CONTINGENCY MANAGEMENT IMPLEMENTATION MANUAL

HOW TO MAKE THIS EVIDENCE-BASED PRACTICE WORK FOR YOU

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CRISM-ICRAS

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Initiative Canadienne de Recherche en Abus de Substance

CIHR IRSC

Canadian Institutes of Health Research

Instituts de recherche en santé du Canada

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MAKING CONTINGENCY MANAGEMENT WORK FOR YOUR PROGRAM

The following training manual focuses on how to effectively implement Contingency Management (CM) in various clinical environments. The manual is largely informed by two studies in Alberta, Canada—Project Engage and The PRISE Project (PRoviding Incentives to Sustain Engagement).

Project Engage involved uncontrolled prospective trials at four study sites delivering substance use treatment, two inpatient settings and two outpatient settings. The trials examined whether CM was helpful in promoting treatment related goals (e.g., creative arts), abstinence, and treatment attendance among individuals with substance use concerns.

The PRISE Project, a clinical trial, examined whether CM was helpful in encouraging treatment attendance among individuals seeking treatment for their substance use concerns at two outpatient addiction and mental health clinics. Project Engage and The PRISE Project were pragmatically informative when it comes understanding the nuances and challenges of implementing CM in various clinical settings where the structure of treatment programs varies widely (e.g., different treatment schedules, inpatient and outpatient, in-person or virtual).

This manual will reference the literature to inform the reader on alternative approaches to CM regarding target behaviours, types of incentives, and other clinical settings that differ from what was done in Project Engage and the PRISE Project. We would like to acknowledge the work of the late Dr. Nancy Petry, a leading pioneer of contingency management. Petry's (2012) guide to implementing contingency management acted as a fundamental resource from which to build upon when developing this manual.

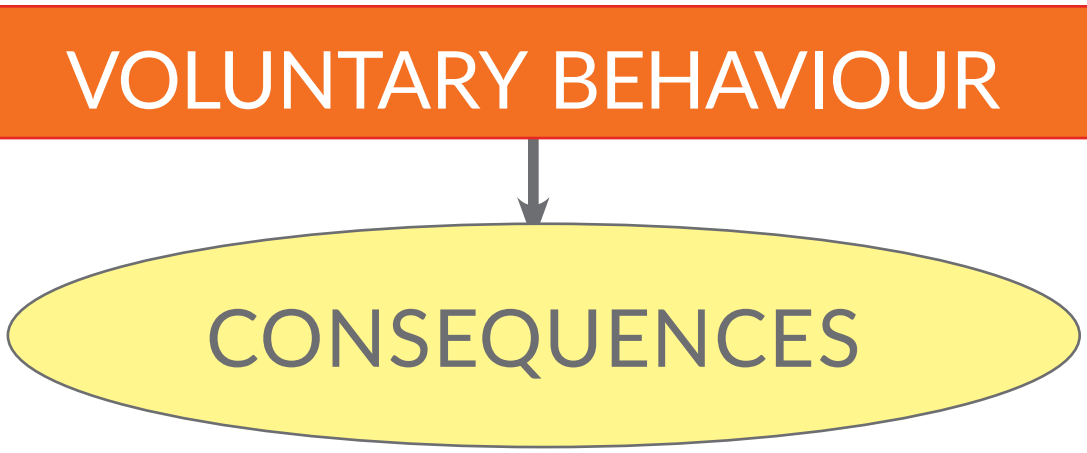
When implementing an evidence-based treatment, there is an expec ted degree of conflict between what is ideal and what is practical. CM is no different. In this manual, we will present the overarching guidelines and principles that help ensure the fidelity of an effective CM program. However, how one develops a CM program should be considered within the context of what is practical for treatment providers, clients, the given treatment structure, and the available resources. CM is typically an adjunct to treatment-as-usual and therefore, it should be adapted to any organization regardless of the treatment model philosophy.

WHAT IS CONTINGENCY MANAGEMENT?

Contingency management involves providing incentives when a client exhibits positive behavioural change (Petry, 2012). Based on the principles of operant conditioning, CM reinforces a target behaviour using incentives which increases the likelihood that the reinforced behaviour will occur again in the future (Stitzer & Petry, 2006). Incentives used in CM include program privileges, vouchers, and prizes (Petry, 2012).

As described in the literature (Kellogg et al., 2007; Stitzer & Petry, 2006; Wong et al., 2003), this novel incentive competes with the established reinforcing effects of the substance, ultimately rendering continued substance use in conflict with the outcomes associated with the newly reinforcing incentive. For example, consider an individual who is struggling with staying abstinent from methamphetamine. The reinforcing nature of CM is intended to interrupt thoughts of relapse.

EXAMPLE: When an individual has a moment of considering using methamphetamine, the consequence of not receiving their CM will hopefully compete with their urge to use and the associated consequences of using (Kellogg et al., 2007; Wong et al., 2003).



- Operant Conditioning refers to an association between a voluntary behaviour and consequence
- The nature of the consequence will influence whether the behaviour is repeated
- Contingency Management incentives are **positive reinforcers** (consequences) used to **increase** a desired behaviour

Substantial research evidence on CM indicates it is an effective adjunct to usual care for concerns related to substance use, treatment retention, and treatment adherence (Bentzley et al., 2021; Bolivar et al., 2021; Destoop et al., 2021; McDonell et al., 2021; Okafor et al., 2020; Pedersen et al., 2021; Petry et al., 2005; Wilson et al., 2018). Further, these effects have been demonstrated amongst various clientele with different substance use concerns.

Typical behaviours that are targets for reinforcement are usually related to treatment adherence (i.e., abstinence, treatment attendance), however, CM also promotes medication adherence (Henderson et al., 2015; Sorensen et al., 2007), employment (Petry et al., 2018), exercise (Finkelstein et al., 2008), and other treatment-related goals (Higgins & Petry, 1999).

EARLY PRACTICAL CONSIDERATIONS:

These are issues that must be considered about the implementation of CM. In this section we highlight some of the areas to address while reading through the manual.

WHO WILL ADMINISTER CM? TREATMENT PROVIDER VS DEDICATED CM STAFF

CM is a straightforward intervention. Like all interventions, CM requires training, time, and staff resources. The necessary resources will differ based on who is responsible for administering the intervention. Some CM programs will be administered by the treatment providers who are delivering treatment, whereas other programs have dedicated staff specifically responsible for CM duties. Utilizing a treatment provider to deliver CM does not require designing a new role or hiring new staff but will increase the workload of that provider. Alternatively, using a dedicated CM staff will not increase the workload of the treatment providers, but may require hiring a new person or expanding a present staff's current role (e.g., a peer support worker or administrative staff). The optimum implementation of CM depends on available resources and the present workload demands of treatment providers. These differing approaches will be explored throughout the manual.

CM IN A GROUP SETTING VS PRIVATELY

A highlight of CM is that it may be administered either in a group setting or privately one-on-one.

CM provided in a group can be great for morale as clients celebrate watching other clients receive their incentives. This positive atmosphere can be contagious and makes the addition of CM to group therapy exciting and enjoyable (Ethier et al., 2020). Another factor to consider with group CM is whether everyone in the group you are targeting is eligible to participate as those who are ineligible may feel left out, which could have the opposite effect on morale.

Administering CM one-on-one is also a positive experience and is less time intensive for those responsible for delivering CM. The downside to a one-on-one approach is that clients would not have the opportunity to interact with the clients who are a part of the program.

The pros and cons of each of these options are discussed in further detail in the **Resources and Calculating Cost** section.

ADMINISTERING CM IN–PERSON VS. VIRTUALLY

A recent development in CM is the option for treatment to be conducted virtually. These virtual options are increasing as technology becomes more commonplace. CM is successful when administered both in-person, and virtually. Virtual administration of CM is a convenient option for many who prefer connecting from home, or during their breaks at work. However, access to technological devices, data, and internet plans may be barriers for clients who lack such resources. The option that will best promote engagement in a CM program depends on the needs of your target population.

DETAILS OF IMPLEMENTING CM

CORE PRINCIPLES

There are three overarching behavioral change principles that are minimally required for CM program success based on the principles discussed by Petry (2012):

1. Assess the target behavior often
2. Reinforce the target behaviour every time the client eng ages in the behaviour and as quickly as possible after it occurs
3. Do not provide the incentive when the client does not engage in target behavior

Achieving these principles in practice involves the consideration of many factors, highlighting the importance of proper planning. Thus, a CM program should be prepared to include well-defined target behaviours such as, the client is required to attend treatment once per week. The rules around monitoring and reinforcing that behaviour, as well as the practical considerations such as resources and incentive types must also be clearly defined. It is important to take time exploring these factors and developing a specific and detailed protocol.

CM implementation is guided by details related to **target behaviours, target populations, monitoring behaviours and goal completion, providing incentives to clients, and outcome monitoring.**

CM ADHERENCE AND COMPETENCE

When compared to many types of therapies, CM is relatively straightforward. Therefore, many treatment providers rapidly gain a high degree of skill delivering CM.

Adherence refers to the extent to which treatment providers follow a CM protocol and core principles. Competence refers to the degree of skillfulness in executing the delivery of CM. Both competence and adherence are required for an effective CM program. It is possible a treatment provider correctly follows a CM protocol, while at the same time demonstrates low competence when administering CM. Fortunately, because CM is relatively straightforward, many treatment providers rapidly gain a high degree of skill in its delivery. Competence in administering CM is depedent on factors that promote client engagement in the program. First, it is important to foster a positive environment thro-

ugh confidence, enthusiasm, and encouragement. Those administering CM should be well-informed about CM and the protocol to avoid appearing unconfident in its delivery. The less confident a CM staff is, the less comfortable and engaged the client may be with the program. Similarly, for the client to be excited about CM, providers should express enthusiasm about CM.

Furthermore, encouragement is crucial in continuing to engage clients with their goals given that it can be common for clients to struggle meeting their target behaviours, especially early in treatment.

The other significant factor in CM competence is providing appropriate feedback. It is important to recognize the client's current progress when they successfully demonstrate a target behaviour while illustrating how they can contiue to progress in the future if the positive behaviour continues (e.g., "this is how many draws you will earn next week if you continue to attend treatment"). CM staff can also update the client on how close they are to redeeming the reward they are working towards.

Feedback is also integral when the client is not demonstrating the target behaviour. Non-adherence (e.g., absences from treatment and substance present urine results) should be discussed with the client, along with strategies on how to improve the behaviour. Discussion of strategies on how to improve the behaviour may be best suited for treatment providers rather than dedicated CM staff who are not directly involved in the treatment that CM is supporting. Also, continue to assess the client's desire for the available rewards, to encourage them to begin demonstrating the target behaviour.

TARGET BEHAVIORS

Target behaviours are attainable goals that should be specific, objective, and observable (Kellogg et al., 2007; Petry, 2012).

SPECIFIC

CM works when the target behaviour is not ambiguous. If the focus is abstinence, specify the drug that is to be abstained from and the frequency in which you will assess this. If the focus is treatment attendance, specify the treatment that should be attended and when the client is expected to attend. If the focus is medication adherence, specify which medication is the focus, its typical dosing frequency, and so on.

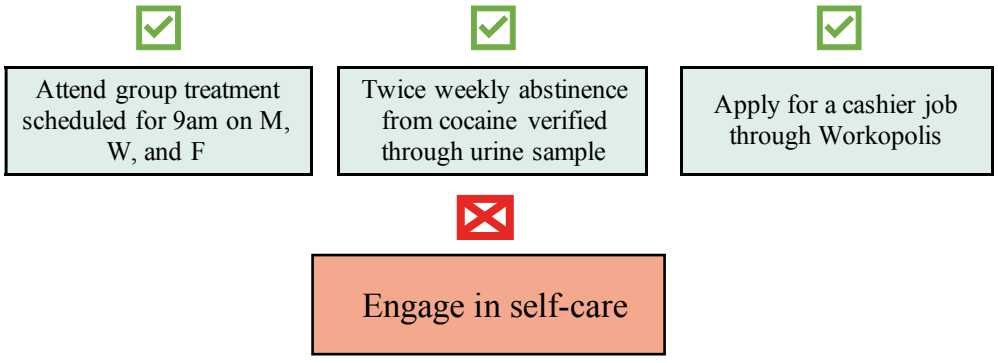
OBJECTIVE

A target behaviour must be objectively assessable. Petry (2012, p. 60) used the term "objective determination" which refers to the presence or absence of a behaviour devoid of any individual's cognitive bias. Put more simply, it should be clear amongst independent observers whether a behavior did or did not happen.

OBSERVABLE

The target behaviour should be straightforwardly observable. For example, drug abstinence is observed by using urine toxicology screens which are highly accurate. Observable evidence that a client was present at treatment can be obtained by the treatment providers who provided treatment or independently verified through attendance reports.

