1) • Higher-value abstinence-based CM = 3.6 (4.3) • Control = 1.1 (2.1) • *P* lower-value CM vs. control = 0.16 • *P* higher-value CM vs. control = 0.003 • *P* higher vs. lower value CM = 0.72 Longest duration of abstinence over 12-week intervention, weeks (SD), group testing negative for cocaine at baseline • Abstinence-based CM = 6.0 (4.3) • Attendance-based CM = 5.3 (4.4) • Control = 3.9 (3.5)	Mean weeks spent in treatment (SD) during 12-week intervention, group testing positive for cocaine at baseline • Lower-value abstinence-based CM = 4.3 (2.9) • Higher-value abstinence-based CM = 6.0 (4.1) • Control = 4.8 (3.2) • *P* lower-value CM vs. control = 0.50 • *P* higher-value CM vs. control = 0.17 • *P* higher vs. lower-value CM = 0.044 Mean weeks spent in treatment (SD) during 12-week intervention, group testing negative for cocaine at baseline • Abstinence-based CM = 6.0 (3.7) • Attendance-based CM = 5.4 (3.6) • Control = 6.0 (4.0)

Author, Year Target Substance Study Arms CM type Contingency (Substances for Abstinence Contingency) Handling of Missing Urine Samples Risk of Bias	Abstinence-Related Outcomes	Retention-Related Outcomes
	• *P* abstinence-based CM vs. control < 0.001 • *P* attendance-based CM vs. control = 0.01 • *P* abstinence vs. attendance CM = 0.23	• *P* abstinence-based CM vs. control = 1.0 • *P* attendance-based CM vs. control = 0.25 • *P* attendance vs. abstinence-based CM = 0.22
Voucher-based CM		
Chudzynski 2015[142] Methamphetamine 4 arms Medium duration, escalating with reset Abstinence (methamphetamine) Unapproved missing tests considered positive High	Odds of submitting a negative urine sample during 16-week intervention (specific numbers and confidence intervals not provided), OR • Continuous CM vs. control = 1.98 (*P* < 0.05) • Intermittent predictable CM vs. control = 2.40 (*P* < 0.05) • Intermittent unpredictable CM vs. control = 1.72 (*P* < 0.05) • No significant difference between the 3 CM conditions	Percent of sessions attended (of 48 possible) • Control = 46.12 • Continuous CM = 64.51 • Intermittent predictable CM = 67.58 • Intermittent unpredictable CM = 59.82 • *P* control vs. continuous CM = 0.1589 • *P* control vs. intermittent predictable CM = 0.09 • *P* control vs. intermittent unpredictable CM = 0.30
Van Horn 2011[20] Cocaine 2 arms Long duration, fixed Attendance Handling of missing data not described High	None reported (no urine samples collected)	Percent completing 12-month intervention, mean (SD) • Control = 38.8 (31.9) • CM = 67.1 (30.7) • *P* < 0.001
McKay 2010[19] Cocaine 4 arms Medium duration, escalating with reset Abstinence (cocaine) Unexcused missing tests considered positive Moderate	Mean number of cocaine-free urines provided (SD) • CM alone: 28.23 (10.7) • CM + CBT: 29.84 (10.24) • *P* = 0.59 Mean consecutive cocaine-free urine samples over 12 weeks (SD) • CM alone = 24.31 (13.34) • CM + CBT = 28.24 (11.94) • *P* = 0.27	Mean sessions attended (SD) • CM + CBT = 13.16 (7.39) • CBT = 3.33 (5.04) • *P* < 0.001

Author, Year Target Substance Study Arms CM type Contingency (Substances for Abstinence Contingency) Handling of Missing Urine Samples Risk of Bias	Abstinence-Related Outcomes	Retention-Related Outcomes
	Odds of a cocaine positive urine sample at end of 12-week study, OR (95% CI) • CM alone vs. CM + CBT = 1.08 (0.28 to 4.18) • CBT vs. CM alone: 2.03 (0.56 to 7.42) • CM alone vs. group therapy: 1.03 (0.26 to 4.01) • Group therapy vs. CM + CBT = 1.06 (0.28 to 4.06) Odds of a cocaine-positive urine result at 3-months postintervention, OR (95% CI) • CM alone vs. CM + CBT = 2.93 (0.94 to 9.07) Odds of a cocaine-positive urine result at 6-months postintervention, OR (95% CI) • CM alone vs. CM + CBT = 2.93 (0.94 to 9.10) Odds of a cocaine-positive urine result at 12-months postrandomization, OR (95% CI) • CM alone vs. CM + CBT = 1.38 (0.41 to 4.61)	
Hall 2009[26] Any stimulant 4 arms Medium duration, fixed Abstinence (opiates, cocaine, methamphetamine, benzodiazepines, marijuana, alcohol) and treatment goal arms Missing tests preceded and followed by clean tests were	Number of negative tests over 26 weeks (of 52 possible), mean (SD) • CBT = 25.3 (18.2) • CBT + abstinence CM = 23.9 (19.5) • CBT + goal CM = 25.4 (16.7) • CBT + abstinence and goal CM = 21.6 (16.8) • *P* for 4-way comparison = 0.81	Participants who completed 26-week intervention, % (denominator) • CBT = 35 (37) • CBT + abstinence CM = 43 (35) • CBT + goal CM = 38 (34) • CBT + abstinence and goal CM = 30% (30) • *P* CBT vs. abstinence CM = 0.49 • *P* CBT vs. goal CM = 0.79 • *P* CBT vs. any CM = 0.67

Author, Year Target Substance Study Arms CM type Contingency (Substances for Abstinence Contingency) Handling of Missing Urine Samples Risk of Bias	Abstinence-Related Outcomes	Retention-Related Outcomes
counted as clean; otherwise presumed positive High	• *P* CBT vs. abstinence CM = 0.75 • *P* CBT vs. goal CM = 0.98 • *P* CBT vs. abstinence and goal CM = 0.40 • *P* abstinence CM vs. goal CM = 0.73 Longest number of consecutive negative tests, mean (SD) • CBT = 13.1 (11.6) • CBT + abstinence CM = 12.4 (11.6) • CBT + goal CM = 11.8 (11.1) • CBT + abstinence and goal CM = 11.6 (11.7) • *P* for 4-way comparison = 0.99 • *P* CBT vs. abstinence CM = 0.80 • *P* CBT vs. goal CM = 0.63 • *P* CBT vs. abstinence and goal CM = 0.60 • *P* abstinence CM vs. goal CM = 0.83	• *P* abstinence vs. goal CM = 0.67 Mean number of weeks in intervention (SD) • CBT = 18.5 (9.6) • CBT + abstinence CM = 16.9 (10.3) • CBT + goal CM = 19.2 (8.6) • CBT + abstinence and goal CM = 16.5 (9.8) • *P* for 4-way comparison = 0.63
Multiple CM conditions		
Festinger 2014[14] Cocaine 3 arms Medium duration, escalating with reset Abstinence (cocaine) Unexcused missing samples considered positive High	Longest duration of abstinence during 12-week intervention, mean weeks (SD) • Cash CM = 6.33 (4.37) • Voucher CM = 6.23 (4.61) • Control = 3.96 (3.84) • *P* voucher CM vs. cash CM = 0.89 • *P* voucher CM vs. control < 0.001 • *P* cash CM vs. control < 0.001	Number of appointments attended out of possible 36, mean (SD) • Cash CM = 28.49 (9.05) • Voucher CM = 28.28 (9.78) • Control = 24.83 (10.79) • *P* voucher CM vs. cash CM = 0.89 • *P* voucher CM vs. control = 0.04 • *P* cash CM vs. control = 0.03

Abbreviations. CBT: cognitive behavioral therapy; CI: confidence interval; CM: contingency management, OR: odds ratio, RoB: risk of bias; SD: standard deviation.

Meta-Analysis of CM Interventions Compared to Psychosocial Intervention Without CM

Abstinence Outcomes

Four of 11 RCTs comparing CM with a psychosocial control (without noncontingent rewards) contained sufficient data for a meta-analysis of the effects of CM on abstinence duration (Figure 2). Among these, 3 used rewards based on abstinence,[14,15,17] while 1 used rewards based on attendance.[16] The majority of studies (3) used a fishbowl design,[15-17] while 1 used a voucher design.[14] All interventions were 12 weeks in duration and all focused on patients with cocaine addiction. A random-effects meta-analysis identified a medium overall effect in favor of CM for longer abstinence duration compared to the control group, with a pooled SMD of 0.57 (95% CI, 0.39 to 0.75).[14-17] When meta-analysis was limited to the 3 RCTs in which rewards were contingent on abstinence (Figure 3), SMD improved slightly (0.65; 95% CI, 0.44 to 0.87) but remained in the medium range.[14,15,17]

Figure 2. Duration of Abstinence from Stimulants for CM Compared to a Psychosocial Control

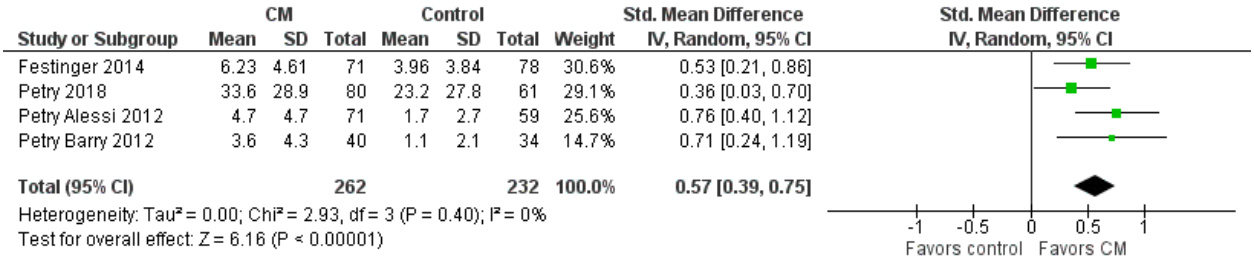
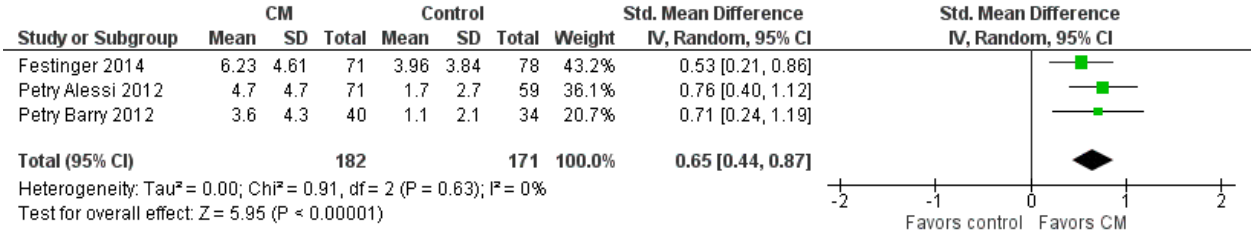
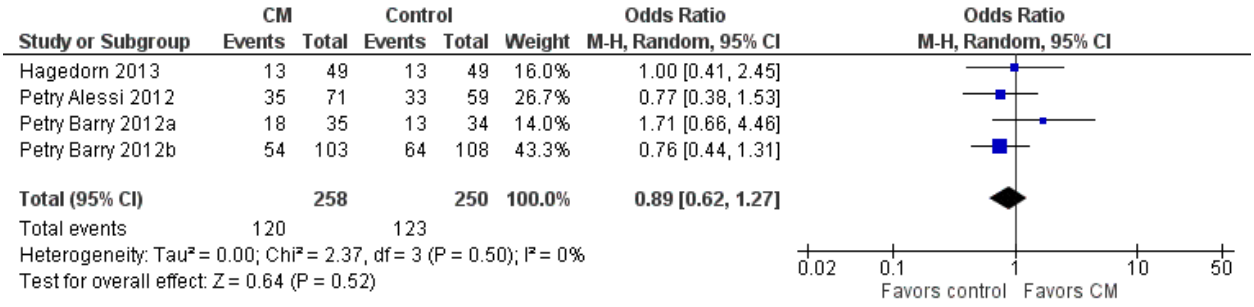


Figure 3. Duration of Abstinence from Stimulants for Abstinence-Based CM Compared to a Psychosocial Control



In 3 RCTs that included data on urinalysis results at the longest follow-up after the end of the CM intervention (Figure 4), none found a persistent effect of CM on abstinence.[15,17,18] Hagedorn and colleagues (2013) reported that 26.2% of the CM group provided stimulant-positive samples at 12 months postrandomization, but missing samples were not imputed.[18] Petry and Alessi (2012) found that 49.3% of the CM group and 55.9% of the control group tested negative for cocaine and alcohol 9 months postrandomization, with missing samples coded as positive.[15] Petry and Barry (2012) reported no difference in the likelihood of submitting cocaine-, opioid-, or alcohol-negative samples at 9-months postrandomization between participants who tested positive or negative for cocaine at study intake. However, the analysis included only those who attended the follow-up visit, and missing results were not imputed.[17]

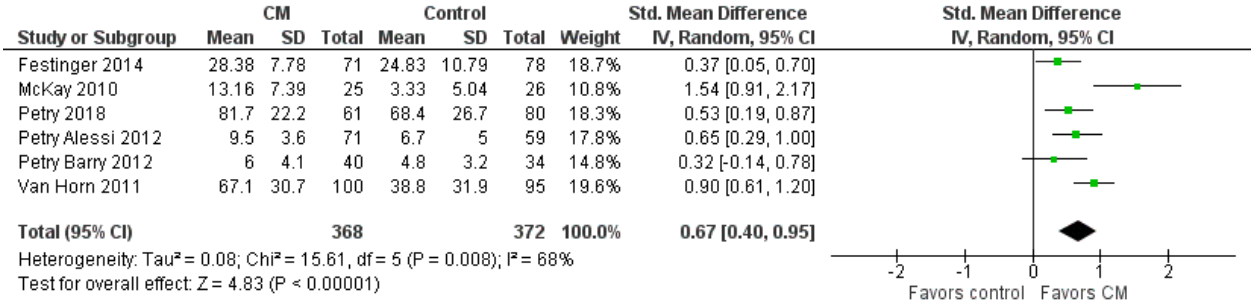
Figure 4. Abstinence from Stimulants at Longest Follow-Up for Abstinence-Based CM Compared to Psychosocial Control



Treatment Retention

Among the 11 RCTs comparing CM to a psychosocial control, 6 contained sufficient data for a meta-analysis of the effects of CM on treatment retention (Figure 5). Retention was measured in various ways, including the mean percentage of days or appointments attended, the mean number of treatment sessions attended, and the mean treatment duration (weeks). Of the 6 studies, 3 used a fishbowl design,[15-17] and 3 used a voucher design.[14,19,20] One study used attendance contingency,[16] while the remainder were abstinence-based. A random-effects meta-analysis showed a medium effect (SMD 0.67) in favor of CM, with only 1 of the included studies[17] reporting no differences in treatment retention between the treatment and control groups.

Figure 5. Treatment Retention in CM Interventions Compared to Psychosocial Control



Study Designs Not Comparing CM to a Psychosocial Intervention

In 2 RCTs, no psychosocial intervention without CM served as a control.[25,143] A study by Carpenedo and colleagues (2010) compared 12-week and 36-week CM arms, both of which were voucher-based, escalating-with-reset CM approaches in which awards were contingent on abstinence from cocaine.[143] The longest duration of abstinence over 24 weeks favored the longer-term CM. However, the test compared results from a group that had completed treatment 12 weeks earlier and was no longer receiving CM with a group that was still in treatment and actively receiving CM.[143] The percentage of sessions attended did not differ between the 12-week and 36-week CM groups.[143] An RCT by Menza and colleagues compared provision of vouchers for submission of methamphetamine-negative urine samples over 12 weeks with a no-treatment control group that only received a printed list of community resources.[25] Because the control group did not provide weekly urine samples, abstinence

outcomes were assessed using a single test at the 12-week study appointment, which showed no difference between the CM and control groups in the likelihood of submitting a methamphetamine-positive urinalysis.[25] However, at a follow-up appointment 12 weeks after the completion of the CM intervention, the CM group was significantly (50%) more likely to submit a positive methamphetamine urinalysis than the no-treatment control group (21%), with a risk ratio of 1.77 (95% CI, 1.13 to 2.78).[25] Table 7 provides details on abstinence and retention outcomes for the 2 studies.

Table 7. Outcomes for Studies Without a Non-CM Psychosocial Control

Author, Year Target Substance Study Arms CM Type Contingency (Substances for Abstinence Contingency) Handling of Missing Samples Risk of Bias	Abstinence-Related Outcomes	Retention-Related Outcomes
Comparing CM of 2 different lengths		
Carpenedo 2010[143] (additional data reported in Kirby 2013)[144] Cocaine 2 arms Medium or long duration voucher-based CM, escalating with reset Abstinence (cocaine) Missing tests considered positive Moderate	Longest duration of abstinence during weeks 1–24 (urinalysis), mean weeks (SD) • 36-week CM = 5.7 (SD 8.1) • 12-week CM = 2.7 (SD 3.6) • *P* = 0.003 Longest duration of abstinence in year 1 (self-report verified through comparison with urinalysis results in first 24 weeks) • 36-week CM = 10.51 weeks (SD 73.6 days) • 12-week CM = 6.61 weeks (SD 53.0 days) • *P* = 0.02 Longest duration of abstinence in year 2 (self-report verified through comparison with urinalysis results in first 24 weeks) • 36-week CM = 14.83 weeks (SD 130.5 days) • 12-week CM = 16.91 weeks (SD 131.1 days) • *P* = 0.53	Mean percent of sessions attended during weeks 1 to 12 (data from Kirby et al., 2013) (SD) • 36-week CM = 61.4 (28.85) • 12-week CM = 57.4 (29.06) • *P* = 0.43 Mean percent of sessions attended during weeks 13 to 24, when 12-week CM group was in aftercare (data from Kirby et al., 2013) (SD) • 36-week CM = 50.0 (36.89) • 12-week CM = 42.8 (31.62) • *P* = 0.24
Comparing CM without psychosocial intervention to no treatment control		
Menza 2010[25] Methamphetamine 2 arms	Positive methamphetamine urinalysis at 12-week appointment (end of intervention)	Mean percent of visits attended, (SD). Protocol changes meant that different participants had

Author, Year Target Substance Study Arms CM Type Contingency (Substances for Abstinence Contingency) Handling of Missing Samples Risk of Bias	Abstinence-Related Outcomes	Retention-Related Outcomes
Medium duration voucher-based CM, escalating with reset Abstinence (methamphetamine, cocaine) Missing tests presumed positive High	• CM = 36% (20/55) • Untreated control = 29% (13/45) • Risk ratio 1.39 (95% CI, 0.81 to 2.38) Positive methamphetamine urinalysis 12 weeks after end of intervention • CM = 50% (29/58) • Untreated control = 21% (10/47) • Risk ratio 1.77 (95% CI, 1.13 to 2.78)	different numbers of possible visits. • CM = 37 (1.4) • Control = NA (did not receive any treatment)

Abbreviations. CI: confidence interval; CM: contingency management; NA: not applicable; SD: standard deviation.

CM With Psychosocial Intervention Compared to Psychosocial Intervention With Noncontingent Rewards

Four RCTs compared contingent and noncontingent rewards (Table 8).[23,24,62,141] Because the control groups in these studies do not represent the standard of care, they were not included in meta-analysis. Two RCTs were medium-duration studies using a fishbowl design, escalating with reset.[23,62] In 1 of these, rewards were contingent on abstinence,[62] while in the other, they were contingent on making progress toward goals.[141] One RCT of voucher-based CM contingent on abstinence contained 2 intervention arms: 1 with fixed rewards and the other with escalating rewards that reset if any urine sample tested positive for cocaine.[24] The fourth RCT compared both fishbowl and voucher abstinence-based CM approaches with noncontingent awards.[23] Table 6 provides details on abstinence and retention outcomes.

Results were mixed. In 2 studies using abstinence-based CM approaches, abstinence was greater in the CM groups.[23,62] McDonell and colleagues (2013) recruited participants with stimulant dependence and serious mental illness, and used a fishbowl CM design.[62] Abstinence was greater in the CM group, but retention was higher in the noncontingent group.[62] Petry and colleagues (2015) recruited participants with cocaine dependence undergoing methadone treatment for opioid dependence, and used a voucher-based CM design.[23] While abstinence outcomes favored CM, retention was not reported.[23]

Two studies found no differences in abstinence or retention between CM and control groups.[24,141] Petry and colleagues (2010) recruited HIV-positive participants with cocaine or opioid disorders, and used a fishbowl CM design.[141] There were no differences between

intervention and control in the proportion of samples reflecting abstinence, but the CM group had a significantly longer duration of abstinence than the control with noncontingent rewards.[141] Tuten and colleagues recruited opioid-dependent pregnant women with cocaine addiction, used a voucher-based CM design, and found no between-group differences in the longest duration of abstinence.[24]

Table 8. Outcomes for Studies Comparing CM to Noncontingent Awards

Author, Year Target Drug # Study Arms CM type Contingency (Substances for Abstinence Contingency) Handling of Missing Urine Samples Risk of Bias	Abstinence-Related Outcomes	Retention-Related Outcomes
Fishbowl-based CM		
McDonell 2013[62] Any stimulant 2 arms Medium duration, escalating with reset Abstinence (alcohol, amphetamine, methamphetamine, cocaine, marijuana, opiates) Multiple imputation methods High	Percent abstinent during 12-week intervention • CM vs. noncontingent incentive OR 2.4 (95% CI, 1.9 to 3.0), *P* < 0.05 Percent abstinent at end of 12-week follow-up • CM vs. noncontingent incentive OR 1.4 (95% CI, 1.0 to 1.9), *P* > 0.05	Mean weeks retained (SD) of 12 possible • CM = 7.25 (4.25) • Noncontingent = 9.33 (3.98) • *P* = 0.0010 Dropouts, n (%), defined as missing 9 consecutive study appointments • CM = 38 (42) • Noncontingent = 55 (65) • *P* < 0.05
Petry 2010[141] Cocaine 2 arms Medium duration, escalating with reset Progress toward goals Missing data not imputed Moderate	Mean percent of samples submitted that were negative for stimulants over 24-week intervention (SD) • CM = 60.7 (38.3) • Noncontingent award = 63.8 (38.7) • *P* = 0.74 Longest duration of abstinence, mean weeks (SD) • CM = 5.9 (6.6) • Noncontingent award = 4.2 (6.0) • *P* < 0.05	Mean number of sessions attended (SD), groups met weekly, for maximum 24 sessions • Noncontingent award = 9.0 (6.9) • CM = 10.8 (8.1) • *P* = 0.10
Voucher-based CM		
Tuten 2012[24] Cocaine 3 arms Medium duration, fixed and escalating with reset arms	Longest duration of abstinence over 13-week intervention, mean number of cocaine-negative urine tests (SD) • Escalating CM = 11.9 (1.6) • Fixed CM = 9.5 (1.5) • Noncontingent award = 8.7 (1.7)	Number of days in treatment, mean (SD) • Escalating CM = 84.6 (6.1) • Fixed CM = 85.6 (6.8) • Noncontingent award = 88.6 (6.7)

Author, Year Target Drug # Study Arms CM type Contingency (Substances for Abstinence Contingency) Handling of Missing Urine Samples Risk of Bias	Abstinence-Related Outcomes	Retention-Related Outcomes
Abstinence (cocaine, opioids) Missing data not imputed High	• *P* any CM vs. control = 0.30 • *P* escalating vs. fixed CM = 0.23	• *P* any CM vs. control = 0.65 • *P* escalating vs. fixed CM = 0.91
Multiple CM conditions		
Petry 2015[23] Cocaine 4 arms Medium duration, escalating with reset Abstinence (cocaine, alcohol) Missing data not imputed High	Mean percent abstinent (SD) over 12-week intervention • Lower-value fishbowl CM = 55.5 (39.1) • Higher-value fishbowl CM = 55.1 (41.6) • Voucher CM = 59.1 (38.4) • Control = 36.0 (39.5) • *P* lower-value fishbowl vs. control = 0.01 • *P* higher-value fishbowl vs. control = 0.01 • *P* voucher vs. control = 0.002 • *P* lower vs. higher-value fishbowl = 0.96 • *P* lower fishbowl vs. voucher = 0.61 • *P* higher fishbowl vs. voucher = 0.58 Longest duration of abstinence over 12-week intervention, mean weeks (SD) • Lower-value fishbowl CM = 3.1 (4.0) • Higher-value fishbowl CM = 3.7 (4.0) • Voucher CM = 3.4 (3.7) • Control = 1.7 (2.7) • *P* lower-value fishbowl vs. control = 0.03 • *P* higher-value fishbowl vs. control = 0.002 • *P* voucher vs. control = 0.005 • *P* lower vs. higher-value fishbowl = 0.41 • *P* lower fishbowl vs. voucher = 0.67 • *P* higher fishbowl vs. voucher = 0.66	None reported

Abbreviations. CM: contingency management; OR: odds ratio; SD: standard deviation.

GRADE Summary of Effectiveness of CM for Stimulant Use Disorder

Table 9 presents a summary of effectiveness outcomes from RCTs comparing various CM interventions to psychosocial control groups. Appendix Table E2 provides additional information on the use of the GRADE system for rating certainty of evidence, while Appendix G provides detailed information on GRADE ratings for the studies included in the meta-analysis. Studies in general were very different from one another and reported outcomes in different ways, utilizing different definitions of abstinence and retention and varying scales (days, weeks, sessions, urine tests, etc.). To compare effects across studies with varying abstention outcomes and treatment lengths, we calculated SMD for use as the summary effect size metric. SMD represents the distance in standard deviation units between the average person in the treatment group and the average person in the comparison group for the outcome variable. Positive SMD values indicate that outcomes favor CM compared to control. Effect sizes were interpreted using Cohen categories: small (0.2 to 0.49), medium (0.5 to 0.79), and large (≥0.8).[139] Because abstinence at longest follow-up was reported as a percentage in all included studies and there was no reason to convert to a common metric, odds ratios were used in this meta-analysis rather than SMD.

Many of the included studies reported results only as significant or not significant, without providing data tables or sufficient detail with which to calculate effect sizes for abstinence outcomes.[18,19,25,62,140,142,143] One study of CM with attendance contingency by Van Horn and colleagues (2011) did not measure abstinence outcomes.[20] Only 4 of 11 RCTs comparing CM to a psychosocial control group that did not receive noncontingent incentives contained sufficient data for meta-analysis of the longest duration of abstinence. Additionally, 3 RCTs were included in the meta-analysis of abstinence at the longest duration of follow-up, while only 6 of 11 RCTs contained sufficient data for meta-analysis of the effects of CM on treatment retention. Studies with sufficient data and sufficient similarity for comparison across different outcomes for inclusion in meta-analysis are included in the GRADE table. The certainty of evidence ranged from low to moderate across all outcome measures, primarily due to the high risk of bias in individual studies and variability in study designs, populations, and approaches for handling missing data, which affected ratings of directness and precision.

Table 9. Summary of Findings (GRADE) for Effectiveness of CM

Outcome No. of Studies Participant N	CoE	Relationship	Rationale for CoE Rating
Duration of abstinence during intervention, CM vs. psychosocial control 4 RCTs[14-17] N = 494	●●○○ Low	Medium effect size in favor of CM, with SMD = 0.55 (95% CI, 0.39 to 0.75). Heterogeneity was acceptable at I^2 = 0%. In all 4 studies, the outcome favored the CM group. • Festinger et al. (2014) report mean 6.23 weeks longest duration of abstinence in voucher CM and 3.96 weeks in control • Petry et al. (2018) report mean 33.6 days for fishbowl CM compared 23.2 days for control • Petry and Alessi et al. (2012) report mean 4.7 weeks for fish bowl CM vs. 1.7 weeks for control	Downgraded for high risk of bias (-1) and differences between study designs and populations (-1 for indirectness).

Outcome No. of Studies Participant N	CoE	Relationship	Rationale for CoE Rating
		• Petry and Barry et al. (2012) report mean 3.6 weeks for fish bowl CM vs. 1.1 weeks for control	
Duration of abstinence for CM interventions with an abstinence contingency compared to control 3 RCTs[14,15,17] N = 353	●●●○ Moderate	Medium effect in favor of CM. Pooled SMD = 0.63 (95% CI, 0.44 to 0.87). Heterogeneity was acceptable at I^2 = 0%). • Festinger et al. (2014) report mean 6.23 weeks longest duration of abstinence in voucher CM and 3.96 weeks in control • Petry Alessi et al. (2012) report mean 4.7 weeks for fish bowl CM vs. 1.7 weeks for control • Petry Barry et al. (2012) report mean 3.6 weeks for fish bowl CM vs. 1.1 weeks for control	Downgraded for moderate to high risk of bias in contributing studies (-1). Some differences in study design and handling of missing data, but not downgraded for these elements because studies contributing the majority of data were similar in design and handling of missing data.
Abstinence at longest follow-up 3 RCTs, 4 study arms[15,17,18] N = 508	●●○○ Low	The odds ratio for abstinence at longest follow-up was 0.89 (95% CI, 0.62 to 1.27, *P* = 0.52) indicating no persistent effect of CM on abstinence beyond the end of the intervention.: • Hagedorn (2013) reported no difference in proportion of stimulant-positive samples collected at follow-up 12 months post randomization (26.2% CM vs. 26.1% control), although no values were imputed for missing samples. • Petry and Alessi (2012) reported no difference in proportion of samples negative for cocaine 9 months post randomization, when missing values were imputed as negative. • Petry and Barry (2012) found no difference in proportion of patients who self-reported abstinence and provided a negative urine sample at 9 months post randomization follow-up between study arms (cocaine-negative at intake or cocaine-positive at intake), although no values were imputed for missing samples.	Downgraded for high risk of bias (-1) and limitations in how missing data were handled that could lead to serious imprecision.
Treatment retention 6 RCTs[14-17,19,20] N = 740	●●○○ Low	Medium effect size in favor of CM in MA that pooled effects of all studies comparing CM contingent on abstinence to a psychosocial control (SMD = 0.67, 95% CI, 0.40 to 0.95), but heterogeneity was high (I^2 = 68%). • Of 6 RCTs, 5 found an effect in favor of CM (Petry 2018, Festinger 2014, Petry and Alessi 2012, Van Horn 2011, McKay 2010) • 1 RCT found no difference between CM and control (Petry and Barry 2012).	Downgraded for high risk of bias (-1) and differences in populations and study designs that lead to serious indirectness (-1).

Abbreviations. CI: confidence interval; CoE: certainty of evidence; CM: contingency management; GRADE: Grading of Recommendations Assessment, Development, and Evaluation; MA: meta-analysis; No. number; OR: odds ratio; RCT: randomized controlled trial; SMD: standardized mean difference.

