



HHS Public Access

Author manuscript

Drug Alcohol Depend. Author manuscript; available in PMC 2019 March 26.

Published in final edited form as:

Drug Alcohol Depend. 2018 April 01; 185: 367–373. doi:10.1016/j.drugalcdep.2017.12.020.

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

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Abstract

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

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

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

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Contributors

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James R. McKay contributed to all sections of this report.

Conflicts of interest

No conflict declared.

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

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

Keywords

Contingency management; Stimulants; Department of Veterans Affairs

1. Introduction

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

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

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

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

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

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

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

2. Methods

2.1. Standard prize CM protocol

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

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

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

2.2. Participants: VA SUD treatment programs implementing CM

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

2.3. Procedure: CM coaching calls and CM implementation forms

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

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

2.4. Outcome measures

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

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

2.5. Data analysis

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

3. Results

3.1. CM program settings and structure

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

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

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

3.2. Participation in CM coaching calls

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

3.3. Implementation forms submitted

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

3.4. Implementation fidelity

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

3.5. Clinical outcomes

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

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

4. Discussion

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

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

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

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

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

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

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

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

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

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

Acknowledgements

The views expressed in this article are those of the authors and do not necessarily reflect the position or policy of the Department of Veterans Affairs or the United States government. The authors would like to thank Megan A. Ivey, Sean Lydon, Max Stern, Carl W. Wesley, and Jessica Olli for their assistance in coordinating the Department of Veterans Affairs (VA) national CM implementation initiative. We thank Dr. Karen Drexler, National Mental Health Program Director – Substance Use Disorders, for ongoing support of this project. We also want to recognize the many VA colleagues across the U.S.A. that are making CM available to veterans with substance use disorders. Most importantly, we want to acknowledge our nation's veterans who give us the honor and privilege of serving them.

Role of funding source

Funding for preparation of this report and for the Department of Veterans Affairs (VA) national CM implementation initiative was provided by VA and the Veterans Canteen Service.

Appendix A

CM Implementation Form

Name of program: _____ Respondent:

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

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

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

References

Becker SJ, Squires DD, Strong DR, Barnett NP, Monti PM, Petry NM, 2016 Training opioid addiction treatment providers to adopt contingency management: a prospective trial of a theory-driven implementation science approach. *Subst. Abuse* 37, 134–140. 10.1080/08897077.2015.1129524. [PubMed: 26682582]