Both the treatment provider and client should have a mutual understanding of how the ***target behaviour*** is defined. Some examples of behaviours derived from Petry (2012) that meet these criteria include:



EXAMPLES OF UNSUITABLE TARGET BEHAVIOURS DERIVED FROM PETRY (2012):

1. Engage in self-care
2. Keep a positive attitude
3. Reduce drug use
4. Obtain a university degree (may not be attainable within the timeframe of a CM program)

The goal of engaging in "self-care" can be defined in several ways to several people, making this goal neither specific nor objective. The same can be said for the goal of keeping a positive attitude. In addition, the vagueness of both of these goals makes it hard to measure and therefore more challenging to observe. The goal of reducing drug use is also not specific. This is because there are many substances one may choose to target for reduction. Further, this goal does not specify how we will know when an individual has in fact reduced their use making it difficult to observe when it has occurred. For example, a reduction in substance use could be measured by the number of days or weeks of use, the quantity of use per day or week, etc.

HOW TO MODIFY THOSE EXAMPLES INTO MORE HELPFUL TARGET BEHAVIOURS:

1. Learn to draw three times per week on Monday, Wednesday, and Friday
2. Write three positive affirmations per day in a jounal (client provides proof of journal entries)
3. Reduce the amount of cannabis used per day among clients struggling with cannabis use as verified through urine screening
4. Audit one university course [specify course name] to its termination

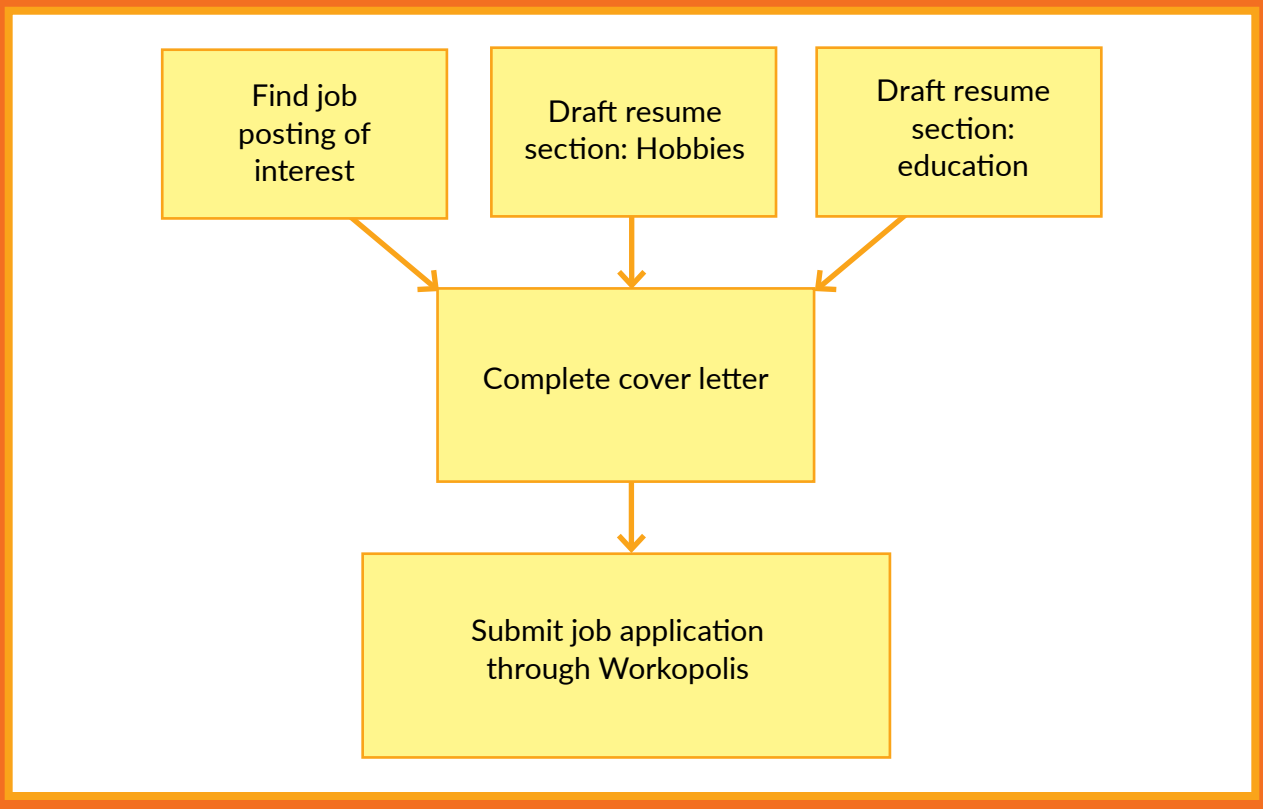
MAKE SURE THE TARGET BEHAVIOUR IS ATTAINABLE

The target behaviour needs to be attainable. First, the goal should not be so difficult to attain that it discourages the client from pursing the goal. Second, the less attainable the goal, the fewer opportunities there are to incentivize the behaviour which is problematic because **more frequent assessment and incentivizing leads to better outcomes (Lussier et al., 2006).**

EXAMPLE: Aspiring to obtain a university degree is a positive goal, but this process takes years and is not something that will be attainable within the typical treatment timeline. If working towards a degree is important to the client, consider smaller steps that moves the person towards eventual education such as meeting with an academic coordinator to discuss options, auditing a class, applying to a university, or upgrading high school marks.

BREAKING LARGER GOALS INTO SMALLER STEPS

Breaking a target behaviour down into smaller steps allows an individual to be incentivized while working towards a larger end goal (Kellogg et al., 2005; Petry, 2012). For example, the goal of applying for a job involves many steps including finding a job posting of interest and developing a resume and cover letter. These goals can be broken down into smaller steps and each incentivized as illustrated above. This method of breaking goals down into smaller steps can increase efficacy as this allows for frequent assessment and incentivization of behaviours which lead to better outcomes.



REPEATABLE VS. ONE-TIME GOALS

Target behaviours goals are repeatable (e.g., weekly urine samples), as well as one-time goals (e.g, getting a job). For repeatable goals, the behaviour can be regularly assessed and reinforced throughout the CM program. However, in the case of one-time goals, the treatment provider and client will need to decide on different goals in advance of starting the program so that behaviour can continue to be assessed and reinforced for the duration of CM. Finding employment or engaging in a particular hobby are examples of one-time goals which will need to be broken down into smaller steps for a CM program to be reinforced weekly. These two one-time goals could also be combined and performed sequentially once one goal is complete (e.g., after submitting the job application to Workopolis, the client begins engaging in the small steps towards achieving their secondary goal of learning to draw).

CONSIDER REDEFINING AMBIGUOUS GOALS

A goal such as engaging in self-care is ambiguous and thus could not be properly monitored for incentivization. Redefining a goal to be specific allows an individual to feasibly work towards goals that are relevant to their treatment. Consider the multitude of specific behaviours that contribute to the ambiguous goal of self-care. For example, one might have a goal of learning to draw or reading a book, others may want to focus on eating healthier meals and exercising. These behaviours can then be broken down into several steps to ensure a clear and specific goal for the client.

AVOID "DEAD PERSON'S" GOALS

Dead person's goals are defined as goals that could do be achieved by an unliving corpse (Lindsley, 1991). Goals that include the absence of a behaviour or emotion such as not using a drug or not feeling depressed are examples of dead person goals. Although these two examples are positive goals, they can not be determined through actionable behaviours. For example, specifically defining the goal of abstaining from a drug to be determined by the individual actively providing a urine sample and obtaining a negative result makes this goal actionable. CM should focus on goals that involve actionable behaviour.

One of the CM programs in Project Engage gave clients the freedom to choose what goals/ target behaviours they wanted to complete. This can be an effective approach because individuals become involved in helping develop a CM program and it allows them to pick the goals that they feel are important. Many clients, however, struggled to come up with goals that were specific and that were not a dead person's goal (e.g., not using substances). As a result, treatment providers became more involved in helping clients develop specific and actionable goals.

Certain populations and clinical settings may come with increased challenges. Project Engage noted significant differences between incentivizing an abstinence-based inpatient group versus an atten dance-based harm-reduction outpatient group. Recall that CM is intended to rearrange the reinforcement structure using provisional treatment incentives that compete with the reinforcing effects of drugs. Project Engage found that incentivizing those in the harm-reduction outpatient group was more challenging than incentivizing those in the abstinent-based residential setting. The study surmised one of the possible reasons was that those in the harm-reduction group could continue to use substances while attending treatment, whereas abstinence was a requirement to be enrolled in the residential group. Therefore, the reinforcing effects of the substances in the harm-reduction group may have outcompeted the incentives. The other proposed reason was that those who are part of a residential setting may be in a later stage of change compared to those in an outpatient setting, resulting in greater motivation to sustain their target behaviour of abstinence. Additionally, the magnitude of the incentives could have also been a factor. Lower-magnitude incentives may be less effective than higher-magnitude incentives (Packer et al., 2012).

CHOOSING A POPULATION: ALL PROGRAM CLIENTS OR A SUBGROUP?

A CM program can be designed to operate for all program clientele, but generally they focus on a specific subgroup of clients (e.g., people who use methamphetamine, people with comorbid mental health issues) or program components (e. g., a specific outpatient group, individuals prescribed methadone) for which adherence is a particular issue (Petry, 2012). Individual programs can also be developed for specific clients.

As noted by Petry (2012), if there were a subgroup of clients of the program who showed strong treatment attendance (say 80% retention), it is possible that CM would have little effect. Use of CM in this case would unnecessarily waste resources required for implementation. Furthermore, it might make sense to start with a manageable subset (i.e., one individual or a small group) so that it is easier to ensure proper CM implementation, before broadening the program to a wider population.

The initial focus of the PRISE Project was incentivizing treatment attendance for individuals who used methamphetamines due to the extremely low treatment retention rates amongst the population. Although treatment engagement can be problematic for various kinds of substances, individuals using methamphetamine were identified as a population who could potentially benefit greatly from CM.

A concern raised by treatment providers about implementing CM within a subgroup is the issue of fairness. In subgroups there will be times when some clients receive incentives for adhering to treatment while others do not. In the case of the PRISE Project, we did not encounter any complaints from our participants regarding who was randomized to the CM plus treatment-as-usual group vs the treatment as usual only group. Participants hoped to be randomized to the CM group, but none were significantly troubled when they were randomized to treatment-as-usual. Of course, when CM is implemented in clinical practice, there may not be a control group which means that anyone deemed eligible should be able to participate. Petry (2012) echoes this statement such that most CM programs in the United States focused on a very small subset of clients and were successfully implemented without resistance from other clients.

INDIGENOUS IDEAS RELATED TO INCENTIVES AND CELEBRATING LEARNING AND PROGRESS

The Cree celebrate milestones in a person's life journey through a philosophy called Mêcimôc. Mêcimôc is a philosophy of children raising that continues into adulthood which recognizes and celebrates "the firsts" of an individual's steppingstones in life, no matter how big, or small. This might include celebrating the first time a baby smiles, their first steps, or any first at all. Mêcimôc honours the Spirit and its connection to the universe. Since it is the Spirit that animates the body and allows it to develop and grow, Mêcimôc celebrates the individual's attention to small, but significant, physical actions because it keeps these actions connected to the Spirit. Offerings of *blueberries* are used to recognize accomplishments as part of someone's life story. This recognition encourages self-confidence in their story and the person's ability to direct it.

Mêcimôc extends into adulthood and celebrates accomplishments and the continuing growth of knowledge - the first time an adult has ridden a bike since childhood, or the first time someone who has been struggling with substance use is cooking a meal while sober. This celebration is thought to be more effective and meaningful when it is done in the presence of the community so that everyone can share and acknowledge the individual's story and learning. Every experience is considered a milestone, and the celebration of all these moments is meant to help children and adults make sense of their life story and to have confidence in it and confidence to direct it. Learning is the biggest and most important part of Cree people's lives. Mêcimôc is meant to find balance in mind, body, emotion, and Spirit, and in that way, prepares children and adults so that they can grow their knowledge about their own lives, so that they can pass that knowledge on and positively effect their community.

MONITORING TARGET BEHAVIOURS & GOAL COMPLETION

Once the target behaviour and population are determined, the next stage is designing a method to monitor behaviours and goal completion. The first consideration is the natural frequency of the behaviours; for instance, how often treatment occurs or how often clients will be available to provide urine samples. Then, consider the methods involved in verifying the occurrence of the behaviours including the temporal relationship between the behaviour and its monitoring. The time between the occurrence of the target behavior and the earliest possible time the target behaviour can be verified, how frequently monitoring is required, and the duration of monitoring are all things that need to be taken into account when creating your CM program (Petry, 2012). The following section illustrates what was done in the PRISE Project, and Project Engage to address each of these considerations.

In the PRISE Project, attendance was monitored and incentivized by dedicated CM research staff. A challenge that was encountered as a result was that the CM research staff relied on an intranet health care system to assess attendance reports. Intranet refers to a local or restricted communications network. Treatment providers and administrative staff upload appointment and client information to a clients file to be accessed by other providers within the secured network. Given that the administrative staff had to manually upload attendance reports, there was a slight delay between when the client attended their treatment (the behaviour) and when it was ultimately monitored and then incentivized. To accommodate this, CM research staff discussed the individual's treatment schedule in advance to help them plan when to monitor and subsequently reinforce behaviours. Treatment providers who are both administering therapy and delivering CM may not experience this delay. However, these challenges are important to note for programs that want to delegate these monitoring and incentivizing responsibilities to dedicated CM staff to lessen the workload for treatment providers.