Relevant Ongoing Studies

We identified 5 ongoing trials that met the inclusion criteria for this review (Table 10). None of these trials have results posted or published. The first, Ways of Rewarding Abstinence, is an open-label RCT that uses electroencephalography and cognitive behavioral assessments to predict how veterans with cocaine use disorder respond to tangible prize-based CM and abstract (voucher) prize-based CM.[145] This trial has enrolled 59 participants (original estimated enrollment was 180 participants) and completed data collection for the primary outcome measures of percentage of urine samples that test negative for cocaine and longest duration of abstinence during the 12-week intervention.[145]

Another ongoing trial is an RCT comparing attendance-only CM or attendance plus abstinence CM to treatment as usual for individuals aged 18 years and older diagnosed with opioid use disorder or stimulant use disorder.[146] The trial is set at a family medicine residency clinic at the University of Minnesota.[146] Primary outcome measures include the number of completed clinical visits and the percentage of urine samples that test negative for target substances during the intervention.[146] The trial is currently recruiting and has an estimated enrollment of 43 participants (original estimated enrollment of 200 participants).[146] The study is scheduled to be completed in May 2025.[146]

The Peer Engagement in Methamphetamine Harm-Reduction with CM trial, sponsored by Oregon Health & Science University, compares peer-facilitated CM to standard CM for individuals aged 18 to 105 years who use methamphetamine.[147] Participants in the peer-facilitated CM group receive rewards for achieving goals established with a peer specialist.[147] Participants in the standard CM group receive rewards for peer encounters.[147] The primary outcome measures are the number of participants who achieve self-identified goals, the number of participants who engage in substance use disorder treatment, and the number of participants who overdose.[147] The trial is currently recruiting and has an estimated enrollment of 1,800 participants.[147] The trial is estimated to be completed in September 2026.[147]

Two trials describe the same study, an RCT evaluating the use of the DynamiCare mobile health application to monitor substance use and provide CM for individuals who meet diagnostic criteria for opioid use disorder, cocaine use disorder, or methamphetamine use disorder.[148,149] The DynamiCare app allows remote monitoring of participants with substance use disorders by allowing them to submit a video of themselves performing a saliva or breath test, which is then reviewed by trained remote staff. [148,149] Upon verification of a negative test result, the DynamiCare app delivers a financial reward to a linked debit card. [148,149] This study is designed to evaluate the value and structure (constant, escalating, or de-escalating) of incentives over time.[148,149] The primary outcomes are the percentage of saliva tests negative for the target substance and the percentage of participants using the DynamiCare mobile application. The study, sponsored by Wake Forest University, is currently recruiting for an estimated of 600 participants.[148,149]

Table 10. Relevant Ongoing RCTs of CM for Stimulant Use Disorder

Trial Identifier Intervention Location Estimated Completion Date Sponsor	Population Estimated N	Outcomes
NCT03799341[145] Tangible prize-based CM or voucher prize-based CM US June 2025 Veterans Affairs Office of Research and Development	Military veterans aged 18 to 75 years who meet criteria for cocaine use disorder and report cocaine use within the past 60 days N = 59	• Percentage of urine samples negative for cocaine during 12-week intervention • Longest duration of cocaine abstinence during 12-week intervention • Percentage of CM sessions attended during 12-week intervention • Number of non-CM encounters during 12-week intervention • Percentage of self-reported cocaine abstinent days during 12-week intervention and 6-month postintervention interval • Percentage of self-reported drug and alcohol abstinent days during 12-week intervention and 6-month postintervention interval
NCT04927143[148] NCT05521854[149] DynamiCare mobile application to monitor substance use and provide CM on escalating and de-escalating schedules US December 2024 Wake Forest University	Individuals aged 18 years and older with a diagnosis of opioid use disorder, cocaine use disorder, or methamphetamine use disorder N = 600	• Percentage of saliva tests negative for target substance at 3 months • Longest duration of continuous abstinence at 3 months • Percentage of eligible population that uses mobile application
NCT05288751[146] Attendance-only or attendance and abstinence CM in primary care setting US May 2025 University of Minnesota	Individuals aged 18 years and older with a diagnosis of opioid use disorder or stimulant use disorder N = 42	• Number of clinical visits during the intervention • Percentage of urine samples negative for stimulants • Percentage of patients invited to participate who enroll in intervention • Percentage of patients who complete CM intervention
NCT05700994[147] Peer-facilitated CM or standard of care CM US September 2026 Oregon Health & Science University	Individuals aged 18 to 105 years who report methamphetamine use during the past 30 days N = 1800	• Number of participants who overdose at 6 months • Number of participants who achieve self-identified goals at 6 months • Number of participants who engage in substance use disorder treatment at 6 months

Abbreviations. CM: contingency management; US: United States.

KQ2. Harms

A scoping review of prize-based CM by Gagnon and colleagues (2021) found that potential risk of gambling relapse was the only harmful effect consistently mentioned across CM studies, mentioned in one-third of the 52 included studies.[116] Most research studies on CM exclude individuals in gambling recovery due to concerns about the potentially triggering effects of prize-based CM.[14,116] The efficacy of fishbowl-based CM relies on the same neural pathways as gambling by leveraging the desire to draw the biggest slip, however unlikely,[14,116] which some treatment providers have described as "slot machine theory."[118] Because most CM studies exclude individuals with a history of problem gambling, there is little data on which to judge the potential for CM to impact gambling relapse.[116] Other possible negative side effects of CM interventions identified in surveys of counseling staff, supervisors, and medical or clinical support staff involved in provision of CM include jealousy, arguing, reduced internal motivation, and selling incentives, although these outcomes are rarely monitored or reported in research studies.[121]

Of 17 RCTs included in this evidence review that explored the effectiveness of CM in interventions for individuals with stimulant use disorder, only 7 (41%) reported adverse events.[14-17,22,23,141] One study reported adverse events only in relation to a medication condition (disulfiram or placebo) and did not address adverse events related to CM.[22] Among the remaining 6 studies, 5 were by study teams led by Nancy Petry, a psychologist known for her research on behavioral treatments for substance use disorders prior to her death in 2018.[15-17,23,141] Dr. Petry is also the author of the book *CM for Substance Abuse Treatment: A Guide to Implementing This Evidence-Based Practice* (2012).[150] None of the 6 studies identified any study-related adverse events. The remaining studies did not provide any mention of measuring or reporting adverse events or potential harms associated with CM, including the only study to enroll pregnant women with stimulant use disorders.[24] Details on adverse event reporting are provided in Table 11.

Table 11. Adverse Event Reporting in 17 Studies of CM Effectiveness

Lead Author, Year CM Conditions Contingency RoB	Text Describing Adverse Events or Harms Related to CM
Comparison of CM with noncontingent awards	
Petry 2015[23] Medium-duration fishbowl and voucher arms Abstinence High	"No study-related adverse events occurred." (page 470)
McDonell 2013[62] Medium-duration fishbowl Abstinence High	No mention.

Lead Author, Year CM Conditions Contingency RoB	Text Describing Adverse Events or Harms Related to CM
Tuten 2012[24] Medium-duration voucher Abstinence High	No reference to adverse events, despite the fact that the study enrolled pregnant women. Pregnancy outcomes were not measured or referenced.
Petry 2010[141] Medium-duration fishbowl Progress toward goals Moderate	"Four participants (2 from CM and 2 from control) died of HIV-related causes during the study period, and 1 participant (CM group) died from an overdose/suicide. No deaths were deemed to be study related, and no study-related serious adverse events were noted." (page 95)
Comparison of CM with a psychosocial control that did not receive noncontingent rewards	
Petry 2018[16] Medium-duration fishbowl Attendance Moderate	"No study-related adverse effects occurred." (page 805)
Carroll 2016[22] Medium-duration fishbowl Abstinence High	Solely measured adverse events in relation to a medication condition (disulfiram or placebo). References on page 136 (Methods) and page 140. (Results)
Chudzynski 2015[142] Medium-duration voucher Abstinence High	No mention.
Festinger 2014[14] Medium-duration cash and voucher arms Abstinence High	Although a reported goal of the study was to examine "whether CBRT [cash-based] resulted in greater levels of harm than VBRT [voucher-based]," outcomes related to potential harms were limited to gambling (no difference in self-reported gambling between the CM conditions and control) and alcohol use intoxication (no difference between treatment arms in self-reported alcohol use at 4, 8, or 12 weeks). (page 8)
Hagedorn 2013[18] Short-duration fishbowl Abstinence High	No mention.
Roll 2013[140] Medium-duration fishbowl Abstinence High	No mention.

Lead Author, Year CM Conditions Contingency RoB	Text Describing Adverse Events or Harms Related to CM
Petry Allessi 2012[15] Medium-duration fishbowl Abstinence High	"There were no study-related adverse events, no patients filed complaints about study-related procedures, and no patients experienced increases in gambling problems." (page 294)
Petry Barry 2012[17] Medium-duration fishbowl Abstinence and attendance arms High	"No study-related adverse events occurred, and no patients evidenced problem gambling." (page 282)
Van Horn 2011[20] Long-duration voucher Attendance High	No mention.
McKay 2010[19] Medium-duration voucher Abstinence Moderate	No mention.
Hall 2009[26] Medium-duration voucher Abstinence and goal arms High	No mention.
CM studies not including a psychosocial control without CM	
Carpenedo 2010[143] Medium- or long-duration voucher Abstinence Moderate	No mention.
Menza 2010[25] Medium-duration voucher Abstinence High	No mention.

Abbreviations. CBRT: cash-based reinforcement therapy; CM: contingency management; HIV: human immunodeficiency virus; VBRT: voucher-based reinforcement therapy.

KQ3. Cost Analysis

We did not identify any cost effectiveness studies published within the past 5 years. While older studies are less relevant to current practice, we include them here due to the lack of recent studies. In 2015, Shearer and colleagues published a systematic review of economic evaluations of CM, including 9 studies published between 1999 and 2012, all of which were cost-effectiveness analyses.[27] All studies were conducted in the US and 5 were published by research teams led by Nancy Petry.[27] Five of the 9 included studies focused on CM for stimulant use.[27]

None of the studies included economic decision analysis models and 6 took a narrow perspective, focusing only on costs to the drug clinic.[27] Incremental costs per additional week of abstinence, based solely on intervention costs, were the most commonly reported economic evaluation measure, appearing in 6 of the 9 studies.[27] Among studies focused on stimulants, incremental costs per additional week of abstinence ranged from a low of $75.40 for adding fishbowl CM to group counseling for cocaine-dependent patients entering outpatient treatment to a high of $258 for adding fishbowl CM to individual counseling for stimulant abusers beginning outpatient treatment.[27] The systematic review authors noted the absence of an accepted willingness-to-pay threshold for additional drug-free time or drug-free patients (i.e., how much society values and is willing to pay for these outcomes) and concluded that the data were insufficient to draw any conclusions about the cost-effectiveness of CM.[27] Further, differences in the targets, incentives, and CM implementation methods, both within and across studies, prohibited direct comparison of incremental cost-effectiveness ratios (ICER) across studies and limited the generalizability of cost-effectiveness estimates beyond the specific settings and populations studied.[27]

Only 1 additional cost-effectiveness analysis was identified after Shearer and colleagues' 2015 systematic review.[27] This study, conducted by Murphy and colleagues (2015), used data from a 12-week RCT by McDonell and colleagues (2013), which is included in the evidence review for KQ1.[62] The RCT investigated the relative efficacy of treatment-as-usual with and without the addition of fishbowl CM for treating stimulant dependence in patients with serious mental illness.[28] In this study, the control group received noncontingent rewards, with the number of prize draws determined by the average number of draws for CM participants in the previous week.[62]

Intervention-related costs included the case manager salary, urine analysis supplies, and prizes for the fishbowl.[28] Weekly costs varied due to variations in the number of participants attending sessions, the number of prize draws earned, and the value of prizes received.[28] Costs for noncontingent prizes provided to the control group were excluded from the analysis.[28] The authors also calculated costs related to nonstudy outpatient mental health and chemical-dependency visits, inpatient psychiatric and substance abuse treatment days, detoxification admissions, and emergency department visits.[28] Quality-adjusted life-years (QALYs) were calculated for the primary economic outcome, stimulant-free year, and weighted by participants' scores on a mental health symptom scale that was administered monthly during the intervention.[28]

The ICERs calculated from the provider's perspective reflect the direct medical costs over 12 weeks (the cost of CM to the treatment center) per QALY and per stimulant-free year.[28] The payer-perspective ICERs reflect the total direct medical costs, including nonstudy medical services (per QALY and per stimulant-free year) over both the 12-week intervention period and the entire 24-week study period.[28] The total direct medical cost differentials for CM relative to usual care alone were not significantly different for either the provider ($2,652; SE $8,097, $P = 0.74$) or the payer ($2,611; SE $272,807) following the 12-week intervention, although very high standard errors led to high levels of insignificance.[28] After outpatient mental health and chemical-dependency treatment services from the community mental health center to CM are included, the direct medical cost for CM is $2,652 higher than usual care.[28] From the payer

perspective, the inclusion of outpatient and nonstudy services results in CM care costing $2,611 more than usual care at 12 weeks.[28] While the study found significantly higher time free from stimulants in the CM group compared to usual care,[62] direct-medical costs did not significantly differ. However, variability in costs and small, insignificant differences in QALYs led to wide confidence intervals around the ICER point estimates and low levels of certainty regarding CM being considered cost-effective across various willingness-to-pay thresholds.[28]

Table 12 summarizes available rewards and earned rewards as reported across 17 RCTs included in the analysis of the effectiveness of CM for treating individuals with stimulant use disorders. Of the 17 RCTs, only 8 (47%) included both the maximum amount earnable for the CM condition(s) and the mean amount earned by participants.[17,19-26] Among these 8 studies, the average potential award was $672 (SD $365.50), but the average award earned by participants was $270 (SD $189).[17,19-26] On average, participants earned only 39% of available rewards.[17,19-26]

Fifty percent or more of the available rewards were earned in only 3 studies.[17,19,22] Carroll and colleagues (2016) conducted a study in which individuals with cocaine dependence were randomly assigned to receive CBT weekly over 12 weeks with or without the addition of disulfiram or fishbowl CM.[22] Those in the CM conditions who were eligible for every possible fishbowl draw and consistently drew the most valuable slip could earn up to $800 in prizes.[22] The mean estimated cash value of prizes received by those in the CM plus placebo and CM plus disulfiram groups was $415.40 (SD $661.90), meaning that those assigned to a CM condition earned approximately 52% of the available rewards.[22]

Petry and Barry (2012) employed a complex study design in which individuals who tested positive for cocaine at baseline were assigned to a control group or to fishbowl CM with higher ($560) or lower ($250) maximum values, while those who tested negative for cocaine at baseline were assigned to either an abstinence- or attendance-based CM, each with a maximum earning of $250.[17] Those in the cocaine-positive lower-value fishbowl CM group earned on average only 26% of the available awards, while those in the higher-value fishbowl CM group earned 54% of the available awards.[17] Those who tested negative for cocaine at baseline earned 64% of the potential rewards in the abstinence-based group and 75% of the potential rewards in the attendance-based group.[17] Finally, McKay and colleagues conducted a study in which participants were randomly assigned to receive standard group-based outpatient care with or without CM or relapse-focused CBT with or without CM.[19] Those participating in 1 of the 2 voucher-based CM conditions could potentially earn up to $1,150 in vouchers. Individuals assigned to standard group care plus CM on average earned 64% of the available rewards, while those assigned to CBT plus CM earned an average of 74% of the available rewards.[19]

Table 12. Contingent Reinforcement Earned in 17 RCTs

Lead Author, Year CM Conditions Contingency N Participants in CM Arm(s)	Maximum Payout per Participant for CM Arm(s)	Amount Earned per Participant
Comparison of CM with noncontingent awards		
Petry 2015[23] Medium-duration fishbowl and voucher arms Abstinence N = 183	Lower fishbowl CM = $300 Higher fishbowl CM = $900 Voucher CM = $900	$300 fishbowl CM = median $25 (IQR $197) $900 fishbowl CM = median $233 (IQR $791) $900 voucher CM = median $184 (IQR $552) Earnings for the control condition not reported
McDonell 2013[62] Medium-duration fishbowl Abstinence N = 91	Not reported	Noncontingent control = mean $201.48 (SD $343.32) CM = mean $150.30 (SD $130.94)
Tuten 2012[24] Medium-duration voucher Abstinence N = 90	Control with noncontingent rewards = variable (yoked to earnings of CM participants) Escalating CM = $1,364 Fixed CM = $950	Control with noncontingent awards = mean $219.74 (SD $39.78) Escalating CM = mean $296.03 (SD $42.18) Fixed CM = mean $437.11 (SD $46.52)
Petry 2010[141] Medium-duration fishbowl Progress toward goals N = 89	Not reported	CM = mean $260 (SD $267) Control with noncontingent rewards = mean $89.70 (SD $69.20) for attendance and mean $31.30 (SD $18.30) for sample submission
Comparison of CM with a psychosocial control that did not receive noncontingent rewards		
Petry 2018[16] Medium-duration fishbowl Attendance N = 248	Full 12-week CM = $380 6-week CM= $190	Not reported by treatment received (full 12-week CM or 6-week CM) Patients randomized to CM in weeks 1 to 6 earned mean $43.10 (SD $28.10) and those randomized to CM in weeks 7 to 12 earned mean $65 (SD $81)
Carroll 2016[22] Medium-duration fishbowl Abstinence N = 45	Mean $800	Mean $415.40 (SD $661.90)
Chudzynski 2015[142] Medium-duration voucher Abstinence N = 90	$1,155	Not reported
Festinger 2014[14] Medium-duration cash and voucher arms	$997.50 for cash and voucher arms	Not reported

Lead Author, Year CM Conditions Contingency N Participants in CM Arm(s)	Maximum Payout per Participant for CM Arm(s)	Amount Earned per Participant
N = 144		
Hagedorn 2013[18] Short-duration fishbowl Abstinence N = 71	Not reported	Mean $76 (range $0 to $271)
Roll 2013[140] Medium-duration fishbowl Abstinence N = 89	"Approximately $500" (page 3)	Mean "$250 or less" (page 3)
Petry Allessi 2012[15] Medium-duration fishbowl Abstinence High	Not reported	Mean $160 (SD $186)
Petry Barry 2012[17] Medium-duration fishbowl Abstinence and attendance arms N = 300	Cocaine-positive arm • Lower-value fishbowl = $250 • Higher-value fishbowl = $560 Cocaine-negative arm • Abstinence-based CM = $250 • Attendance-based CM = $250	Cocaine-positive arm • Lower value fishbowl = mean $65.2 (SD $108.60) • Higher-value fishbowl = mean $303.40 (SD $355.20) Cocaine-negative arm • Abstinence-based CM = mean $159.70 (SD $134.30) • Attendance-based CM = mean $187.00 (SD $145.50)
Van Horn 2011[20] Long-duration voucher Attendance High	$400 ($300 for session completion and $100 in bonuses)	Mean ~ $200 "On average, TMAC+ participants earned 57.32% (SD = 41.27%) of the number they could earn if they participated in the protocol exactly as planned." (page 226)
McKay 2010[19] Medium-duration voucher Abstinence N = 51	$1,150	Mean $740 (SD not reported)
Hall 2009[26] Medium-duration voucher Abstinence and goal arms N = 101	Maximum $520 for abstinence-based and goal-based CM arms Maximum $1,040 for abstinence + goal-based CM	Abstinence-based CM = mean $227 (SD $199) Goal-based CM = mean $103 (SD $142) Abstinence + goal-based CM = mean $266 (SD $243)

Lead Author, Year CM Conditions Contingency N Participants in CM Arm(s)	Maximum Payout per Participant for CM Arm(s)	Amount Earned per Participant
CM studies not including a psychosocial control without CM		
Carpenedo 2010[143] Medium- or long-duration voucher Abstinence N = 130	Medium-duration CM = $978.75 Long-duration CM = $3,120.00	Not reported
Menza 2010[25] Medium-duration voucher Abstinence N = 70	$453.75	Mean $112 (SD $138) Median $50 (IQR $15 to $150)

Abbreviations. CM: contingency management; IQR: interquartile range; SD: standard deviation, TMAC+: telephone monitoring and adaptive counseling with CM.

KQ4. Clinical Practice Guidelines

Four clinical practice guidelines specifically addressing the use of CM for treating stimulant use disorder were identified.[11,21,29,151,152] Two were from international agencies[151,152], and 2 from US organizations.[11,21] One of the US guidelines was jointly issued by ASAM and the AAAP[11] and the other was a clinical practice guideline from the VA and Department of Defense.[21,29]

The ASAM and AAAP joint practice guideline, published in 2023, identifies CM as the current standard of care for treating stimulant use disorders.[11] The guideline states that CM has demonstrated better effectiveness in adults than any other studied intervention. CM can be combined with other psychosocial interventions and behavioral therapies, such as CBT.[11] It is also recommended for adolescents and young adults, with modifications as necessary to ensure developmental appropriateness.[11] The guideline advises that clinicians consider using CM to incentivize attendance at prenatal appointments for pregnant and postpartum patients with stimulant use disorder, although the authors acknowledge that evidence regarding its effect on prenatal care participation is mixed.[11]

The ASAM/AAAP joint guideline notes that, despite evidence supporting its effectiveness, CM is not widely implemented. Identified barriers to its use in substance use disorder treatment programs include regulatory obstacles (primarily concerns about potential violations of the federal Anti-Kickback Statute), financial costs, stakeholder buy-in, and program resources, including training, staffing, and drug testing capacity.[11] Further, the ASAM/AAAP guideline notes that setting an incentive value too low does not align with evidence-based practice and is unlikely to be effective, although they do not define what constitutes "too low."[11] The ASAM/AAAP recommendations are based primarily on an evidence review that draws from 2 systematic reviews: De Crescenzo and colleagues (2018)[5] and Minozzi and colleagues (2016).[11] When comparing CM to a control condition with noncontingent awards, the systematic reviews found that the longest duration of abstinence favored CM, although there was no difference between CM and control in treatment retention.[11] However, when comparing CM to treatment

as usual, both the longest duration of abstinence and treatment retention favored CM over control.[11]

A 2021 clinical practice guideline from the VA and Department of Defense addresses CM for management of substance use disorders generally.[21,29] The guideline issues a strong recommendation for CM as the initial treatment for stimulant use disorder.[29] For specific addictions, it issues a strong recommendation for CM for treatment of cocaine use disorder.[29] However, due to limited evidence on effective treatments for other stimulant use disorders, the guideline issues only weak recommendations supporting the use of CM for treating amphetamine and methamphetamine use disorders.[29] In all cases, the guideline advises that CM should be used in combination with another evidence-based intervention.[29] An ancillary publication summarizing the guideline indicates that CM is most effective when the contingent condition is abstinence monitored by urine drug screen, higher-value incentives are used, and a longer intervention time frame is used.[21] As with the ASAM/AAAP guideline, however, neither optimal value nor optimal duration is defined.[21]

Both international guidelines are older, without any recent updates. The UK's National Institute for Health and Care Excellence published a guideline in 2016 (last reviewed in 2024) on community health and social services for coexisting severe mental illness and substance misuse.[152] While it does not offer any recommendations for or against CM, the systematic review informing the guidelines found weak evidence from 2 US RCTs comparing the effects of CM combined with compensated work therapy to compensated work therapy alone on substance use and adaptive functioning outcomes.[152] The committee members identified limitations, including small sample sizes, limited follow-up periods, and only partial applicability to the UK due to differences in the US and UK health care environments.[152] The committee did not offer specific recommendations related to the inclusion of CM in interventions but highlighted ethical and social concerns about incentivizing people to take up health care interventions.[152]

The World Health Organization (WHO) published *Guidelines for the Identification and Management of Substance Use and Substance Use Disorders in Pregnancy* in 2014.[151] The WHO provides a conditional recommendation, based on very low certainty of evidence, for providing individualized psychosocial interventions to manage pregnant or postpartum women with substance use disorders.[151] The umbrella of psychosocial interventions includes CM, but the guideline does not prioritize CM over other interventions, such as CBT or motivational interviewing.[151] The conditional nature of the recommendation reflects both the absence of strong evidence at the time of publication and potential resource implications.[151] Specifically, the certainty of evidence for using CM to treat cocaine use disorder in maternal and postpartum women was rated as very low.[151]

KQ5. Relevant Medicaid Program Coverage Policies and Health Plan Policies

We did not identify any health plans with coverage policies for CM for stimulant use disorder. Of the 10 state Medicaid programs we routinely search for EBBRAC reports, we identified 2 state Medicaid programs, California[30,31] and Washington,[32] with approved section 1115a substance use disorder waivers that include CM programs. We also identified grant-funded CM pilots in Oregon[153] and New Jersey,[154] but as they were not directly related to insurance coverage, we excluded them from our results.

To expand our results, we reviewed all state 1115a substance use disorder waivers for references to CM and identified an additional 6 states with approved, pending, or rejected applications for coverage of CM: Delaware,[33] Hawaii,[34] Michigan,[36] Montana,[35] Rhode Island,[37] and West Virginia.[38]

West Virginia Medicaid requested authority to implement a CM program for enrollees with stimulant use disorder as part of their application to extend their section 1115 demonstration.[38] While CMS approved the demonstration extension overall, the agency rejected the state's proposed CM benefit.[38] CMS staff wrote in the approval letter that "[a]t this time, CMS can only approve requests for CM from states that have sufficient budget neutrality savings to cover the costs of this program. Since West Virginia's demonstration does not generate budget neutrality savings, CMS cannot approve the state's CM proposal. CMS and the state will revisit this request if the policy changes."[38(p10)]

Table 13 summarizes key elements of the 7 state Medicaid agencies' approved (California,[30,31] Delaware,[33] Hawaii,[34] Montana,[35] and Washington[32]) or pending (Michigan[36] and Rhode Island[37]) CM programs. Complete details for each state policy are included in Appendix H.

Table 13. Summary of Approved and Pending 1115 CM Programs

State	Waiver Status	Target Population	Program Length	Maximum Possible Payment
California Medicaid Section 1115 Demonstration Five-year Renewal and Amendment request: California Advancing and Innovating Medi-Cal (CalAIM). 2021[30] Centers for Medicare & Medicaid Services. Updated approval of California Advancing and Innovating Medi-Cal (CalAIM) 1115 waiver. 2024[31]	Approved	Individuals enrolled in an comprehensive outpatient substance use disorder treatment program provided in-person or via telehealth who have been "assessed and determined to have a substance use disorder for which the CM benefit is medically appropriate based on the fidelity of treatment to the evidence-based practice."[30(p52)]	24 weeks of outpatient CM + 6 or more months of additional recovery support services	$599
Delaware Centers for Medicare & Medicaid Services. Technical Corrections to Delaware's Section 1115 Medicaid Demonstration Delaware Diamond State Health Plan. 2024[33]	Approved Awaiting finalization of CM protocol as of March 25, 2025	Group 1: age 18 or older with a stimulant use disorder Group 2: age 18 or older, pregnant or up to 12-months postpartum diagnosed with opioid use disorder	Group 1: 24 weeks Group 2: 64 weeks	Not yet determined; awaiting finalization of CM protocol
Hawaii Centers for Medicare & Medicaid Services.	Approved	18 years or older with a diagnosis of stimulant	24 weeks	Not yet determined; awaiting

State	Waiver Status	Target Population	Program Length	Maximum Possible Payment
Hawaii QUEST integration 1115 waiver approval. 2025[34]	Awaiting finalization of CM protocol as of March 25, 2025	use disorder or opioid use disorder		finalization of CM protocol
Michigan Centers for Medicare & Medicaid Services. Michigan Medicaid Section 1115 Behavioral Health Demonstration Extension Application. 2024[36]	Pending as of March 25, 2025	Individuals with stimulant use disorder or opioid use disorder	Not specified	$599.00
Montana Centers for Medicare & Medicaid Services. Montana 1115 Waiver Demonstration approval: Healing and Ending Addiction through Recovery and Treatment (HEART) Demonstration. 2023[35]	Approved	18 years or older with a diagnosis of stimulant use disorder	12 weeks	$576.00
Rhode Island Rhode Island Executive Office of Health and Human Services. Rhode Island Comprehensive Section 1115 Demonstration Waiver Extension Request Addendum. 2024[37]	Pending as of March 25, 2025	Assessed as having an alcohol or substance use disorder and enrolled in comprehensive outpatient treatment program with services provided in-person or through telehealth	Not specified	Not specified
Washington Centers for Medicare & Medicaid Services. Approval Washington 1115 Demonstration Medicaid Transformation Project 2.0. 2023[32]	Approved	"Be assessed and determined to have a substance use disorder for which the CM benefit is medically necessary and appropriate based on the fidelity of treatment to the evidence-based intervention."[32(p65)]	24 weeks	$1092.00

Abbreviations. CM: contingency management.

Eligible Recipients

While all 7 states explicitly mention stimulant use disorder as a target condition for CM services, only Montana's policy limits coverage to individuals with a diagnosis of stimulant use disorder.[155] Both the California and Washington policies use language specifying that the individual must have a "substance use disorder for which the CM benefit is medically necessary and appropriate."[30,156] Delaware's approved program has 2 tracks: 1 for individuals with stimulant use disorder and another for individuals who are pregnant or up to 12-months postpartum who have been diagnosed with OUD.[33] Hawaii's approved program includes individuals with either stimulant use disorder or OUD diagnoses.[34] In pending applications, Michigan Medicaid has requested coverage for individuals with either stimulant use disorder or OUD,[36] and Rhode Island has requested coverage for individuals with alcohol or substance use disorders.[37]

Delaware, Hawaii, and Montana limit coverage to individuals age 18 years or older[33-35]; the other 4 states do not specify age restrictions.[30,36,37,156]

Program Length

Program length varies from 12 weeks in Montana[35] to 64 weeks in Delaware[33] for pregnant or postpartum individuals with OUD. In California,[30,31] Hawaii,[34] Washington,[32] and Delaware[33] the standard program length for individuals with stimulant use disorder is 24 weeks. In their pending applications, Michigan[36] and Rhode Island[37] do not specify a program length.

Though program length in Montana is limited to 12 weeks, the approval explicitly states that "there is not a limit on the number of times a beneficiary can participate in the twelve-week program."[35(p18)] Hawaii's approval also states that there is no limit on how many times individuals can participate in their 24-week program.[34]

Amounts and Delivery of Incentives

Approved programs all specify that incentives will be granted when a UDT determines there has been no use of targeted substances and that incentives will be managed through a mobile or web-based incentive management system.[30-35] The Washington program approval specifically mentions REDCap as the incentive management system to be used.[32]

All states with published protocols on incentive amounts use graduated systems where earnings increase with the duration of negative UDTs.[30-32,35] California's system differs in that the potential incentives increase steadily from weeks 1 to 12 but decrease from weeks 13 to 23; see Appendix H for details.[31]

The maximum amount of incentives participants can earn varies by program. In Montana's 12-week program, participants can earn up to $576.00.[35] In California's 24-week program, participants can earn up to $599.00,[33] while participants in Washington's 24-week program can earn up to $1,092.00.[32]

Incentive Use Restrictions

All protocols state that beneficiaries will receive gift or debit cards as incentives, with restrictions on how the funds may be used. All 5 states with detailed protocols (California, Delaware, Hawaii, Montana and Washington) specifically prohibit using incentives to purchase tobacco, alcohol, cannabis, or gambling-related items such as lottery tickets.[30-35] Additionally, Delaware, Hawaii,

Montana, and Washington restrict the purchase of weapons and ammunition,[32-35] while Delaware, Hawaii, and Washington also prohibit the purchase of pornographic materials and "over the counter preparations containing possible intoxicants."[32(p5, App Q),33(p5),34(p68)]

Eligible Providers

Policies require providers to complete readiness assessments to determine their ability to deliver CM and to participate in CM-specific training.[30-35] Providers eligible to provide CM include licensed behavioral health clinicians and "trained staff under the supervision of licensed clinicians."[30-35] California and Washington specifically state that certified peer support specialists are eligible to provide services.[30-32] Hawaii allows primary care physicians, physician's assistants, and advanced practice registered nurses to provide services.[34]

Medication-Assisted Treatment

Approved protocols explicitly state that CM should not replace medications used to treat OUD or alcohol use disorder but should instead complement medication-assisted treatment.[30-32,34,35]

Discussion

Seventeen clinical trials evaluating the efficacy of various CM interventions were identified. There were significant variations in study designs, with differences in CM duration, type, and value, as well as the behaviors on which awards were based. Studies were roughly evenly divided between fishbowl-based CM (8) and voucher-based CM (7), with 1 study including both voucher and fishbowl arms and 1 comparing cash-based CM with voucher-based CM. Only 1 of 17 studies recruited pregnant women.[24] Most studies were of medium duration (12 to 26 weeks) and used an escalating reward structure, where rewards increased when participants met contingency goals but reset to baseline when they did not. In most studies (71%), rewards were solely contingent on abstinence, although a small number of studies based rewards on attendance or progress toward goals. In some studies, assessing the effectiveness of CM in comparison to a psychosocial control was challenging due to the use of noncontingent awards in the control group.