- Becker's Hospital Review, 2013 May 15. 100 Integrated Health Systems to Know Retrieved November 29, 2017, from <https://www.beckershospitalreview.com/lists/100-integrated-health-systems-to-know.html>.
- Benishek LA, Dugosh KL, Kirby KC, Matejkowski J, Clements NT, Seymour BL, Festinger DS, 2014 Prize-based contingency management for the treatment of substance abusers: a meta-analysis. *Addiction* 109, 1426–1436. 10.1111/add.12589. [PubMed: 24750232]
- Dutra L, Stathopoulou G, Basden SL, Leyro TM, Powers MB, Otto MW, 2008 A meta-analytic review of psychosocial interventions for substance use disorders. *Am. J. Psychiatry* 165, 179–187. 10.1176/appi.ajp.2007.06111851. [PubMed: 18198270]
- Hartzler B, Lash SJ, Roll JM, 2012 Contingency management in substance abuse treatment: a structured review of the evidence for its transportability. *Drug Alcohol Depend* 122, 1–10. 10.1016/j.drugalcdep.2011.11.011. [PubMed: 22153943]
- Hartzler B, Jackson TR, Jones BE, Beadnell B, Calsyn DA, 2014 Disseminating contingency management: impacts of staff training implementation at an opiate treatment program. *J. Subst. Abuse Treat* 46, 429–438. 10.1016/j.jsat.2013.12.007. [PubMed: 24462242]
- Kadden RM, Litt MD, Kabela-Cormier E, Petry NM, 2009 Increased drinking in a trial of treatments for marijuana dependence: substance substitution? *Drug Alcohol Depend* 105, 168–171. 10.1016/j.drugalcdep.2009.05.024. [PubMed: 19608353]
- Karlin BE, Cross G, 2014 From the laboratory to the therapy room: national dissemination and implementation of evidence-based psychotherapies in the U.S. Department of Veterans Affairs Health Care System. *Am. Psychol* 69, 19–33. 10.1037/a0033888. [PubMed: 24001035]
- Kiluk BD, Carroll KM, 2013 New developments in behavioral treatments for substance use disorders. *Curr. Psychiatry Rep* 15, 420 10.1007/s11920-013-0420-1. [PubMed: 24173656]
- Lott DC, Jencius S, 2009 Effectiveness of very low-cost contingency management in a community adolescent treatment program. *Drug Alcohol Depend* 102, 162–165. 10.1016/j.drugalcdep.2009.01.010. [PubMed: 19250774]
- Lussier JP, Heil SH, Mongeon JA, Badger GJ, Higgins ST, 2006 A meta-analysis of voucher-based reinforcement therapy for substance use disorders. *Addiction* 101, 192–203. 10.1111/j.1360-0443.2006.01311.x. [PubMed: 16445548]
- Moeller KE, Lee KC, Kissack JC, 2008 Urine drug screening: practical guide for clinicians. *Mayo Clin. Proc* 83, 66–76. 10.4065/83.1.66. [PubMed: 18174009]
- Oliva EM, Bowe T, Sox-Harris AH, Trafton JA, 2013 False starts in psychotherapy for substance use disorders and PTSD in the VHA. *Psychiatr. Serv* 64, 722 10.1176/appi.ps.201300145. [PubMed: 23903602]
- Petry NM, 2012 *Contingency Management for Substance Abuse Treatment: A Guide to Implementing This Evidenced-Based Practice* Routledge Press, New York, NY 10.1111/j.1521-0391.2011.00212.x.
- Petry NM, Martin B, Cooney JL, Kranzler HR, 2000 Give them prizes and they will come: contingency management for the treatment of alcohol dependence. *J. Consult. Clin. Psychol* 68, 250–257. 10.1037//C022-006X.68.2.250. [PubMed: 10780125]
- Petry NM, Alessi SM, Marx J, Austin M, Tardif M, 2005a Vouchers versus prizes: contingency management treatment of substance abusers in community settings. *J. Consult. Clin. Psychol* 73, 1005–1014. 10.1037/0022-006X.73.6.1005. [PubMed: 16392974]
- Petry NM, Peirce JM, Stitzer ML, Blaine J, Roll JM, Cohen A, Obert J, Killeen T, Saladin ME, Cowell M, Kirby KC, Sterling R, Royer-Malvestuto C, Hamilton J, Booth RE, Macdonald M, Liebert M, Rader L, Burns R, DiMaria J, Copersino M, Quinn Stabile P, Kolodner K, Rui L, 2005b Effect of prize-based incentives on outcomes in stimulant abusers in outpatient psychosocial treatment programs: a national drug abuse treatment clinical trials network study. *Arch. Gen. Psychiatry* 62, 1148–1156. 10.1001/archpsyc.62.10.1148. [PubMed: 16203960]
- Petry NM, Alessi SM, Carroll KM, Hanson T, MacKinnon S, Rounsaville B, Sierra S, 2006 Contingency management treatments: reinforcing abstinence versus adherence with goal-related activities. *J. Consult. Clin. Psychol* 74, 592–601. 10.1037/0022-006X.74.3.592. [PubMed: 16822115]