THE PRISE PROJECT AS A CASE EXAMPLE FOR HOW TO MONITOR ATTENDANCE IN AN OUTPATIENT SETTING:

The PRISE Project focused on incentivizing attendance in two outpatient addiction and mental health clinics where the frequency of attendance varied depending on the structure of the individual's treatment plan. The treatment programs included individual counselling, several therapy groups (e.g., One-on-One, Recovery Skills, Mindfulness Group, Day Program), psychiatrist appointments, and in some cases, Rapid Access to Addictions Medicine (RAAM) Clinic sessions for medication management. Sessions for most therapy groups occurred once per week, apart from the day programs which ran all day Monday through Friday for two weeks. Individual counselling appointments generally occurred every three to five weeks for each client due to counsellor scheduling and workload demands. Psychiatry appointments and RAAM appointments were variable depending on clients' needs.

THE PRISE PROJECT: FREQUENCY OF THE BEHAVIOUR AND THE FREQUENCY MONITORING:

- For those individuals who were enrolled in one therapy group that occurred once per week, the CM research staff monitored (i.e., verified) and incentivized the behaviour once per week.
- On weeks where the individual had a one-on-one appointment scheduled + one group therapy session, attendance was monitored once or twice per week depending on how close together the appointments were. For example, if both sessions (one-on-one + group therapy) happened on the same day or on consecutive days (e.g., Monday and Tuesday), it was generally more practical to monitor the behaviour once per week. In instances where the two appointments were spread out by more than one day, the behaviour was monitored twice, once following the first appointment, and again later in the week after the second appointment.
- The Day Program: The day program was scheduled all day (8am to 4pm) Monday to Friday for two weeks. Attendance was monitored once on Monday to verify that they attended the first day of the program, and then again on Friday to verify that they attended Tuesday through Friday. This method of only monitoring twice a week for five instances of attendance was a result of the fact that those monitoring and delivering CM were separate from those care providers administering therapy. In the case where those treatment providers offering the Day Program were also delivering CM, it would have been more practical for them to monitor and incentivize the individual at the end of every day, Monday through Friday. Further, this may have led to better outcomes because of more frequent assessment and reward.

METHODS FOR BEHAVIOUR VERIFICATION AND TEMPORAL RELATIONSHIP BETWEEN BEHAVIOUR AND MONITORING:

- The PRISE Project used an intranet health care system that included session attendance records of clients.
- Attendance records at one study site were typically uploaded by the administration staff at the end of the day. However, at times it could take up to 24 hours for attendance records to be uploaded.
- Ethics approval was required for the CM research staff to access the information on the intranet system.
- At one study site, CM research staff could not gain access to the attendance records located on their intranet system. Therefore, at this site, the CM research staff relied on the administrative staff to send attendance reports which resulted in a possible delay in monitoring and incentivizing.

DURATION OF MONITORING:

- Although there was some delay between the occurrence and the monitoring of attendance, the act of verifying attendance was not time consuming in the case of the PRISE Project. It was simply a matter of logging on to the intranet system and typing in the client's name to access their attendance reports. We do not believe this duty was overly time intensive for either the research assistants or the administration staff responsible for sending attendance reports.

Additionally, Appendix B provides examples of the physical attendance sheets used for group attendance Project Engage.

EXCUSED ABSENCES: If treatment attendance is incentivized, the staff and clients must both have a clear understanding on what justifies an excused absence. Some important questions to ask include, how long before their appointment does a client need to cancel to be considered excused? What are the rules implemented by the clinic about treatment attendance? How do the clinics define a "No Show" versus an Excused Absence or a proactive cancellation? We recommend trying to make the rules around an excused absences in line with the rules of the clinic in which CM is being implemented.

CONSIDERATIONS FOR MONITORING

CONSIDERATIONS FOR MONITORING ABSTINENCE

In CM, abstinence can be verified using several types of devices that screen for various substances (e.g., breathalyzer, urine, saliva). Onsite testing may be necessary in the instances where a biological sample is required for several reasons. In the case of a urine sample, sending the sample to an offsite laboratory will result in a multiple day wait for results, whereas the results for onsite testing can be obtained within 1 to 2 minutes. Common urine toxicology tests can reliably detect opioids and stimulants that have been used within a 48 to 72 hour period.

A notable challenge to accurately monitoring abstinence is that some clients may provide adulterated urine samples in order to provide a substance-absent urine. Thus, submission of specimens should be observed by staff providing CM to ensure validity, that is, staff should ensure the client take the cup into a single stall washroom without any bags or jackets or things in their pockets. Further, many devices that screen for substances have safeguards in place to test for tampering, including instructions on temperature, dilution, and pH to verify the legitimacy of a urine sample. There are also specific test strips available meant to detect urine adulteration (Petry, 2012). Staff should follow the urine collection instructions provided by the manufacturer of the testing kit.

CONSIDERATIONS FOR MONITORING OTHER TREATMENT-RELATED AND NONTREATMENT-RELATED BEHAVIOUR

CM is not limited to abstinence and treatment attendance. CM can also be used to increase other treatment and non-treatment related desired behaviours such as employment (Petry et al., 2018), exercise (Finkelstein et al., 2008), and medication adherence (Henderson et al., 2015, Sorensen et al., 2007).

A major consideration when choosing to focus on target behaviours that are not abstinence or attendance is how to define and monitor these behaviours. In the case where a treatment provider allows the client to set behavioural goals they would like to work towards, it is crucial that the treatment provider work with the client to ensure the target behaviours are **specific, observable, and objective.** The behaviours should also be frequent (at least once per week) and attainable. Importantly, the treatment provider can collaborate with the client to find ways to meet these guidelines for their target behaviours.

One of the study sites for Project Engage asked clients to complete six steps weekly from 11 goal areas, giving clients the freedom to choose the nature of the target behaviour. Many clients struggled to establish weekly goals that were specific and attainable. Therefore, the treatment providers began working with the clients to ensure that the goals were specific and could be monitored. Goals such as "eat better" were modified to eating three meals a day and two snacks to follow Canada's food guide. The other issues that arose were the previously discussed "dead man goals." For instance, clients were listing recovery goals such as 'not using [substances]' or financial goal actions of 'not lending or borrowing money.'

Beyond ensuring the target behaviours follow the aforementioned guidelines, one must consider creative ways to monitor and verify these behaviours. Here are some possible options for different behaviours:

- Photos (i.e., participating in activities, spending time with family, attending recovery groups).
- Providing documentation (i.e., housing applications, credit check reports, resumes).
- Showing phone or internet usage (i.e., phone calls to family, websites visited such as job search engines or university course catalogues).
- Attendance at in-house programs (i.e., knitting class, meditation).
- Querying details about the target behaviour (i.e., asking questions regarding what was read in the Big Book, university course requirements).
- Journaling (i.e., workout journal, budget break down, journal entries about mental wellbeing and sleep routines).

TYPES OF INCENTIVES

Once target behaviours, population, and monitoring schedules have been established, the next step noted by Petry (2012) is considering the types of incentives that should be used. This section discusses the three common types of incentives: program privileges, vouchers, and prizes. Variations and hybrids of these types can also be considered.

PROGRAM PRIVILEGES

Target behaviours goals The earliest applications of CM involved the use of program privileges as incentives in methadone clinics (Kellogg et al., 2007; Petry, 2012). Program privileges are incentives that can be easily embedded within the pre-existing framework of clinic operations.

EXAMPLE:

In methadone clinics, take-home methadone doses are often used as a reward for consistent abstinence from recreational opioids. In these cases, the clinics are already administering methadone daily. Therefore, offering take-home doses of methadone simply modifies the existing structure of the clinic's resources to be incentivizing. These take-home doses are also valuable incentives to clients because it allows them to circumvent daily trips to the clinic, which grants them more indepedence in their daily lives (Petry, 2012).

Further, these types of privileges do not incur additional cost to the providing clinics as the incentives already existent within the clinics.

Residential settings offer different types of privileges including phone calls, evening passes, weekend passes, visitor hours, choice of chores, preferential eating times, sleeping in, viewing television and movies, missing a group, outdoor breaks, access to exercise equipment, and so on (Petry, 2012).

The practical benefits of program privileges include the wide applicability for clients (should there be a variety of choice) and reduced cost, whereas the primary disadvantage is the lack of applicability across clinical settings

EXAMPLE:

Allowing clients to make phone calls would have little value in an outpatient setting where the individual likely has the freedom to make phone calls at home or elsewhere. A reserved parking spot close to the front of the clinic building may be an advantageous incentive should the outpatient clinic offer in-person appointments. However, this example also demonstrates another important disadvantage, which is being able to offer a range of program privileges that all clients can find incentivizing. For example, for those who attend appointments virtually, having a reserved parking spot at the clinic would not be incentivizing.

HERE IS A LIST OF GENERAL GOAL AREAS AND THE POSSIBLE CLINIC PRIVILEGES RESULTING FROM COMPLETING THOSE GOALS IN PROJECT ENGAGE:

GOAL AREAS:

Recovery	Emotional and Mental Wellbeing	Spiritual
Family Relationships	Social Relationships	Physical Health and Wellbeing
Employment	Education and Training	Legal
Financial	Housing	Housing

PRIVILEGES ARE LISTED FROM SMALL TO LARGE MAGNITUDE. THE LARGER THE MAGNITUDE GREATER NUMBER OF GOALS THAT HAD TO BE SUCCESSFULLY COMPLETED:

- Phone call
- Choice in weekly chore
- Earlier or later eating time
- Evening pass
- 1-hour TV/Movie time
- Exercise time (1 hour/week)
- Extended visitor hours (1 hour weekdays)
- Choice in evening meal (1 evening)
- Sleeping in late (1 weekday)
- Weekend pass
- Getting out of a weekly chore
- Small job opportunities to make money (e.g., custodial work, yard work, etc.).

PROS AND CONS OF PROGRAM PRIVILEGES:

PROS:

- Reduced cost
- Applicability of incentives, that is, there can be an incentive that would be valuable to everyone

CONS:

- Not as applicable for outpatient settings
- Must ensure there is an incentive that is valuable to everyone

VOUCHERS

Vouchers are physical or digital credit slips reflecting monetary amounts that can be exchanged for goods and services (Petry, 2012). Relative to program privileges, vouchers are applicable in all clinical settings. Although vouchers have monetary value, no actual cash or money is given to clients. Clients receive vouchers when they meet a target behaviour. Clients accumulate the monetary amounts of the vouchers they earned in a controlled bank account as they continue to demonstrate target behaviours. Once they earn sufficient vouchers to earn an item or service, they make a formal request to cash in all, or part, of their account balance.

Petry (2012, p. 105) provides an example of the voucher method for reinforcing abstinence from a particular substance in a 12-week CM program. Urine samples are collected three times weekly to test for the presence or absence of the target substance. Clients earn $2.50 for every substance-absent urine sample they provide. The client can earn an additional $1.25 for each consecutive substance-absent urine sample. Further, clients can earn a $10 bonus for each week where all of their urine samples were substance-absent. If clients provide a substance-present urine, the voucher amount is reset to the baseline amount of $2.50. Over the 12 week period, clients would earn nearly $1000 in vouchers for consecutive abstinence.

It is important that treatment providers provide the voucher as soon as possible after the target behaviour is demonstrated. The voucher should display the rewarded amount they are given at the time, plus the amount that they will earn next time they meet the target behaviour. Additionally, the voucher could include the total amount that the client earned in the program versus what they have spent. These details are important to strengthen the association between the target behaviour and incentive, and to demonstrate the progress made in treatment relative to the incentives.

A VOUCHER SLIP FROM PROJECT ENGAGE:

CM research staff initialed the back of the voucher and had participants provide their signature so that the voucher could not be re-used. The back of the voucher can also be used to provide reminders on what voucher amount they will receive next session if they continue the target behaviour

PROS TO THE VOUCHER METHOD:

- Substantial empirical evidence
- Highly valued by clients
- Applicable to many settings

CONS TO THE VOUCHER METHOD:

- Costly. Clients received a monetary reward everytime they demonstrate the target behaviour.
- Highly valued by clients
- Applicable to many settings

Multiple participants from the PRISE Project would allow their vouchers to accumulate in their study bank account so that they could redeem a larger gift card at the end of the intervention. Despite being reinforced by the knowledge that their study bank account balance was increasing, they did not actually redeem the incentive until the end of the 12-week program. Some research suggests that redeeming incentives throughout the intervention rather than saving up the balance until the end of the intervention leads to better outcomes (Krishnamurti et al., 2020). **Appendix A** discusses how to encourage spending throughout the intervention. It is unclear whether this delay lessened the effect of the reinforcers. This issue could also be reflective of the individuals' financial circumstances such that those in greater need of financial support (e.g., who need money to buy groceries) were more likely to frequently redeem gift cards throughout the program.