Many of the included studies reported limited details, providing only odds ratios or *P* values from tests of association without accompanying data tables, means, standard deviations, or test statistics (e.g., t, F, or χ^2) that would allow us to estimate effect sizes for meta-analysis. This lack of detail not only prevented us from including all studies in the meta-analysis but also reduced confidence in the reported effects. Overall, an effect was found in favor of CM compared to control for duration of abstinence, although most studies did not report any persistent effect of CM on abstinence beyond the end of the intervention. In our meta-analysis of 6 RCTs, there was a medium effect size in favor of CM for treatment retention, although heterogeneity was very high.

While CM is not without risks, very few of the included RCTs assessed adverse events. The most commonly cited harms related to CM involved gambling relapse triggered by the prize-based nature of CM intervention, yet the frequent exclusion of individuals with a history of gambling problems from trials prevents researchers from drawing any conclusions about the role of CM in exacerbating gambling problems. In this review, 7 of 17 RCTs excluded individuals with a history of gambling problems from enrollment,[15-18,23,141,143] while 2 studies did not specify exclusion

criteria.[14,26] Other CM-related risks include jealousy or disappointment related to the magnitude of prizes earned, particularly in fishbowl draws, though these concerns were not addressed in any of the included RCTs. Most RCTs avoided cash rewards due to concerns that they may be used to purchase alcohol or drugs, but when gift cards or durable goods are used as incentives, participants can still sell or trade them. To mitigate this issue, some CM interventions restrict where rewards can be redeemed and what they can be used for. For example, CM interventions in the VA provide vouchers only redeemable at VA Canteen sites.[157,158] Of 17 RCTs included in evidence review, only 6 reported on CM-related adverse events and none identified any study-related harms.[14-17,23,141]

A systematic review of cost-effectiveness analyses for CM found that differences in targets, incentives, and implementation methods, both within and across studies, prohibited direct comparison of ICERs and limited the generalizability of cost-effectiveness estimates beyond the specific settings and populations studied.[27] Indeed, our review of 17 RCTs found wide variation in study designs, populations, and reporting quality, resulting in limited information on both the maximum earnable amount (if all contingencies were met), and the actual mean earnings of participants.

While CM is generally described as being rooted in alternative reinforcement theory, Regier and Redish (2015) propose an alternative theory.[159] They suggest that CM may shift decision-making processes from a willingness-to-pay metric (how much money or effort someone is willing to put into achieving a goal) to a choose-between metric (preference for an option when contrasted with one or more alternatives).[159] In other words, for someone enrolled in a CM program, the cost of drug use is not just the cost of the drug itself but also the value of the unearned incentive they forgo.[159] If their theory, which positions CM as a deliberative decision-making process, is true, then CM will outperform what would be expected in a willingness-to-pay model. Initial work by Regier and Redish (2015)[159] and Davidson (2024)[160] corroborates the hypothesis that incentives alone may not fully account for the success of CM, suggesting that use of a willingness-to-pay model in cost-effectiveness analysis may not be ideal. This may help explain the difficulty of fitting CM interventions to common willingness-to-pay thresholds, which various cost-effectiveness analyses have noted.[27,28,161,162]

Overall, we found evidence in favor of CM for stimulant use disorder, consistent with previous systematic reviews on the topic.[27,28,161-164] In an early meta-analysis, Prendergast and colleagues (2006) examined the use of CM for treating substance use disorders broadly, including 47 comparisons of the effectiveness of CM published between 1970 and 2002.[67] They found, as we did, that the effect of CM on drug use in the treatment of substance use disorder in general (47 comparisons), and cocaine use in particular (8 comparisons) favored CM over intervention, with medium effect sizes (0.49 to 0.66).[67] As in our findings, their analysis indicated that the effect of CM did not persist over time after incentives were withdrawn.[67] A 2024 Cochrane review[27,28,161-164] of psychosocial interventions for psychostimulant misuse that updated an earlier 2016 review[165] also found that both point abstinence and continuous abstinence at the end of treatment favored CM interventions, although there was no significant difference between CM and control in either metric at longest follow-up. Similarly, a network meta-analysis by De Crescenzo and colleagues (2018), which included 42 treatment arms involving a CM intervention of some variety, found that abstinence at 12 weeks and abstinence at the end of

treatment favored CM, but abstinence at longest follow-up did not.[5] The combination of CM and community reinforcement approaches was identified as the most effective treatment for cocaine and amphetamine addiction in the network meta-analysis.[5]

US recommendations issued by ASAM and the AAAP[11] and the US Department of VA[21,29] promote CM as an evidence-based method for treatment of stimulant use disorder, particularly cocaine use disorder. We did not identify any health plans with coverage policies for CM for stimulant use disorder. All of the policies we identified were in Medicaid and authorized as part of 1115 demonstration projects. While states varied in target populations, CM program length, and the amount and timing of financial incentives, much of the policy language in the approved waivers was similar, suggesting CMS has developed standardized protocols for Medicaid CM programs. The latest guidance issued by SAMHSA confirms acceptance of CM as an evidence-based approach for treating substance use disorders, with specific guidance on population (individuals ≥ 18 years of age) and duration (minimum of 12 weeks).[39] SAMHSA further stipulates that any CM interventions that are contingent on abstinence must be based on biochemical verification.[39] In keeping with best practices, SAMHSA requires that incentives be provided immediately following verification that the targeted behavior is achieved.[39]

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Appendix A. Search Methods

Clinical Evidence Sources and Search Strategies

We searched selected bibliographic databases and grey literature sources using key words such as *stimulant use disorder*, *cocaine use*, *methamphetamine use*, *contingency management*, and *voucher* to identify randomized controlled trials, nonrandomized comparative trials reporting harms, cost-effectiveness studies, and clinical practice guidelines. We did not use date limits, but we did limit search results to publications available in the English language. Searches were conducted May 8, 2024, through May 13, 2024.

Bibliographic Database Sources

- Cochrane Central Register of Controlled Trials (CENTRAL)
- Cochrane Database of Systematic Reviews (CDSR)
- Ovid MEDLINE
- Ovid PsycInfo

Evidence Synthesis Sources

- Agency for Healthcare Research and Quality (AHRQ)
- Canada's Drug Agency
- Epistemonikos
- Health Quality Ontario
- Institute for Clinical and Economic Review (ICER)
- Institute for Health Quality and Efficiency in Health Care
- International Health Technology Assessment (HTA) Database
- National Institute for Health and Care Excellence (NICE)
- Oregon Health Evidence Review Commission (HERC)
- Veterans Administration Evidence Synthesis Program (ESP)
- Washington Health Technology Assessment

Clinical Practice Guideline Sources

- American Association of Addiction Psychiatry (AAAP)
- American Medical Association (AMA)
- American Psychiatric Association
- American Psychological Association
- American Society of Addiction Medicine (ASAM)
- Guidelines International Network (GIN) International Guidelines Library
- National Institute on Drug Abuse (NIDA)
- Scottish Intercollegiate Guidelines Network (SIGN)
- Substance Abuse and Mental Health Services Administration (SAMHSA)
- US Preventive Services Task Force (USPSTF)
- Veterans Administration/Department of Defense Clinical Practice Guidelines

Clinical Trial Sources

- ClinicalTrials.gov
- ScanMedicine

Ovid MEDLINE ALL Search Strategy

1946 to May 7, 2024
Date searched (number of results): May 8, 2024 (2,145)

1	exp substance-related disorders/
2	exp alcohol drinking/
3	exp "marijuana use"/
4	exp smoking/
5	smoking cessation/
6	smoking reduction/
7	exp "tobacco use"/
8	"tobacco use cessation"/
9	((drug* or medication* or pharmaceutical* or polydrug* or poly-drug* or polysubstance* or poly-substance* or psychostimulant* or psycho-stimulant* or stimulant* or substance*) adj3 (abuse* or addict* or depend* or disorder* or habit* or misuse* or mis-use* or overdose* or overuse* or problem*)).ti,ab,kf.
10	(alcohol* adj3 (abstain* or abstin* or abuse* or addict* or depend* or detox* or disorder* or habit* or misuse* or mis-use* or overdose* or overuse* or problem* or reduc* or withdraw*)).ti,ab,kf.
11	(binge* adj3 drink*).ti,ab,kf.
12	((amfetamin* or amphetamin* or cocaine or crack-cocaine or d-amfetamin* or d-amphetamin* or dexamfetamin* or dexamphetamin* or dexedrine or dextroamfetamin* or dextro-amfetamin* or dextroamphetamin* or dextro-amphetamin* or ecstasy or mdma or met?amfetamin* or met?amphetamin*) adj3 (abstain* or abstin* or abuse* or addict* or depend* or detox* or disorder* or habit* or misuse* or mis-use* or overdose* or overuse* or problem* or reduc* or use* or withdraw*)).ti,ab,kf.
13	((alfentan#l* or buprenorfin* or buprenorphin* or codein* or demerol or diacetylmorfin* or diacetylmorphin* or diamorfin* or diamorphin* or fentan#l* or heroin* or hycodan or hydrocodon* or hydromorf#n* or hydromorph#n* or meperidin* or methadon* or morfin* or morphin* or narcotic* or operidin* or opiate* or opioid* or opium* or ox#codon* or ox#con* or ox#morfon* or ox#morphon* or pethidin* or sufentan#l*) adj3 (abstain* or abstin* or abuse* or addict* or depend* or detox* or disorder* or habit* or misuse* or mis-use* or overdose* or overuse* or problem* or reduc* or use* or withdraw*)).ti,ab,kf.
14	((alprazola* or ativan* or benzodiazepin* or bromazepam* or bromazanil* or clobazam* or clonapam* or clonazepam* or c?lorazepate* or diazepam* or estazolam* or flurazepam* or klonopin* or lorazepam* or medazepam* or midazolam* or nitrazepam* or nord?azepam* or oxazepam* or prazepam* or temazepam* or triazolam* or valium* or xanax*) adj3 (abstain* or abstin* or abuse* or addict* or depend* or detox* or disorder*

	or habit* or misuse* or mis-use* or overdose* or overuse* or problem* or reduc* or use* or withdraw*)).ti,ab,kf.
15	(ketamin* adj3 (abstain* or abstin* or abuse* or addict* or depend* or detox* or disorder* or habit* or misuse* or mis-use* or overdose* or overuse* or problem* or reduc* or use* or withdraw*)).ti,ab,kf.
16	((angel dust or fenc#clidin* or hallucinogen* or lysergic acid* or lsd or phenc#clidin* or psychedelic*) adj3 (abstain* or abstin* or abuse* or addict* or depend* or detox* or disorder* or habit* or misuse* or mis-use* or overdose* or overuse* or problem* or reduc* or use* or withdraw*)).ti,ab,kf.
17	((bhang* or cannabi* or endocannabi* or endo-cannabi* or ganja* or hash* or mari#uana* or phytocannabi* or phyto-cannabi* or tetrahydrocannabi* or thc) adj3 (abstain* or abstin* or abuse* or addict* or depend* or detox* or disorder* or habit* or misuse* or mis-use* or overdose* or overuse* or problem* or reduc* or withdraw*)).ti,ab,kf.
18	((cigar* or ecig* or e-cig* or nicotin* or smoking or tobacco* or vape* or vaping) adj3 (abstain* or abstin* or abuse* or addict* or cessation or cease* or depend* or disorder* or habit* or misuse* or mis-use* or overdose* or overuse* or problem* or quit* or reduc* or stop* or withdraw*)).ti,ab,kf.
19	or/1-18
20	token economy/
21	(contingen* adj2 (incentive* or manage* or payment* or prize*)).ti,ab,kf.
22	((cash or financial or lotter* or money or token*) adj2 (incentive* or interven* or payment* or prize* or reinforce* or reward*)).ti,ab,kf.
23	(fishbowl* or fish-bowl* or fishbowl*).ti,ab,kf.
24	gift card*.ti,ab,kf.
25	motivation* incentive*.ti,ab,kf.
26	token* econom*.ti,ab,kf.
27	voucher*.ti,ab,kf.
28	or/20-27
29	and/19,28
30	exp animals/ not humans/
31	29 not 30
32	limit 31 to english language

Cochrane Database of Systematic Reviews (CDSR) and Cochrane Central Register of Controlled Trials (CENTRAL) via the Cochrane Library Search Strategy

CDSR: Issue 5 of 12, May 2024
CENTRAL: Issue 4 of 12, April 2024
Date searched (number of results): May 8, 2024

(1,616; 1,185 results uploaded to DistillerSR, 5 non-English language results removed in Cochrane Library, 426 results from ClinicalTrials.gov and International Clinical Trials Registry Platform removed in EndNote)

1 [mh "substance-related disorders"]

2 [mh "alcohol drinking"]

3 [mh "marijuana use"]

4 [mh smoking]

5 [mh "smoking cessation"]

6 [mh "smoking reduction"]

7 [mh "tobacco use"]

8 [mh "tobacco use cessation"]

9 ((drug* or medication* or pharmaceutical* or polydrug* or poly-drug* or polysubstance* or poly-substance* or psychostimulant* or psycho-stimulant* or stimulant* or substance*) NEAR/3 (abuse* or addict* or depend* or disorder* or habit* or misuse* or mis-use* or overdose* or overuse* or problem*)):ti,ab,kw

10 (alcohol* NEAR/3 (abstain* or abstin* or abuse* or addict* or depend* or detox* or disorder* or habit* or misuse* or mis-use* or overdose* or overuse* or problem* or reduc* or withdraw*)):ti,ab,kw

11 (binge* NEAR/3 drink*):ti,ab,kw

12 ((amfetamin* or amphetamin* or cocaine or crack-cocaine or d-amfetamin* or d-amphetamin* or dexamfetamin* or dexamphetamin* or dexedrine or dextroamfetamin* or dextro-amfetamin* or dextroamphetamin* or dextro-amphetamin* or ecstasy or mdma or met?amfetamin* or met?amphetamin*) NEAR/3 (abstain* or abstin* or abuse* or addict* or depend* or detox* or disorder* or habit* or misuse* or mis-use* or overdose* or overuse* or problem* or reduc* or use* or withdraw*)):ti,ab,kw

13 ((alfentan?l* or buprenorfin* or buprenorphin* or codein* or demerol or diacetylmorfin* or diacetylmorphin* or diamorfin* or diamorphin* or fentan?l* or heroin* or hycodan or hydrocodon* or hydromorf?n* or hydromorph?n* or meperidin* or methadon* or morfin* or morphin* or narcotic* or operidin* or opiate* or opioid* or opium* or ox?codon* or ox?con* or ox?morfon* or ox?morphon* or pethidin* or sufentan?l*) NEAR/3 (abstain* or abstin* or abuse* or addict* or depend* or detox* or disorder* or habit* or misuse* or mis-use* or overdose* or overuse* or problem* or reduc* or use* or withdraw*)):ti,ab,kw

14 ((alprazola* or ativan* or benzodiazepin* or bromazepam* or bromazanil* or clobazam* or clonapam* or clonazepam* or c?lorazepate* or diazepam* or estazolam* or flurazepam* or klonopin* or lorazepam* or medazepam* or midazolam* or nitrazepam* or nord?azepam* or oxazepam* or prazepam* or temazepam* or triazolam* or valium* or xanax*) NEAR/3 (abstain* or abstin* or abuse* or addict* or depend* or detox* or disorder* or habit* or misuse* or mis-use* or overdose* or overuse* or problem* or reduc* or use* or withdraw*)):ti,ab,kw

15 (ketamin* NEAR/3 (abstain* or abstin* or abuse* or addict* or depend* or detox* or disorder* or habit* or misuse* or mis-use* or overdose* or overuse* or problem* or reduc* or use* or withdraw*)):ti,ab,kw

16 ((angel dust or fenc?clidin* or hallucinogen* or lysergic acid* or lsd or phenc?clidin* or psychedelic*) NEAR/3 (abstain* or abstin* or abuse* or addict* or depend* or detox* or disorder* or habit* or misuse* or mis-use* or overdose* or overuse* or problem* or reduc* or use* or withdraw*)):ti,ab,kw

17 ((bhang* or cannabi* or endocannabi* or endo-cannabi* or ganja* or hash* or mari?uana* or phytocannabi* or phyto-cannabi* or tetrahydrocannabi* or thc) NEAR/3 (abstain* or abstin* or abuse* or addict* or depend* or detox* or disorder* or habit* or misuse* or mis-use* or overdose* or overuse* or problem* or reduc* or withdraw*)):ti,ab,kw

18 ((cigar* or ecig* or e-cig* or nicotin* or smoking or tobacco* or vape* or vaping) NEAR/3 (abstain* or abstin* or abuse* or addict* or cessation or cease* or depend* or disorder* or habit* or misuse* or mis-use* or overdose* or overuse* or problem* or quit* or reduc* or stop* or withdraw*)):ti,ab,kw

19 [OR #1-#18]

20 [mh "token economy"]

21 (contingen* NEAR/2 (incentive* or manage* or payment* or prize*)):ti,ab,kw

22 ((cash or financial or lotter* or money or token*) NEAR/2 (incentive* or interven* or payment* or prize* or reinforce* or reward*)):ti,ab,kw

23 (fishbowl* or fish-bowl* or (fish NEXT bowl*)):ti,ab,kw

24 (gift NEXT card*):ti,ab,kw

25 (motivation* NEXT incentive*):ti,ab,kw

26 (token* NEXT econom*):ti,ab,kw

27 voucher*:ti,ab,kw

28 [OR #20-#27]

29 [AND #19, #28] in Cochrane Reviews, Trials

PsycInfo Search Strategy

1806 to May Week 2 2024
Date searched (number of results): May 8, 2024 (1,618)

1 exp drug usage/

2 exp "substance use disorder"/

3 ((drug* or medication* or pharmaceutical* or polydrug* or poly-drug* or polysubstance* or poly-substance* or psychostimulant* or psycho-stimulant* or stimulant* or substance*) adj3 (abuse* or addict* or depend* or disorder* or habit* or misuse* or mis-use* or overdose* or overuse* or problem*)).ti,ab,id.

4 (alcohol* adj3 (abstain* or abstin* or abuse* or addict* or depend* or detox* or disorder* or habit* or misuse* or mis-use* or overdose* or overuse* or problem* or reduc* or withdraw*)).ti,ab,id.

5	(binge* adj3 drink*).ti,ab,id.
6	((amfetamin* or amphetamin* or cocaine or crack-cocaine or d-amfetamin* or d-amphetamin* or dexamfetamin* or dexamphetamin* or dexedrine or dextroamfetamin* or dextro-amfetamin* or dextroamphetamin* or dextro-amphetamin* or ecstasy or mdma or met?amfetamin* or met?amphetamin*) adj3 (abstain* or abstin* or abuse* or addict* or depend* or detox* or disorder* or habit* or misuse* or mis-use* or overdose* or overuse* or problem* or reduc* or use* or withdraw*)).ti,ab,id.
7	((alfentan#l* or buprenorfin* or buprenorphin* or codein* or demerol or diacetylmorfin* or diacetylmorphin* or diamorfin* or diamorphin* or fentan#l* or heroin* or hycodan or hydrocodon* or hydromorf#n* or hydromorph#n* or meperidin* or methadon* or morfin* or morphin* or narcotic* or operidin* or opiate* or opioid* or opium* or ox#codon* or ox#con* or ox#morfon* or ox#morphon* or pethidin* or sufentan#l*) adj3 (abstain* or abstin* or abuse* or addict* or depend* or detox* or disorder* or habit* or misuse* or mis-use* or overdose* or overuse* or problem* or reduc* or use* or withdraw*)).ti,ab,id.
8	((alprazola* or ativan* or benzodiazepin* or bromazepam* or bromazanil* or clobazam* or clonapam* or clonazepam* or c?lorazepate* or diazepam* or estazolam* or flurazepam* or klonopin* or lorazepam* or medazepam* or midazolam* or nitrazepam* or nord?azepam* or oxazepam* or prazepam* or temazepam* or triazolam* or valium* or xanax*) adj3 (abstain* or abstin* or abuse* or addict* or depend* or detox* or disorder* or habit* or misuse* or mis-use* or overdose* or overuse* or problem* or reduc* or use* or withdraw*)).ti,ab,id.
9	(ketamin* adj3 (abstain* or abstin* or abuse* or addict* or depend* or detox* or disorder* or habit* or misuse* or mis-use* or overdose* or overuse* or problem* or reduc* or use* or withdraw*)).ti,ab,id.
10	((angel dust or fenc#clidin* or hallucinogen* or lysergic acid* or lsd or phenc#clidin* or psychedelic*) adj3 (abstain* or abstin* or abuse* or addict* or depend* or detox* or disorder* or habit* or misuse* or mis-use* or overdose* or overuse* or problem* or reduc* or use* or withdraw*)).ti,ab,id.
11	((bhang* or cannabi* or endocannabi* or endo-cannabi* or ganja* or hash* or mari#uana* or phytocannabi* or phyto-cannabi* or tetrahydrocannabi* or thc) adj3 (abstain* or abstin* or abuse* or addict* or depend* or detox* or disorder* or habit* or misuse* or mis-use* or overdose* or overuse* or problem* or reduc* or withdraw*)).ti,ab,id.
12	((cigar* or ecig* or e-cig* or nicotin* or smoking or tobacco* or vape* or vaping) adj3 (abstain* or abstin* or abuse* or addict* or cessation or cease* or depend* or disorder* or habit* or misuse* or mis-use* or overdose* or overuse* or problem* or quit* or reduc* or stop* or withdraw*)).ti,ab,id.
13	or/1-12
14	CM/
15	token economy programs/
16	(contingen* adj2 (incentive* or manage* or payment* or prize*)).ti,ab,id.

17	((cash or financial or lotter* or money or token*) adj2 (incentive* or interven* or payment* or prize* or reinforce* or reward*)).ti,ab,id.
18	(fishbowl* or fish-bowl* or fishbowl*).ti,ab,id.
19	gift card*.ti,ab,id.
20	motivation* incentive*.ti,ab,id.
21	token* econom*.ti,ab,id.
22	voucher*.ti,ab,id.
23	or/14-22
24	and/13,23
25	limit 24 to (("0100 journal" or "0110 peer-reviewed journal" or "0120 non-peer-reviewed journal" or "0130 peer-reviewed status unknown" or "0500 electronic collection") and english)

Policy Sources and Search Terms

We searched the Medicare Coverage Database for local and national coverage determinations on CM. We also searched the Medicaid State Waivers List for states with approved, pending, or rejected section 1115a waivers that included coverage of CM. In addition, we searched the websites of the state Medicaid programs and health plans listed below using terms such as *CM*, *stimulant use disorder*, *cocaine use*, and *methamphetamine use*. Searches were conducted October 29, 2024, and October 30, 2024, and updated March 25, 2025.

State Medicaid Programs

- California Medicaid
- Florida Medicaid
- Massachusetts Medicaid
- New Jersey Medicaid
- New York Medicaid
- North Carolina Medicaid
- Oregon Medicaid and the HERC coverage guidance (including topics under consideration)
- Pennsylvania Medicaid
- Texas Medicaid
- Washington Medicaid and the Washington Health Technology Assessment Program coverage determinations (including topics under consideration)

Health Plans

- Aetna
- Anthem Blue Cross and Blue Shield
- Cigna
- Fidelis Care
- Healthfirst
- MetroPlusHealth
- Molina Healthcare
- UnitedHealthcare

Appendix B. Detailed Inclusion and Exclusion Criteria

After full text review was completed, the Center discussed the number of studies included with New York State Department of Health staff. We decided to adjust criteria to have a report and presentation that balanced the overall volume of studies and offered a sufficient level of detail for the Committee to make a coverage decision. See Table B2 for a description of how criteria were modified based on findings during the review process.

Table B1. Detailed Inclusion and Exclusion Criteria[a]

Study Component	Inclusion Criteria	Exclusion Criteria
Populations	• Adults and adolescents with stimulant use disorder (e.g., cocaine, methamphetamine, amphetamine) or polysubstance use disorder characterized by use of stimulants and other substance(s)	• Adults and adolescents with: ○ Opioids use disorder alone ○ Alcohol use disorder ○ Cannabis use disorder ○ Tobacco use disorder ○ Polysubstance use disorder that did not include use of stimulants
Interventions	• CM, including but not limited to: ○ Voucher-based reinforcement therapy ○ Prize-based CM ○ Monetary reinforcements ○ Motivational incentives ○ Fishbowl method • CM with or without adjunctive psychotherapy • CM with or without adjunctive maintenance drug therapy • Interventions provided either in person or remotely (including use of an app) • Interventions in which reward contingent upon attendance at clinic, individual or group therapy, etc.	• Any intervention without CM • Studies of individuals who use multiple substances in which the primary aim of CM intervention is smoking cessation • Studies of individuals with substance use disorder in which the primary aim of the CM intervention is adherence to medications or vaccines prescribed for the treatment or prevention of cooccurring condition, e.g., antiretroviral therapy for individuals with HIV, antipsychotics for individuals with schizophrenia, hepatitis B vaccine for individuals who inject drugs • Therapeutic Workplace: employment-based incentive program that uses opportunities to earn wages through work to promote abstinence • Other employment-based abstinent-contingent rewards • Studies in which primary aim is to evaluate use of a particular medication in individuals with substance use disorder and all groups receive CM, e.g. d-cycloserine for individuals who use cocaine, N-acetylcysteine for individuals who use cannabis • Abstinence contingent take-home medication or enrollment in medication maintenance program for

Study Component	Inclusion Criteria	Exclusion Criteria
		substance use disorder (e.g., abstinence contingent enrollment in methadone maintenance)[a] • Rewards that provide a basic need, (e.g., food, housing, rent payment)
Comparators	• Standard care • Inpatient treatment • Head-to-head comparisons of CM programs or modalities • Money management (e.g., advisor-teller money manager intervention) • Head-to-head comparison of CM with and without adjunctive psychotherapy • Head-to-head comparison of CM with or without adjunctive maintenance drug therapy	• None listed
Outcomes	Critical • Treatment retention (e.g., sessions completed, uninterrupted treatment, reenrollment) • Use of substance of interest (e.g., amount, frequency, number of days or weeks without use) Important • For individuals who were pregnant during the intervention, neonatal outcomes (e.g., diagnosis of neonatal abstinence syndrome, neonatal intensive care unit admission) • Emergency department utilization • Incarceration • Use of prescribed medication for individuals in medication-assisted therapy • Validated measures of quality of life of participants	• None listed
Timing and follow -up	• Outcomes collected at the end of CM intervention • Outcomes collected 6 to 12 months after treatment ends, or longer if available	• Outcomes collected during CM intervention
Setting	• In-person delivery in an outpatient setting • Technology-based delivery (e.g., automated reinforcement management system, telehealth) • Hybrid in-person and technology-based • Studies conducted in the United States	• Inpatient use of CM • Studies conducted in countries outside the United States

Study Component	Inclusion Criteria	Exclusion Criteria
Study design	KQ1 • Randomized controlled trials published in the past 15 years KQ2 • Randomized controlled trials published in the past 15 years • Nonrandomized comparative studies published in the past 15 years KQ3 • Comparative studies and economic evaluations published in the past 5 years • Cost-effectiveness analyses published in the past 15 years • Economic modeling studies published in the past 15 years KQ4 • Evidence-based clinical practice guidelines published, reviewed or updated in the past 5 years that provide specific recommendations	• Studies without extractable data • Retrospective studies unless otherwise noted • Proof-of-principle studies, such as algorithm development
Sample size	• Minimum sample size of 20 participants per group within study	• Studies with fewer than 20 participants per group within study
Publication type	• Peer-reviewed publication of primary study results • Published in the English language • Ancillary publications with additional comparative follow-up	• Abstracts, conference proceedings, posters, editorials, letters • Studies that have not been formally peer reviewed (i.e., preprint publications) • Studies published in languages other than English • Studies that cannot be located • Duplicate publications of the same study that do not report different outcomes or follow-up times, or single-site reports from published multicenter studies

Notes. [a] *See Table B2 for a description of how criteria were modified based on findings during the review process.*
Abbreviations. CM: contingency management; HIV: human immunodeficiency virus; KQ: key question.

Table B2. Change Log for Inclusion and Exclusion Criteria

Date	Summary of Change	Rationale
July 26, 2024	Intervention: *include* studies in which reward contingent upon attendance at clinic, group or individual therapy, etc.	Risk reduction strategies focus on positive behaviors rather than solely on abstinence (i.e., reward contingent upon negative test for substance)
July 26, 2024	Intervention: *exclude* studies of individuals who use multiple substances in which the primary aim of CM intervention is smoking cessation	Excluding individuals with only tobacco use disorder and interventions aimed at smoking cessation
July 26, 2024	Intervention: *exclude* studies of individuals with substance use disorder in which the primary aim of the CM intervention is adherence to medications or vaccines prescribed for the treatment or prevention of cooccurring condition, (e.g., antiretroviral therapy for individuals with HIV, hepatitis B vaccine for individuals who inject drugs)	Intervention not designed to reduce use of substance of interest
July 26, 2024	Intervention: *exclude* studies that used employment-based incentives to promote reduced use of substance, (e.g., Therapeutic Workplace, or other programs that use opportunities to earn wages through work to promote abstinence)	Unlikely that such employment-based incentives could be implemented through Medicaid
August 16, 2024	Intervention: *include* studies in which reward contingent upon medication adherence	Risk reduction strategies focus on positive behaviors rather than solely on abstinence (i.e., reward contingent upon negative test for substance)
August 16, 2024	Intervention: *exclude* studies in which primary aim is to evaluate use of a particular medication for individuals with substance use disorder and all groups receive CM, (e.g., d-cycloserine for individuals who use cannabis)	Such studies not designed to evaluate the efficacy of CM
August 16, 2024	Intervention: *exclude* studies in which reward is being allowed to take medication home (e.g., methadone, buprenorphine)	Ethical and legal implications of linking reward to medication used to treat substance use disorder make it unlikely that this type of reward would be used in a Medicaid program

Date	Summary of Change	Rationale
August 26, 2024	Intervention: *exclude* studies in which reward is access to food or housing	Ethical implications of restricting access to food or housing make it unlikely that this type of reward would be used in a Medicaid program
August 27, 2024	Timing and follow-up: *include* studies that do not provide long-term outcomes; to phrase this another way, we will not exclude a study that only provides outcomes at the end of the intervention	Many studies on this topic do not provide long-term outcomes; excluding studies that only provide outcome information for immediately after the intervention would not accurately reflect the available evidence
October 25, 2024	Intervention: *exclude* studies that evaluated the Therapeutic Education System (web-based precursor to reSET and reSET-O), reSET or reSET-O, or other named multifaceted interventions (e.g., Youth Opioid Support Model) compared to treatment-as-usual	Studies designed to evaluate the combination treatment (e.g., the Therapeutic Education System combines the Community Reinforcement Approach and CM)
October 25, 2024	Study design: only *include* cost-effectiveness or economic modeling studies published within the past 5 years (2019 to present)	Cost-effectiveness or economic modeling studies published more than 5 years ago likely provide out of date cost estimates, and changes may have occurred within health systems that render older estimates irrelevant
October 29, 2024	Population: only *include* studies in which the target substances (i.e., substance intervention designed to reduce use of) are stimulants (e.g., cocaine, methamphetamine); *exclude* studies in which stimulants are not a target substance	After full text review completed, discussed with New York State Department of Health staff the number of studies included and need to adjust criteria to have a report and presentation that provides information necessary for the Committee to make a coverage decision; decided to focus report on individuals with stimulant use disorder because no reliable medications to help individuals with this condition
November 4, 2024	Publication date: only *include* studies published within the past 15 years (2009 to present)	Recognition and perception of individuals with substance use disorders have changed over the past several years; earlier studies may utilize treatments (including no treatment) that are no longer considered acceptable, and reports of earlier studies may not

Date	Summary of Change	Rationale
		provide sufficient information for complete data abstraction
November 4, 2024	Setting: only *include* studies conducted in the United States	Drug policies and health care systems differ considerably amongst countries

Abbreviations. CM: contingency management.