- Petry NM, Alessi SM, Ledgerwood DM, Sierra S, 2010a Psychometric properties of the contingency management competence scale. *Drug Alcohol Depend* 109, 167–174. 10.1016/j.drugalcdep.2009.12.027. [PubMed: 20149950]
- Petry NM, Weinstock J, Alessi SM, Lewis MW, Dieckhaus K, 2010b Group-based randomized trial of contingencies for health and abstinence in HIV patients. *J. Consult. Clin. Psychol* 78, 89–97. 10.1037/a0016778. [PubMed: 20099954]
- Petry NM, Alessi SM, Ledgerwood DM, 2012a Contingency management delivered by community therapists in outpatient settings. *Drug Alcohol Depend* 122, 86–92. 10.1016/j.drugalcdep.2011.09.015. [PubMed: 21981991]
- Petry NM, Alessi SM, Ledgerwood DM, 2012b A randomized trial of contingency management delivered by community therapists. *J. Consult. Clin. Psychol* 80, 286–298. 10.1037/a0026826. [PubMed: 22250852]
- Petry NM, Barry D, Alessi SM, Rounsaville BJ, Carroll KM, 2012c A randomized trial adapting contingency management targets based on initial abstinence status of cocaine-dependent patients. *J. Consult. Clin. Psychol* 80, 276–285. 10.1037/a0026883. [PubMed: 22229758]
- Petry NM, DePhilippis D, Rash CJ, Drapkin M, McKay JR, 2014 Nationwide dissemination of contingency management: the Veterans Administration initiative. *Am. J. Addict* 23, 205–210. 10.1111/j.1521-0391.2013.12092.x. [PubMed: 24724876]
- Petry NM, Alessi SM, Olmstead TA, Rash CJ, Zajac K, 2017 Contingency management treatment for substance use disorders: how far has it come, and where does it need to go? *Psychol. Addict. Behav* 31, 897–906. 10.1037/adb0000287. [PubMed: 28639812]
- Prendergast M, Podus D, Finney J, Greenwell L, Roll J, 2006 Contingency management for treatment of substance use disorders: a meta-analysis. *Addiction* 101, 1546–1560. 10.1111/j.1360-0443.2006.01581.x. [PubMed: 17034434]
- Rash CJ, DePhilippis D, McKay JR, Drapkin M, Petry NM, 2013 Training workshops positively impact beliefs about contingency management in a nationwide dissemination effort. *J. Subst. Abuse Treat* 45, 306–312. 10.1016/j.jsat.2013.03.003. [PubMed: 23856601]
- Roll JM, Higgins ST, 2000 A within-subject comparison of three different schedules of reinforcement of drug abstinence using cigarette smoking as an exemplar. *Drug Alcohol Depend* 58, 103–109. 10.1016/S0376-8716(99)00073-3. [PubMed: 10669060]
- Roll JM, Shoptaw S, 2006 Contingency management: schedule effects. *Psychiatry Res* 144, 91–93. 10.1016/j.psychres.2005.12.003. [PubMed: 16905197]
- Roll JM, Higgins ST, Badger GJ, 1996 An experimental comparison of three different schedules of reinforcement of drug abstinence using cigarette smoking as an exemplar. *J. Appl. Behav. Anal* 29, 495–504. 10.1901/jaba.1996.29-495. [PubMed: 8995832]
- Roll JM, Petry NM, Stitzer ML, Brecht ML, Peirce JM, McCann MJ, Blaine J, MacDonald M, DiMaria J, Lucero L, Kellogg S, 2006 Contingency management for the treatment of methamphetamine use disorders. *Am. J. Psychiatr* 163, 1993–1999. 10.1176/ajp.2006.163.11.1993. [PubMed: 17074952]
- Schoenhard W Department of Veteran's Affairs memorandum: Evidence Based Treatment for Substance Use Disorders, dated 2 23, 2011.
- Squires DD, Gumbley SJ, Storti SA, 2008 Training substance abuse treatment organizations to adopt evidence-based practices: the addiction technology transfer center of new england science to service laboratory. *J. Subst. Abuse Treat* 34, 293–301. 10.1016/j.jsat.2007.04.010. [PubMed: 17600652]
- VA/DoD(Department of Veterans Affairs, Department of Defense), 2015 VA/DoD Clinical Practice Guideline for Substance Use Disorder. Version 3.0–2015 The Management of SUD Work Group, The Office of Quality, Safety and Value, VA, Office of Evidence Based Practice, U.S. Army Medical Comm., Washington, DC Retrieved November 29, 2017, from http://www.healthquality.va.gov/Substance_Use_Disorder_SUD.asp.
- Watkins KE, Pincus HA, Smith B, Paddock SM, Mannle TE, Jr., Woodroffe A, Solomon J, Sorbero ME, Farmer CM, Hepner KA, Adamson DM, Forrest L, Call C, 2011 Veterans Health Administration Mental Health Program Evaluation: Capstone Report R Corporation, Santa

Monica, Calif. TR-956-VHA. Retrieved November 29, 2017, from http://www.r.org/pubs/technical_reports/TR956.html.

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Table 1

Implementation program characteristics (N = 94 programs).

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

Veterans Canteen Service (VCS) coupon books	75	(79.8)
Prizes & VCS coupon books	13	(13.8)
Prize cabinet	6	(6.4)
Testing method		
Lab	63	(67.0)
Point of care	31	(33.0)
Eligibility ^b		
Target-substance diagnosis	59	(64.1)
Target-substance misuse	33	(35.9)
Number of staff implementing per site	$\bar{X} = 2.1$	SD = 1.3 Median = 2.0 Range = 1–9

Note.

^a A standard course of CM is 12-weeks of twice-weekly testing, targeting stimulants, with a cap of 8 draws.

^b 92 (97.9%) of the 94 programs provided their CM eligibility criteria.

Table 2

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

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

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Table 3

Attendance & substance use outcomes.

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

Note.^aN = 2060 patients from 94 programs.^bN = 2039 patients from 94 programs.