PRIZES

In a prize CM system, clients draw from physical or digital prize bowl each time they exhibit the target behaviour (Petry, 2012). Each draw is associated with the chance to win prizes of varying monetary magnitudes. Typically, there are 500 slips in the prize bowl, half of which have varying monetary amounts, the other half are positive affirmations or slips stating, "Good job!" that do not have a monetary amount. Among the 50% of slips with monetary value, prizes range from small ($1), medium ($5), large ($20), and jumbo ($100). The largest proportion of the slips are small prizes (e.g., 40%), and a lower percentage are for the larger prizes. Typically, there is only one jumbo prize slip, meaning there is a 1 in 500 chance of drawing that slip. Thus, the chance of winning a prize is inversely related to the magnitude of the prize. It is recommended to set a maximum number of draws per day or week to mitigate costs.

Similar to the use of vouchers, prize draws can escalate following each consecutive instance of a target behaviour (Petry, 2012), and bonuses can be added on a weekly basis. Also like vouchers, draws typically reset back to baseline (e.g., 1 draw) when the target behaviour does not occur. Treatment providers should offer clients a reminder slip reiterating the draws they received for meeting their target behaviour, as well as a reminder of the number of draws they will receive at the next instance of meeting their target behaviour.

The prize method offers a reduced cost relative to vouchers because clients do not receive a tangible monetary reward for each occurrence of a target behaviour (Petry, 2012). This is because the use of positive affirmations make up 50% of the slips. With the escalating component, the cost is reduced without diminishing the efficacy of the incentives. Some treatment providers may worry about the client's reaction to drawing a non-monetary slip (Cowie & Hodgins, 2022). However, if the slip ratios are correct, clients will typically pull a slip worth monetary value by their second or third instance of the target behaviour. Concerns are usually subdued once the client experiences pulling a monetary amount.

EXAMPLES OF PRIZES:

SMALL:
- Items from a dollar store (e.g., kitchen utensils, small food storage containers, art supplies).
- $1-2 gift certificates for fast food
- Snack or drink items

MEDIUM:
- $5 fast food or coffee gift cards
- Socks
- Bus Tickets
- Toiletries (e.g. deodorant)
- Aesthetics/Make-up (e.g., nail polish)

LARGE:
- Restaurant gift card, movie gift card, grocery gift card
- Clothing
- Electronic Devices
- Bus Ticket booklets (multiple tickets)

JUMBO:
- Microwave
- Television

AN EXAMPLE OF A PRIZE SLIP AND A REMINDER FROM PROJECT ENGAGE:

THE PRIZE CABINET:

The prize method requires having a lockable cabinet for all the prizes and the prize bowl (Petry, 2012). Based on the physical size of the items, you can estimate the cabinet space that is required. When not in use, the prizes and the prize bowl should be placed in the cabinet and be securely locked to avoid tampering.

PRIZE INVENTORY AND RELEASE FORMS:

Prize inventory documents (see Appendix C) should be used to monitor the available prize inventory (i.e., what prizes are left vs. what prizes have been redeemed).

Further, clients should sign a release form whenever they redeem a prize so that there is documentation proving they received the prize.

PROS AND CONS TO PRIZES

PROS:

- Cost reduced
- Substantial empirical evidence
- Still valuable to clients-can ensure there is a prize everyone would want
- Morale — The prize method in group settings can be very encouraging to clients when they see others winning prizes.

CONS:

- Still requires significant funds
- Concerns regarding those with gambling disorders have been described (Petry, 2012), clients in CM do not risk anything of value. Nonetheless, it follows the principles of intermittent reinforcement similar to that of gambling. Therefore, more research needs to be done on the effects of CM on those with gambling concerns, and clients with gambling problems should not be involved in prize-based CM (Petry, 2012).

PHYSICAL VS VIRTUAL PRIZE BOWL:

There are differing considerations when delivering the prize method with a physical bowl

FOR A PHYSICAL BOWL (PETRY, 2012; ETHIER ET AL., 2020):

- Should be large enough that you can fit your fist in.
- Opaque is best.
- The prize slips should be carefully counted to ensure the ratios are correct.
- CM staff should closely monitor clients as they draw from the bowl to ensure there is no cheating (e.g., get them to roll up their sleeves when drawing).
- Slips should be returned to the bowl after every draw and the bowl shaken to mix-up the slips.
- The bowl should be locked away when not in use.

FOR A VIRTUAL BOWL:

- A virtual prize bowl may need to be developed independently or through a survey platform by an IT professional. The PRISE Project developed their prize bowl with the help of an IT professional through the Qualtrics XM survey platform.
- Due to the nature of probability, it is important to do multiple tests with a decent sample size of draws from the virtual prize bowl to ensure the ratios were programmed correctly. For example, draw from the bowl 50 to 100 times and track the outcomes (e.g., how many $1, $5, $20, and $100 prizes).

HYBRID INCENTIVE SYSTEMS

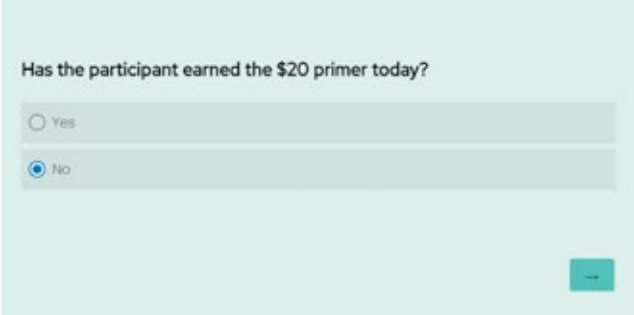
Any combination of clinic privileges, vouchers, and prizes can be used to address practical and financial needs for a CM program.

THE PRISE PROJECT'S HYBRID VOUCHER/PRIZE APPROACH:

The PRISE Project used a combination of the voucher and prize methods. Participants received weekly escalating draws from a virtual prize bowl, or "fishbowl," each time they attended their treatment. If participants attended three or more treatment sessions in a week, they received a bonus draw. The maximum amount of draws per week were 14 (15 if they received a bonus). Half of the draw slips reflected monetary amounts ranging from $1 to $100, with the other half being positive affirmations (e.g., "Change provides me an opportunity"). Participants accumulated their draw money in a study bank account and redeemed their earnings in the form of a gift card(s) of their choosing. These gift cards consisted of mostly goods (e.g., Superstore, Bath and Body Works) in addition to some services (e.g., Uber). Thus, the PRISE Project included elements of the prize method by administering draws of both positive affirmations and monetary amounts. Further, it integrated the voucher method by allowing clients to accumulate their earnings and exchange their draw money for various goods and services. This allowed for cost savings because of intermittent reinforcement while also ensuring an empirically effective approach that provided clients with an array of incentive options.

Below are screenshots from the virtual prize draw which participants proceeded through when completing their draw during the PRISE Project

Step 1 — Enter whether the participant has earned their primer. This added the primer amount to the study bank account balance.

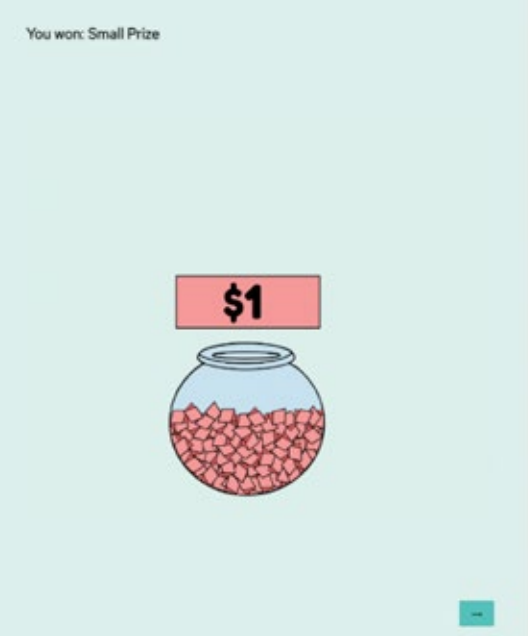


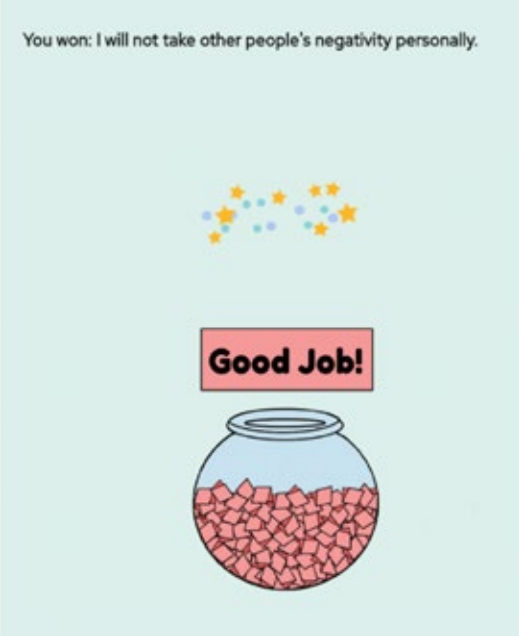
Step 2 — An illustration of the "fishbowl"

Step 3 – Summary of incentives earned throughout the program

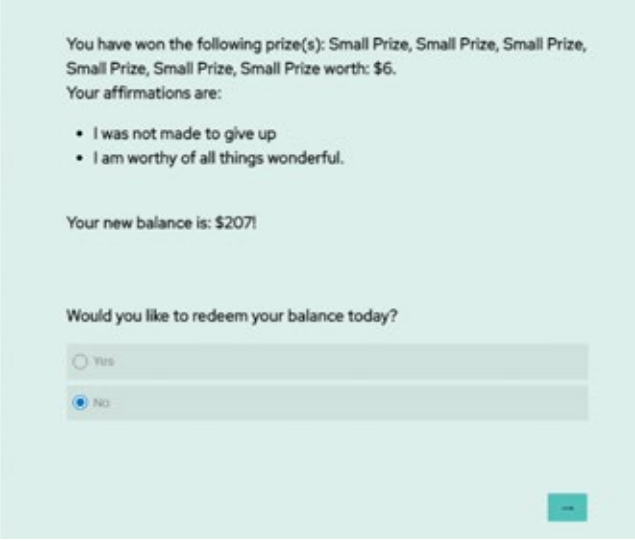
Step 4 – Entering the number of draws earned

Step 5 – The draw animation: An example of a monetary slip and a positive affirmation





Step 6 – A summary of the draw results for a draw session and the client's overall study bank account balance



OTHER INCENTIVE APPROACHES

NAME-IN-THE-HAT PRIZE CM FOR GROUP ATTENDANCE

Most CM incentive types incentivize on an individual basis as opposed to being solely based on group behaviour. The "Name-in-the-Hat" variation of the prize method operates like a door prize draw for reinforcing group attendance (Petry, 2012). Specifically, clients earn an opportunity to draw from a prize bowl to receive an incentive, should their name be drawn from the "hat." Each time a client attends group, their name is placed in the "hat." Clients can increase the number of times their name is placed in the "hat" with consecutive instances of attendance. This increases the client's chances of getting to draw from the prize bowl and ultimately earning an incentive. This is because the more group therapy sessions a client attends consecutively, the more slips they have in the "hat," and the greater their chance of having their name drawn from the "hat" to earn a draw from the prize bowl. There are typically a maximum number of allotted draws from the "hat" for each client per group session. Petry (2012) recommends basing this decision on both the resources of the clinic and ensuring clients feel incentivized to attend. At a minimum, Petry (2012) suggests that one should draw the number of slips from the "hat" that equate to half of the number of individuals who attended the group.

For example, if 20 individuals attended the group, 10 slips would be drawn from the hat. Should eight people attend, only four slips are drawn that session (Petry, 2012). In this sense, both the in dividual's behaviour and the group's behaviour are being incentivized. Everyone whose name is drawn from the "hat" is able to draw from the prize bowl to win a prize; clients can draw a slip from the prize bowl based on the number of times their name was drawn from the "hat." The prize bowl contains a smaller number of slips than described in the prize CM system (e.g., 100; Petry, 2012). In addition, each slip in the prize bowl contains a prize of value; there are no slips with no prize value. The ratio of prize slips described by Petry (2012) include the following: 69 small ($1), 20 medium ($5), 10 large ($20), and one jumbo ($100).

The primary benefit of the Name-in-the-Hat is the significantly reduced cost. The lower number of draws can be offset by increasing the ratio of medium and large prizes. This approach appears to be especially effective in group settings where clients can observe other clients receiving larger magnitude prizes. Like the regular prize method, the issue of gambling disorder needs to be considered because of intermittent reinforcement involved in the Name-in-the-Hat method (Petry, 2012).

COPAYMENTS

The copayment approach is like the Name-in-the-Hat approach in that those in group therapy draw their names from the "hat" to win prizes (Petry, 2012). What is different in this approach is that only one name is drawn in each treatment session. Clients contribute to a weekly copay from their personal funds (e.g., $10), which goes into an overall pot of funds. Clients tend to encourage others to attend the group as this increases the overall amount available to win. The clinic does not incur any costs using this approach, although it may be less attractive to those with less financial resources. The primary disadvantage is that only one person wins in each treatment session.