Appendix C. Included Studies

Table C1. Included Studies by Key Question

KQ1. Clinical Effectiveness
Carpenedo CM, Kirby KC, Dugosh KL, et al. Extended voucher-based reinforcement therapy for long-term drug abstinence. 2010;34(6):776-87. Ancillary study: Kirby KC, Carpenedo CM, Dugosh KL, et al. Randomized clinical trial examining duration of voucher-based reinforcement therapy for cocaine abstinence. 2013;132(3):639-45.
Carroll KM, Nich C, Petry NM, et al. A randomized factorial trial of disulfiram and contingency management to enhance cognitive behavioral therapy for cocaine dependence. 2016;160():135-42.
Chudzynski J, Roll JM, McPherson S, et al. Reinforcement schedule effects on long-term behavior change. 2015;65(2):347-353.
Festinger DS, Dugosh K L, Kirby KC, et al. Contingency management for cocaine treatment: cash vs. vouchers. 2014;47(2):168-74.
Hagedorn HJ, Noorbaloochi S, Simon AB, et al. Rewarding early abstinence in Veterans Health Administration addiction clinics. 2013;45(1):109-17.
Hall EA, Prendergast ML, Roll JM, et al. Reinforcing abstinence and treatment participation among offenders in a drug diversion program: Are vouchers effective? 2009;36(9):935-953.
McDonell MG, Srebnik D, Angelo F, et al. Randomized controlled trial of contingency management for stimulant use in community mental health patients with serious mental illness. 2013;170(1):94-101.
McKay JR, Lynch KG, Coviello D, et al. Randomized trial of continuing care enhancements for cocaine-dependent patients following initial engagement. 2010;78(1):111-20.
Menza TW, Jameson DR, Hughes JP, et al. Contingency management to reduce methamphetamine use and sexual risk among men who have sex with men: a randomized controlled trial. 2010;10:774.
Petry NM, Alessi SM, Barry D, et al. Standard magnitude prize reinforcers can be as efficacious as larger magnitude reinforcers in cocaine-dependent methadone patients. 2015;83(3):464-72.
Petry NM, Alessi SM, Ledgerwood DM A randomized trial of contingency management delivered by community therapists. 2012;80(2):286-98.
Petry NM, Alessi SM, Rash CJ, et al. A randomized trial of contingency management reinforcing attendance at treatment: Do duration and timing of reinforcement matter? 2018;86(10):799-809.
Petry NM, Barry D, Alessi SM, et al. A randomized trial adapting contingency management targets based on initial abstinence status of cocaine-dependent patients. 2012;80(2):276-85.
Petry NM, Weinstock J, Alessi SM, et al. Group-based randomized trial of contingencies for health and abstinence in HIV patients. 2010;78(1):89-97.
Roll JM, Chudzynski J, Cameron JM, et al. Duration effects in contingency management treatment of methamphetamine disorders. 2013;38(9):2455-62.
Tuten M, Svikis DS, Keyser-Marcus L, et al. Lessons learned from a randomized trial of fixed and escalating contingency management schedules in opioid-dependent pregnant women. 2012;38(4):286-92.
Van Horn DH, Drapkin M, Ivey M, et al. Voucher incentives increase treatment participation in telephone-based continuing care for cocaine dependence. 2011;114(2-3):225-8.
KQ3. Cost-Effectiveness

Batki SL, Ciccarone D, Hurley B, et al. The ASAM/AAAP clinical practice guideline on the management of stimulant use disorder. 2024;18(1S):1-56.
The Management of Substance Use Disorders Work Group VA/DoD clinical practice guideline for the management of substance use disorders version 4.0. 2021.
KQ4. Clinical Practice Guidelines
Clinical Guideline Committee Members. The ASAM/AAAP clinical practice guideline on the management of stimulant use disorder. J Addict Med. 2024 May-Jun;18(1S Suppl 1):1-56.
National Institute for Health and Care Excellence. 2016, last reviewed August 14, 2024. Coexisting severe mental illness and substance misuse: community health and social services. https://www.nice.org.uk/guidance/ng58
Perry C, Liberto J, Milliken C, et al. The management of substance use disorders: synopsis of the 2021 U.S. Department of Veterans Affairs and U.S. Department of Defense clinical practice guideline. 2022;175(5):720-731.
World Health Organization. 2014. Guidelines for the identification and management of substance use and substance use disorders in pregnancy. https://www.who.int/publications/i/item/9789241548731

Appendix D. Excluded Studies With Primary Reason for Exclusion

Table D1 lists the publications that were excluded during full text review and the primary reason for exclusion. There may be multiple reasons for exclusion for any given publication, and the table lists only the most influential reason for exclusion.

Table D1. Excluded Studies With Primary Reason for Exclusion

Reference Information	Primary Reason for Exclusion
Ainscough TS, McNeill A, Strang J, et al. CM interventions for non-prescribed drug use during treatment for opiate addiction: a systematic review and meta-analysis. *Drug and Alcohol Dependence*. 2017. 178:318-339.	Study design
Alessi SM, Hanson T, Wieners M, et al. Low-cost CM in community clinics: delivering incentives partially in group therapy. *Experimental and Clinical Psychopharmacology*. 2007. 15:293-300.	Study design
Alessi SM, Petry, NM. A randomized study of cellphone technology to reinforce alcohol abstinence in the natural environment. *Addiction*. 2013. 108:900-9.	Study design
Alessi SM, Rash C, Petry NM. CM is efficacious and improves outcomes in cocaine patients with pretreatment marijuana use. *Drug and Alcohol Dependence*. 2011. 118:62-7.	Aim
Alessi SM, Rash CJ, Barnett N, et al. 99% Of patients in outpatient clinics continue drinking during treatment. *Alcoholism: clinical and experimental research*. 2016. 40:103A.	Publication type
Alessi SM, Rash CJ, Pescatello LS. Reinforcing exercise to improve drug abuse treatment outcomes: A randomized controlled study in a substance use disorder outpatient treatment setting. *Psychology of Addictive Behaviors*. 2020. 34:52-64.	Outcomes
Amato L, Minozzi S, Davoli M, et al. Psychosocial combined with agonist maintenance treatments versus agonist maintenance treatments alone for treatment of opioid dependence. *Cochrane Database of Systematic Reviews*. 2011. CD004147.	Study design
Andrade LF, Alessi SM, Petry NM. The impact of CM on quality of life among cocaine abusers with and without alcohol dependence. *American Journal on Addictions*. 2012. 21:47-54.	Study design
Andrade LF, Petry NM. The impact of contingency management on quality of life among cocaine abusers with and without alcohol dependence. *Alcoholism: clinical and experimental research*. 2011. 35:142A.	Publication type
Angelo F, Leickly E, Lowe JM, et al. Strategies for reducing treatment dropout in difficult to retain populations: use of a baseline induction period and reinforcement of TAU linkage. *Alcoholism: clinical and experimental research*. 2014. 38:56A.	Publication type
Angelo FN, McDonell MG, Lewin MR, et al. Predictors of stimulant abuse treatment outcomes in severely mentally ill outpatients. *Drug and Alcohol Dependence*. 2013. 131:162-5.	Aim
Anonymous. CM. *Harvard Mental Health Letter*. 2006. 22:6-7.	Publication type
AshaRani PV, Hombali A, Seow E, et al. Non-pharmacological interventions for methamphetamine use disorder: a systematic review. *Drug and Alcohol Dependence*. 2020. 212:108060.	Study design
Averill F, Brown TG, Robertson RD, et al. Transdermal alcohol monitoring combined with CM for driving while impaired offenders: A pilot randomized controlled study. *Traffic Injury Prevention*. 2018. 19:455-461.	Study design
Baewert A, Jagsch R, Winklbaur B, et al. Influence of site differences between urban and rural American and Central European opioid-dependent pregnant women and neonatal outcome characteristics. *European Addiction Research*. 2012. 18:130-9.	Intervention

Reference Information	Primary Reason for Exclusion
Barnett NP, Celio MA, Tidey JW, et al. A preliminary randomized controlled trial of CM for alcohol use reduction using a transdermal alcohol sensor. *Addiction*. 2017. 112:1025-1035.	Study design
Barnett PG, Masson CL, Sorensen JL, et al. Linking opioid-dependent hospital patients to drug treatment: Health care use and costs 6 months after randomization. *Addiction*. 2006. 101:1797-804.	Intervention
Barry D, Sullivan B, Petry NM. Comparable efficacy of CM for cocaine dependence among African American, Hispanic, and White methadone maintenance clients. *Psychology of Addictive Behaviors*. 2009. 23:168-74.	Study design
Barry D, Weinstock J, Petry NM. Ethnic differences in HIV risk behaviors among methadone-maintained women receiving CM for cocaine use disorders. *Drug and Alcohol Dependence*. 2008. 98:144-53.	Aim
Baumer AM, Nestor BA, Potter K, et al. Assessing changes in sleep across four weeks among adolescents randomized to incentivized cannabis abstinence. *Drug and Alcohol Dependence*. 2023. 252:110989.	Outcomes
Baumer AM, Nestor BA, Potter K, et al. Erratum to "assessing changes in sleep across four weeks among adolescents randomized to incentivized cannabis abstinence". *Drug and Alcohol Dependence*. 2023. 253.	Publication type
Becker SJ, DiClemente-Bosco K, Scott K, et al. Implementing CM for stimulant use in opioid treatment programs: protocol of a type III hybrid effectiveness-stepped-wedge trial. *Implementation Science*. 2023. 18:41.	Publication type
Benishek, LA, Dugosh, KL, Kirby, KC, et al. Prize-based CM for the treatment of substance abusers: a meta-analysis. *Addiction*. 2014. 109:1426-36.	Study design
Bentzley, BS, Han, SS, Neuner, S, et al. Comparison of treatments for cocaine use disorder among adults: a systematic review and meta-analysis. *JAMA Network Open*. 2021. 4:e218049.	Study design
Bertz, JW, Panlilio, LV, Stull, SW, et al. Being at work improves stress, craving, and mood for people with opioid use disorder: Ecological momentary assessment during a randomized trial of experimental employment in a contingency-management-based therapeutic workplace. *Behaviour Research and Therapy*. 2022. 152:104071.	Intervention
Bickel, WK, Amass, L, Higgins, ST, et al. Effects of adding behavioral treatment to opioid detoxification with buprenorphine. *Journal of Consulting and Clinical Psychology*. 1997. 65:803-10.	Study design
Bickel, WK, Marsch, LA, Buchhalter, AR, et al. Computerized behavior therapy for opioid-dependent outpatients: a randomized controlled trial. *Experimental and Clinical Psychopharmacology*. 2008. 16:132-43.	Aim
Bigelow, G, Stitzer, M, Lawrence, C, et al. Narcotics addiction treatment: behavioral methods concurrent with methadone maintenance. *International Journal of the Addictions*. 1980. 15:427-37.	Study design
Bigelow, GE, Stitzer, ML, Liebson, IA. The role of behavioral CM in drug abuse treatment. *NIDA Research Monograph*. 1984. 46:36-52.	Study design
Bigelow, George, And, Others. Behavioral treatments during outpatient methadone maintenance: a controlled evaluation. 1976.11.	Outcomes
Blanken, P, Hendriks, VM, Huijsman, IA, et al. Efficacy of cocaine CM in heroin-assisted treatment: Results of a randomized controlled trial. *Drug and Alcohol Dependence*. 2016. 164:55-63.	Setting
Bolivar, HA, Klemperer, EM, Coleman, SRM, et al. CM for Patients receiving medication for opioid use disorder: a systematic review and meta-analysis. *JAMA Psychiatry*. 2021. 78:1092-1102.	Study design

Reference Information	Primary Reason for Exclusion
Branson, CE, Barbuti, AM, Clemmey, P, et al. A pilot study of low-cost CM to increase attendance in an adolescent substance abuse program. *American Journal on Addictions*. 2012. 21:126-9.	Study design
Bride, BE, Humble, MN. Increasing retention of African-American women on welfare in outpatient substance user treatment using low-magnitude incentives. *Substance Use and Misuse*. 2008. 43:1016-26.	Study design
Brolin, M, Torres, M, Hodgkin, D, et al. Implementation of client incentives within a recovery navigation program. *Journal of Substance Abuse Treatment*. 2017. 72:25-31.	Study design
Brooner, RK, Kidorf, M, King, VL, et al. Preliminary evidence of good treatment response in antisocial drug abusers. *Drug and Alcohol Dependence*. 1998. 49:249-60.	Intervention
Brooner, RK, Kidorf, MS, King, VL, et al. Comparing adaptive stepped care and monetary-based voucher interventions for opioid dependence. *Drug and Alcohol Dependence*. 2007. 88 Suppl 2:S14-23.	Population
Brown, HD, DeFulio, A. CM for the treatment of methamphetamine use disorder: A systematic review. *Drug and Alcohol Dependence*. 2020. 216:108307.	Study design
Budney, AJ, Fearer, S, Walker, DD, et al. An initial trial of a computerized behavioral intervention for cannabis use disorder. *Drug and Alcohol Dependence*. 2011. 115:74-9.	Study design
Budney, AJ, Higgins, ST, Radonovich, KJ, et al. Adding voucher-based incentives to coping skills and motivational enhancement improves outcomes during treatment for marijuana dependence. *Journal of Consulting and Clinical Psychology*. 2000. 68:1051-61.	Population
Budney, AJ, Higgins, ST, Radotrovich, KJ, et al. Abstinence-based vouchers increase marijuana abstinence during outpatient treatment for marijuana dependence. *NIDA research monograph*. 2000. 124.	Publication type
Budney, AJ, Moore, BA, Rocha, H. Abstinence-based vouchers delivered without psychotherapy increase abstinence during treatment for marijuana dependence. *Drug and alcohol dependence*. 2001. 63 Suppl 1:21.	Publication type
Budney, AJ, Moore, BA, Rocha, HL, et al. Clinical trial of abstinence-based vouchers and cognitive-behavioral therapy for cannabis dependence. *Journal of Consulting and Clinical Psychology*. 2006. 74:307-16.	Population
Budney, AJ, Stanger, C, Tilford, JM, et al. Computer-assisted behavioral therapy and CM for cannabis use disorder. *Psychology of Addictive Behaviors*. 2015. 29:501-11.	Aim
Burch, AE, Rash, CJ, Petry, NM. Cocaine-using substance abuse treatment patients with and without HIV respond well to CM treatment. *Journal of Substance Abuse Treatment*. 2017. 77:21-25.	Aim
Burch, AE, Rash, CJ, Petry, NM. Sex effects in cocaine-using methadone patients randomized to CM interventions. *Experimental and Clinical Psychopharmacology*. 2015. 23:284-90.	Outcomes
Burduli, E, Skalisky, J, Hirchak, K, et al. CM intervention targeting co-addiction of alcohol and drugs among American Indian adults: Design, methodology, and baseline data. *Clinical Trials*. 2018. 15:587-599.	Publication type
Businelle, MichaelS, Parker, JeffersonD, May, RyanK, et al. Effects of CM on substance abuse continuing care participation. *Addictive Disorders and Their Treatment*. 2008. 7:99-107.	Study design
Businelle, MS, Rash, CJ, Burke, RS, et al. Using vouchers to increase continuing care participation in veterans: does magnitude matter?. *American Journal on Addictions*. 2009. 18:122-9.	Study design

Reference Information	Primary Reason for Exclusion
Byrne, SA, Petry, NM. Concurrent alcohol dependence among methadone-maintained cocaine abusers is associated with greater abstinence. *Experimental and Clinical Psychopharmacology.* 2011. 19:116-22.	Study design
Campbell, A, Hu, MC, Greenfield, SF, et al. Gender differences in acceptability and treatment outcomes of internet-based treatment for substance use disorders. *Drug and alcohol dependence.* 2015. 146:e237.	Publication type
Campbell, A, Nunes, EV, Pavlicova, M. Clinician involvement with internet-delivered treatment and association to outcomes. *Drug and alcohol dependence.* 2017. 171:e32.	Aim
Campbell, AimeeN, Nunes, EdwardV, Matthews, AbigailG, et al. "Internet-delivered treatment for substance abuse: A multisite randomized controlled trial": Correction.DP - Dec 1, 2014. *The American Journal of Psychiatry.* 2014. 171:1339-1340.	Intervention
Campbell, AN, Miele, GM, Nunes, EV, et al. Web-based, psychosocial treatment for substance use disorders in community treatment settings. *Psychological Services.* 2012. 9:212-4.	Intervention
Campbell, AN, Nunes, EV, Matthews, AG, et al. Internet-delivered treatment for substance abuse: a multisite randomized controlled trial. *American Journal of Psychiatry.* 2014. 171:683-90.	Intervention
Campbell, AN, Nunes, EV, Miele, GM, et al. Design and methodological considerations of an effectiveness trial of a computer-assisted intervention: an example from the NIDA Clinical Trials Network. *Contemporary Clinical Trials.* 2012. 33:386-95.	Intervention
Campbell, AN, Nunes, EV, Pavlicova, M, et al. Gender-based outcomes and acceptability of a computer-assisted psychosocial intervention for substance use disorders. *Journal of Substance Abuse Treatment.* 2015. 53:9-15.	Intervention
Campbell, ANC, Montgomery, L, Sanchez, K, et al. Racial/ethnic subgroup differences in outcomes and acceptability of an Internet-delivered intervention for substance use disorders. *Journal of Ethnicity in Substance Abuse.* 2017. 16:460-478.	Intervention
Campbell, ANC, Rieckmann, T, Pavlicova, M, et al. Culturally tailored digital therapeutic for substance use disorders with urban Indigenous people in the United States: A randomized controlled study. *Journal of Substance Use and Addiction Treatment.* 2023. 155:209159.	Intervention
Carpenedo, CM, Versek, BE, Bresani, E, et al. Cocaine abstinence in a randomized controlled trial of 3 vs. 9 months of voucher-based reinforcement therapy: year 1 outcomes. *Proceedings of the 70th annual scientific meeting of the college on problems of drug dependence; 2008 june 14-19; san juan, puerto rico, USA.* 2008. 30.	Publication type
Carpenter, Richard, Casto, Glendon. A simple procedure to improve a token economy. *Journal of Behavior Therapy and Experimental Psychiatry.* 1982. 13:331-332.	Population
Carroll, KM, Ball, SA, Nich, C, et al. Targeting behavioral therapies to enhance naltrexone treatment of opioid dependence: efficacy of CM and significant other involvement. *Archives of General Psychiatry.* 2001. 58:755-61.	Population
Carroll, KM, Easton, CJ, Nich, C, et al. The use of CM and motivational/skills-building therapy to treat young adults with marijuana dependence. *Journal of Consulting and Clinical Psychology.* 2006. 74:955-66.	Publication date
Carroll, KM, Nich, C, Frankforter, TL, et al. Accounting for the uncounted: Physical and affective distress in individuals dropping out of oral naltrexone treatment for opioid use disorder. *Drug and Alcohol Dependence.* 2018. 192:264-270.	Aim

Reference Information	Primary Reason for Exclusion
Carroll, KM, Nich, C, Lapaglia, DM, et al. Combining cognitive behavioral therapy and CM to enhance their effects in treating cannabis dependence: less can be more, more or less. *Addiction*. 2012. 107:1650-9.	Population
Carroll, KM, Sinha, R, Nich, C, et al. CM to enhance naltrexone treatment of opioid dependence: a randomized clinical trial of reinforcement magnitude. *Experimental and Clinical Psychopharmacology*. 2002. 10:54-63.	Population
Castells, X, Kosten, TR, Capella, D, et al. Efficacy of opiate maintenance therapy and adjunctive interventions for opioid dependence with comorbid cocaine use disorders: A systematic review and meta-analysis of controlled clinical trials. *American Journal of Drug and Alcohol Abuse*. 2009. 35:339-49.	Study design
Chatters, Robin, Cooper, Katy, Day, Ed, et al. Psychological and psychosocial interventions for cannabis cessation in adults: A systematic review. *Addiction Research and Theory*. 2016. 24:93-110.	Study design
Chopra, MP, Landes, RD, Gatchalian, KM, et al. Buprenorphine medication versus voucher contingencies in promoting abstinence from opioids and cocaine. *Experimental and Clinical Psychopharmacology*. 2009. 17:226-36.	Outcomes
Christensen, DR, Landes, RD, Jackson, L, et al. Adding an Internet-delivered treatment to an efficacious treatment package for opioid dependence. *Journal of Consulting and Clinical Psychology*. 2014. 82:964-72.	Study design
Claypool, AL, DiGennaro, C, Russell, WA, et al. Cost-effectiveness of Increasing Buprenorphine Treatment Initiation, Duration, and Capacity Among Individuals Who Use Opioids. *JAMA Health Forum*. 2023. 4:e231080.	Population
Cohen, SM, DePhilippis, D, Deng, Y, et al. Perspectives on CM for alcohol use and alcohol-associated conditions among people in care with HIV. *Alcohol (Hanover, York County, Pa.)*. 2023. 47:1783-1797.	Intervention
Cooke, ME, Gilman, JM, Lamberth, E, et al. Assessing changes in symptoms of depression and anxiety during four weeks of cannabis abstinence among adolescents. *Frontiers in psychiatry Frontiers Research Foundation*. 2021. 12:689957.	Aim
Cooke, ME, Knoll, SJ, Streck, JM, et al. CM is associated with positive changes in attitudes and reductions in cannabis use even after discontinuation of incentives among non-treatment seeking youth. *Drug and Alcohol Dependence*. 2024. 256:111096.	Intervention
Cooper, K, Chatters, R, Kaltenthaler, E, et al. Psychological and psychosocial interventions for cannabis cessation in adults: a systematic review short report. *Health Technology Assessment (Winchester, England)*. 2015. 19:1-130.	Study design
Copemann, CD, Shaw, PL. Effects of contingent management of addicts expecting commitment to a community based treatment program. *British Journal of Addiction to Alcohol and Other Drugs*. 1976. 71:187-91.	Setting
Correia, CJ, Dallery, J, Katz, EC, et al. Single- versus dual-drug target: effects in a brief abstinence incentive procedure. *Experimental and Clinical Psychopharmacology*. 2003. 11:302-8.	Study design
Correia, CJ, Sigmon, SC, Silverman, K, et al. A comparison of voucher-delivery schedules for the initiation of cocaine abstinence. *Experimental and Clinical Psychopharmacology*. 2005. 13:253-8.	Study design
Correia, CJ, Stitzer, ML. A Comparison of two voucher delivery schedules for the initiation of cocaine abstinence. *Drug and alcohol dependence*. 2002. 66 Suppl 1:37.	Outcomes
Corrigan, JD, Bogner, J, Lamb-Hart, G, et al. Increasing substance abuse treatment compliance for persons with traumatic brain injury. *Psychology of Addictive Behaviors*. 2005. 19:131-9.	Intervention

Reference Information	Primary Reason for Exclusion
Corrigan, JD, Bogner, J. Interventions to promote retention in substance abuse treatment. *Brain Injury*. 2007. 21:343-56.	Population
Corsi, KF, Lehman, WE, Min, SJ, et al. The feasibility of interventions to reduce HIV risk and drug use among heterosexual methamphetamine users. *Journal of AIDS and Clinical Research. S1*. 2012. 10:04.	Study design
Corsi, KF, Shoptaw, S, Alishahi, M, et al. Interventions to reduce drug use among methamphetamine users at risk for HIV. *Current HIV/AIDS Reports*. 2019. 16:29-36.	Study design
Coughlin, LN, Salino, S, Jennings, C, et al. A systematic review of remotely delivered CM treatment for substance use. *Journal of Substance Use and Addiction Treatment*. 2023. 147:208977.	Study design
Cunningham, C, Stitzer, M, Campbell, AN, et al. CM abstinence incentives: cost and implications for treatment tailoring. *Journal of Substance Abuse Treatment*. 2017. 72:134-139.	Intervention
Cunningham, CO, Arnsten, JH, Zhang, C, et al. Abstinence-reinforcing CM improves HIV viral load suppression among HIV-infected people who use drugs: A randomized controlled trial. *Drug and Alcohol Dependence*. 2020. 216:108230.	Outcomes
Dallery, J, Silverman, K, Chutuape, MA, et al. Voucher-based reinforcement of opiate plus cocaine abstinence in treatment-resistant methadone patients: effects of reinforcer magnitude. *Experimental and Clinical Psychopharmacology*. 2001. 9:317-25.	Study design
Dalton, K, Bishop, L, Darcy, S. Investigating interventions that lead to the highest treatment retention for emerging adults with substance use disorder: A systematic review. *Addictive Behaviors*. 2021. 122:107005.	Study design
Davis, JD, Bepo, L, Suen, LW, et al. Implementing heart plus: design and early results of a novel comanagement clinic for patients with stimulant-associated cardiomyopathy. *Journal of Cardiac Failure*. 2023. 19:19.	Study design
Davis, ML, Powers, MB, Handelsman, P, et al. Behavioral therapies for treatment-seeking cannabis users: a meta-analysis of randomized controlled trials. *Evaluation and the Health Professions*. 2015. 38:94-114.	Study design
De Crescenzo, F, Ciabattini, M, D'Alo, GL, et al. Comparative efficacy and acceptability of psychosocial interventions for individuals with cocaine and amphetamine addiction: A systematic review and network meta-analysis. *PLoS Medicine / Public Library of Science*. 2018. 15:e1002715.	Study design
De Giorgi, R, Cassar, C, Loreto D'alo, G, et al. Psychosocial interventions in stimulant use disorders: a systematic review and qualitative synthesis of randomized controlled trials. *Rivista di Psichiatria*. 2018. 53:233-255.	Study design
De La Garza, R, 2nd. Reducing alcohol use via CM and verification using a urine biomarker. *American Journal of Psychiatry*. 2017. 174:309-310.	Publication type
De Vito, EE, Dong, G, Kober, H, et al. Neural effects of treatment in a trial of behavioral therapies and disulfiram for cocaine dependence. *Drug and alcohol dependence*. 2017. 171:e54.	Aim
DeFulio, A, Furgeson, J, Brown, HD, et al. A smartphone-smartcard platform for implementing CM in buprenorphine maintenance patients with concurrent stimulant use disorder. *Frontiers in psychiatry Frontiers Research Foundation*. 2021. 12:778992.	Study design
DeFulio, A, Rzeszutek, MJ, Furgeson, J, et al. A smartphone-smartcard platform for CM in an inner-city substance use disorder outpatient program. *Journal of Substance Abuse Treatment*. 2021. 120:108188.	Study design
Del Palacio-Gonzalez, A, Hesse, M, Thylstrup, B, et al. Effects of CM and use of reminders for drug use treatment on readmission and criminality among young people: A linkage study of a randomized trial. *Journal of Substance Abuse Treatment*. 2022. 133:108617.	Outcomes

Reference Information	Primary Reason for Exclusion
Dellazizzo, L, Potvin, S, Giguere, S, et al. Meta-review on the efficacy of psychological therapies for the treatment of substance use disorders. *Psychiatry Research.* 2023. 326:115318.	Study design
Destoop, M, Docx, L, Morrens, M, et al. Meta-analysis on the effect of cm for patients with both psychotic disorders and substance use disorders. *Journal of Clinical Medicine.* 2021. 10:06.	Study design
DeVito, EE, Poling, J, Babuscio, T, et al. Modafinil does not reduce cocaine use in methadone-maintained individuals. *Drug and Alcohol Dependence Reports.* 2022. 2.	Aim
Donoghue, K, Boniface, S, Brobbin, E, et al. Adjunctive medication management and cm to enhance adherence to acamprosate for alcohol dependence: the ADAM trial RCT. *Health Technology Assessment (Winchester, England).* 2023. 27:1-88.	Intervention
Dougherty, DM, Hill-Kapturczak, N, Liang, Y, et al. Use of continuous transdermal alcohol monitoring during a CM procedure to reduce excessive alcohol use. *Drug and Alcohol Dependence.* 2014. 142:301-6.	Population
Dougherty, DM, Karns, TE, Mullen, J, et al. Transdermal alcohol concentration data collected during a CM program to reduce at-risk drinking. *Drug and Alcohol Dependence.* 2015. 148:77-84.	Outcomes
Dougherty, DM, Moon, TJ, Liang, Y, et al. Effectiveness of CM using transdermal alcohol monitoring to reduce heavy drinking among driving while intoxicated (DWI) arrestees: A randomized controlled trial. *Alcohol (Hanover, York County, Pa.).* 2023. 47:1989-2001.	Intervention
Dougherty, DM, Moon, TJ, Liang, Y, et al. Effectiveness of CM using transdermal alcohol monitoring to reduce heavy drinking among driving while intoxicated (DWI) arrestees. *Alcoholism: clinical and experimental research.* 2022. 46:229A.	Outcomes
Downey, KK, Helmus, TC, Schuster, CR. Treatment of heroin-dependent poly-drug abusers with CM and buprenorphine maintenance. *Experimental and Clinical Psychopharmacology.* 2000. 8:176-84.	Population
Downey, KK, Hopper, JA, Henderson, M, et al. Treatment of heroin dependent poly-drug abusers with contingent voucher and buprenorphine. *NIDA research monograph.* 1999. 103.	Study design
Drake, RE, O'Neal, EL, Wallach, MA. A systematic review of psychosocial research on psychosocial interventions for people with co-occurring severe mental and substance use disorders. *Journal of Substance Abuse Treatment.* 2008. 34:123-38.	Study design
Drebing, CE, Van Ormer, EA, Mueller, L, et al. Adding CM intervention to vocational rehabilitation: outcomes for dually diagnosed veterans. *Journal of Rehabilitation Research and Development.* 2007. 44:851-65.	Outcomes
Dugosh, K, Abraham, A, Seymour, B, et al. A systematic review on the use of psychosocial interventions in conjunction with medications for the treatment of opioid addiction. *Journal of Addiction Medicine.* 2016. 10:93-103.	Study design
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Epstein, DH, Schmittner, J, Umbricht, A, et al. Promoting abstinence from cocaine and heroin with a methadone dose increase and a novel contingency. *Drug and Alcohol Dependence.* 2009. 101:92-100	Follow-up
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European Monitoring Centre for Drugs and Drug Addiction. How can CM support treatment for substance use disorders? 2016.	Study design
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Fix, RL, Walsh, CS, Sheidow, AJ, et al. Juvenile probation officers delivering an intervention for substance use significantly reduces adolescents' risky sexual behaviours. *Sexual Health.* 2024. 21.	Outcomes
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Ghitza, UE, Epstein, DH, Preston, KL. CM reduces injection-related HIV risk behaviors in heroin and cocaine using outpatients. *Addictive Behaviors*. 2008. 33:593-604.	Publication date
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Gonzales, G, Feingold, A, Oliveto, A, et al. Depression and gender predict outcome for desipramine and CM in cocaine and opiate dependence. *Drug and alcohol dependence*. 2001. 63 Suppl 1:58.	Aim
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Gouzoulis-Mayfrank, E, Hartel-Petri, R, Hamdorf, W, et al. Methamphetamine-Related Disorders. *Deutsches Arzteblatt International.* 2017. 114:455-461	Study design
Grabowski, J, O'Brien, CP, Greenstein, R, et al. Effects of contingent payment on compliance with a naltrexone regimen. *American Journal of Drug and Alcohol Abuse.* 1979. 6:355-65.	Study design
Grabowski, J, O'Brien, CP, Greenstein, R, et al. Modification of treatment compliance as a function of contingent payment manipulations. *NIDA Research Monograph.* 1979. 27:402-8.	Study design
Griffith, JD, Rowan-Szal, GA, Roark, RR, et al. CM in outpatient methadone treatment: a meta-analysis. *Drug and Alcohol Dependence.* 2000. 58:55-66	Study design
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Hanson, T, Alessi, SM, Petry, NM. CM reduces drug-related human immunodeficiency virus risk behaviors in cocaine-abusing methadone patients. *Addiction.* 2008. 103:1187-97.	Aim
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Higgins, ST, Wong, CJ, Badger, GJ, et al. Contingent reinforcement increases cocaine abstinence during outpatient treatment and 1 year of follow-up. *Journal of Consulting and Clinical Psychology*. 2000. 68:64-72.	Publication date
Higgins, StephenT, Budney, Alan J, Bickel, Warren K, et al. Outpatient behavioral treatment for cocaine dependence: One-year outcome. *Experimental and Clinical Psychopharmacology*. 1995. 3:205-212.	Publication date
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Hirchak, K, Leickly, E, Herron, J, et al. Characteristics of American Indian/Alaska native adults participating in a CM intervention for alcohol: a descriptive study. *Alcoholism: clinical and experimental research.* 2017. 41:258A.	Publication type
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Hunt, GE, Siegfried, N, Morley, K, et al. Psychosocial interventions for people with both severe mental illness and substance misuse. *Cochrane Database of Systematic Reviews.* 2019. 12:CD001088.	Study design
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Kaminer, Y. CM reinforcement procedures for adolescent substance abuse. *Journal of the American Academy of Child and Adolescent Psychiatry*. 2000. 39:1324-6.	Publication type
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Katz, EC, Chutuape, MA, Jones, H, et al. Abstinence incentive effects in a short-term outpatient detoxification program. *Experimental and Clinical Psychopharmacology*. 2004. 12:262-8.	Follow-up
Katz, EC, Chutuape, MA, Jones, HE, et al. Voucher reinforcement for heroin and cocaine abstinence in an outpatient drug-free program. *Experimental and Clinical Psychopharmacology*. 2002. 10:136-43.	Publication date
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Kelly, LM, Rash, CJ, Alessi, SM, et al. Impact of suicidality on baseline and prospective alcohol use and problems in individuals in intensive outpatient treatment for substance use disorders. *Alcoholism: clinical and experimental research*. 2020. 44:152A.	Aim
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Kennedy, AshleyP, Phillips, KarranA, Epstein, DavidH, et al. A randomized investigation of methadone doses at or over 100mg/day, combined with CM. *Drug and Alcohol Dependence*. 2013. 130:77-84	Study design