DEPOSITS

In the deposit approach, clients provide a deposit at the beginning of treatment and gradually get their deposit back as they demonstrate their target behavioural change in treatment. The advantage to this approach is that it does not cost the clinic. However, it has a similar disadvantage to the copayment approach, such that using the deposit system may be unattractive for those with limited finances.

USE OF CASH

Cash has been used as an effective incentive in CM programs (Drebing et al., 2007). The clear advantage to using cash is that it is a highly desirable and practical incentive. As opposed to having a pre-determined set of items to choose from, clients have the freedom to spend their earnings where appropriate, such as meeting other basic needs that cannot be itemized (e.g., rent). Additionally, cash is easier to implement compared to vouchers and prizes, which both require shopping time for the staff providing CM. The primary downside is that clients could use the cash to engage in nonadherent treatment behaviours such as purchasing drugs. This behaviour, while possible, is quite uncommon (Rothfleisch et al., 1999). Regardless, this ethical dilemma should be considered prior to implementing a CM program with cash incentives.

SOCIAL INCENTIVES

Social reinforcers like, "You're doing great!" can be helpful in encouraging positive behavioural change (Petry, 2012, p. 117). We recommend always including social reinforcers beyond the available tangible incentives because contributing towards an overall positive and nurturing environment is important. Moreover, social reinforcers are free! It is also possible to develop a CM program using only social reinforcers. However, it is important to generate creative ways to socially reinforce clients so that they do not become satiated with similar types of social feedback. The evident benefit to this approach is the reduced cost. The downside is the lack of empirical evidence relative to montary and more tangible rewards (Petry, 2012).

INTRODUCING CLIENTS TO INCENTIVE SCHEDULES & RULES

Clients must have a clear understanding of incentive schedules and rules before starting treatment to maximize the impact of CM. This understanding facilitates and strengthens the association between the target behaviour and the incentive. It is helpful to provide them with materials describing the incentive schedules and rules, and then having a discussion with them to ensure their comprehension. Ultimately, clients should know the amount and the frequency of incentives they can receive when the client consistently demonstrates a target behaviour. Furthermore, clients must know how the delivery of incentives are affected when the target behaviour is not demonstrated (e.g., not receiving draws that week and/or resetting back to one prize draw or back to the minimum voucher amount). It is our feeling that if the incentive schedule seems overcomplicated for those responsible for delivering CM, then it will likely be overcomplicated for those receiving CM as well.

The PRISE Project provided participants with a document explaining the rules of the study group they were part of, either CM + treatment as usual (TAU) or just TAU. The document on the following page was derived from Petry (2012, p. 199).

I am in the contingency management group. What does that mean?

- Contingency Management is a program that provides the chance to win a prize based on meeting a weekly goal.
- If you meet your weekly goal, you will be able to draw from a virtual prize bowl with a 50% chance of winning a prize that is either small ($1), medium ($5), large ($20), or jumbo ($100).
- After each draw, the amount you earn will be added to your study "bank account." Your earnings can be redeemed for gift cards from an approved list of vendors.

What do I need to do?

- Your weekly goal is to attend the treatments you and your counsellor discussed.
- Each week you meet this goal, you get to draw for a prize during your study visits.
- If you do not meet your goal, you do not get to draw for a prize your study visit.
- To determine attendance, we go by the results of the attendance record in your clinic.
- We ask that you visit the study staff at least weekly to complete questionnaires and receive contingency management.

Can I get more than one draw?

- Yes.
- If you attend your first scheduled treatment session, you get to draw ONE slip. If you attend two treatment sessions in a row, you get to draw TWO slips.
- You receive a draw slip for each instance of an attended session. Plus…
- You will also receive a bonus draw when you have three or more scheduled session and attend every scheduled session that week.
- The number of draws you can receive will continue to increase.
- The maximum number of draws you can achieve is 14 in one week (or 15 with a bonus). You will continue to receive 14 draws if you continue to attend all of your scheduled sessions.

What if I don't attend my scheduled treatments?

- If you do not have an approved absence, you will not receive a draw that week and your number of draws will reset to ONE.
- For example, if you were up to THREE draws and did not attend your treatments and did not have an approved absence, you would not get the chance to draw from the prize bowl and your draw slip amount will reset to ONE.
- The next time you attend your treatments, you would only earn ONE draw.
- If you have an approved absence, you will not receive draws for that week but the number of draws you earned will remain the same.
- For example, if you were up to THREE draws and had an approved absence, you would not get the chance to draw from the prize bowl that week. However, the next time you attend, your draw amount would still be THREE.

What if I can't make it one week?

- We understand that things come up.
- If you cannot attend your scheduled session, you must notify us about the absence by emailing or calling the study staff.
- We will try to reschedule your study session as soon as possible.

AN EXAMPLE OF TWO TYPES OF INCENTIVE SCHEDULES FROM THE PRISE PROJECT:

FIRST EXAMPLE (SEE CHART BELOW):

This first example illustrates a client who has one treatment per week on Monday, which is also the draw day.

WEEK OF INTERVENTION	M*	T	W	TH	F	BONUS FOR ATTENDING ALL SESSIONS	TOTAL WEEKLY DRAWS
	Number of draws						
WEEK 1	1					NO BONUS	1
WEEK 2	2					NO BONUS	2
WEEK 3	3					NO BONUS	3
WEEK 4	4					NO BONUS	4
WEEK 5	5					NO BONUS	5
WEEK 6	6					NO BONUS	6
WEEK 7	7					NO BONUS	7
WEEK 8	8					NO BONUS	8
WEEK 9	9					NO BONUS	9
WEEK 10	10					NO BONUS	10
WEEK 11	11					NO BONUS	11
WEEK 12	12					NO BONUS	12

SECOND EXAMPLE (SEE CHART BELOW):

Treatment Schedule: One treatment session on Monday, Wednesday, and Friday.

A draw is earned for each occurrence of attended treatment on Monday, Wednesday, and Friday, with draw days happening on Monday and Friday. **The draws escalate by 1 for each attended session.** For example, in **Week 1** the participant gets **1** draw on Monday for attending one session, and on Friday the draws escalate by 2 for attending one session on Wednesday and one on Friday, equaling **3** draws. Additionally, the participant gets 1 **bonus** draw for attending 3 or more sessions in a week for a total of **5 draws in Week 1**. Bonuses, in this case, do not count towards escalation. Notice how in Week 2 that the Monday draws start at 4 (i.e., escalating from 3 in Week 1 to 4 on Monday of Week 2 for attending Monday's session) rather than 5 since the bonus from Week 1 was not included in the escalation.

For this CM program, the maximum number of draws per week was set at 14, or 15 in the case of a bonus. Notice in **Week 3** how the weekly draws reached the maximum. As a result, the draws were evenly split between the two draw days (i.e., 7 on Monday and 7 on Friday, plus 1 bonus). Without the maximum, the participant would have received 7 draws on Monday and 9 + 1 bonus draws on Friday for a total of 17 draws.

Reminder: Although not required, setting a maximum number of weekly draws is a way to mitigate costs.

WEEK OF INTERVENTION	M*	T	W	TH	F*	BONUS FOR ATTENDING 3+ SESSIONS	TOTAL WEEKLY DRAWS
	Number of draws						
WEEK 1	1		attended		3+1	1	5
WEEK 2	4		attended		6+1	1	11
WEEK 3	7		attended		7+1	1	15 (MAX)
WEEK 4	7		attended		7+1	1	15
WEEK 5	7		attended		7+1	1	15
WEEK 6	7		attended		7+1	1	15
WEEK 7	7		attended		7+1	1	15
WEEK 8	7		attended		7+1	1	15
WEEK 9	7		attended		7+1	1	15
WEEK 10	7		attended		7+1	1	15
WEEK 11	7		attended		7+1	1	15
WEEK 12	7		attended		7+1	1	15

PROVIDING INCENTIVES TO CLIENTS

CM programs need to be designed to fit well with the existing program structure and climate. They also need to be practical and intuitive to clients and the staff providing CM. It is important to incorporate behavioural principles in any CM program to ensure success at providing incentives to maximize the impact CM has in changing behaviour. This section of the manual will discuss some of the behavioural-principles to consider when utilizing CM.

IMMEDIACY

The less delay there is between the occurrence of a target behaviour and its reinforcing consequence, the better the learning outcome will be (Ferster & Skinner, 1957; Petry, 2012). Thus, as a general guideline, the incentive should be delivered to the client immediately following their demonstration of the target behaviour. If this is not practically feasible in some instances, at the very least, the reinforcer should be delivered within 24 to 48 hours of the target behaviour (Kellogg et al., 2007). One hundred percent of studies that were considered high quality and included in Pfund et al.'s (2022) meta-analysis examining the efficacy of CM for treatment attendance prioritized immediacy. Therefore, immediacy should be considered a requirement rather than an option.

Given the importance of immediacy, incentives schedules should be constructed around how frequent the target behaviour occurs, and how available the treatment provider (or dedicated CM staff) and the client are for the delivery of the incentive. For example, in-person abstinent-based incentives are straightforward to deliver immediately because the client is present at the clinic and the urine test happens in-house. Conversely, programs that incentivize attendance or other behaviours where CM delivery cannot happen immediately after treatment or after the occurrence of target behaviour may experience delays with delivering the incentive.

The PRISE Project experienced these delays because of waiting for attendance reports and setting up separate study visit on top of the participant's treatment sessions. Keeping in mind, however, the CM research staff were not the ones delivering treatment, which added an extra step to the reinforcement process (i.e., CM research staff had to schedule separate study visits to deliver CM).

ESCALATION AND RESETS (OPTIONAL, BUT RECOMMENDED)

Studies that demonstrate strong CM efficacy tend to use escalation and reset features (Pfund et al., 2022). Even though Petry (2012) considers escalation and resets essential components of the voucher and prize methods, they are not present in all CM protocols.

Escalating incentive schedules are when the amount of vouchers or number of draws increase as a result of continued demonstration of a target behaviour (Petry, 2012). Resets happen when the target behaviour does not occur (Petry, 2012). The reset should not be viewed as a punishment, but rather a form of negative reinforcement that is essential in continuing to strengthen the relationship between the incentive and desired behaviour. The parameters around what constitutes a reset relative to the target behaviour should be carefully considered. If incentivizing attendance, for example, what constitutes an excused absence must be clearly defined based on clinic rules (refer to Target Behaviour section).

Many studies that compare escalating versus fixed incentive schedules demonstrate that escalating incentives lead to better outcomes (i.e., longer duration of abstinence; Romanowich & Lamb, 2015; Roll et al., 1996; Roll & Higgins, 2000; Roll et al., 2006). Interestingly, escalating incentives were more effective even when the magnitude (i.e., monetary value) of the fixed incentives were higher. Fewer studies have demonstrated no difference between escalating and fixed incentive schedules (Hutchinson et al., 2012; Tuten et al., 2012). Although mixed, the literature appears to be tilted in favor of using escalating incentive schedules.

The rationale for increasing voucher amounts and prize draws is that the client will not be as incentivized to demonstrate a target behaviour if the client is receiving the same thing every week. For example, a client may be less likely to attend a treatment on any given week if they are able to get the same-voucher amount in the next week they decide to attend. Conversely, if their voucher amounts increase on a weekly basis, they will be less likely to skip treatment if they have to start the next week back at the minimum voucher amount (e.g., resetting back to a $1.50 voucher after progressing up to $10).

Ways to reduce the cost of escalation include setting a maximum number of daily or weekly draws, as well as escalating in smaller increments. How the draw or voucher amounts escalate should be well-defined for the client and treatment provider.

Ultimately, the escalation and resets should be intuitive to the client in order to strengthen the relationship between the target behaviour and incentives. In other words, clients should know exactly what they need to do to continue progressing through treatment and the CM program.

PRIMING AND BONUSES (OPTIONAL)

Priming is an optional technique that can be applied in CM programs. Primers are tangible incentives provided to clients usually at the beginning of their CM program (Petry, 2012). These primers are offered even when clients have not yet exhibited the target behaviour. The purpose of a primer is to ensure clients become familiar with the incentive and its value.

EXAMPLE: A primer in the form of a gift card can be provided to a client for showing up and providing a urine sample regardless of the test result. Likewise, in the PRISE Project, participants were given a $20 gift card of their choosing the first time that they attended two consecutive sessions in a row (Petry et al., 2005). The amount of the primer was typically larger than participants would earn in their prize draws in the first couple weeks of the program and allowed them to experience receiving an incentive for attending treatment.

Bonuses, which are also optional, can be used to encourage exceptional performance that exceed the basic requirements that are defined by the target behaviours.

EXAMPLE: The minimum requirement to receive draws in The PRISE Project was to attend one treatment session a week. However, if the participant attended three or more treatment sessions in a week, they received one bonus draw.

The following is an example of how to deliver the prize draws in a group setting from one of the manuals from Project Engage (Ethier et al., 2020):

- "First up is Susan! Let's give a round of applause for Susan!" ***Clap***
- "Okay (Susan), because you attended group ***(last week/twice in a row)*** you get to draw ***(ONE/TWO)*** slip(s)"
- "I will get you to roll up your sleeves." (if applicable)
    - ***Mix up slips***
- "Good Luck!"
- ***If they win a prize:***
    - "Congratulations! You can choose any prize from the (small, large, jumbo) prize desk/cupboard. And don't forget that if you attend group next week, you will get (TWO/THREE) prize slips, increasing your chances of winning!"
- ***If they <u>don't</u> win a prize***:
    - "Oh no! I'm sorry. The good news is if you attend group next week, you will get (TWO/THREE) prize slips, increasing you chances of winning!"
- "Here is a reminder for next week's group." ***Give prize reminder slip.***
- "If you miss group without an approved absence, and the next week you attend group your draw slips will reset to ONE draw."
- "You must let me know you will not be attending group before it starts and you must have a valid reason like illness or appointment."
- To everyone: "Thank you for attending group this evening!"
- "If you did not sign in at the beginning of group, please do so before leaving. Have a good evening and we look forward to seeing you next Thursday at _____"

OUTCOME MONITORING

In theory, adherence to the aforementioned principles and recommendations should effectively change a client's behaviour. However, administration of CM will not always happen as intended.

Following the discussed principles and recommendations ought to effectively change client behaviour. However, administration of CM will not always happen as intended. It is important to remember the three main tenets of CM. The closer a CM program adheres to these principles, the more effective your CM program will be.

THREE PRINCIPLES OF CONTINGENCY MANAGEMENT

1. Assess the target behaviour often
2. Reinforce the target behaviour every time the client engages in the behaviour and as quickly as possible after it occurs
3. Do not provide the incentive when the client does not engage in the target behaviour

Factors that may hinder the fidelity of CM administration are lack of experience, poor planning and oversight, and unexpected complications. This section discusses methods of monitoring outcomes that avoid or mitigate these problematic factors.

A possible barrier to outcome monitoring is when the client does not show up to their CM appointment (Petry, 2012). In some instances, clients may not attend their CM appointments due to non-adherence to their target behaviour. For example, a client who has used methamphetamines recently may not attend their CM appointment incentivizing methamphetamine abstinence due to their recent use. This presents as a barrier to outcome monitoring as other outcomes cannot be assessed due to their absence (e.g., other substance use, quality of life). Clients may also not attend their CM appointment when the target-behaviour and the delivery of the incentive happen at separate times.

EXAMPLE:

Should a client have to wait 15 minutes to receive their incentive (e.g., the treatment provider is with another client), the client may weigh their reward against the time they have to wait (Petry, 2012). If the incentive they are receiving that day is of lower value (e.g., $2.50), they may decide it is not worth their time.

This highlights the importance of immediacy when delivering incentives. Thus, you may need to consider how CM clients can be seen quickly or on demand, which in some cases may entail a dedicated CM staff member. Other

solutions to this issue include regularly communicating with the client to encourage them to meet their behavioural goals. Motivation may be fostered through engaging clients in a conversation about which prizes they are working towards.

As discussed, The PRISE Project encountered this challenge because the research staff who delivered CM were not the treatment providers, meaning that the CM research staff had to schedule a separate study visit on top of the client's treatment schedule to deliver CM. The most effective strategy was to schedule the CM visit immediately after their treatment, when possible. Alternatively, scheduling the CM visits at the same times every week (given they were within 24 hours of treatment) can help facilitate the client's CM routine.

TRACKING FORMS FOR MONITORING CM ADHERENCE

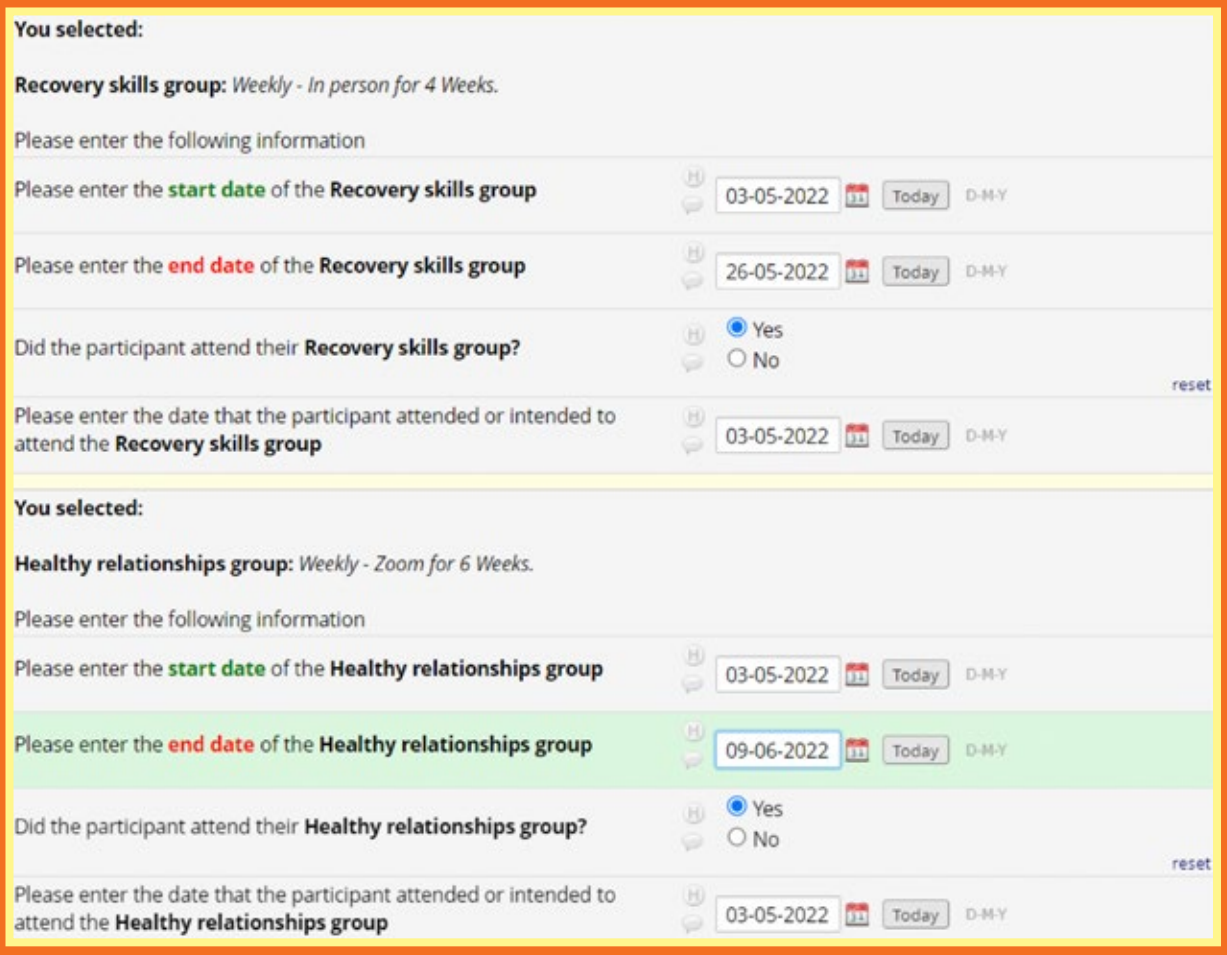
Physical and digital tracking forms can be used to monitor CM adherence. Adherence is generally monitored by tracking the occurrence of target behaviours and the number and magnitude of the delivered incentives. Tracking forms will differ based on the nature of the target behaviour. However, these forms should illustrate how well those delivering CM are adhering to the core principles of CM and the pre-determined reinforcement schedules.

TRACKING FORMS FOR TREATMENT ATTENDANCE

Tracking forms for attendance can include the following information (Petry, 2012):

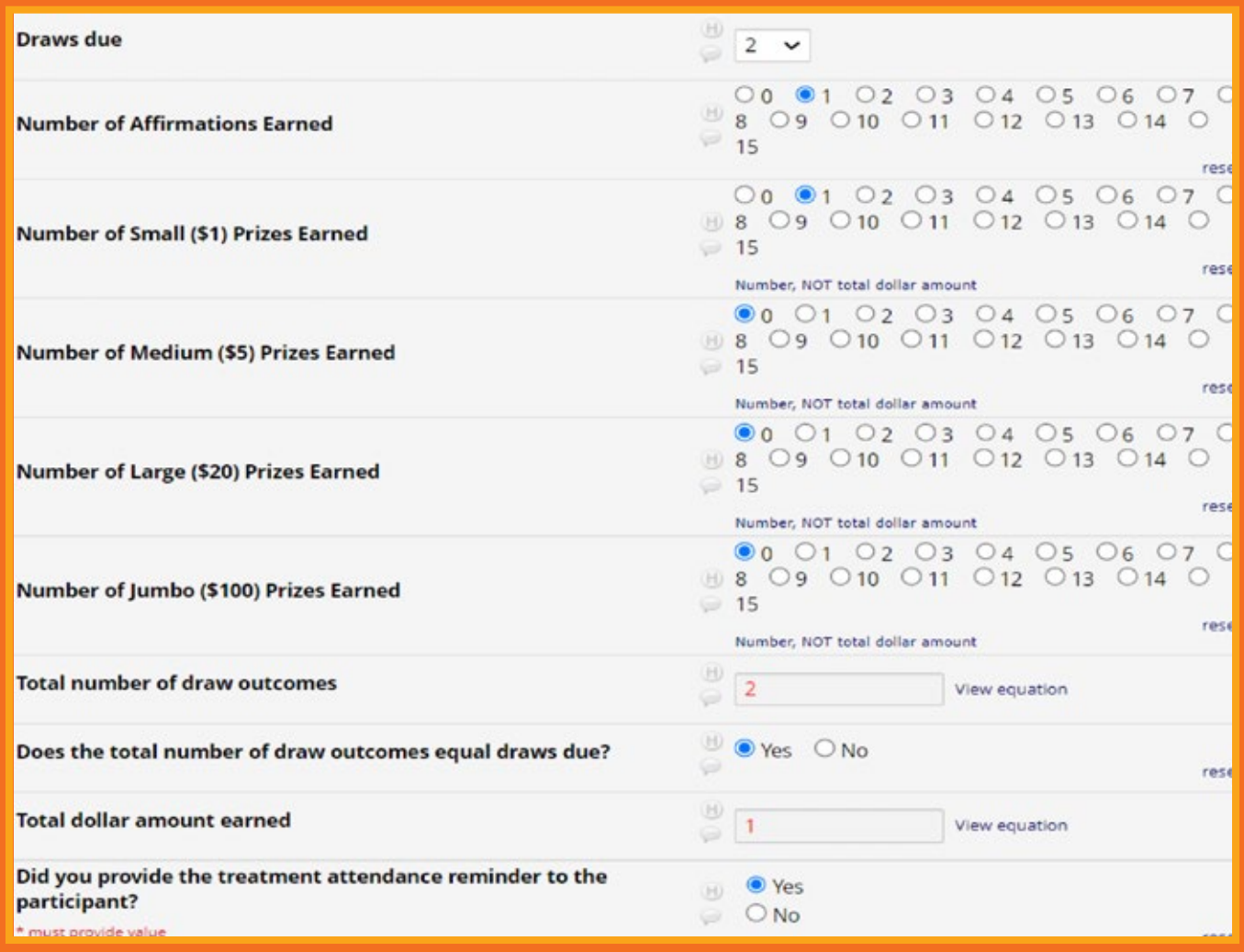
- Client's name
- Time frame being assessed
- Staff or treatment provider delivering CM
- Client's treatment schedule within the specified time frame
- The treatment sessions the client did or did not attend
- Excused absences or reasons for not attending
- The number and magnitude of the incentives earned based on attendance
- Draws to be earned in future weeks if target behaviour is met
- The client's earned or redeemed prizes
- A question asking if the client signed a form confirming they received their prize
- CM program "bank account" balance

The screenshot below is an example of an attendance section of a digital tracking form from The PRISE Project. It illustrates a client's attendance for two group treatments.



In the case that the client did not attend one of these sessions, "No" would be selected and a comment box appeared asking if there were any reasons for not attending.

Once attendance is entered, the incentives are delivered and tracked in the same form. The following screenshot is the CM delivery section from the same form above. It shows that the client received two prize voucher draws for attending two group sessions, as well as the magnitude of the draws earned and the total monetary amount. As is done by Petry (2012), the PRISE Project also included some "double checks" for CM research staff. Specifically, the CM research staff entered the number of draws that a client was due based on their adherence to the target behaviour ("Draws due"). The CM research staff also selected what incentive slips were earned from the client's prize draw ("Number of Affirmations Earned" and etc.). The "Total number of draw outcomes" was automatically calculated. This form calculated how many draws the client was given based on the incentive slips that the CM research staff chose from the five prize selections ("Number of Affirmations Earned" and etc.). The CM research staff then selected "Yes" or "No" to indicate whether the number listed under "Draws due" was the same number listed under "Total number of draw outcomes." This allowed the CM research staff to double check whether they recorded all data accurately.