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Kidorf, Michael, Stitzer, MaxineL. Contingent access to methadone maintenance treatment: Effects on cocaine use of mixed opiate-cocaine abusers. *Experimental and Clinical Psychopharmacology*. 1993. 1:200-206.	Intervention
Killeen, T, Carter, R, Copersino, M, et al. Effectiveness of motivational incentives in stimulant abusing outpatients with different treatment histories. *American Journal of Drug and Alcohol Abuse*. 2007. 33:129-37.	Aim
Killeen, TK, McRae-Clark, AL, Waldrop, AE, et al. CM in community programs treating adolescent substance abuse: a feasibility study. *Journal of Child and Adolescent Psychiatric Nursing*. 2012. 25:33-41.	Study design
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Kirby, KC, Marlowe, DB, Festinger, DS, et al. Schedule of voucher delivery influences initiation of cocaine abstinence. *Journal of Consulting and Clinical Psychology*. 1998. 66:761-7.	Publication date
Kirby, KC, Marlowe, DB, Platt, JJ. A Controlled comparison of two voucher systems for cocaine abstinence. *NIDA research monograph*. 1997. 174:75.	Publication type
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Korownyk, C, Perry, D, Ton, J, et al. Opioid use disorder in primary care: PEER umbrella systematic review of systematic reviews. *Canadian Family Physician*. 2019. 65:e194-e206.	Study design
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Minozzi, S, Saulle, R, Amato, L, et al. Psychosocial interventions for stimulant use disorder. *Cochrane Database of Systematic Reviews*. 2024. 2:CD011866.	Study design
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Motamed, M, Marsch, LA, Solhkhah, R, et al. Differences in Treatment Outcomes between Prescription Opioid-Dependent and Heroin-Dependent Adolescents. *Journal of Addiction Medicine*. 2008. 2:158-64.	Study design
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Olmstead, TA, Cohen, JP, Petry, NM. Health-care service utilization in substance abusers receiving CM and standard care treatments. *Addiction*. 2012. 107:1462-70.	Study design
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Oluwoye, O, Skalisky, J, Burduli, E, et al. Using a randomized controlled trial to test whether modifications to CM improve outcomes for heavy drinkers with serious mental illness. *Contemporary Clinical Trials*. 2018. 69:92-98.	Population
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Pantalon, MichaelV, Ferro, Gonzalo, Chawarski, MarekC, et al. Voucher purchases in CM interventions for women with cocaine dependence. *Addictive Disorders and Their Treatment*. 2004. 3:27-35.	Aim
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Petitjean, SA, Dursteler-MacFarland, KM, Krokar, MC, et al. A randomized, controlled trial of combined cognitive-behavioral therapy plus prize-based CM for cocaine dependence. *Drug and Alcohol Dependence.* 2014. 145:94-100.	Setting
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Preston, KL, Umbricht, A, Wong, CJ, et al. Shaping cocaine abstinence by successive approximation. *Journal of Consulting and Clinical Psychology*. 2001. 69:643-54.	Publication date
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Reus, VI, Fochtmann, LJ, Bukstein, O, et al. The American Psychiatric Association practice guideline for the pharmacological treatment of patients with alcohol use disorder. 2018.	Intervention
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Silverman, K, Chutuape, MA, Bigelow, GE, et al. Voucher-based reinforcement of cocaine abstinence in treatment-resistant methadone patients: effects of reinforcement magnitude. *Psychopharmacology.* 1999. 146:128-38.	Study design
Silverman, K, Higgins, ST, Brooner, RK, et al. Sustained cocaine abstinence in methadone maintenance patients through voucher-based reinforcement therapy. *Archives of General Psychiatry.* 1996. 53:409-15.	Publication date
Silverman, K, Robles, E, Mudric, T, et al. A randomized trial of long-term reinforcement of cocaine abstinence in methadone-maintained patients who inject drugs. *Journal of Consulting and Clinical Psychology.* 2004. 72:839-54.	Study design
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Sindelar, JL, Olmstead, TA, Peirce, JM. Cost-effectiveness of prize-based CM in methadone maintenance treatment programs. *Addiction.* 2007. 102:1463-71.	Publication date
Sinha, R, Easton, C, Renee-Aubin, L, et al. Engaging young probation-referred marijuana-abusing individuals in treatment: a pilot trial. *American Journal on Addictions.* 2003. 12:314-23.	Population
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Sofuoglu, M, Gonzalez, G, Poling, J, et al. Prediction of treatment outcome by baseline urine cocaine results and self-reported cocaine use for cocaine and opioid dependence. *American Journal of Drug and Alcohol Abuse.* 2003. 29:713-27.	Aim

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Stanger, C, Scherer, EA, Vo, HT, et al. Working memory training and high magnitude incentives for youth cannabis use: A SMART pilot trial. *Psychology of Addictive Behaviors.* 2020. 34:31-39.	Study design
Steele, DW, Becker, SJ, Danko, KJ, et al. Interventions for substance use disorders in adolescents: a systematic review. 2020.	Study design
Stewart, DG, Felleman, BI, Arger, CA. Effectiveness of Motivational Incentives for Adolescent Marijuana Users in a School-Based Intervention. *Journal of Substance Abuse Treatment.* 2015. 58:43-50.	Aim
Stitzer, M, Calsyn, D, Matheson, T, et al. Development of a Multi-Target CM Intervention for HIV Positive Substance Users. *Journal of Substance Abuse Treatment.* 2017. 72:66-71.	Aim
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Stitzer, ML, Gukasyan, N, Matheson, T, et al. Enhancing patient navigation with contingent financial incentives for substance use abatement in persons with HIV and substance use. *Psychology of Addictive Behaviors.* 2020. 34:23-30.	Outcomes
Stitzer, ML, Iguchi, MY, Kidorf, M, et al. CM in methadone treatment: the case for positive incentives. *NIDA Research Monograph.* 1993. 137:19-36.	Intervention
Stitzer, ML, Peirce, J, Petry, NM, et al. Abstinence-based incentives in methadone maintenance: interaction with intake stimulant test results. *Experimental and Clinical Psychopharmacology.* 2007. 15:344-50.	Aim
Stitzer, ML, Petry, N, Peirce, J, et al. Effectiveness of abstinence-based incentives: interaction with intake stimulant test results. *Journal of Consulting and Clinical Psychology.* 2007. 75:805-11.	Aim
Stitzer, ML, Petry, NM, Peirce, J. Motivational incentives research in the National Drug Abuse Treatment Clinical Trials Network. *Journal of Substance Abuse Treatment.* 2010. 38 Suppl 1:S61-9.	Publication type
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Strona, FV, McCright, J, Hjord, H, et al. The acceptability and feasibility of the Positive Reinforcement Opportunity Project, a community-based CM methamphetamine treatment program for gay and bisexual men in San Francisco. *Journal of Psychoactive Drugs.* 2006. Suppl 3:377-83.	Study design
Strong Kinnaman, JE, Slade, E, Bennett, ME, et al. Examination of contingency payments to dually-diagnosed patients in a multi-faceted behavioral treatment. *Addictive Behaviors.* 2007. 32:1480-5.	Study design

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Substance Abuse and Mental Health Services Administration. Clinical guidance for treating pregnant and parenting women with opioid use disorder and their infants. 2018.	Population
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Substance Abuse and Mental Health Services Administration. Treatment for stimulant use disorders (Treatment Improvement Protocol Series, No. 33). 2021.	Publication type
Summers, NA, Colasanti, JA, Feaster, DJ, et al. Predictors for poor linkage to care among hospitalized persons living with HIV and co-occurring substance use disorder. *AIDS Research and Human Retroviruses.* 2020. 36:406-414.	Intervention
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Svikis, D, Silverman, K, Haug, N, et al. Clinical efficacy of alternative voucher incentive programs for pregnant drug-dependent women. *62nd annual scientific meeting of the college on problems of drug dependence; 2000 June 17-22; San Juan, Puerto Rico.* 2000.	Study design
Svikis, DS, Lee, JH, Haug, NA, et al. Attendance incentives for outpatient treatment: effects in methadone- and nonmethadone-maintained pregnant drug dependent women. *Drug and Alcohol Dependence.* 1997. 48:33-41.	Outcomes
Svikis, DS, Silverman, K, Haug, NA, et al. Behavioral strategies to improve treatment participation and retention by pregnant drug-dependent women. *Substance Use and Misuse.* 2007. 42:1527-35.	Setting
Tardelli, VS, Lago, Mppd, Mendez, M, et al. CM with pharmacologic treatment for Stimulant Use Disorders: A review. *Behaviour Research and Therapy.* 2018. 111:57-63.	Study design
Terplan, M, Ramanadhan, S, Locke, A, et al. Psychosocial interventions for pregnant women in outpatient illicit drug treatment programs compared to other interventions. *Cochrane Database of Systematic Reviews.* 2015. 2015:CD006037.	Study design
The ASAM Clinical Practice Guideline on Alcohol Withdrawal Management. *J Addict Med.* 2020. 14:1-72.	Intervention
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Tice, JeffreyA, Whittington, MD, Fluetsch, N, et al. Digital health technologies as an adjunct to medication assisted therapy for opioid use disorder. 2020.	Study design
Timko, C, Schultz, NR, Cucciare, MA, et al. Retention in medication-assisted treatment for opiate dependence: A systematic review. *Journal of Addictive Diseases.* 2016. 35:22-35.	Study design
Tofighi, B, Campbell, AN, Pavlicova, M, et al. Recent internet use and associations with clinical outcomes among patients entering addiction treatment involved in a web-delivered psychosocial intervention study. *Journal of Urban Health.* 2016. 93:871-883.	Intervention
Tomko, RL, Wolf, BJ, McClure, EA, et al. Who responds to a multi-component treatment for cannabis use disorder? Using multivariable and machine learning models to classify treatment responders and non-responders. *Addiction.* 2023. 118:1965-1974.	Outcomes

Reference Information	Primary Reason for Exclusion
Tran, MTN, Luong, QH, Le Minh, G, et al. Psychosocial interventions for amphetamine type stimulant use disorder: an overview of systematic reviews. *Frontiers in psychiatry Frontiers Research Foundation.* 2021. 12:512076.	Study design
Tuten, M, Shadur, JM, Stitzer, M, et al. A comparison of reinforcement based treatment (RBT) versus RBT plus recovery housing (RBT+RH). *Journal of Substance Abuse Treatment*. 2017. 72:48-55.	Intervention
Umbricht, A, DeFulio, A, Tompkins, DA, et al. Topiramate and CM in the treatment of cocaine dependence: a randomized controlled trial. *Proceedings of the 74th annual scientific meeting of the college on problems of drug dependence; 2012 June 9-14, Palm Springs, CA*. 2012. Abstract no: 681.	Publication type
Umbricht, A, DeFulio, A, Winstanley, EL, et al. Topiramate for cocaine dependence during methadone maintenance treatment: a randomized controlled trial. *Drug and Alcohol Dependence*. 2014. 140:92-100.	Aim
US Department of Health and Human Services. CM for the treatment of substance use disorders: enhancing access, quality, and program integrity for an evidence-based intervention. 2023.	Aim
van der Windt, M, van Zundert, SKM, Schoenmakers, S, et al. Effective psychological therapies to improve lifestyle behaviors in (pre)pregnant women: A systematic review. *Preventive Medicine Reports.* 2021. 24:101631.	Study design
Vandrey, R, Stitzer, ML, Bigelow, GE. Brief cocaine abstinence induced by voucher and cash-based incentives. *Proceedings of the 68th annual scientific meeting of the college on problems of drug dependence; 2006 June 17-22; Scottsdale, Arizona, USA*. 2006.	Publication type
VanScoyoc, J, Stanger, C, Budney, Thostenson, et al. Disruptive behavior disorder influence response to CM among adolescent marijuana abusers. *Proceedings of the 70th annual scientific meeting of the college on problems of drug dependence; 2008 June 14-19; San Juan, Puerto Rico, USA*. 2008. 192.	Publication type
Velez, F, Luderer, H, Gerwien, R, et al. Cost-effectiveness analysis of a prescription digital therapeutic for the treatment of opioid use disorder. *Journal of managed care and specialty pharmacy*. 2020. 26:S40.	Publication type
Velez, FF, Anastassopoulos, KP, Colman, S, et al. Reduced Healthcare Resource Utilization in Patients with Opioid Use Disorder in the 12 Months After Initiation of a Prescription Digital Therapeutic. *Advances in Therapy*. 2022. 39:4131-4145.	Intervention
Velez, FF, Colman, S, Kauffman, L, et al. Comparison of Healthcare Resource Utilization Between Patients Who Engaged or Did Not Engage With a Prescription Digital Therapeutic for Opioid Use Disorder. *Clinicoeconomics and Outcomes Research.* 2021. 13:909-916.	Intervention
Velez, FF, Colman, S, Kauffman, L, et al. Real-world changes in US health system hospital-based services following treatment with a prescription digital therapeutic for opioid use disorder. *Hospital practice (1995) Hospital practice*. 2021. 49:341-347.	Intervention
Velez, FF, Colman, S, Kauffman, L, et al. Real-world reduction in healthcare resource utilization following treatment of opioid use disorder with reSET-O, a novel prescription digital therapeutic. *Expert Review of Pharmacoeconomics and Outcomes Research.* 2021. 21:69-76.	Intervention
Velez, FF, Huang, D, Mody, L, et al. Five-year budget impact of a prescription digital therapeutic for patients with opioid use disorder. *Expert Review of Pharmacoeconomics and Outcomes Research*. 2022. 22:599-607.	Intervention
Velez, FF, Luderer, HF, Gerwien, R, et al. Evaluation of the cost-utility of a prescription digital therapeutic for the treatment of opioid use disorder. *Postgraduate Medicine.* 2021. 133:421-427.	Intervention

Reference Information	Primary Reason for Exclusion
Velez, FF, Malone, DC. Cost-Effectiveness Analysis of a Prescription Digital Therapeutic for the Treatment of Opioid Use Disorder. *Journal of Market Access and Health Policy*. 2021. 9:1966187.	Intervention
Versek, BE, Carpenedo, CM, Rosenwasser, BJ, et al. Resets do not appear to increase the rate of adverse events or prolong relapse in voucher-based reinforcement therapy. *Journal of Substance Abuse Treatment*. 2010. 39:167-73.	Study design
Walter, KN, Petry, NM. Patients with diabetes respond well to CM treatment targeting alcohol and substance use. *Psychology Health and Medicine*. 2015. 20:916-26.	Aim
Wang, W, Gellings Lowe, N, Jalali, A, et al. Economic modeling of reSET-O, a prescription digital therapeutic for patients with opioid use disorder. *Journal of Medical Economics*. 2021. 24:61-68.	Intervention
Weinstock, J, Alessi, SM, Petry, NM. Regardless of psychiatric severity the addition of CM to standard treatment improves retention and drug use outcomes. *Drug and Alcohol Dependence*. 2007. 87:288-96.	Aim
Weinstock, J, Petry, NM, Pescatello, LS, et al. Randomized clinical trial of exercise for nontreatment seeking adults with alcohol use disorder. *Psychology of Addictive Behaviors*. 2020. 34:65-75.	Aim
Weinstock, J, Rash, CJ, Petry, NM. CM for cocaine use in methadone maintenance patients: when does abstinence happen? *Psychology of Addictive Behaviors*. 2010. 24:282-91.	Aim
Weiss, L, Petry, NM. Older methadone patients achieve greater durations of cocaine abstinence with CM than younger patients. *American Journal on Addictions*. 2013. 22:119-26.	Aim
Weiss, LM, Petry, NM. Interaction effects of age and CM treatments in cocaine-dependent outpatients. *Experimental and Clinical Psychopharmacology*. 2011. 19:173-81.	Study design
Weiss, LM, Petry, NM. Substance abuse treatment patients with early onset cocaine use respond as well to CM interventions as those with later onset cocaine use. *Journal of Substance Abuse Treatment*. 2014. 47:146-50.	Aim
Weiss, RD. CM for patients with serious mental illness and stimulant dependence. *American Journal of Psychiatry*. 2013. 170:6-8.	Publication type
Wenzel, KR, Burgower, R, Wildberger, J, et al. Youth opioid recovery support intervention: home delivery of extended release naltrexone. *Journal of addiction medicine*. 2019. 13:E42.	Study design
Wildberger, J, Wenzel, KR, Burgower, R, et al. Relationship between injectable naltrexone and IOP utilization on opioid relapse in youth. *Journal of addiction medicine*. 2019. 13:E36.	Aim
Winstanley, EL, Bigelow, GE, Silverman, K, et al. A randomized controlled trial of fluoxetine in the treatment of cocaine dependence among methadone-maintained patients. *Journal of Substance Abuse Treatment*. 2011. 40:255-64.	Aim
Wood, EE, Liang, Y, Moon, T, et al. Drinking patterns influence changes in drink-refusal self-efficacy in DWI offenders: evidence from a CM study. *Alcoholism: clinical and experimental research*. 2022. 46:263A.	Aim
Wood, EE, Liang, Y, Moon, TJ, et al. Reduced alcohol use increases drink-refusal self-efficacy: Evidence from a CM study for DWI arrestees. *Drug and Alcohol Dependence*. 2023. 242:109706.	Outcomes
Yoon, JH, Suchting, R, de Dios, C, et al. Decreased cocaine demand following CM treatment. *Drug and Alcohol Dependence*. 2021. 226:108883.	Outcomes

Reference Information	Primary Reason for Exclusion
Zajac, K, Rash, CJ, Ginley, MK, et al. Sexual orientation and substance use treatment outcomes across five clinical trials of CM. *Psychology of Addictive Behaviors.* 2020. 34:128-135.	Aim
Zhang, L, Li, N, Li, Y, et al. Preliminary efficacy of a digital therapeutics smartphone application for methamphetamine use disorder: An experimental study. *Frontiers in psychiatry Frontiers Research Foundation.* 2022. 13:1027695.	Setting
Zhang, SX, Shoptaw, S, Reback, CJ, et al. Cost-effective way to reduce stimulant-abuse among gay/bisexual men and transgender women: a randomized clinical trial with a cost comparison. *Public Health.* 2018. 154:151-160.	Intervention

Appendix E. Additional Methods

Participant Characteristics and Association With Outcomes

When discussing risk and protective factors or variables in statistical models in Center research products, in almost all cases, we are referring to associations of participant characteristics with outcomes, and not causation of outcomes. This is important because participant characteristics, such as race and ethnicity, serve as proxy or surrogate measures for underlying etiological factors not measured or evaluated in analyses. Etiological factors that might cause differences in outcomes for subgroups of participants could include systemic racism or other forms of systemic discrimination, stress, poverty, housing instability, or epigenetics. For example, by describing any differences in outcomes by race and ethnic groups, we are noting observed associations; these associations are not caused by biological determinants of being Black, White, or Hispanic.

Risk of Bias

Table E1. Risk-of-Bias Assessment: Randomized Controlled Trials

Domain	Domain Elements The elements included in each domain are assessed and rated as *yes*, *no*, *unclear*, or *not applicable* based on the performance and documentation of individual elements in each domain. The overall risk of bias for a study is assessed as *high*, *moderate*, or *low* based on the assessment of how well overall study methods and processes were performed to limit bias and ensure validity.
Randomization	• An appropriate method of randomization is used to allocate participants or clusters to groups, such as a computer random number generator • Baseline characteristics between groups or clusters are similar
Allocation concealment	• An adequate concealment method is used to prevent investigators and participants from influencing enrollment or intervention allocation
Intervention	• Intervention and comparator intervention applied equally to groups • Cointerventions appropriate and applied equally to groups • Control selected is an appropriate intervention
Outcomes	• Outcomes are measured using valid and reliable measures • Investigators use single outcome measures and do not rely on composite outcomes, or outcome of interest can be calculated from composite outcome • The trial has an appropriate length of follow-up and groups are assessed at same time points • Outcome reporting of entire group or subgroups is not selective
Masking (blinding) of investigators and participants	• Investigators and participants are unaware (masked or blinded) of intervention status
Masking (blinding) of outcome assessors	• Outcome assessors are unaware (masked or blinded) of intervention status
Intention-to-treat analysis	• Participants are analyzed based on random assignment (intention-to-treat analysis)
Statistical analysis	• Participants lost to follow-up unlikely to significantly bias results (i.e., complete follow-up of ≥ 80% of participants overall and nondifferential, ≤ 10% difference between groups) • The most appropriate summary estimate (e.g., risk ratio, hazard ratio) is used

Domain	Domain Elements The elements included in each domain are assessed and rated as *yes*, *no*, *unclear*, or *not applicable* based on the performance and documentation of individual elements in each domain. The overall risk of bias for a study is assessed as *high*, *moderate*, or *low* based on the assessment of how well overall study methods and processes were performed to limit bias and ensure validity.
	• Paired or conditional analysis used for crossover RCT • Clustering appropriately accounted for in a cluster-randomized trial (e.g., use of an intraclass correlation coefficient)
Other biases (as appropriate)	• List others in table footnote and describe, such as: ○ Sample size adequacy ○ Interim analysis or early stopping ○ Recruitment bias, including run-in period used inappropriately ○ Use of unsuitable crossover intervention in a crossover RCT
Interest disclosure	• Disclosures of interest are provided for authors/funders/commissioners of study • Interests are unlikely to significantly affect study validity
Funding	• There is a description of source(s) of funding • Funding source is unlikely to have a significant impact on study validity

Abbreviation. RCT: randomized controlled trial.

GRADE

Table E2. GRADE System for Rating the Certainty of Evidence for Outcomes

GRADE Rating	Plain Language Description	Detailed Category Description
High	New research is very unlikely to change our understanding of the relationship between this outcome and the health technology.	Center researchers are very confident that the estimate of the effect of the intervention on the outcome lies close to the true effect. Typical sets of studies are randomized controlled trials with few or no limitations, and the estimate of effect is likely stable.
Moderate	New research may change our understanding of the relationship between this outcome and the health technology.	Center researchers are moderately confident in the estimate of the effect of the intervention on the outcome. The true effect is likely to be close to the estimate of the effect, but there is a possibility that it is different. Typical sets of studies are randomized controlled trials with some limitations or well-performed nonrandomized studies with additional strengths that guard against potential bias and have large estimates of effects.
Low	New research is likely to change our understanding of the relationship between this outcome and the health technology.	Center researchers have little confidence in the estimate of the effect of the intervention on the outcome. The true effect may be substantially different from the estimate of the effect. Typical sets of studies are randomized controlled trials with serious limitations or nonrandomized studies without special strengths.
Very low	New research is very likely to change our understanding of the relationship between this outcome and the health technology.	Center researchers have no confidence in the estimate of the effect of the intervention on the outcome. The true effect is likely to be substantially different from the estimate of effect. Typical sets of studies are nonrandomized studies with serious limitations or inconsistent results across studies.
Not applicable	There is no research to report.	Center researchers did not identify any eligible articles.

Source. Cochrane Handbook for Systematic Reviews of Interventions.[166]
Abbreviation. GRADE: Grading of Recommendations, Assessment, Development, and Evaluations.

Appendix F. Risk of Bias Assessment

Table F1. Risk of Bias in 17 RCTs of CM Interventions for Treatment of Stimulant Use Disorder, Part 1

Study	Appropriate Randomization Method	Adequate Allocation Concealment Method	Blinding of Study Analysts	Appropriate Length of Follow-Up	Single Outcome Measures Reported	Intention-to-Treat Analysis	Most Appropriate Summary Statistic Used	Similar Between-Group Baseline Characteristics
Carpenedo et al., 2010	Yes	Unclear	Unclear	Yes	Yes	Yes	Yes	Yes
Carroll et al., 2016	Yes	Unclear	Unclear	Yes	Yes	Yes	Yes	Yes
Chudzynski et al., 2015	Unclear	Unclear	Unclear	Yes	Yes	Unclear	No	Yes
Festinger et al., 2014	Unclear	Unclear	Unclear	No	Yes	Yes	Yes	Yes
Hagedorn et al., 2013	Yes	Unclear	No	Yes	Yes	No	Yes	Yes
Hall et al., 2009	Unclear	Unclear	Unclear	Yes	Yes	No	Yes	No
McDonell et al., 2013	Yes	Unclear	No	Yes	Yes	Yes	Yes	Yes
McKay et al., 2010	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
Menza et al., 2010	Yes	Yes	Unclear	Yes	Yes	No	Yes	Yes
Petry Alessi et al., 2012	Yes	Unclear	No	Yes	Yes	Yes	Yes	Yes
Petry Barry et al., 2012	Yes	Unclear	Unclear	Yes	Yes	Yes	Yes	Yes
Petry et al., 2010	Yes	Unclear	Unclear	Yes	Yes	Yes	Yes	Yes
Petry et al., 2015	Yes	Unclear	Unclear	Yes	Yes	Yes	Yes	Yes
Petry et al., 2018	Yes	Unclear	No	Yes	Yes	Yes	Yes	Yes
Roll et al., 2013	Unclear	Unclear	Unclear	Yes	Yes	Yes	Yes	Yes
Tuten et al., 2012	Unclear	Unclear	No	Yes	Yes	No	Yes	Yes
Van Horn et al., 2011	Unclear	Unclear	Unclear	Yes	Yes	Yes	Yes	Unclear

Table E1. Risk of Bias in 17 RCTs of CM Interventions for Treatment of Stimulant Use Disorder, Part 2

Study	Loss to Follow-Up Unlikely to Bias Results	Disclosures of Interest for All Authors	Description of Funding Source	Results Applicable to Purpose of Report	Overall Risk of Bias
Carpenedo et al., 2010	Unclear	Yes	Yes	Yes	Moderate Unclear allocation sequence and blinding. High attrition. Sensitivity analyses conducted for attrition and missingness.
Carroll et al., 2016	No	Yes	Yes	Yes	High No information on allocation concealment, no mention of blinding of analysts to treatment group, high attrition in some groups. ITT was used, but does not define how missing data were handled (i.e., were missing values imputed positive, negative?). Loss to follow-up high and unclearly reported.
Chudzynski et al., 2015	Unclear	Yes	Yes	Yes	High Unknown if ITT was used and flow of participants through the study is unclear (no consort diagram), no description of randomization methods, no reference to allocation concealment, no reference to blinding of analysts, selective reporting of data.
Festinger et al., 2014	Unclear	Yes	Yes	Yes	High No information on randomization or allocation concealment, no discussion of masking of analysts or assessors. No follow-up beyond the end of the 12-week intervention. Limited inclusion criteria and no exclusion criteria listed. No information provided on attrition.
Hagedorn et al., 2013	No	No	Yes	Yes	High No reference to allocation concealment, no blinding of analysts, apparently does not use ITT analysis, high attrition (>20% in each arm at end of 8-week intervention), and lacks conflict of interest statement from the authors.
Hall et al., 2009	No	No	Yes	Unclear	High No description of randomization method, allocation concealment, or blinding of testers or analysts. No inclusion or exclusion criteria provided beyond enrollment in a drug diversion program. ITT not used. Differences in demographics at baseline. Lack of conflict-of-interest statements from

Study	Loss to Follow-Up Unlikely to Bias Results	Disclosures of Interest for All Authors	Description of Funding Source	Results Applicable to Purpose of Report	Overall Risk of Bias
					authors. Subjects were predominantly methamphetamine users but enrollment was not restricted to stimulant use disorder and results are not broken out by addiction type. Attrition >50% per arm.
McDonell et al., 2013	No	Yes	Yes	Yes	High High attrition rates, differential loss to follow-up, unclear outcome reporting.
McKay et al., 2010	Unclear	No	Yes	Yes	Moderate ITT used and randomization well described, but no conflict-of-interest disclosure from authors and differences in length of different treatment arms raises some methodological issues. Loss to follow-up is unclear.
Menza et al., 2010	Unclear	Yes	Yes	Yes	High Randomization and allocation concealment processes are well described. Statistical methods are well described and valid. Says ITT is used, but uses per protocol in looking at proportion of respondents who were negative for meth at end of intervention (12 weeks) and follow-up (12 weeks from end of intervention). Blinding of assessors to group condition is not established. Additional challenge to study quality arise from protocol changes made during the study. While understandable for a feasibility study, these changes do raise risk of bias.
Petry Alessi et al., 2012	No	No	Yes	Yes	High ITT used and randomization process seems appropriate. However, no statement on author's conflicts of interest; no reference to blinding of researchers, analysts, or specimen collectors to treatment condition; loss to follow-up exceeded 20% in control group; definition of therapist is unestablished and apparently very loosely applied.
Petry Barry et al., 2012	Unclear	No	Yes	Yes	Moderate No mention of allocation concealment or blinding of analysts to treatment condition, unclear attrition rates, no disclosure of conflicts of interest

Study	Loss to Follow-Up Unlikely to Bias Results	Disclosures of Interest for All Authors	Description of Funding Source	Results Applicable to Purpose of Report	Overall Risk of Bias
Petry et al., 2010	Unclear	No	Yes	No	Moderate No reference to allocation concealment or blinding of analysts. No disclosure of interests. Unclear attrition.
Petry et al., 2015	Unclear	No	Yes	Yes	High No reference to allocation concealment or blinding of analysts to treatment condition. Subjects had different testing frequencies (2 or 3x per week, varying week to week). Someone could have only 2 tests per week over 12 weeks, only 3 tests per week over 12 weeks, or any combination therein. Unclear attrition. No disclosures of authors' interests.
Petry et al., 2018	Unclear	No	Yes	Yes	Moderate No references to analyst blinding or allocation concealment methods. No disclosures provided. Some confusion about the number of dropouts. Ranked as moderate because these were not considered to be fatal flaws.
Roll et al., 2013	No	Yes	Yes	Yes	High ITT analysis is used. Lack of detail on inclusion and exclusion criteria, lack of detail on CM itself (what did participants actually get with their fishbowl draw?), no information on where CM was delivered (research office, treatment clinic?) or who it was delivered by. No mention of blinding of analysts to treatment condition. Attrition exceeded 20% for all treatment arms.
Tuten et al., 2012	No	Yes	Yes	Yes	High Unknown concealment of assignment sequence, no reference to blinding of analysts, high loss to follow-up, no analysis of differential attrition. Dropped all cases with missing data, which introduces significant bias.