TRACKING FORMS FOR ABSTINENCE

Tracking forms for abstinence include much of the same information as attendance forms with the addition of information specifically related to abstinence and urine test results. Here's what they can include (Petry, 2012):

- Client's name
- Time frame being assessed
- The staff or treatment provider delivering CM
- Whether the client attended the CM session to provide urine sample
- Excused absences or reasons for not attending
- Test result for specified substance (e.g., Methamphetamine: Absent or Present)
- The number and magnitude of the incentives earned based on attendance
- Draws to be earned in future weeks if target behaviour is met.
- The client's earned or redeemed prizes
- A question asking if the client signed a form confirming they received their prize
- CM program "bank account" balance

We encourage those implementing CM to consider any further questions or information that will be helpful for tracking adherence to CM beyond the information we have listed.

MONITORING CM COMPETENCE

Monitoring CM competency among staff responsible for CM's delivery helps ensure clients are properly engaged with the program by promoting a positive and encouraging environment with constructive feedback (see CM Adherence and Competence on pages 12 and 13). As discussed earlier, simply adhering to the protocol does not ensure effectiveness of an intervention if the protocol is not administered skillfully. Monitoring competence involves supervising CM staff and evaluating their proficiency in certain areas in real or simulated CM interactions. These evaluations may include unstructured feedback and/or rating scales that address specific competency areas based on the observed CM dialogue.

COMPETENCY FACTORS TO EVALUATE (PETRY, 2012):

- To what degree did CM staff discuss the outcomes with the client? For example, the results of urine tests or attendance reports.
- To what degree did CM staff discuss how many draws or incentives were earned?
- To what degree did CM staff discuss how many draws or incentives can be expected in the future if the positive behaviour continues?
- To what degree did CM staff assess the client's desire for available incentives?
- For abstinence, to what degree did the CM staff contrast the client's self-reported substance use with the objective test results regarding their substance use?

MORE GENERAL COMPETENCY FACTORS (PETRY, 2012, P.279):

- Skillfulness: Expertise, competence, engaging client in discussion
- Encouragement: To what degree does CM staff encourage the client, whether they are successful in demonstrating the target behaviour or not?
- Empathy: To what degree does CM staff demonstrate genuine concern, sensitivity, and a non-judgmental stance?
- Maintaining session structure: Appropriate duration, maintains session focus, appropriate tone and structure.

RESOURCES AND DETERMINING THE COSTS OF CM

The required resources for a CM program depend on the type of incentives, the target behaviour (abstinence specifically), the structure of treatment (e.g., group vs. one-on-one treatment), and which staff is responsible for delivering CM.

COSTS OF INCENTIVES

As discussed in the Types of Incentives section, the voucher method will typically cost the most, the prize method still requires significant funds but less than the voucher method, and the clinic privileges costs should be negligible. Predicting the total cost of incentives depends on the length of the CM program and the frequency of the target behaviours as outlined in the predetermined incentive schedules.

Based on these factors, the first step is understanding the maximum amount each individual client or group could earn over the span of the CM program (Petry, 2012).

EXAMPLE:

If the program is 12 weeks, and there are two opportunities per week to demonstrate the target behaviour, what would the cost of the incentives be if the client demonstrated perfect performance?

NOTE ON VOUCHER AND PRIZE METHOD

It is possible that many of the prizes and services can be purchased for less than the assigned value they have in the CM program. For example, prizes assigned a value of $100 could be purchased on sale for as low as $60. Thus, the estimated cost would be an average between $100 and $60 = $80.

Given that the client receives a voucher worth monetary value each time they demonstrate the target behaviour, estimating the cost of the voucher method is relatively straightforward if the frequency of the behaviour is clearly defined. If the maximum amount a client can earn in the program is too high, there are several modifications one can implement to decrease costs (Petry, 2012):

1. Decreased the length of CM program (e.g., 12 weeks down to 8 weeks).
2. Decrease the amount of the first voucher (e.g., if the client receives a $5 voucher on the first occurrence of the target behaviour, decrease the amount to $2.50).
3. Reduce how much the vouchers escalate by (e.g., if they increase by $2.50 at each occurrence, reduce to $1.25).
4. Set a maximum (e.g., vouchers max out once they reach $10 such that they will continue receiving $10 voucher for each instance of the target behaviour beyond that point).
5. Reduce how frequently reinforcement is provided (e.g., decreasing reinforcement from twice per week to once per week).
6. Remove bonus incentives (i.e., some programs provide bonuses when a client demonstrates perfect abstinence over a specified time frame or attends extra treatment sessions).

The choice to modify the CM program should also be grounded in the research literature. For example, longer durations of a CM program are related to improved outcomes (i.e., attendance and abstinence) compared to CM programs shorter in duration (Petry et al., 2018). In addition, more frequent reinforcement is associated with improved outcomes with respect to substance use (Griffith et al., 2000). Thus, modifying any of the aforementioned elements of CM may result in a reduction in effectiveness. Petry (2012) notes that regardless of the decision made, it is important to balance the program resources with CM principles and the ultimate effectiveness of CM.

PRIZE METHOD COSTS

Predicting costs for the prize method is slightly more complicated due to the element of probability. Here are the three needed calculations noted by Petry (2012):

Note: In this case we will assume the average cost of prizes is the actual value reflected in the prize (e.g., a prize labeled at $20 is truly worth $20). The number will change if you are able to buy the prizes on sale.

1. Identify the probability of drawing each slip amount by dividing the number of slips by the total number of slips (Petry, 2012)
   - e.g., 209 (number of $1 slips) / 500 (total number of slips) = 41.8% of drawing a $1 prize
2. Multiply the probability of drawing a slip by the average value of prize
   - e.g., 0.418 x $1 = $0.42 per draw
3. Perform steps (1) and (2) for each of the draw amounts (i.e., $5, $20, $100) and add these totals together to determine the total cost per draw
4. Multiply the total cost per draw by the maximum total number of draws possible throughout the entire CM program (e.g., maximum possible draws per week multiplied by how many weeks the program is) for a maximum cost per client

BELOW IS A TABLE SHOWING THE SLIP PROBABILITIES AND COST PER DRAW FOR THE PRIZE DRAWS USED IN PROJECT ENGAGE:

Ticket	Cost	Number of Slips	Chance (%)	Cost per draw
Affirmation	$0	250	50.0%	0.50 x 0 = $0.00
Small	$1	209	41.8%	0.418 x 1 = $0.42
Medium	$5	30	6.0%	0.06 x 5 = $0.30
Large	$20	10	2.0%	0.02 x 18 = $0.36
Jumbo	$100	1	0.2%	0.002 x 100 = $0.20
				Total cost per draw = $1.28

Many of the previously mentioned modifications that can be done for the voucher method can also be done to reduce costs for the prize method. Similar notes regarding balancing modifications with efficacy should be considered (Petry, 2012):

1. Decreased the length of CM program (e.g., 12 weeks down to 8 weeks)
2. Reduce how quickly draws escalate (e.g., escalate on a weekly basis rather than each time the behaviour occurs within the week)
3. Increase the probability of drawing smaller prizes (e.g., probability of winning a $1 prize from 30% to 45%) and decrease the probability of winning larger prizes (e.g., probability of winning a $20 from 10% to 5%)
4. Set a maximum number of draws (e.g., set the maximum number of draws to 8. Once the client reaches 8, they continue drawing 8 slips for the remainder of the program)
5. Reduce how frequently reinforcement is provided (e.g., decreasing reinforcement from twice per week to once per week)
6. Remove bonus incentives (i.e., some programs provide bonuses when a client demonstrates perfect abstinence over a specified time frame or attends extra treatment sessions)

COSTS FOR ABSTINENCE-BASED PROGRAMS

If the target behaviour is abstinence, the cost of urine tests and related supplies must be considered. This includes surgical gloves and paper or plastic bags to transport the urine cup throughout the clinic. Costs for urine te st kits can add up especially if abstinence is being monitored multiple times per week.

RESOURCES RELATED TO TREATMENT STRUCTURE, TIME, AND STAFF WORKLOAD

Beyond the actual cost of incentives and supplies, there are also required resources related to treatment structure, time, and staff workload.

RESOURCES RELATED TO STRUCTURE OF TREATMENT – GROUP VERSUS INDIVIDUAL TREATMENT SESSIONS

CM that is delivered on a one-on-one basis will be less time consuming than when it is administered to multiple individuals in a group settings. Although administering prizes in a group setting is great for encouragement and morale, it adds a significant amount of time at the end of each group session. For example, each client in CM must draw and receive their prizes, and the treatment provider administering CM must subsequently record the outcomes from each client's draw. Each of these tasks take time. The only CM approach that would mitigate the added time demands within a group context is the the name-in-the-hat method (see pg. 35) where only one individual draws each week.

Project Engage experienced significant time demands when CM was delivered in a group setting at one of the study sites. Overall, the group therapy program resulted in increased attendance with the introduction of CM. Although this is the intention of CM, the increased attendance added significant time demands for the treatment providers to administer incentives and record the outcome data. In response to these time demands, the treatment provider split the group so that there were fewer clients to administer CM to. Despite making the CM administration faster, its impact on treatment providers' workload was negligible.

Conversely, one-on-one CM delivery should not take more than 5 to 10 minutes for each client. In the case of abstinent-focused programs, it may take an additional 5 to 10 minutes for the client to provide the urine sample and for treatment provider to record the results of this sample.

RESOURCES RELATED TO WHO IS RESPONSIBLE FOR DELIVERING CM

It is important to identify which staff will be responsible for delivering CM. Will it be the same individual who provides treatment, or will it be a separate dedicated CM staff member? A dedicated CM staff is beneficial because treatment providers do not have to add to their workload to administer CM. This could be especially beneficial in group settings where a significant amount of time is required to administer CM following group. The downside of a dedicated CM staff is that it requires training a separate individual on CM and potentially creating and hiring a new position.

PARTICIPANT FEEDBACK, EXPERIENCES AND PERSPECTIVES ON CM

The following themes were identified based on anonymous feedback, surveys, and interviews from participants involved in CM programs as part of The PRISE Project and Project Engage.

MOTIVATIONAL BOOST

Many clients commented on how CM gave them an extra motivational boost to attend treatment when they had low desire or motivation to attend, or if they were feeling tired or simply "not in the mood." For example, one client reported "there were times I did not feel like going to treatment but then I thought of the fact that I would not receive draws that week if I did not attend." Several other clients surveyed had similar reflections. Thus, clients expressed a sense of increased accountability because of CM. Clients also commented on how CM encouraged them to attend treatment more frequently, which resulted in them enjoying treatment and realizing its benefits. This illustrates one of the primary purposes of CM, such that the reinforcing value of treatment itself becomes more salient than the incentives.

POSITIVE AFFIRMATIONS

The clients surveyed generally appreciated the positive affirmations in instances where they did not receive an incentive-worth a monetary amount. This highlights the importance of using varied positive affirmations rather than simply a "Good Job!" slip, which may not have the same positive impact. Thus, positive affirmations appear to contribute to a positive atmosphere even when someone is not winning monetary prizes. Some clients also thought it could be more meaningful if the positive affirmations were specifically tailored to them.

WEEKLY CM SESSIONS AND QUESTIONNAIRES

Many clients appreciated the weekly routine of meeting with CM research staff. The weekly sessions and related questionnaires helped people further reflect on their substance use and treatment progress. It may be beneficial to include brief questions related to treatment goals, self-reported substance use, and other variables such as quality of life that promote self-reflection.

DEDICATED CM STAFF

Some clients commented on how they enjoyed meeting with a dedicated

CM staff because of the relaxed and non-judgmental atmosphere. Clients expressed that they may have experienced more guilt or feelings of judgment should their treatment providers be the ones to deliver CM, especially at times where they struggled to meet treatment goals. This point is not meant to suggest that treatment providers are judgmental. Rather it illustrates that the treatment itself is more emotionally intensive and therefore clients may be more sensitive when having to report on treatment progress as it relates to the target behaviours in the CM program. Thus, treatment providers should be mindful of making the CM experience more of a lighthearted experience relative to the treatment. This highlights the importance of illustrating CM as an adjunct to treatment rather than a treatment in and of itself.

A potential downside to having a dedicated CM staff is that clients reported being less likely to attend their weekly CM visits on weeks where they did not demonstrate the target behaviour (i.e., attendance). It is important to try and communicate regularly with clients to encourage them when they are struggling to meet the target behaviour. There is little reason for clients to connect with the dedicated CM staff when CM is not being delivered. Therefore, treatment providers may be in a better position to ensure regular communication with clients in a CM program.

IN-PERSON VS VIRTUAL CM SESSIONS

When asked about in-person or virtual CM sessions, clients reported that they appreciated the convenience of virtual CM appointments because they could easily connect from their homes or while on break at work. Conversely, they also felt in-person visits were more engaging and that there was "something missing" with virtual visits. Clients also recognized that virtual visits may not be ideal for those who do not have the resources for smartphones and computers, or for individuals who are less comfortable using technology.