Study	Loss to Follow-Up Unlikely to Bias Results	Disclosures of Interest for All Authors	Description of Funding Source	Results Applicable to Purpose of Report	Overall Risk of Bias
Van Horn et al., 2011	Unclear	Yes	Yes	Unclear	High Study is not clearly reported and there is little to no information about whether randomization, allocation concealment, and blinding of analysts occurred. Loss to follow-up appears to be high but is not explicitly discussed and baseline characteristics are not disaggregated by study group. Limited outcome data and limited study detail.

Abbreviations. ITT: intention-to treat (in which all participants randomized in a trial are included in analysis as part of the group to which they were originally randomized).

Appendix G. GRADE

Table G1. GRADE Profile
Abstinence and Retention Outcomes Related to CM Interventions for Adults With Stimulant Use Disorder

Outcome	Number of Participants and Studies	Study Design	Factors that May Decrease Certainty of Evidence				Summary of Results	CoE
			Risk of Bias	Inconsistency	Indirectness	Imprecision		
Abstinence								
Duration of abstinence during intervention	4 studies N = 494	RCTs	Serious (-1) 2 of 4 RCTs rated high RoB and 2 as moderate RoB	No serious All found in favor of CM	Serious (-1) Some differences in study designs (3 fishbowl, 1 voucher) and contingencies (3 had abstinence contingency and 1 had attendance contingency) and how abstinence was measured (days or weeks). All had the same intervention length (12 weeks).	No serious Some differences in how missing data was handled. Three imputed missing values as positive, while 1 did not impute results of missing tests. Not downgraded for this difference because the majority of studies handled missing data in the same way.	Downgraded for high risk of bias (-1) and differences between study designs and populations (-1 for indirectness).	●●○○ Low
Duration of abstinence for CM interventions with an abstinence contingency compared to control	3 studies N = 353	RCTs	Serious (-1) All 3 RCTs rated high RoB	No serious. All had abstinence contingency and 12-week duration. Three were fishbowl CM and 1 voucher-	Serious (-1) The control group in 1 RCT received noncontingent rewards, while controls in the other 2 studies did not.	No serious	All 4 studies favor CM over control, even though different control groups are used.	●●●○ Moderate

Outcome	Number of Participants and Studies	Study Design	Factors that May Decrease Certainty of Evidence				Summary of Results	CoE
			Risk of Bias	Inconsistency	Indirectness	Imprecision		
				based, but not downgraded for this difference.				
Duration of abstinence during follow-up	3 studies N = 508	RCTs	Serious (-1) All RCTs are high RoB	No serious All show no difference between CM and control condition.	No serious. All are abstinence-based contingencies with fishbowl designs, aimed at individuals with cocaine addiction.	Serious (-1) In 2 of 3 studies, missing data at follow-up were ignored and values of missing tests were not imputed.	Downgraded for high risk of bias (-1) and limitations in how missing data were handled that could lead to serious imprecision.	●●○○ Low
Retention								
Treatment retention	6 studies N = 740	RCTs	Serious (-1) Two of 6 studies rated as moderate RoB and 4 rated high)	No serious. Five of 6 RCTs found significant effect in favor of CM (1 found no difference).	Serious (-1) Differences in designs, contingencies, and populations.	No serious 5 of 6 studies used ITT (1 unclear), confidence intervals are reasonable in most (but not all) studies	Downgraded for high risk of bias (-1) and differences in populations and study designs that lead to serious indirectness (-1).	●●○○ Low

Abbreviations. CI: confidence interval; CM: contingency management; RCT: randomized controlled trial; RoB: risk of bias; SD: standard deviation.

Appendix H. Medicaid 1115a Waiver Language Related to Contingency Management

Table H1. Medicaid 1115a Waiver Language Related to Contingency Management

State Waiver Status Policy Links	Policy Language
California Approved Medicaid Section 1115 Demonstration Five-year Renewal and Amendment request: California Advancing and Innovating Medi-Cal (CalAIM). 2021[30] Centers for Medicare & Medicaid Services. Updated approval of California Advancing and Innovating Medi-Cal (CalAIM) 1115 waiver. 2024[31]	VII. CM SERVICES **53. CM Overview** a. Beginning no earlier than July 1, 2022, DHCS will implement a new CM benefit for eligible DMC-ODS beneficiaries with a substance use disorder in DMC-ODS counties that elect and are approved by DHCS to pilot the benefit. The pilots will allow California to evaluate and assess the effectiveness of a CM benefit before determining whether it should be available statewide. b. Under the pilot, the CM benefit will be available in participating DMC-ODS counties, that opt and are approved by DHCS to provide this benefit, to qualified beneficiaries who meet the eligibility requirements described below and receive services from a non-residential DMC-ODS provider. **54. Eligibility.** To qualify for the CM benefit, a Medi-Cal beneficiary must meet the following conditions: a. CM will be available only when it is medically necessary and appropriate. b. Be enrolled in a comprehensive treatment program that offers other services (e.g., group or individual therapy) delivered in person or via telehealth; c. Be assessed and determined to have a substance use disorder for which the CM benefit is medically appropriate based on the fidelity of treatment to the evidence-based practice. The presence of additional substance use disorders and/or diagnoses does not disqualify an individual from receiving the CM benefit; d. Reside in a participating DMC-ODS county that elects and is approved by DHCS to pilot the CM benefit; e. Not be enrolled in another CM program for substance use disorder; f. Receive services from a non-residential DMC-ODS provider that offers the CM benefit in accordance with DHCS policies and procedures; and g. CM should never be used in place of medication treatment for OUD. **55. Service Description** a. The CM benefit consists of a series of motivational incentives for meeting treatment goals. The motivational incentives may consist of cash or cash equivalents, e.g., gift cards of low retail value, consistent with evidence-based clinical research for treating a substance use disorder and as described below. These motivational incentives are central to CM, based on the best available scientific evidence for treating a substance use disorder and not as an inducement to use other medical services. b. The CM benefit utilizes an evidence-based approach that recognizes and reinforces individual positive behavior change consistent with non-use or treatment/medication adherence. The CM benefit provides

State Waiver Status Policy Links	Policy Language
	motivational incentives for non-use of substances or treatment/medication adherence as evidenced by, for example, negative drug tests. c. CM is offered along with other therapeutic interventions, such as cognitive behavioral therapy, that meet the definition of rehabilitative services as defined by 1905(a) of the Social Security Act and 42 CFR 440.130(d). d. For purposes of this demonstration, these motivational incentives are considered a Medicaid-covered item or service and are used to reinforce objectively verified, recovery behaviors using a clinically appropriate CM protocol consistent with evidence-based research. Consequently, neither the Federal antikickback statute (42 U.S.C. § 1320a-7b(b), "AKS") nor the civil monetary penalty provision prohibiting inducements to beneficiaries (42 U.S.C. 1320a-7a(a)(5), "Beneficiary Inducements CMP") would be implicated. e. The CM benefit consists of a set of modest motivational incentives available for beneficiaries that meet treatment goals. Under the benefit, a beneficiary will be limited in motivational incentives during the course of a CM treatment episode as detailed in in the Procedures and Protocols in Attachment V, which will be submitted to CMS for review and approval before the program can be implemented. i. To qualify for a CM motivational incentive, a beneficiary must demonstrate treatment/medication adherence or non-use of substances. through evidence for a substance. ii. The size, nature and distribution of all CM motivational incentives shall be determined in strict accordance with DHCS procedures and protocols, listed in Attachment V. These procedures and protocols will be based on established clinical research for CM. The following guardrails shall ensure the integrity of the CM benefit and mitigate the risk of fraud, waste or abuse associated with the motivational incentive: 1. Providers have no discretion to determine the size or distribution of motivational incentives which will be determined by DHCS. 2. Motivational incentives may be managed and disbursed through a mobile or web-based incentive management software program that includes strict safeguards against fraud and abuse that will be detailed in DHCS guidance and listed in the Procedures and Protocols Attachment V (as listed above). 3. To calculate and generate the motivational incentives in accordance with the schedule in Attachment V, providers shall enter the evidence of the Medi-Cal beneficiary receiving the CM benefit into a mobile or web-based incentive management software program. 56. DMC-ODS County Participation. To participate in the CM pilot, a county must participate in DMC-ODS, submit an application, and be selected by DHCS. a. The application process shall identify counties that meet at least the following standards: i. Participating counties shall establish a network of providers that can provide CM in accordance with DHCS requirements.

State Waiver Status Policy Links	Policy Language
	ii. Participating counties shall monitor the ongoing performance, including fidelity of treatment to the evidence-based practice, of CM providers and work with DHCS to identify and support providers requiring further training or technical assistance in accordance with DHCS set standards, to be outlined in DHCS guidance. b. DHCS will provide training, technical assistance and monitoring to counties throughout the implementation process. The training and technical assistance will be provided through a qualified contractor designated by DHCS, and will include staff training, provider readiness reviews, and ongoing technical assistance during the first phase of the pilot. c. Participating counties and providers shall comply with any billing and data reporting requirements established by DHCS to support research, evaluation, and performance monitoring efforts, including but not limited to satisfactory claims submission, data and quality reporting, and survey participation. **57. Eligible CM Providers** a. The CM benefit will be delivered by DMC-ODS providers that meet specified programmatic standards and agree to deliver the CM benefit in strict accordance with standardized procedures and protocols that will be detailed in DHCS guidance and listed in the Procedures and Protocols Attachment V (as listed above). b. To be eligible to offer the CM benefit, a provider shall offer the benefit in strict accordance with DHCS standards that will be outlined in DHCS guidance included in Attachment V and shall meet the following requirements: i. Must serve beneficiaries residing in DMC-ODS counties that have been approved by DHCS for participation in the CM pilot; ii. Must be enrolled in Medi-Cal, and certified to provide Medi-Cal and DMC-ODS services, and offer outpatient, intensive outpatient, narcotic treatment program, and/or partial hospitalization services; iii. Require the staff providing or overseeing the CM benefit to participate in CM-specific training developed and offered by a qualified contractor designated by DHCS; iv. Undergo a readiness review by DHCS and a qualified contractor designated by DHCS to ensure that they are capable to offer the CM benefit in accordance with DHCS standards that will be detailed in DHCS guidance; and v. Participate in ongoing training and technical assistance as requested or identified by DMC-ODS counties or DHCS through ongoing monitoring to meet DHCS standards. c. The following practitioners delivering care at qualified DMC-ODS providers can deliver the CM benefit through activities, such as administering point-of-care urine drug tests, informing beneficiaries of the results of the evidence/urine drug test, entering the results into the mobile or web-based application, providing educational information, and distributing motivational incentives, as part of the CM benefit: i. Licensed Practitioner of the Healing Arts (LPHAs);

State Waiver Status Policy Links	Policy Language
	ii. SUD counselors that are either certified or registered by an organization that is recognized by DHCS and accredited with the National Commission for Certifying Agencies; iii. Certified peer support specialists; and iv. Other trained staff under supervision of an LPHA. d. SUD providers will be required to offer accompanying DMC-ODS SUD treatment services and evidence-based practices for a substance use disorder and any other cooccurring substance use disorder in addition to CM services. These services may include individual, group and/or family counseling using a range of applicable evidence-based modalities and techniques, including but not limited to cognitive behavioral therapy, community reinforcement, motivational interviewing, care coordination, peer support services, medications for addiction treatment, recovery supports, withdrawal management, medication services, and patient education. e. Pilot Evaluation. In alignment with the CalAIM demonstration evaluation requirements outlined in Section XII of these STCs, CA will conduct an evaluation of the effectiveness of the CM program to assess its overall effectiveness, including cost-effectiveness of these services, and its effects on beneficiary health outcomes. To the extent feasible, the state will conduct the evaluation to support assessment stratified by stimulant use disorder and other types of SUD. 96. Evaluation Questions and Hypotheses. Consistent with Attachments A and B (Developing the Evaluation Design and Preparing the Interim and Summative Evaluation Report) of these STCs, the evaluation design must include a discussion of the evaluation questions and hypotheses that the state intends to test. In alignment with applicable CMS evaluation guidance and technical assistance, the evaluation must outline and address well-crafted hypotheses and research questions for all key demonstration policy components that support understanding the demonstration's impact and also its effectiveness in achieving the goals. For example, hypotheses for the DMC-ODS component of the demonstration must include an assessment of the core goals of the program, to include (but are not limited to): initiation and engagement with treatment, reduction in unnecessary and inappropriate utilization of emergency department and inpatient hospitalization through expanded utilization of DMC-ODS services, and reductions in key outcomes such as deaths due to overdose. In addition, the state will also evaluate the effectiveness of the CM benefits provided to qualifying DMC-ODS beneficiaries. Further, the state will evaluate its program goals to improve alignment and integration and to enhance beneficiary experience under the expenditure authority provided in the demonstration for dually eligible beneficiaries. For the CM and the recuperative care and short-term posthospitalization housing community supports program components, the state's evaluation must also align with pertinent requirements for data assessment and evaluation as outlined for similar program components in the state's 1915(b)(1)/(4) Waiver for California Advancing and Innovating Medi-Cal (CalAIM) special terms and conditions

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	Below from Updated Approval of CalAIM 1115 Waiver **Attachment V** **CM Procedures and Protocols** In accordance with the State's "California Advancing and Innovating Medi-Cal (CalAIM)" Section 1115(a) Demonstration Waiver (Project Number 11-W-00193/9) and Special Terms and Conditions (STCs), this protocol provides additional detail regarding the distribution of motivational incentives to Medi-Cal beneficiaries receiving CM as required by STCs 55 and 57. The Department of Health Care Services' (DHCS) CM program is based on established clinical research demonstrating effective CM treatment and California's unique needs. The CM treatment program consists of a structured 24-week outpatient CM program, during which motivational incentives will be available, followed by six or more months of additional recovery support services, during which motivational incentives will not be available. DHCS' CM program may be provided to eligible MediCal beneficiaries and is intended to complement other substance use disorder (SUD) treatment services already offered by Drug Medi-Cal Organized Delivery System (DMC-ODS) providers. Motivational incentives earned through DHCS' CM program shall be excluded from participating beneficiaries' modified adjusted gross income (MAGI)-based eligibility determinations, non-MAGI-based eligibility determinations, and share of cost determinations when determining those beneficiaries' eligibility for Medi-Cal. **I. Treatment Framework** A. Beneficiary Eligibility and Participation. Beneficiaries who meet the CM eligibility criteria detailed in STC 54 and who consent to treatment may participate in the CM program. A participating beneficiary will be considered to have dropped out of the CM program if they are absent from CM services for more than 30 days. If the beneficiary later returns to the CM provider, they will be invited to re-start the CM program if they continue to meet eligibility criteria. Participation in CM will have no impact on beneficiary eligibility for, or obligation or right to use, other DMC-ODS services. B. Incentives. Beneficiaries will receive motivational incentives, as defined in STC 55, for meeting the target behavior of stimulant-non-use as demonstrated by point-of-care UDTs. At the discretion of the State and consistent with STC 55, the definition of target behavior may be revised in accordance with the evidence-base for CM as a treatment intervention for SUD to include non-use of substances other than stimulants, and/or other target behaviors such as treatment/medication adherence. During the initial phase of the pilot, DHCS shall set a maximum dollar amount of total incentives in a calendar year that participating beneficiaries will be able to receive for successful completion of the treatment protocol. As described in Attachment V, Section IV below, and consistent with the guardrails described in STC 55, providers have no discretion to determine the size or distribution of motivational incentives.

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	Attachment V, Sections I.C-F below describe an example of how DHCS will implement the incentive delivery schedule and corresponding dollar amounts. The final delivery schedule and corresponding dollar amounts are subject to change by DHCS. C. Treatment Schedule Overview. The CM program will consist of two phases: 1) CM treatment; followed by 2) CM aftercare. CM treatment will consist of a 24-week outpatient program, during which motivational incentives will be available for meeting the target behavior of stimulant-non-use. Weeks 1–12 of CM treatment will serve as the escalation/reset/recovery period, and weeks 13–24 will serve as the maintenance period. After completing 24-weeks of CM treatment, the participating beneficiary will receive CM aftercare consisting of six months, or more, of aftercare and treatment services to support ongoing recovery (e.g., counseling and peer support services). During the period of CM aftercare, participating beneficiaries may receive informal engagement and recovery-oriented support from DMC-ODS providers, as well as covered DMC-ODS services, including but not limited to Recovery Services. **D. Weeks 1-12: Escalation/Reset/Recovery Period**. During the initial 12 weeks of the CM treatment, participating beneficiaries will be asked to visit the treatment setting in person for a minimum of two treatment visits per week. Visits will be separated by at least 72 hours (e.g., Monday and Thursday/Friday, or Tuesday and Friday) to help ensure that drug metabolites from the same drug use episode will not be detected in more than one UDT. Participating beneficiaries will be able to earn motivational incentives during each visit the UDT indicates they have a negative sample for stimulants (or other target behaviors, such as a negative sample for other substances, or treatment adherence/medication, as determined by the State and consistent with Section VII of the STCs). The initial motivational incentive value for the first sample negative for stimulants in a series is $10. For each week the participating beneficiary demonstrates non-use of stimulants (i.e., two consecutive UDTs negative for stimulants), the value of the motivational incentive is increased by $1.50. The maximum aggregate motivational incentive a participating beneficiary can receive during this initial 12-week period is $438. A “reset” will occur when the participating beneficiary submits a positive sample or has an unexcused absence. The next time they submit a stimulant-negative sample, their motivational incentive amount will return to the initial value of $10. A “recovery” of the pre-reset value will occur after two consecutive stimulant-negative urine samples. At that time, the participating beneficiary will recover their previously earned motivational incentive level without having to restart the process. **E. Weeks 13-24: Maintenance Period.**

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	During weeks 13–24, participating beneficiaries will be asked to visit the treatment setting for testing a minimum of once a week. During weeks 13–18, participating beneficiaries will be eligible to receive $15 per stimulant negative UDT. During weeks 19–23, they will be eligible to earn $10 per stimulant negative test, and if their sample is stimulant-negative on week 24, they will earn $21. The maximum aggregate motivational incentive a participating beneficiary will be able to receive during weeks 13–24 is $161. **F. Hypothetical Example: Incentive Delivery Schedule for Perfect Performance.** Table 1 illustrates an incentive delivery schedule for a participating beneficiary in a scenario where the beneficiary has a consistent attendance record and submits samples that are stimulant-negative during each visit over the 24-week period.

Table 1: Sample Incentive Delivery Schedule

Week	Incentive for Stimulant-Free Test
Week 1	$10.00 + $10.00 = $20.00
Week 2	$11.50 + $11.50 = $23.00
Week 3	$13.00 + $13.00 = $26.00
Week 4	$14.50 + $14.50 = $29.00
Week 5	$16.00 + $16.00 = $32.00
Week 6	$17.50 + $17.50 = $35.00
Week 7	$19.00 + $19.00 = $38.00
Week 8	$20.50 + $20.50 = $41.00
Week 9	$22.00 + $22.00 = $44.00
Week 10	$23.50 + $23.50 = $47.00
Week 11	$25.00 + $25.00 = $50.00
Week 12	$26.50 + $26.50 = $53.00
Weeks 13-18	$15.00 per week/test
Weeks 19-23	$10.00 per week/test
Week 24	$21.00 per week/test
Total	**$599.00**

Note: the incentive delivery schedule and corresponding dollar amounts in the section above are an illustrate e example of how DHCS will implement the CM program. This incentive delivery schedule and corresponding dollar amounts are subject to change by DHCS.

II. CM Provider and Staffing Criteria

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	A. CM Providers. DMC-ODS providers meeting the criteria detailed in STC 57 and other applicable STCs (e.g., per STC 53, residential providers cannot deliver CM; per STC 56, CM providers must comply with data reporting requirements) will be eligible to deliver the CM benefit B. CM Coordinator. At least one trained CM coordinator will administer the participating DMC-ODS provider's CM program. The CM coordinator must meet the practitioner requirements listed in STC 57(c). C. Role of the CM Coordinator. The CM coordinator will be the main point of contact for all CM program participating beneficiaries and will be responsible for collecting UDT samples, inputting test results, and supporting the delivery of motivational incentives as described in Attachment V, Section IV below. **III. Urine Drug Testing** During each visit, the CM coordinator will collect a urine sample from the participating beneficiary. The sample will be tested for stimulants, including cocaine, amphetamine and methamphetamine, as well as for opioid, to rapidly indicate whether recent stimulant use occurred (or other substance use defined by the State and consistent with STC 55). Samples will be collected in a point-of-care test cup with specimen validity measures. **IV. Incentive Delivery** A. Overview. The CM coordinator will immediately inform the participating beneficiary of the results of the UDT, and enter the results into a secure incentive management program that includes strict safeguards against fraud and abuse. The incentive management program will compute the appropriate motivational incentive earned according to the protocol detailed above in Attachment V, Section I. The incentive amount can be immediately delivered electronically to participating beneficiaries via e-gift cards sent to participating beneficiaries' emails, sent to the provider to print the gift card, or delivered using other strategies developed by the incentive management program. The immediate delivery of the motivational incentive to the beneficiary following the determination of the motivational incentive amount earned by the incentive management program is a critical component of the CM benefit and consistent with the evidence-base. B. Incentive Calculations. A secure incentive management program will automatically calculate the appropriate motivational incentive amount based on the UDT results with adjustments for the escalating value, reset and recovery features as described above in Attachment V, Section I. The program will be designed to prevent tampering with, modifying or overriding the protocol amounts. Upon each visit, the results of the UDT will be entered into the incentive management program. The incentive management program will operate using an algorithm based on the motivational incentive delivery schedule described above. Using this algorithm, when a result is entered, the program will report the amount of any motivational incentive the participating beneficiary should receive per the protocol. A positive test for stimulants will result in the participating beneficiary receiving no motivational incentive. A negative test for stimulants (or other substances as defined at State discretion and consistent with STC 56) will result in an incentive amount as indicated by the software, considering escalations and resets.

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	C. Oversight. As a safeguard against fraud, waste and abuse, the CM coordinator, or other staff trained in the delivery of CM under the supervision of a Licensed Practitioner of the Healing Arts (LPHA) consistent with STC 57 when the CM coordinator is not available, will be permitted to enter the results of the participating beneficiary's UDT into the incentive management program during the visit. On a recurring basis, the DMC-ODS provider must conduct and document that a regular audit of the incentive delivery functions has been completed, including the software calculations recommended and incentive distributed. This provider audit must be conducted by an individual who has responsibility for overseeing the use of organizational funds (e.g., program or fiscal manager). The providers will be required to routinely submit the results of the audit to their DMC-ODS contracted county. The DMCODS county will be required to share the results of the audits with DHCS. D. Incentive Delivery Method and Parameters. After the motivational incentive amount is determined, the incentive management program will disburse the motivational incentive and will track all motivational incentives awarded to all participating beneficiaries, including the date the incentive was distributed and the amount of the motivational incentive. E. Incentive Types. To redeem earned motivational incentives consistent with the protocol described in this Attachment V, participating beneficiaries will be able to choose gift or debit cards from a range of retail outlet options to use or redeem the incentive balance, with restrictions placed on the incentives so they are not used to purchase cannabis, tobacco, alcohol or lottery tickets.
Delaware Approved Centers for Medicare & Medicaid Services. Technical Corrections to Delaware's Section 1115 Medicaid Demonstration Delaware Diamond State Health Plan. 2024[33] Awaiting publication of contingency management protocol as of March 25, 2025	**32. CM Overview.** a. Beginning no earlier than July 1, 2024, DMMA will implement a new CM benefit for qualifying beneficiaries with a stimulant use disorder and/or opioid use disorder (OUD) in eligible provider settings. b. Under the demonstration, the CM benefit will be available to qualified beneficiaries who meet the eligibility requirements described below, who may receive services from a participating provider approved by DMMA to provide this benefit. **33. Eligibility.** To qualify for the CM benefit, a beneficiary must meet the following conditions: a. Age 18 or older diagnosed with a stimulant disorder to qualify for the twenty four-week program; or b. Age 18 or older, pregnant, or up to 12 months postpartum diagnosed with an OUD to qualify for the sixty-four-week program; c. Be assessed and determined to have a substance use disorder for which the CM benefit is medically necessary and appropriate based on the fidelity of treatment to the evidence-based intervention; d. Be assessed and determined to have a stimulant use disorder and/or opioid use disorder as the primary diagnosis for which the CM benefit is medically necessary and appropriate based on the fidelity of treatment to

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	the evidence-based intervention. The presence of additional substance use disorders and/or diagnoses does not disqualify an individual from receiving CM services; e. Not be enrolled in another CM program for stimulant use disorder or OUD; f. Receive services from an eligible provider that offers the CM benefit in accordance with DMMA policies and procedures; and g. Not receive CM as an alternative for medication treatment for other substance use disorders for which medication treatment is a medically appropriate option (e.g. alcohol use disorder). **34. Service Description.** a. The CM benefit provides a series of motivational incentives for meeting treatment goals. The motivational incentives may consist of cash equivalents, e.g., gift cards of low retail value, with restrictions placed on the incentives so they are not used to purchase cannabis, tobacco, alcohol, over-the-counter preparations containing possible intoxicants such as dextromethorphan, weapons (including firearms/ and ammunition, gambling-related items such as lottery tickets, pornographic materials or additional items as identified by the state. The motivational incentives are consistent with evidence-based clinical research for treating a stimulant use disorder and/or opioid use disorder as described below. These motivational incentives are central to CM, based on the best available scientific evidence for treating a stimulant use disorder and not as an inducement to use other medical services. b. The CM benefit uses an evidence-based approach that recognizes and reinforces individual positive behavior change consistent with substance non-use or treatment adherence. The CM benefit provides motivational incentives for treatment adherence or non-use of stimulants as evidenced by negative point of care, rapid, Clinical Laboratory Improvement Amendments (CLIA)-waived drug tests. c. CM is offered along with other therapeutic interventions, such as cognitive behavioral therapy, that meet the definition of rehabilitative services as defined by 1905(a) of the Act and 42 CFR 440.130(d). The provision of the CM benefit is not conditioned on a beneficiary's engagement in other psychosocial services. d. For purposes of this demonstration, these motivational incentives are used to reinforce objectively verified recovery behaviors using a clinically appropriate CM protocol consistent with evidence-based research. Consequently, neither the Federal anti-kickback statute (42 U.S.C. § 1320a-7b(b), "AKS") nor the civil monetary penalty (CMP) provision prohibiting inducements to beneficiaries (42 U.S.C. § 1320a-7a(a)(5), "Beneficiary Inducements CMP") would be implicated. e. The CM benefit consists of a set of modest motivational incentives available for beneficiaries who meet treatment goals. Under the benefit, a beneficiary will be limited in motivational incentives during the course of a CM treatment episode as detailed in the Procedures and Protocols in Attachment K. i. To qualify for a motivational incentive under the CM benefit, a beneficiary must be a participant in the twenty-four-week program for stimulant use disorder and demonstrate non-use of stimulants, or be a participant in the sixty-four-week program for opioid use disorder and demonstrate treatment adherence. By

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	participating in the programs, a beneficiary can receive incentive payments for each visit where they test negative for the substance being treated for the stimulant use disorder program or demonstrate treatment adherence for the opioid use disorder program. ii. The size, nature, and distribution of all CM motivational incentives shall be determined in strict accordance with DMMA procedures and protocols, listed in Attachment K. These procedures and protocols will be based on established clinical research for CM. The following guardrails shall ensure the integrity of the CM benefit and mitigate the risk of fraud, waste, or abuse associated with the motivational incentive: 1. Providers have no discretion to determine the size or distribution of motivational incentives, which will be determined by DMMA's schedule of incentive payments. 2. Motivational incentives will be managed through an incentive management tool that includes safeguards against fraud and abuse. These safeguards will be detailed in DMMA's guidance and listed in the CM Protocol Attachment K. 3. To calculate and generate the motivational incentives in accordance with the schedule in Attachment K, providers shall enter the outcome of the test of the beneficiary receiving the CM benefit into an incentive management tool. iii. The aggregate annual amount of incentive payments that an individual can receive by participating in the CM program shall be determined by DMMA and memorialized in statewide clinical policy. iv. There is not a limit on the number of times a beneficiary can participate in the programs **35. Eligible CM Providers.** a. The CM benefit will be delivered by eligible providers that meet specified programmatic standards and agree to deliver the CM benefit in strict accordance with standardized procedures and protocols that will be detailed in DMMA guidance and listed in the CM Protocol Attachment K, and other applicable laws, regulations, and requirements. b. To be eligible to offer the CM benefit, a provider shall offer the benefit in strict accordance with DMMA standards that will be outlined in DMMA guidance included in Attachment K and shall meet the following requirements: i. Must be a Medicaid enrolled provider; ii. Must be enrolled in Delaware Medicaid, certified to provide Medicaid services, including without limitation primary care, behavioral health and substance use service providers; iii. Require the staff providing or overseeing the CM benefit to participate in CM-specific training and participate in ongoing training, and technical assistance offered by DMMA; iv. Undergo a readiness review by DMMA to ensure that they are capable of offering the CM benefit in accordance with DMMA standards that will be detailed in DMMA guidance; v. Shall comply with any billing and data reporting requirements established by DMMA to support research, evaluation, and performance monitoring efforts, including but not limited to satisfactory claims submission,

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	data and quality reporting, and survey participation; and must employ or contract with a sufficient number of licensed mental health professionals that have SUD specific scope and training as further specified in STC 36.c, for provision of services and ensure: 1. They maintain their licensure in accordance with applicable laws and regulations governing their licensure; and 2. They provide services to beneficiaries receiving the CM benefit within the scope of their licensure. c. The following practitioners delivering care at eligible providers can deliver the CM benefit through activities, such as administering point of-care drug tests, informing beneficiaries of the results of the evidence/point of care drug test, entering the results into a software program, providing educational information, and distributing motivational incentives, as part of the CM benefit: i. Licensed mental health professional with SUD specific scope and training (e.g., licensed clinical social worker (LCSW), licensed professional counselors (LPCs) and licensed addiction counselors (LACs); or ii. Trained staff with appropriate supervision by licensed health professionals. **36. Program Oversight.** a. DMMA shall monitor the ongoing performance, including fidelity of treatment to the evidence-based practice, of CM providers and identify and support providers requiring further training or technical assistance in accordance with DMMA set standards, to be outlined in DMMA guidance. b. DMMA will provide training, technical assistance and monitoring to providers throughout the implementation process. The training and technical assistance will be provided through a qualified contractor designated by DMMA, and will include staff training, provider readiness reviews, and ongoing technical assistance during the first phase of the pilot. **37. Changes in Medicaid Policy on CM**. In accordance with STC 3, nothing in this demonstration absolves the state of Delaware from being subject to future requirements on CM set forth in Medicaid law, regulation, or policy and the state would otherwise need to come into compliance with such requirements. **38. CM Evaluation**. In alignment with the Diamond State Health Plan demonstration evaluation requirements outlined in Section XVII of these STCs, DMMA will conduct an evaluation of the effectiveness of the CM program to assess its overall effectiveness, including cost effectiveness of these services, and its effects on beneficiary health and recovery outcomes. To the extent feasible, the state will conduct the evaluation to support assessment stratified by stimulant use disorder, opioid use disorder, and other types of SUD *As of March 25, 2025, CMS has not yet approved Attachment K with detailed protocol.*

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Hawaii Approved Centers for Medicare & Medicaid Services. Hawaii QUEST integration 1115 waiver approval. 2025;[34] Awaiting publication of contingency management protocol as of March 25, 2025	**4) Contingency Management (CM) Services for Certain Beneficiaries with a Stimulant Use Disorder and/or Opioid Use Disorder** Contingency management is an evidence-based tool used for the treatment of stimulant use disorder and opioid use disorder, consisting of a series of incentives for meeting treatment goals. This approval will allow for coverage of contingency management services for Medicaid beneficiaries who are: (1) age 18 or older diagnosed with a stimulant use disorder and/or opioid use disorder; and (2) assessed and determined to have a stimulant use disorder and/or opioid use disorder as a diagnosis for which the contingency management benefit is medically necessary and appropriate based on the fidelity of treatment to the evidence-based intervention. Beneficiaries aged 18 and older with a stimulant and/or opioid use disorder will be eligible for a twenty-four-week program. The state will implement the contingency management benefit through approved behavioral health providers. Contingency management will be offered along with other therapeutic interventions, as appropriate, and the coverage of contingency management is not conditioned on an eligible beneficiary's engagement in other psychosocial services. This service will be provided as part of a twenty-four-week program in which a participating beneficiary can receive incentive payments, per an established schedule, for testing negative for identified stimulants or demonstrating treatment adherence for opioid use disorder. **14. CONTINGENCY MANAGEMENT** 14.1. Contingency Management Overview. a. Beginning no earlier than January 1, 2026, DHS will implement a new contingency management benefit for qualifying beneficiaries with a stimulant use disorder and/or opioid use disorder (OUD) in eligible provider settings. b. Under the demonstration, the contingency management benefit will be available to qualified beneficiaries who meet the eligibility requirements described below, who may receive services from a participating provider approved by DHS to provide this benefit. 14.2. Eligibility. To qualify for the contingency management benefit, a beneficiary must meet the following conditions: a. Must be enrolled in the Hawaii-Medicaid (Med-QUEST) program; b. Age 18 or older diagnosed with a stimulant use disorder and/or OUD to qualify for the twenty-four-week program; c. Be assessed and determined to have a stimulant use disorder and/or OUD as a diagnosis for which the contingency management benefit is medically necessary and appropriate based on the fidelity of treatment to

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	the evidence-based intervention. The presence of additional substance use disorders and/or diagnoses does not disqualify an individual from receiving contingency management services; d. Not be enrolled in another contingency management program for stimulant use disorder or OUD; e. Receive services from an eligible provider that offers the contingency management benefit in accordance with DHS policies and procedures; and f. Not receive contingency management as an alternative for medication treatment for other substance use disorders for which medication treatment is a medically appropriate option (e.g. alcohol use disorder (AUD)). 14.3. Service Description. a. The contingency management benefit provides a series of motivational incentives for meeting treatment goals. The motivational incentives may consist of cash equivalents, e.g., gift cards of low retail value, with restrictions placed on the incentives so they are not used to purchase cannabis, tobacco, alcohol, over-thecounter preparations containing possible intoxicants such as dextromethorphan, weapons (including firearms/ and ammunition), gambling-related items such as lottery tickets, pornographic materials or additional items as identified by the state. The motivational incentives are consistent with evidence-based clinical research for treating a stimulant use disorder and/or opioid use disorder as described below. These motivational incentives are central to contingency management, based on the best available scientific evidence for treating a stimulant use disorder and not as an inducement to use other medical services. b. The contingency management benefit uses an evidence-based approach that recognizes and reinforces individual positive behavior change consistent with substance non-use or treatment adherence. The contingency management benefit provides motivational incentives for treatment adherence or non-use of stimulants as evidenced by negative point of care, rapid, Clinical Laboratory Improvement Amendments (CLIA)-waived drug tests. c. Contingency management is offered along with other therapeutic interventions, as appropriate, such as cognitive behavioral therapy, that meet the definition of rehabilitative services as defined by 1905(a) of the Act and 42 CFR 440.130(d). The provision of the contingency management benefit is not conditioned on a beneficiary's engagement in other psychosocial services. d. For purposes of this demonstration, these motivational incentives are considered a Medicaid-covered item or service and are used to reinforce objectively verified recovery behaviors using a clinically appropriate contingency management protocol consistent with evidence-based research. Consequently, neither the Federal antikickback statute (42 U.S.C. § 1320a-7b(b), "AKS") nor the civil monetary penalty (CMP) provision prohibiting inducements to beneficiaries (42 U.S.C. § 1320a7a(a)(5), "Beneficiary Inducements CMP") would be implicated. e. The contingency management benefit consists of a set of modest motivational incentives available for beneficiaries who meet treatment goals. Under the benefit, a beneficiary will be limited in motivational

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	incentives during the course of a contingency management treatment episode as detailed in the Contingency Management Protocol (Attachment K) which the state must submit no later than three months prior to the state's intended implementation date for contingency management. i. To qualify for a motivational incentive under the contingency management benefit, a beneficiary must be a participant in the twenty-four-week program for stimulant use disorder and demonstrate non-use of stimulants or be a participant in the twenty-four-week program for opioid use disorder and demonstrate treatment adherence. By participating in the programs, a beneficiary can receive incentive payments for each visit or other established schedule, where they test negative for the substance being treated for the stimulant use disorder program or demonstrate treatment adherence for the opioid use disorder program. ii. The size, nature, and distribution of all contingency management motivational incentives shall be determined in strict accordance with DHS procedures and protocols, listed in Attachment K. These procedures and protocols will be based on established clinical research for contingency management. The following guardrails shall ensure the integrity of the contingency management benefit and mitigate the risk of fraud, waste, or abuse associated with the motivational incentive: 1. Providers have no discretion to determine the size or distribution of motivational incentives, which will be determined by DHS. 2. Motivational incentives will be managed through an incentive management tool that includes safeguards against fraud and abuse. These safeguards will be detailed in DHS's guidance and listed in the Contingency Management Protocol Attachment K. 3. To calculate and generate the motivational incentives in accordance with the schedule in Attachment K, providers shall enter the outcome of the test of the beneficiary receiving the contingency management benefit into an incentive management tool. iii. The aggregate annual amount of incentive payments that an individual can receive by participating in the contingency management program shall be determined by DHS and memorialized in statewide operational guidance. iv. There is not a limit on the number of times a beneficiary can participate in the program. <u>14.4. Eligible Contingency Management Providers.</u> a. The contingency management benefit will be delivered by eligible providers that meet specified programmatic standards and agree to deliver the contingency management benefit in strict accordance with standardized procedures and protocols that will be detailed in DHS guidance and listed in the Contingency Management Protocol Attachment K, and other applicable laws, regulations, and requirements. b. To be eligible to offer the contingency management benefit, a provider shall offer the benefit in strict accordance with DHS standards that will be outlined in DHS guidance included in Attachment K and shall meet the following requirements:

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	i. Must serve beneficiaries residing in Hawaii; ii. Must be enrolled in Hawaii Medicaid, and certified to provide Hawaii Medicaid services, including without limitation primary care, behavioral health and substance use service providers; iii. Require the staff providing or overseeing the contingency management benefit to participate in contingency management-specific training and participate in ongoing training, and technical assistance offered by DHS and/or the state's designated contractor(s); iv. Undergo a readiness review by DHS and/or the state's designated contractor(s) to ensure that they are capable of offering the contingency management benefit in accordance with DHS standards that will be detailed in DHS guidance; v. Shall comply with any billing and data reporting requirements established by DHS to support research, evaluation, and performance monitoring efforts, including but not limited to satisfactory claims submission, data and quality reporting, and survey participation; and must employ or contract with a sufficient number of licensed mental health professionals that have SUD specific scope and training as further specified in STC 14.5(b), for provision of services and ensure: 1. They maintain their licensure in accordance with applicable laws and regulations governing their licensure; and 2. They provide services to beneficiaries receiving the contingency management benefit within the scope of their licensure. c. The following practitioners delivering care at eligible providers can deliver the contingency management benefit through activities, such as administering point ofcare drug tests, informing beneficiaries of the results of the evidence/point of care drug test, entering the results into a software program, providing educational information, and distributing motivational incentives, as part of the contingency management benefit: i. Primary care physician (PCP), physician (MD), physician's assistant (PA), and advanced practice registered nurse (APRN); or ii. Licensed mental health (MH) professional with SUD specific scope and training (e.g., licensed clinical social worker (LCSW), board-certified behavior analyst, psychologist, behavioral health (BH) or MH counselor, MH social worker, marriage/ family therapist); or iii. Trained staff with appropriate supervision by licensed health professionals. 14.5. Program Oversight. a. DHS and/or the state's designated contractor(s) shall monitor the ongoing performance, including fidelity of treatment to the evidence-based practice, of contingency management providers and identify and support providers requiring further training or technical assistance in accordance with DHS set standards, to be outlined in DHS guidance.

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	b. DHS and/or the state's designated contractor(s) will provide training, technical assistance and monitoring to providers throughout the implementation process. The training and technical assistance will be provided through a qualified contractor designated by DHS, and will include staff training, provider readiness reviews, and ongoing technical assistance during the first phase of the pilot. 14.6. Changes in Medicaid Policy on Contingency Management. In accordance with STC 3.3, nothing in this demonstration absolves the state of Hawaii from being subject to future requirements on contingency management set forth in Medicaid law, regulation, or policy and the state would otherwise need to come into compliance with such requirements. 14.7. Contingency Management Evaluation. In alignment with the QUEST Integration demonstration evaluation requirements outlined in Section 17 of these STCs, DHS will conduct an evaluation of the effectiveness of the Contingency Management program to assess its overall effectiveness, including cost effectiveness of these services, and its effects on beneficiary health and recovery outcomes. To the extent feasible, the state will conduct the evaluation to support assessment stratified by stimulant use disorder and other types of SUD, as applicable. *As of March 25, 2025, CMS has not yet approved Attachment K with detailed protocol*
Michigan Pending as of March 25, 2025 Centers for Medicare & Medicaid Services. Michigan Medicaid Section 1115 Behavioral Health Demonstration Extension Application. 2024;[36]	**I. PROGRAM DESCRIPTION** Summary The Michigan Department of Health and Human Services (MDHHS) is requesting a five-year extension of the Michigan § 1115 Behavioral Health Demonstration, which is currently authorized through September 30, 2024. This renewal application requests continued authority to provide residential treatment services for individuals who are receiving treatment and withdrawal management for substance use disorders (SUD) and are short-term residents in facilities that meet the definition of an institution for mental disease (IMD). Through this extension, the state also intends to continue operation of its prepaid inpatient health plan (PIHP) delivery system to manage specialty mental health and SUD treatment benefits. Additionally, MDHHS is seeking new authority to provide CM (CM) as part of a comprehensive treatment model for Medicaid beneficiaries living with SUD. The state initially intends to provide CM on a pilot basis to individuals living with a stimulant use disorder (StimUD) and/or an opioid use disorder (OUD), but may consider extending the service on a mandatory, statewide basis after gaining experience with the intervention. MDHHS is seeking a two-year approval of this component of the demonstration, from October 1, 2024, through September 30, 2026. Background

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	On April 5, 2019, the Centers for Medicare & Medicaid Services (CMS) approved Michigan's § 1115 Demonstration to allow the state to broaden the crucial component of residential SUD services. This approval permitted MDHHS to provide a broader continuum of care, including withdrawal management services in residential treatment facilities that meet the definition of an IMD. While Michigan has historically maintained a robust network of SUD providers and services, the prohibition against Medicaid reimbursement for services provided to adults aged 21-64 in an IMD setting resulted in a disjointed benefit package and the inability to ensure access to needed services. The state sought to improve health outcomes and sustained recovery by offering a full continuum of SUD treatment and recovery supports based on American Society of Addiction Medicine (ASAM) criteria or other nationally recognized, SUD specific program standards. Since 1998, Michigan has operated a behavioral health carve-out for the Specialty Service Populations using county-sponsored PIHPs. Physical health care, including a benefit for persons with mild and/or moderate behavioral health disorders, is operated through Medicaid Health Plans (MHPs). Funding for SUD services was traditionally managed by regional Coordinating Agencies (CAs), which contracted for the delivery of SUD services. In 2013, to better integrate behavioral health and SUD services, CAs were dissolved and incorporated into the PIHP management and governance structures. The PIHPs are now responsible for all SUD service and supports (except for certain medically monitored supports) regardless of severity of condition. Authority to operate PIHPs is granted through this demonstration. While preliminary findings of the impact of the demonstration are encouraging in several key areas, the COVID-19 public health emergency (PHE) had a substantial impact on implementation. The disruption in services and inflated Medicaid enrollment related to the PHE make it difficult to detect trends in administrative measures. Additionally, implementation of some demonstration activities was delayed due to the PHE, such that the available data does not represent post-implementation outcomes. Michigan intends to utilize the extension period to further advance and study progress toward meeting demonstration goals. Additionally, MDHHS proposes to implement a new initiative, CM (CM), to further its efforts in addressing SUD. **CM** CM is an evidence-based behavioral health treatment in which individuals living with a SUD can earn motivational incentives in the form of small, non-cash rewards when they avoid the use of specified substances or otherwise take steps to engage in recovery. CM delivers gift cards for the desired behaviors as evidenced by specific activities, such as negative drug screens and engagement in CM services. The rewards are an inherent and central element of the CM treatment. CM works because illicit drugs can take over the natural reward pathway in the brain. CM helps revert the reward pathway into balance by offering people non-drug rewards in exchange for not using certain substances. The immediate reward helps tip decision-making away from use and

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	helps individuals get through difficult periods when cravings are overwhelming, and the long-term benefits of recovery seem remote. MDHHS is proposing to offer CM services to Medicaid beneficiaries living with a StimUD and/or OUD. Under the Recovery Incentives (RI) pilot, eligible beneficiaries will be able to earn motivational incentives for non-use of stimulants and/or opioids as evidenced by negative urine drug tests. To address treatment retention with beneficiaries who struggle with non-use early in treatment, MDHHS also proposes to offer a partial incentive for continued CM engagement over a limited period for beneficiaries with positive urine drug tests. Under the proposed design, a participating beneficiary would be eligible to earn a maximum of $599 in the form of low denomination gift cards annually. **Need for CM** Multiple studies conducted over the past 30 plus years demonstrate that CM is an effective intervention for SUD, including for stimulant use disorders linked to methamphetamine, amphetamine, and cocaine. Given the relative dearth of other treatment options for stimulant drugs (there are currently no FDA-approved medications for StimUD), CM is an especially important clinical tool in the treatment of StimUD. A 2020 systematic review of five reviews found that CM programs were associated with consistently positive results, demonstrating their effectiveness compared to treatment as usual, as well as other interventions, including community reinforcement, pharmacotherapy and cognitive behavioral therapy (CBT). CM also works well for treating OUD and other substance use disorders. A 2021 meta-analysis found that the use of CM for individuals receiving medication treatment for OUD was associated with increased abstinence from illicit opioid use at end-of-treatment. The most common focus of CM interventions is on supporting abstinence from substance use. A 2016 systematic review reported that 74% of studies focused exclusively on increasing abstinence from drug use while the remainder focused on another therapeutic goal or a combination. The review found that CM was efficacious for all these purposes. In a survey among SUD treatment providers in Michigan, many noted how extraordinarily difficult it can be to engage beneficiaries living with StimUD or OUD and help them to remain in treatment. Challenges in engaging and retaining clients were cited as a source of “burnout” by practitioners, making the ability to deploy CM to support retention key to supporting Michigan’s SUD workforce, as well as to improving outcomes for individual beneficiaries.

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	CM Through the RI Pilot, MDHHS seeks to offer CM services to improve treatment and outcomes for people living with SUDs, including StimUD and/or OUD. By deploying CM, MDHHS believes it can improve outcomes by supporting beneficiaries in meeting treatment goals and making the behavior changes that drive recovery. Further, the RI Pilot aims to address health disparities by increasing access to evidence-based SUD treatment for certain SUDs – StimUD and OUD – that disproportionately impact people of color. While a handful of Michigan providers have some experience with CM through grant-funded activities, the RI pilot offers the opportunity to roll out CM in a systemized way to more beneficiaries. Through the RI Pilot, Michigan can evaluate and test how best to integrate CM services into a comprehensive community-based approach to providing care to Medicaid beneficiaries living with SUD. Like other states that have pursued CM, a key goal of the state's is to fill the gap in treatment services that otherwise exists for beneficiaries living with StimUD. In addition, MDHHS intends to provide CM services to beneficiaries living with OUD, reflecting the need for more tools in addition to MAT. Under no circumstances will CM services be used to replace, diminish, limit, or otherwise restrict access to and support for MAT. To the contrary, MDHHS intends to deploy CM in such a way that it will encourage greater use of MAT. The goals of the RI Pilot are to improve health outcomes for beneficiaries living with StimUD and/or OUD. This includes: • Reducing the number of emergency department (ED) visits. • Reducing the rate of repeated ED visits. • Reducing adverse health outcomes (e.g., death, overdoses). • Increasing engagement and retention in treatment. IV. DELIVERY SYSTEM This demonstration extension will not modify current fee-for-service (FFS) and managed care delivery system arrangements. All Medicaid populations except Native American/American Indian beneficiaries will continue to be mandatorily and passively enrolled into a PIHP. Native American/American Indian beneficiaries may continue to elect to obtain Medicaid mental health and SUD services directly from Medicaid enrolled Indian Health Services (IHS) facilities and tribal health centers (THC). For mental health and SUD services provided to Native American/American Indian beneficiaries, the IHS facilities and THCs will be reimbursed directly for those services by MDHHS under the memorandum of agreement as specified in the Michigan Medicaid Provider Manual. Any Native American/American Indian beneficiary who

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	needs specialty mental health, developmental disability or SUD services may also elect to receive such care under the demonstration through the PIHP. CM The CM benefit will be delivered through PIHPs and their provider networks. Participation in the RI Pilot Program will be optional for PIHPs. All PIHPs that MDHHS determines can meet the criteria for participation in the RI pilot program in accordance with a timeline established by MDHHS will be approved to participate in the RI pilot. THCs and tribal providers who participate in the CM pilot will provide CM services to Medicaid beneficiaries. THCs and tribal providers may bill their contracted PIHP for CM services or they may bill MDHHS directly on a FFS basis. SUD providers offering outpatient, intensive outpatient and/or partial hospitalization services and/or narcotic treatment programs will be eligible to participate in the RI pilot. This includes OHHs and certified community-based behavioral health clinics (CCBHC). Participating providers will be required to: • Offer complementary services and evidence-based practices for StimUD and OUD in addition to CM (e.g., individual and group counseling, MAT, peer supports). • Develop a treatment approach that includes other behavioral interventions to support beneficiaries to reduce stimulant and opioid use. • Verify beneficiaries' Medicaid eligibility before permitting them to enroll in the RI pilot. • Obtain beneficiary consent to receive CM. • Hire and/or designate a RI coordinator who will lead the delivery of CM, including UDTs and incentive distribution. V. Implementation of the Demonstration CM MDHHS will contract with its existing PIHPs to administer the demonstration through their provider network. In January 2024, MDHHS release a request for applications (RFA) to solicit PIHP interest and willingness to participate and identify providers who will participate in the RI Pilot. All PIHPs who express interest can participate if they apply and demonstrate they can administer CM in a manner consistent with all federal and MDHHS requirements. The CM component of the demonstration is anticipated to launch in October 2024. MDHHS has awarded a contract to a vendor to help prepare PIHPs and providers of SUD treatment to participate in the pilot through training and technical assistance. PIHPs who opt to participate in providing CM under the demonstration will work with MDHHS and providers to develop outreach and communication materials to engage participants.

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	Individual members who are served by a participating CM provider in a participating PIHP region and who meet the service-specific criteria for CM may enroll at their option.
Montana Approved Centers for Medicare & Medicaid Services. Montana 1115 Waiver Demonstration approval: Healing and Ending Addiction through Recovery and Treatment (HEART) Demonstration. 2023[35]	VIII. CM BENEFIT **22. CM Overview.** a. Beginning no earlier than October 1, 2024, DPHHS will implement a new CM benefit for eligible Medicaid beneficiaries with a stimulant use disorder in eligible provider settings. b. Under this demonstration, the CM benefit will be available to qualified beneficiaries who meet the eligibility requirements described below, who may receive services from a participating provider approved by DPHHS to provide this benefit. c. Motivational incentives earned through Montana's CM program fall under the "general welfare exclusion" federal tax exemption and are therefore excluded from participating beneficiaries' modified adjusted gross income (MAGI)-based eligibility determinations, non-MAGI-based eligibility determinations, and share of cost determinations when determining those beneficiaries' eligibility for Montana Medicaid. **23. Eligibility**. To qualify for the CM benefit, a beneficiary must meet the following conditions: a. Be 18 years of age or older; b. Have a completed an ASAM criteria assessment and are able to be treated safely in an outpatient setting; c. Be assessed and determined to have a stimulant use disorder as the primary diagnosis for which the CM benefit is medically necessary and appropriate based on the fidelity of treatment to the evidence-based intervention. The presence of additional substance use disorders and/or diagnoses does not disqualify an individual from receiving CM services; d. Not be enrolled in another CM program for stimulant use disorder; e. Receive services from an eligible provider that offers the CM benefit in accordance with DPHHS requirements; and g. Not receive CM as an alternative for medication treatment for other substance use disorders for which medication treatment is a medically appropriate option (e.g., for opioid use disorder or alcohol use disorder). **24. Service Description.** a. The CM benefit provides a series of motivational incentives for meeting treatment goals. The motivational incentives may consist of cash equivalents, e.g., gift cards of low retail value, with restrictions placed on the incentives so they are not used to purchase cannabis, tobacco, alcohol, firearms/ammunition, lottery tickets, and additional items as identified by the state. The motivational incentives are consistent with evidence-based clinical research for treating a stimulant use disorder and as described below. These motivational incentives are central

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	to CM, based on the best available scientific evidence for treating a stimulant use disorder and not as an inducement to use other medical services. b. The CM benefit uses an evidence-based approach that recognizes and reinforces individual positive behavior change consistent with substance non-use or treatment adherence. The CM benefit provides motivational incentives for treatment adherence or non-use of stimulants as evidenced by negative point of care, rapid, Clinical Laboratory Improvement Amendments (CLIA)-waived drug tests. c. CM is offered along with other therapeutic interventions, such as cognitive behavioral therapy, that meet the definition of rehabilitative services as defined by 1905(a) of the Social Security Act and 42 CFR 440.130(d). The provision of the CM benefit is not conditioned on a beneficiary's engagement in other psychosocial services. d. For purposes of this demonstration, these motivational incentives are a covered item or service and are used to reinforce objectively verified recovery behaviors using a clinically appropriate CM protocol consistent with evidence-based research. Consequently, neither the Federal anti-kickback statute (42 U.S.C. § 1320a-7b(b), "AKS") nor the civil monetary penalty (CMP) provision prohibiting inducements to beneficiaries (42 U.S.C. 1320a-7a(a)(5), "Beneficiary Inducements CMP") would be implicated. e. The CM benefit consists of a set of modest motivational incentives available for beneficiaries who meet treatment goals. Under the benefit, a beneficiary will be limited in motivational incentives during the course of a CM treatment episode as detailed in the Procedures and Protocols in Attachment F. i. To qualify for a motivational incentive under the CM benefit, a beneficiary must participate in a twelve-week program and demonstrate non-use of stimulants. By participating in this twelve-week program, a beneficiary can receive incentive payments for each visit where they test negative for the substance being treated. ii. The size, nature, and distribution of all CM motivational incentives shall be determined in strict accordance with DPHHS procedures and protocols, listed in Attachment F. These procedures and protocols will be based on established clinical research for CM. The following guardrails shall ensure the integrity of the CM benefit and mitigate the risk of fraud, waste, or abuse associated with the motivational incentive: 1. Providers have no discretion to determine the size or distribution of motivational incentives, which will be determined by DPHHS's schedule of incentive payments. 2. Motivational incentives will be managed through an incentive management tool that includes safeguards against fraud and abuse. These safeguards will be detailed in DPHHS's guidance and listed in the CM Protocol Attachment F. 3. To calculate and generate the motivational incentives in accordance with the schedule in Attachment F, providers shall enter the outcome of the test of the beneficiary receiving the CM benefit into an incentive management tool. iii. The aggregate annual amount of incentive payments that an individual can receive by participating in the twelve-week CM program shall be determined by DPHHS and memorialized in clinical policy. iv. There is not a limit on the number of times a beneficiary can participate in the twelve-week program.

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	25. Eligible CM Providers. a. The CM benefit will be delivered by eligible providers that meet specified programmatic standards and agree to deliver the CM benefit in strict accordance with standardized procedures and protocols that will be detailed in DPHHS guidance, the CM Protocol Attachment F, and other applicable laws, regulations, and requirements. b. To be eligible to offer the CM benefit, a provider shall offer the benefit in strict accordance with DPHHS standards that will be detailed in DPHHS guidance included in Attachment F and shall meet the following requirements: i. Must be a Medicaid enrolled provider; ii. Must operate a SUD outpatient program within a state-approved SUD treatment provider, hospital, rural health center (RHC), federally qualified health center (FQHCs), or tribal 638 Indian Health Service (IHS) provider, or another provider type, that provides outpatient treatment services and may also have ability to offer or refer participants to other SUD treatment services (e.g., MAT, outpatient therapy, peer support services); iii. Require the staff providing or overseeing the CM benefit to participate in CM-specific training and participate in ongoing training, and technical assistance offered by DPHHS; iv. Undergo a readiness review by DPHHS to ensure that they are capable of offering the CM benefit in accordance with DPHHS standards that will be detailed in DPHHS guidance; v. Shall comply with any billing and data reporting requirements established by DPHHS to support research, evaluation, and performance monitoring efforts, including but not limited to satisfactory claims submission, data and quality reporting, and survey participation; and vi. Must employ or contract with a sufficient number of licensed mental health professionals that have SUD specific scope and training as further specified in STC 25(c), for provision of services and ensure: 1. They maintain their licensure in accordance with applicable laws and regulations governing their licensure; and 2. They provide services to beneficiaries receiving the CM benefit within the scope of their licensure. c. The following practitioners delivering care at eligible providers can deliver the CM benefit through activities, such as administering point-of-care drug tests, informing beneficiaries of the results of the point-of-care drug test, entering the results into a software program, providing educational information, and distributing motivational incentives, as part of the CM benefit: i. Licensed mental health professional with SUD specific scope and training (e.g., licensed clinical social worker (LCSW), licensed professional counselors (LPCs) and licensed addiction counselors (LACs); or ii. Trained staff with appropriate supervision by licensed mental health professionals. **26. Program Oversight.**

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	a. DPHHS shall monitor the ongoing performance, including fidelity of treatment to the evidence-based practice, of CM providers and identify and support providers requiring further training or technical assistance in accordance with DPHHS standards, to be outlined in DPHHS guidance. b. DPHHS will provide training and technical assistance to providers throughout the implementation process and delivery of CM services. The training and technical assistance will include staff training, provider readiness reviews, and ongoing technical assistance. **27. Changes in Medicaid Policy on CM.** In accordance with STC 3, nothing in this demonstration absolves the state of Montana from being subject to future requirements on CM set forth in Medicaid law, regulation, or policy and the state would otherwise need to come into compliance with such requirements. Evaluation For the CM program, the state's reporting must cover metrics for domains including but not limited to enrollment, overall incentives provided, and average incentives provided per beneficiary during the treatment phase as well as types and counts of aftercare and treatment services rendered during the aftercare phase. Hypotheses for the CM program must align with the goals of the SUD program. They should aim to increase rates of identification, initiation, and engagement in treatment; increase adherence to and retention in treatment; reduce overdose deaths; reduce utilization of emergency departments and inpatient hospital settings for treatment where preventable or medically inappropriate; reduce readmissions where preventable or medically inappropriate; and improve access to care for physical health outcomes among beneficiaries. **ATTACHMENT F** CM Protocol I. Background In accordance with the State's "Healing and Ending Addiction through Recovery and Treatment Demonstration" Section 1115(a) Demonstration Waiver (Project Number 11-W00395/8) and Special Terms and Conditions (STCs) (hereinafter "HEART" or the "demonstration"), this protocol provides additional detail regarding the distribution of motivational incentives to Montana Medicaid beneficiaries receiving CM as required by STC 24. Montana's Department of Public Health and Human Services (DPHHS) CM program is based on established clinical research demonstrating effective CM treatment and Montana's unique state needs. The initiative consists of a structured 12-week outpatient CM program, during which motivational incentives will be available. DPHHS' CM program may be provided to eligible Medicaid beneficiaries and is intended to complement other substance use disorder (SUD) treatment services.

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	II. Treatment Framework A. Beneficiary Enrollment and Participation. Beneficiaries who meet the CM eligibility criteria detailed in STC 23 and who consent to treatment may participate in the CM program. A participating beneficiary will be considered to have dropped out of the CM program if they are absent from CM services for eight (or more) consecutive unexcused absences. An excused absence includes, but is not limited to, emergencies, illness, or clinic closures. If the beneficiary later returns to the CM provider, and they continue to meet eligibility criteria, they will be invited to re-start the CM program. Participation in CM will have no impact on beneficiary eligibility for other HEART Demonstration services. B. Incentives. Beneficiaries will receive motivational incentives, as defined in STC 24, for meeting the target behavior of stimulant-non-use as demonstrated by point-of-care, urine drug tests (UDTs) that are rapid and CLIA-waived. During the initial phase of the pilot, DPHHS shall set a maximum dollar amount of total incentives in a calendar year that participating beneficiaries will be able to receive for successful completion of the treatment protocol. As described below, and consistent with the guardrails described in STC 24, providers have no discretion to determine the size or distribution of motivational incentives. The final delivery schedule and corresponding dollar amounts are subject to change by DPHHS. Motivational incentives earned through DPHHS' CM program shall be excluded from participating beneficiaries' modified adjusted gross income (MAGI)- based eligibility determinations, non-MAGI-based eligibility determinations, and share of cost determinations when determining a beneficiaries' eligibility for Medicaid. C. Treatment Schedule Overview. During the initial phase of the pilot, DPHHS shall set a maximum dollar amount of total incentives in a calendar year (January 1 through December 31) that participating beneficiaries will be able to receive for successful completion of the treatment protocol. During the 12 weeks of the CM treatment, participating beneficiaries will be asked to visit the treatment setting in person for a minimum of two treatment visits per week. Visits will be separated by at least 72 hours (e.g., Monday and Thursday/Friday, or Tuesday and Friday) to help ensure that drug metabolites from the same drug use episode will not be detected in more than one UDT. Participating beneficiaries will be able to earn motivational incentives during each visit when the UDT indicates they have a negative sample for stimulants. The following is an example of how DPHHS will implement the incentive delivery schedule and corresponding dollar amounts. Example: The initial motivational incentive value for the first sample negative for stimulants in a series is $12. After the initial week, for every two weeks that the participating beneficiary demonstrates non-use of stimulants (i.e., two consecutive UDTs negative for stimulants), the value of the motivational incentive is increased by $2 as illustrated by the hypothetical schedule in section D below. The maximum annual aggregate motivational incentive a participating beneficiary can receive is $596. DPHHS reserves the right to establish and update these

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amounts based on best available evidence of the minimum incentive amounts likely to produce the desired outcome of verified stimulant non-use.

A "reset" will occur when the participating beneficiary submits a positive sample or has an unexcused absence. The next time the beneficiary submits a stimulant-negative UDT, their motivational incentive amount will return to the initial value of $12.

A "recovery" of the pre-reset value will occur after two consecutive stimulant-negative UDTs. At that time, the participating beneficiary will recover their previously earned motivational incentive level without having to completely restart the process.

D. Hypothetical Example: Incentive Delivery Schedule for Perfect Performance. Table 1 illustrates an incentive delivery schedule for a participating beneficiary in a scenario where the beneficiary has a consistent attendance record and submits samples that are stimulant-negative during each visit over the 12-week period.

Table 1: Sample Incentive Delivery Schedule (full attendance and negative results)

Week	Visit #	Voucher Earned during Visit	Total Funds Available
1	1	$12.00	$12.00
1	2	$14.00	$26.00
2	3	$14.00	$40.00
2	4	$16.00	$56.00
3	5	$16.00	$72.00
3	6	$18.00	$90.00
4	7	$18.00	$108.00
4	8	$20.00	$128.00
5	9	$20.00	$148.00
5	10	$22.00	$170.00
6	11	$22.00	$192.00
6	12	$24.00	$216.00
7	13	$24.00	$240.00
7	14	$26.00	$266.00
8	15	$26.00	$292.00
8	16	$28.00	$320.00
9	17	$28.00	$348.00
9	18	$30.00	$378.00
10	19	$30.00	$408.00
10	20	$32.00	$440.00

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11	21	$32.00	$472.00
11	22	$34.00	$506.00
12	23	$34.00	$540.00
12	24	$36.00	$576.00

Note: The incentive delivery schedule and corresponding dollar amounts in the section above are an illustrative example of how DPHHS will implement the CM program. This incentive delivery schedule and corresponding dollar amounts are subject to change by DPHHS.

III. CM Provider and Staffing Criteria

A. Provider Eligibility and Qualifications

To participate in the CM pilot, a provider must meet the requirements specific in STC 25. Based on the criteria specified in STC 25, the following is a framework for required and potential provider roles and responsibilities for delivering CM services:

- CM Delivery Staff (required): The practitioners conducting the CM visits, including the collection and evaluation of the objective measurement (i.e., UDTs), and administration of the motivational incentive. Delivery staff should be well-trained in procedures for tracking the delivery of incentive payments. Delivery staff are also responsible for encouraging clients to continue, or re-attempt (in the event of a reset), achieving the target behavior.
- CM Support Staff (required): Support staff may include those who identify and recruit clients into the CM program, payout of electronic vouchers or schedule and remind clients of the next visit.
- CM Mentor: An individual outside the program's agency with a thorough knowledge of CM to help answer the CM provider's questions as they arise.
- Program Lead(s): Staff from the program's agency, who has been trained in CM and the protocol design who can answer procedural questions specific to the program and provide guidance for client-specific issues.
- Incentive Coordinator and Supervisor: One person (and a trained back up), who manages the incentive program for all patients. The CM security and distribution system requires active supervision by a senior person in the organization who regularly audits the security and distribution of the incentives. Access to the IT system used to calculate the incentive values and record CM distribution should be password protected; password information should be limited to the incentive coordinator and supervisor. The supervisor should conduct quarterly audits of the gift card supply and the distribution sheet, to ensure incentives are distributed per the protocol.
- CM Supervisor. It is recommended that the designated supervisor perform fidelity checks for CM clinicians and staff. These fidelity checks involve scheduling regular check-ins to assure that the CM program is

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	being delivered consistently and rigorously over time. Regular check-ins provide a routine that can help detect when procedural shifts or misunderstandings have occurred. IV. Urine Drug Testing During each visit, the CM delivery staff will collect a urine sample from the participating beneficiary. The sample will be tested for stimulants, including cocaine, amphetamine, and methamphetamine, consistent with STC 24. Samples will be collected in a rapid, CLIA-waived, point-of-care test cup with specimen validity measures. V. Incentive Delivery A. Overview. The CM delivery staff will immediately inform the participating beneficiary of the results of the UDT, and enter the results into a secure incentive management program that includes strict safeguards against fraud and abuse. The incentive management program will compute the appropriate motivational incentive earned according to the protocol detailed in Section III above. The incentive amount can be immediately delivered electronically to participating beneficiaries via electronic gift cards sent to participating beneficiaries' emails, sent to the provider to print the gift card, or delivered using other strategies developed by the incentive management program. The immediate delivery of the motivational incentive to the beneficiary following the determination of the motivational incentive amount earned by the incentive management program is a critical component of the CM benefit and consistent with the evidence-base. B. Incentive Calculations. Providers will calculate the appropriate motivational incentive amount based on the UDT results with adjustments for the escalating value, reset and recovery features as described in Section III above. Providers will be required to submit calculation amounts to DPHHS on a quarterly basis; DPHHS will internally audit these calculations. A positive test for stimulants will result in the participating beneficiary receiving no motivational incentive. A negative test for stimulants will result in an incentive amount as indicated by the software, considering escalations, resets, and recoveries. C. Oversight. As a safeguard against fraud, waste, and abuse, the incentive coordinator will be permitted to enter the results of the participating beneficiary's UDT into the incentive management program during the visit. On a recurring basis, the incentive supervisor must conduct and document that a regular audit of the incentive delivery functions has been completed, including the software calculations recommended and incentive distributed. This provider audit must be conducted by an individual who has responsibility for overseeing the use of organizational funds (e.g., program or fiscal manager). The providers will be required to submit the results of the audit to DPHHS on a quarterly basis to be monitored internally. D. Incentive Delivery Method and Parameters. After the motivational incentive amount is determined, providers will disburse the motivational incentive and DPHHS will track all motivational incentives awarded to all participating beneficiaries, including the date the incentive was distributed and the amount of the motivational incentive. E. Incentive Types. To redeem earned motivational incentives consistent with the described protocol, participating beneficiaries will be able to choose gift cards from a range of retail outlet options to use or redeem

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	the incentive balance. Restrictions will be placed on the incentives so they are not used to purchase certain items, including cannabis, tobacco, alcohol, firearms/ammunition, lottery tickets, and additional items as identified by the state.
Rhode Island Pending as of March 25, 2025 Rhode Island Executive Office of Health and Human Services. Rhode Island Comprehensive Section 1115 Demonstration Waiver Extension Request Addendum. 2024[37]	2.2.1 CM Pilot Program Rhode Island continues to experience substantial challenges due to the opioid epidemic, and opioid overdose remains the leading cause of accidental death in the state. According to the Rhode Island Department of Health Drug Overdose Surveillance Data Hub, in 2019 through 2022 respectively, 308, 384, 435, and 434 Rhode Islanders died as a result of drug overdoses. In addition, Rhode Island is also experiencing increasing challenges with stimulant use disorders. In a 2022 Harm Reduction Surveillance System survey conducted by the Rhode Island Department of Health, crack cocaine was the most reported non-prescribed substance respondents had used in the previous 30 days: 73% of respondents had used crack cocaine in that time, while 42% had used cocaine powder. Another 28% had used methamphetamine. This is particularly dangerous because of the frequency with which cocaine is contaminated with fentanyl; in the same survey, 55% of those who believed they unexpectedly used fentanyl while using other substances did so while using either crack or powder cocaine. Likely due in part to the involvement of fentanyl, the proportion of fatal overdoses involving cocaine has increased dramatically over time, from 26% in 2009 to 53% in 2021. Similar patterns are emerging for amphetamines and methamphetamines; by 2021, 19% of fatal overdoses in the state involved amphetamines and/or methamphetamines. In addition to being a general issue of public health and safety, rising cocaine use is a significant health equity issue for Rhode Island. The rate of fatal cocaine overdose is twice as high among the Black, non-Hispanic population than the white, non-Hispanic or Hispanic/Latino populations. Rhode Island has identified an opportunity to enhance substance use disorder (SUD) treatment for Medicaid beneficiaries: CM. As explained by SAMHSA, CM (CM) “is a well-known behavioral intervention designed to increase desired behaviors by providing immediate reinforcing consequences (in the form of incentives) when the target behavior occurs, and withholding those incentives when the target behavior does not occur, but not in a punitive manner. CM has been used with considerable effectiveness in treating individuals with a variety of SUDs and is very useful for treatment planning because it sets concrete short- and long-term goals and emphasizes positive behavioral changes.” CM is highly effective for individuals with opioid use disorder and “CM

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	interventions have by far the greatest amount of empirical support for their efficacy in promoting therapeutic behavioral change among people with stimulant use." Rhode Island proposes to add a new CM Pilot Program to serve as another, critical tool in our efforts to support recovery efforts for Rhode Islanders with substance use disorders. The CM benefit will consist of a series of motivational incentives for meeting treatment goals, such as non-use of substances or treatment/medication adherence as evidenced by, for example, negative drug tests. These motivational incentives are central to CM, based on the best available scientific evidence for treating a substance use disorder and will not be used as an inducement to use other medical services. CM will be offered along with other therapeutic interventions, such as cognitive behavioral therapy, motivational interviewing and medication assisted treatment as clinically appropriate. Motivational incentives will be managed and disbursed through a mobile or web-based incentive management software program that includes strict safeguards against fraud and abuse. CM will be available only when it is medically necessary and appropriate. CM should never be used in place of medication treatment for opioid use disorder. To qualify for the CM benefit, Medicaid beneficiaries must: 1. Be enrolled in a comprehensive Rhode Island Department of Behavioral Health, Developmental Disabilities, and Hospitals (BHDDH) licensed treatment program that offers other services (e.g., group or individual therapy) delivered in person or via telehealth. 2. Be assessed and determined to have an alcohol and/or substance use disorder for which the CM benefit is medically appropriate based on the fidelity of treatment to the evidence-based practice. Providers must meet specified programmatic standards set by the Rhode Island Department of Behavioral Health, Developmental Disabilities, and Hospitals. Staff providing CM services will need to have documentation that they have been trained by a qualified trainer to deliver CM services. The following practitioners delivering care at qualified provider sites can deliver the CM benefit: Licensed Practitioners; and SUD counselors that are either certified or registered by an organization that is licensed by BHDDH and accredited with one of the National Commission Certifying Agencies such as CARF or JCAHO. Practitioners may engage in activities such as administering point-of-care urine drug tests, informing beneficiaries of the results of the evidence/urine drug test, entering the results into the mobile or web-based application, providing educational information, and distributing motivational incentives.

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SUD providers will be required to offer accompanying SUD treatment services and evidence-based practices for a substance use disorder and any other co-occurring substance use disorder in addition to CM services. These services may include individual, group and/or family counseling using a range of applicable evidence-based modalities and techniques, including but not limited to cognitive behavioral therapy, community reinforcement, motivational interviewing, care coordination, peer support services, medications for addiction treatment, recovery supports, withdrawal management, medication services, and patient education.
Providers must also agree to provide the benefit in accordance with standardized procedures and protocols established by EOHHS and BHDDH and approved by CMS.

7.2.3 Comments re: CM
EOHHS received one comment regarding CM, which stated support for the program's inclusion and a request that if successful, the pilot be implemented as a covered benefit for Medicaid beneficiaries.
EOHHS appreciates the support for CM and clarifies that under this Demonstration, the pilot would become a covered benefit for Medicaid beneficiaries, albeit without a guarantee of long-term availability beyond the duration of this Demonstration period.

Hypotheses and Evaluation Parameters
Rhode Island will conduct an independent evaluation to measure and monitor the outcomes of the Demonstration. The State proposes to evaluate this Demonstration extension request addendum utilizing the following questions, hypotheses, and measures in addition to the hypotheses and evaluation parameters described in the extension submitted in December 2022.

<table>
<tr><th>Hypotheses</th><th>Example Research Questions</th><th>Example Measures and Data Sources</th></tr>
<tr><td>CM will improve access to mental health and SUD services for participating members</td><td>What are the rates of AOD initiation and treatment among participating members?

What are the rates of mental health and SUD/OUOD service utilization among participating members?</td><td>Initiation and Engagement of Alcohol and Other Drug Abuse or Dependence Treatment (IET): MH and SUD/OUD services

Data source: Medicaid claims</td></tr>
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<tr><td>CM will improve physical health care utilization for participating members</td><td>What are the trends in utilization (as measured by primary care and preventive services, inpatient hospitalizations and rehospitalization, ED visits) for Medicaid members participating in the CM program?</td><td>Primary care and preventative services; inpatient hospitalization; rehospitalization; ED visits and potentially avoidable ED visits

Data source: Medicaid claims</td></tr>
<tr><td>CM will decrease rates of substance use among participating members</td><td>What are the trends in abstinence from substance use for Medicaid members participating in the CM program?</td><td>Abstinence from substance use

Data source: program data</td></tr>
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<tr><td>Washington
Approved

Centers for Medicare & Medicaid Services. Approval Washington 1115 Demonstration Medicaid Transformation Project 2.0. 2023[32]</td><td>13. CM
13.1. CM Overview
a. Beginning no earlier than July 1, 2023, HCA will implement a new CM benefit for eligible Apple Health beneficiaries with a substance use disorder in eligible provider settings that elect and are approved by HCA to pilot the benefit. The pilots will allow Washington to evaluate and assess the effectiveness of a CM benefit before determining whether it should be available statewide.
b. Under the pilot, the CM benefit will be available in participating providers, that opt and are approved by HCA to provide this benefit, to qualified beneficiaries who meet the eligibility requirements described below.
13.2. Eligibility.
To qualify for the CM benefit, an Apple Health beneficiary (not including TSOA) must meet the following conditions:
a. Be assessed and determined to have a substance use disorder for which the CM benefit is medically necessary and appropriate based on the fidelity of treatment to the evidence-based intervention. The presence of</td></tr>
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	additional substance use disorders and/or diagnoses does not disqualify an individual from receiving the CM benefit; b. Not be enrolled in another CM program for substance use disorder; c. Receive services from an eligible provider that offers the CM benefit in accordance with HCA policies and procedures; and d. CM should not be used instead of medication for the treatment of opioid use disorder, but can be used in combination with medication... For substance use disorders with FDA-approved medication treatments, medication should always be an option along with CM, and these approaches may be used together. Medication treatment should be prioritized for OUD and AUD. **13.3. Service Description.** a. The CM benefit consists of a series of motivational incentives for meeting treatment goals. The motivational incentives may consist of cash equivalents, e.g., gift cards of low retail value, with restrictions placed on the incentives so they are not used to purchase weapons, cannabis, tobacco, alcohol, over-the-counter preparations containing possible intoxicants such as dextromethorphan, or pornographic material, or to participate in gambling (e.g., through the purchase of lottery tickets). The motivational incentives are consistent with evidence-based clinical research for treating a substance use disorder and as described below. These motivational incentives are central to CM, based on the best available scientific evidence for treating a substance use disorder and not as an inducement to use other medical services. b. The CM benefit utilizes an evidence-based approach that recognizes and reinforces individual positive behavior change consistent with substance non-use or treatment/medication adherence. The CM benefit provides motivational incentives for treatment/medication adherence or non-use of substances as evidenced by, for example, negative point of care drug tests. c. CM is offered along with other therapeutic interventions, as appropriate, such as cognitive behavioral therapy, that meet the definition of rehabilitative services as defined by 1905(a) of the Social Security Act and 42 CFR 440.130(d). The provision of the CM benefit is not conditioned on a beneficiary's engagement in other psychosocial services. d. For purposes of this demonstration, these motivational incentives are considered a Medicaid-covered item or service and are used to reinforce objectively verified, recovery behaviors using a clinically appropriate CM protocol consistent with evidence-based research. Consequently, neither the Federal anti- kickback statute (42 U.S.C. § 1320a-7b(b), "AKS") nor the civil monetary penalty provision prohibiting inducements to beneficiaries (42 U.S.C. 1320a-7a(a)(5), "Beneficiary Inducements CMP") would be implicated. e. The CM benefit consists of a set of modest motivational incentives available for beneficiaries that meet treatment goals. Under the benefit, a beneficiary will be limited in motivational incentives during the course of a CM treatment episode as detailed in in the CM Protocol in Attachment Q, which will be submitted to CMS for review and approval before the program can be implemented.

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	i. To qualify for a CM motivational incentive, a beneficiary must demonstrate treatment/medication adherence or non-use of substances. ii. The size, nature and distribution of all CM motivational incentives shall be determined in strict accordance with HCA procedures and protocols, listed in Attachment Q. These procedures and protocols will be based on established clinical research for CM. The following guardrails shall ensure the integrity of the CM benefit and mitigate the risk of fraud, waste or abuse associated with the motivational incentive: 1. Providers have no discretion to determine the size or distribution of motivational incentives which will be determined by HCA. 2. Motivational incentives will be managed through a software program that includes safeguards against fraud and abuse. These safeguards will be detailed in HCA guidance and listed in the CM Protocol Attachment Q. 3. To calculate and generate the motivational incentives in accordance with the schedule in Attachment Q, providers shall enter the evidence of the Apple Health beneficiary receiving the CM benefit into a software program **13.4. Eligible CM Providers.** a. The CM benefit will be delivered by eligible providers that meet specified programmatic standards and agree to deliver the CM benefit in strict accordance with standardized procedures and protocols that will be detailed in HCA guidance and listed in the CM Protocol Attachment Q. b. To be eligible to offer the CM benefit, a provider shall offer the benefit in strict accordance with HCA standards that will be outlined in HCA guidance included in Attachment Q and shall meet the following requirements: i. Must be enrolled in Apple Health, and certified to provide Apple Health services including without limitation primary care, behavioral health and substance use service providers; ii. Require the staff providing or overseeing the CM benefit to participate in CM-specific training developed and offered by HCA's designated contractor; iii. Undergo a readiness review by HCA and HCA's designated contractor to ensure that they are capable to offer the CM benefit in accordance with HCA standards that will be detailed in HCA guidance; and iv. Participate in ongoing training and technical assistance as requested or identified by HCA's designated contractor or HCA through ongoing monitoring to meet HCA standards. v. Shall comply with any billing and data reporting requirements established by HCA to support research, evaluation, and performance monitoring efforts, including but not limited to satisfactory claims submission, data and quality reporting, and survey participation. c. The following practitioners delivering care at eligible providers can deliver the CM benefit through activities, such as administering point-of-care drug tests, informing beneficiaries of the results of the evidence/point of care

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	drug test, entering the results into a software program, providing educational information, and distributing motivational incentives, as part of the CM benefit: i. Licensed Practitioner of the Healing Arts (LPHAs); ii. SUD counselors that are either certified or registered by an organization that is recognized by HCA and accredited with the National Commission for Certifying Agencies; iii. Certified peer support specialists; and iv. Other trained staff under supervision of an LPHA. **13.5. Program Oversight.** a. HCA shall monitor the ongoing performance, including fidelity of treatment to the evidence-based practice, of CM providers and identify and support providers requiring further training or technical assistance in accordance with HCA set standards, to be outlined in HCA guidance. b. HCA will provide training, technical assistance and monitoring to providers throughout the implementation process. The training and technical assistance will be provided through a qualified contractor designated by HCA, and will include staff training, provider readiness reviews, and ongoing technical assistance during the first phase of the pilot. **13.6. Pilot Evaluation.** In alignment with the MTP 2.0 demonstration evaluation requirements outlined in Section 21 of these STCs, HCA will conduct an evaluation of the effectiveness of the CM program to assess its overall effectiveness, including cost-effectiveness of these services, and its effects on beneficiary health and recovery outcomes. To the extent feasible, the state will conduct the evaluation to support assessment stratified by stimulant use disorder and other types of SUD. **13.7. Changes in Medicaid Policy on CM.** In accordance with STC 3.3, nothing in this demonstration absolves Washington from being subject to future guidance on CM and the state would otherwise need to come into compliance with such guidance. 20. MONITORING AND REPORTING REQUIREMENTS b. Performance Metrics…….. v. For the CM program, the state's reporting must cover metrics for domains including but not limited to enrollment, overall incentives provided, and average incentives provided per beneficiary during the treatment phase as well as types and counts of aftercare and treatment services rendered during the aftercare phase. 21. EVALUATION OF THE DEMONSTRATION….. 21.6. Evaluation Questions and Hypotheses…… d. Hypotheses for the CM program must align with the goals of the SUD program. They should aim to increase rates of identification, initiation, and engagement in treatment; increase adherence to and retention in treatment; reduce overdose deaths; reduce utilization of emergency departments and inpatient hospital settings for treatment where preventable or medically inappropriate; reduce readmissions where preventable or medically inappropriate; and improve access to care for physical health outcomes among beneficiaries.

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	Attachment Q **CM Protocol** In accordance with the State's "Washington Medicaid Transformation Project 2.0 (MTP 2.0)" Section 1115(a) Demonstration Waiver and Special Terms and Conditions (STCs), this protocol provides additional detail regarding the distribution of motivational incentives to Apple Health beneficiaries receiving CM as required by STCs 13.3 and 13.4. The Washington State Health Care Authority (HCA) CM program is based on established clinical research demonstrating effective CM treatment and Washington's unique needs. The CM treatment program consists of a structured 24-week outpatient CM program, during which motivational incentives will be available. HCA' CM program may be provided to eligible Apple Health beneficiaries and is intended to complement other substance use disorder (SUD) treatment services already offered by Apple Health. Motivational incentives earned through the HCA CM program shall not be included as gross countable income for determining Apple Health eligibility. I. Treatment Framework A. Beneficiary Eligibility and Participation. Beneficiaries who meet the CM eligibility criteria detailed in STC 13.2 and who consent to treatment may participate in the CM program. Participation in CM will have no impact on beneficiary eligibility for, or obligation or right to use, other Apple Health services. B. Incentives. Beneficiaries will receive motivational incentives, as defined in STC 13.3, for meeting the target behavior of stimulant-non-use as demonstrated by point-of-care drug tests. At the discretion of the State and consistent with STC 13.3, the definition of target behavior may be revised in accordance with the evidence-base for CM as a treatment intervention for SUD to include non-use of substances other than stimulants, and/or other target behaviors such as treatment/medication adherence. During the initial phase of the pilot, HCA shall set a maximum dollar amount of total incentives in a calendar year that participating beneficiaries will be able to receive for successful completion of the treatment protocol. HCA may adjust the total incentives in a calendar year to align with future federal guidance regarding taxable income thresholds and/or classification. As described in Attachment Q, Section IV below, and consistent with the guardrails described in STC 13.3, providers have no discretion to determine the size or distribution of motivational incentives. Attachment Q, Sections I.C-F below describe an example of how HCA will implement the incentive delivery schedule and corresponding dollar amounts. The final delivery schedule and corresponding dollar amounts are subject to change by HCA. C. Treatment Schedule Overview. CM treatment will consist of a 24-week outpatient program, during which motivational incentives will be available for meeting the target behavior of substance-non-use. Weeks 1–12 of CM treatment will serve as the escalation/reset/recovery period, and weeks 13–24 will serve as the maintenance period. D. Weeks 1-12: Escalation/Reset/Recovery Period.

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	During the initial 12 weeks of the CM treatment, participating beneficiaries will be asked to visit the treatment setting in person for a minimum of two treatment visits per week. Visits will be separated by at least 72 hours (e.g., Monday and Thursday/Friday, or Tuesday and Friday) to help reduce the risk that drug metabolites from the same drug use episode will not be detected in subsequent point-of-care drug test. Participating beneficiaries will be able to earn motivational incentives during each visit the drug test indicates they have a negative sample for stimulants (or other target behaviors, such as a negative sample for other substances, or treatment adherence/medication, as determined by the State and consistent with Section 13 of the STCs). The initial motivational incentive value for the first sample negative for stimulants in a series is $10. For each week the participating beneficiary demonstrates non-use of stimulants (i.e., two consecutive point-of-care drug tests negative for stimulants), the value of the motivational incentive may be increased by up to $2.00 The maximum aggregate motivational incentive a participating beneficiary can receive during this initial 12-week period is $528. When the participating beneficiary submits a positive sample or has an unexcused absence, the incentive for a subsequent negative sample will reset to the original incentive at the beginning of the incentive schedule. A "recovery" of the pre-reset value will occur after two consecutive stimulant-negative urine or oral samples. At that time, the participating beneficiary will recover their previously earned motivational incentive level without having to restart the process. E. Weeks 13-24: Maintenance Period. During weeks 13–24, participating beneficiaries will be asked to visit the treatment setting for testing a minimum of once a week. During weeks 13–24, the value of the motivational incentive for each visit may be increased by up to $2.00 compared to the prior visit. The maximum aggregate motivational incentive a participating beneficiary will be able to receive during weeks 13–24 is $564. F. Hypothetical Example: Incentive Delivery Schedule for Perfect Performance. Table 1 illustrates an incentive delivery schedule for a participating beneficiary in a scenario where the beneficiary has a consistent attendance record and submits samples that are stimulant negative during each visit over the 24-week period.

Table 1: Sample Incentive Schedule

Week	Visit #	Incentive for Negative Test
1	1	$10.00
1	2	$12.00
2	3	$12.00
2	4	$14.00
3	5	$14.00
3	6	$16.00
4	7	$16.00
4	8	$18.00

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5	9	$18.00
5	10	$20.00
6	11	$20.00
6	12	$22.00
7	13	$22.00
7	14	$24.00
8	15	$24.00
8	16	$26.00
9	17	$26.00
9	18	$28.00
10	19	$28.00
10	20	$30.00
11	21	$30.00
11	22	$32.00
12	23	$32.00
12	24	$34.00
13	25	$36.00
14	26	$38.00
15	27	$40.00
16	28	$42.00
17	29	$44.00
18	30	$46.00
19	31	$48.00
20	32	$50.00
21	33	$52.00
22	34	$54.00
23	35	$56.00
24	36	$58.00
TOTAL		**$1092.00**

Note: The incentive delivery schedule and corresponding dollar amounts in the section above are an illustrative example of how HCA will implement the CM program. This incentive delivery schedule and corresponding dollar amounts are subject to change by HCA.

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	II. CM Provider and Staffing Criteria A. CM Providers. Eligible providers meeting the criteria detailed in STC 13.4 and other applicable STCs will be eligible to deliver the CM benefit. B. CM Coordinator. At least two trained CM coordinators will administer the participating provider's CM program. The CM coordinator must meet the practitioner requirements listed in STC 13.4(c). C. Role of the CM Coordinator. The CM coordinator will be the main point of contact for all CM program participating beneficiaries and will be responsible for collecting point of care drug testing samples, inputting test results, and supporting the delivery of motivational incentives as described in Attachment Q, Section IV below. III. Point-of-Care Drug Testing During each visit, the CM coordinator will collect a urine sample or an oral sample from the participating beneficiary. Rapid, point-of-care tests must be CLIA-waived. The sample will be tested for stimulants, including cocaine, amphetamine and methamphetamine, as well as for opioids, to rapidly indicate whether recent stimulant use occurred (or other substance use defined by the State and consistent with STC 13.2). Positivity for the single target substance is the only determinant of whether an incentive is provided). Urine samples will be collected in a point-of-care test cup with specimen validity measures. Oral samples may be used for validated oral tests. IV. Incentive Delivery A. Overview. The CM coordinator will immediately inform the participating beneficiary of the results of the point-of-care drug test, and enter the results into a secure incentive management program that includes strict safeguards against fraud and abuse. The incentive management program will compute the appropriate motivational incentive earned according to the protocol detailed above in Attachment Q, Section I. The incentive amount can be immediately delivered electronically to participating beneficiaries via e-gift cards sent to participating beneficiaries' emails, sent to the provider to print the gift card, or delivered using other strategies developed by the incentive management program. The immediate delivery of the motivational incentive to the beneficiary following the determination of the motivational incentive amount earned by the incentive management program is a critical component of the CM benefit and consistent with the evidence-base. B. Incentive Calculations. A secure incentive management program, REDCap, will automatically calculate the appropriate motivational incentive amount based on the point of care test, results with adjustments for the escalating value, reset and recovery features as described above in Attachment Q, Section I. REDCap prevents tampering with, modifying or overriding the protocol amounts. Upon each visit, the results of the point of care test will be entered into REDCap. REDCap will operate using an algorithm based on the motivational incentive delivery schedule described above. Using this algorithm, when a result is entered, REDCap will report the amount of any motivational incentive the participating beneficiary should receive per the protocol. A positive test for stimulants will result in the participating beneficiary receiving no motivational incentive. A negative test for stimulants (or other substances as defined at State discretion and consistent with STC 56) will result in an incentive amount as indicated by REDCap, considering escalations and resets.

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	C. Oversight. As a safeguard against fraud, waste and abuse, the CM coordinator, or other staff trained in the delivery of CM under the supervision of a Licensed Practitioner of the Healing Arts (LPHA) consistent with STC 57 when the CM coordinator is not available, will be permitted to enter the results of the participating beneficiary's point-of-care drug test into REDCap during the visit. On a recurring basis, the provider must conduct and document that a regular audit of the incentive delivery functions has been completed, including the software calculations recommended and incentive distributed. This provider audit must be conducted by an individual who has responsibility for overseeing the use of organizational funds (e.g., program or fiscal manager). The providers will be required to routinely submit the results of the audit to HCA. D. Incentive Delivery Method and Parameters. After the motivational incentive amount is determined, REDCap will disburse the motivational incentive and will track all motivational incentives awarded to all participating beneficiaries, including the date the incentive was distributed and the amount of the motivational incentive. E. Incentive Types. To redeem earned motivational incentives consistent with the protocol described in this Attachment Q, participating beneficiaries will be able to choose gift or debit cards from a range of retail outlet options to use or redeem the incentive balance, with restrictions placed on the incentives so they are not used to purchase weapons, cannabis, tobacco, alcohol, over-the-counter preparations containing possible intoxicants such as dextromethorphan, or pornographic material, or to participate in gambling (e.g., through the purchase of lottery tickets).

Abbreviations. AKS: anti-kickback statute; AOD: alcohol and other drugs; ASAM: American Society of Addiction Medicine; AUD: alcohol use disorder; BHDDH: Behavioral Health Developmental Disabilities and Hospitals (Rhode Island); CA: coordinating agency; CalAIM: California Advancing and Innovating Medi-Cal; CARF: Commission on Accreditation of Rehabilitation Facilities; CBT: cognitive behavioral therapy; CLIA: Clinical Laboratory Improvement Amendments; CCBHC: community based behavioral health center; CM: contingency management; CMP: civil monetary penalty; CMS: Centers for Medicare & Medicaid; DHCS: Department of Health Care Services; DMC-ODS: Drug Medi-Cal Organized Delivery System; DMMA: Division of Medicaid and Medical Assistance (Delaware); DPHHS: Department of Public Health and Human Services (Montana); ED: emergency department; EOHSS: Executive Office of Health and Human Services; FFS: fee-for-service; FQHC: federally qualified health center; HCA: Health Care Authority (Washington); HEART: Healing and Ending Addiction through Recovery and Treatment (Montana); IET: initiation and engagement in treatment; IHS: Indian Health Services; IMD: institution for mental disease; IT: information technology; JCAHO: Joint Commission for Accreditation of Hospital Organizations; LAC: licensed addiction counselor; LCSW: licensed clinical social worker; LPC: licensed professional counselor; LPHA: licensed practitioner of the healing arts; MAGI: modified adjusted gross income; MAT: medication assisted treatment; MDHHS: Michigan Department of Health and Human Services; MHP: Medicaid health plan; MTP: Medicaid Transformation Project (Washington); OHH: opioid health home; OUD: opioid use disorder; PHE: public health emergency; PIHP: prepaid inpatient health plan; RFA: request for applications; RHC: rural health center; RI: Recovery Incentives (Michigan); SAMHSA: Substance Abuse and Mental Health Services Administration; STC: state terms and conditions; stimUD: stimulant use disorder; SUD: substance use disorder; THC: tribal health center; TSOA: tailored supports for older adults (Washington); UDT: urine drug testing.

Appendix I. Applicable Codes

Table I1. Applicable Codes for Contingency Management for Stimulant Use Disorder

Code	Description
ICD-10-CM Codes	
F14.1	Cocaine abuse
F14.2	Cocaine dependence
F14.9	Cocaine use, unspecified
F15.1	Other stimulant abuse
F15.2	Other stimulant dependence
F15.9	Other stimulant use, unspecified
CPT Code	
99408	Alcohol and/or substance abuse structured screening and brief intervention services, 15 to 30 minutes
HCPCS Code	
H0050[a]	Alcohol and/or drug screening, brief intervention, per 15 minutes

Notes. [a] California Department of Health Care Services determined that this code, with the modifier HF (substance abuse program), reimburses the costs of a contingency management visit, and should be used with a code for urine drug test results (in addition to other diagnostic codes relevant to the visit): R82.998 (for a positive urine test) or Z71.51 (for a negative urine test).[110,112,113]

Abbreviations. CPT: Current Procedural Terminology; HCPCS: Healthcare Common Procedure Coding System; ICD-10-CM: International Classification of Diseases, Tenth Revision, Clinical Modification.