INCENTIVIZING ATTENDANCE VS ABSTINENCE

Clients expressed that attendance as a target behaviour was associated with less feelings of guilt or shame than an abstinence focused CM program. Clients felt less judged when reporting that they had used substances when the target behaviour was not substance use. Although many acknowledged that they could have continued to use substances while being incentivized to attend treatment, they also acknowledged that they were more likely to decrease their use or

abstain if they were regularly attending treatment. Others also commented that they would have been less likely to enroll in the CM program if it were abstinence-based, expressing that the expectation to abstain would have been overwhelming early on in treatment.

Participants also showed support for incentivizing both attendance and abstinence within the same CM program, for example, receiving extra draws for abstinence on top of the primary incentives for attendance.

INCENTIVES AND GIFTCARDS

Participants enjoyed the wide applicability of the available gift card options when the incentive in the CM program were gift cards. The variety of gift cards gave clients the freedom to purchase necessities like groceries and fuel, or, alternatively, to treat themselves to more luxurious type of goods and services like fashion goods and dine-in restaurants.

COMMON CONCERNS ABOUT CM

ETHICAL CONCERNS

There can be ethical concerns regarding providing incentives to individuals for certain behavioural goals. People may ask whether CM is a form of bribery and question the reasoning behind rewarding people for doing something they should already be engaging in (Petry, 2012). However, it is common for individuals to struggle with treatment adherence, especially early in treatment, and CM can provide a motivational boost to help the individual progress through treatment. Additionally, because CM has been shown to be efficacious, it can be viewed as unethical to withhold an effective treatment from the population (Petry, 2012).

PRIZE CM AND GAMBLING

As discussed, it is recommended that individuals with a history of gambling problems not be included in a CM program using the prize method (Petry, 2012). However, there is no evidence to suggest that an individual's involvement in a CM prize program will result in the development of pathological gambling tendencies (Petry & Alessi, 2010 as cited in Petry, 2010). Furthermore, despite the element of chance, the prize method is unlike gambling because clients do not have to risk anything (e.g., money) to be part of a CM program.

WILL CLIENTS SELL REINFORCERS TO BUY DRUGS?

In short, there is minimal evidence that clients will sell or trade their incentives for drugs (Petry, 2012). Festinger et al. (2005; as cited in Petry 2012) demonstrated that drug use is rare after clients receive incentives, even when those incentives are cash and of larger magnitudes. This concern highlights the importance of choosing incentives that are meaningful to clients. Clients work hard to earn incentives and therefore are likely to value them, making them less likely to sell or trade them for drugs. Furthermore, if the focus is abstinence, clients will not be able to earn further incentives if the targeted substance is present on their urine sample. There may be scenarios where it is suspected that a client may be selling their incentives. In this case, Petry (2012) suggests engaging the client in a discussion about the incentives that would be valuable enough for them to retain possession of.

WILL EXTERNAL REINFORCERS REDUCE INTERNAL MOTIVATION?

Recall that one of the primary purposes of CM is

for clients to realize the benefits of treatment such that the CM reinforcers become relatively less salient over time. Thus, external reinforcers can foster internal motivation over time. Client feedback has illustrated that although participants may have only gone to treatment initially because of the CM incentives, in the end, they continued to attend because of enjoyment and realizing the long-term benefits of treatment. Ledgerwood & Petry (2006; as cited in Petry, 2012) demonstrated that CM had no adverse impact on motivation to change.

WHAT HAPPENS AFTER CM ENDS?

Similar to the end of therapy, treatment providers should prepare clients for the end of a CM program. Three or four weeks before the end of the CM program, treatment providers should inform clients that the final week of CM is approaching. This gives clients the time to reflect and express any concerns about the upcoming transition. Treatment providers should reflect on their client's progress and remind them that the end of the program will not affect their treatment in any way (i.e., they can continue to go to treatment following CM). Treatment providers should also discuss what the client's treatment plan is going forward.

Fortunately, for CM attendance programs, many clients continue to attend treatment following the program. Regarding abstinence, a strong predictor of long-term abstinence is the duration of abstinence demonstrated during the CM intervention period (Petry et al., 2007). This finding suggests that since CM promotes abstinence throughout the intervention, that clients will be more likely to continue to abstain long-term following the program.

REFERENCES

Bentzley, B. S., Han, S. S., Neuner, S., Humphreys, K., Kampman, K. M., & Halpern, C. H. (2021). Comparison of treatments for cocaine use disorder among adults: A systematic review and meta-analysis. JAMA Network Open, 4(5), e218049. doi:10.1001/jamanetworkopen.2021.8049.

Bolívar, H. A., Klemperer, E. M., Coleman, S. R. M., DeSarno, M., Skelly, J.M., & Higgins, S. T. (2021). Contingency management for patients receiving medication for opioid use disorder: A systematic review and meta-analysis. JAMA Psychiatry, 78(10), 1092-1102. doi:10.1001/jamapsychiatry.2021.1969.

Cowie, M. E., & Hodgins, D. C. (2023). Contingency management in Canadian addiction treatment: Provider attitudes and use. *Journal of Studies on Alcohol and Drugs*, *84*, 89-96. https://doi.org/10.15288/jsad.22-00036

Drebing, C.E., Van Ormer, E.A., Mueller, L., Hebert, M., Penk, W., Petry, N. M., et al. (2007). Adding a contingency management intervention to vocational rehabilitation: Outcomes for dually diagnosed veterans. *Journal of Rehabilitation Research and Development*, *44*, 851-866.

Destoop, M., Docx, L., Morrens, M., & Dom, G. (2021). Meta-analysis on the effect of contingency management for patients with both psychotic disorders and substance use disorders. Journal of Clinical Medicine, 10(4), 616. doi:10.3390/jcm10040616.

Ethier, A., Cowie, M., Adams, D., Bedford, E., Brache, K., Christensen, D., … Hodgins, D. (2020). Project Engage: Interest and uptake of contingency management in Canadian addiction treatment programs. Final Report for Canadian Research Initiative in Substance Misuse – Prairie Node.

Ferster, C. B., & Skinner, B. F. (1957). *Schedules of reinforcement*. Acton, MA: Copley.

Griffith, J. D., Rowan-Szal, G. A., Roark, R. R., & Simpson, D. D. (2000). Contingency management in outpatient methadone treatment: a meta-analysis. Drug and alcohol dependence, 58(1-2), 55-66.

Finkelstein, E. A., Brown, D. S., Brown, D. R., & Buchner, D. M. (2008). A random ized study of financial incentives to increase physical activity among sedentary older adults. Preventive medicine, 47(2), 182-187.

Henderson, C., Knapp, M., Yeeles, K., Bremner, S., Eldridge, S., David, A. S., ... & Priebe, S. (2015). Cost-effectiveness of financial incentives to promote adherence to depot antipsychotic medication: Economic evaluation of a cluster-randomised controlled trial. PloS one, 10(10), e0138816.

Higgins, S. T., & Petry, N. M. (1999). Contingency management: Incentives for sobriety. Alcohol Research, 23(2), 122.

Hutchinson, M. L., Chisolm, M. S., Tuten, M., Leoutsakos, J-M.S., Jones, H. E. (2012). The efficacy of escalating reinforcement on illicit drug use in opioid-dependent pregnant women. *Addictive Disorder & Their Treatment*, 11, 150-153. doi: 10.1097/ADT.0b013e318264cf6d

Kellogg, S. H., Burns, M., Coleman, P., Stitzer, M., Wale, J. B., & Kreek, M. J. (2005). Something of value: The introduction of contingency management interventions into the New York City Health and Hospital Addiction Treatment Service. Journal of Substance Abuse Treatment, 28(1), 57-65.

Kellogg, S. H., Stitzer, M. L., Petry, N. M., & Kreek, M. J. (2007). Contingency management: Foundations and principles. Unpublished chapter.

Ledgerwood, D. M., & Petry, N. M. (2010). *Rating contingency management sessions using the Contingency Management Competence Scale*. Unpublished treatment manual. Available at http://contingencymanagement.uchc.edu/index.html

Lindsley, O. R. (1991). From technical jargon to plain English for application. Journal of Applied Behavior Analysis, 24, 449–458.

Lussier, J. P., Heil, S.H., Mongeon, J. A., Badger, G. J., & Higgins, S.T. (2006). A meta-analysis of voucher-based reinforcement therapy for substance use disorders. *Addiction*, 101, 192-203.

McDonell, M. G., Skalisky, J., Burduli, E., Foote, A., Sr., Granbois, A., Smoker, K., et al. (2021). The rewarding recovery study: a randomized controlled trial of incentives for alcohol and drug abstinence with a rural American Indian community. Addiction (Abingdon, England), 116(6), 1569–1579. doi:10.1111/add.15349.

Okafor, C. N., Stein, D. J., Dannatt, L., Ipser, J., van Nunen, L. J., Lake, M. T., et al. (2020). Contingency management treatment for methamphetamine use disorder in South Africa. Drug and Alcohol Review, 39(3), 216–222. doi:10.1111/dar.13019.

Packer, R. R., Howell, D. N., McPherson, S., & Roll, J. M. (2012). Investigating reinforcer magnitude and reinforcer delay: A contingency management

analog study. Experimental and Clinical Psychopharmacology, 20(4), 287–292. https://doi.org/10.1037/a0027802

Pedersen, M. U., Hesse, M., Thylstrup, B., Jones, S., Pedersen, M. M., & Frederiksen, K. S. (2021). Vouchers versus reminders to prevent dropout: Findings from the randomized youth drug abuse treatment project (youthDAT project). Drug and Alcohol Dependence, 218, 108363. doi:10.1016/j.drugalcdep.2020.108363.

Petry, N. M. (2012). *Contingency management for substance abuse treatment: A guide for implementing this evidence-based practice*. New York, New York: Taylor & Francis Group.

Petry, N. M., Alessi, S. M., Hanson, T., & Sierra, S. (2007). Randomized trial of contingent prizes versus vouchers in cocaine-using methadone patients. *Journal of Consulting and Clinical Psychology*, 75, 983-991.

Petry, N. M., & Alessi, S. M. (2010). Prize-based contingency management is efficacious in cocaine-abusing patients with and without recent gambling participation. *Journal of Substance Abuse Treatment*, 29, 282-288.

Petry, N. M., Alessi, S. M., Rash, C. J., Barry, D., & Carroll, K. M. (2018). A randomized of contingency management reinforcing attendance at treatment: Do duration and timing of reinforcement matter? *Journal of Consulting and Clinical Psychology*, 86, 799-809. doi: 10.1037/ccp0000330

Petry, N. M., Peirce, J. M., Stitzer, M. L., Blaine, J., Roll, J. M., Cohen, A., et al. (2005). Effect of prize-based incentives on outcomes in stimulant abusers in outpatient psychosocial treatment programs: a national drug abuse treatment clinical trials network study. Archives of General Psychiatry, 62(10), 1148–1156. doi:10.1001/archpsyc.62.10.1148.

Rothfleisch, J., Elk, R., Rhoades, H., & Schmitz, J. (1999). Use of monetary reinforcers by cocaine-dependent outpatients. Journal of Substance Abuse Treatment, 17(3), 229-236.

Sorensen, J. L., Haug, N. A., Delucchi, K. L., Gruber, V., Kletter, E., & Batki, S. L. (2007) Voucher reinforcement improves medication adherence in HIV-positive methadone patients: A randomized trial. *Drug and Alcohol Dependence*, *88*, 54-63.

Stitzer, & Petry, N. (2006). Contingency management for treatment of substance abuse. Annual Review of Clinical Psychology, 2(1), 411–434. https://doi.org/10.1146/annurev.clinpsy.2.022305.095219

Romanowich, P., & Lamb, R. J. (2015). The effects of fixed versus escalating reinforcement schedules on smoking abstinence. *Journal of Applied Behavior Analysis*, *48*, 25-37.

Roll, J. M., & Higgins, S. T., (2000). A within-subject comparison of three different schedules of reinforcement of drug abstinence using cigarette smoking as an exemplar. *Drug and Alcohol Dependence*, *58*, 103-109.

Roll, J. M., Higgins, S. T., & Badger, G. J. (1996). An experimental comparison of three different schedules of reinforcement of drug abstinence using cigarette smoking as an exemplar. *Journal of Applied Behavioral Analysis*, *29*, 495-505.

Roll, J. M., Petry, N. M., Stitzer, M. L., Brecht, M. L., Pierce, J. M., McCann, M. J., et al. (2006). Contingency management for the treatment of metham phetamine use disorders. *American Journal of Psychiatry, 163*, 1993-1999.

Tuten, M., Svikis, D. S., Keyser-Marcus, L., O'Grady, K. E., & Jones, H. E. (2012). Lessons learned from a randomized trial of fixed and escalating contingency management schedules in opioid-dependent pregnant women. *American Journal of Drug and Alcohol Abuse*, *38*, 286-92.

Wilson, S. M., Newins, A. R., Medenblik, A. M., Kimbrel, N. A., Dedert, E. A., Hicks, T. A., et al. (2018). Contingency management versus psychotherapy for prenatal smoking cessation: A meta-analysis of randomized controlled trials. Women's Health Issues, 28(6), 514–523. doi:10.1016/j.whi.2018.05.002.

Wong, Jones, H. E., & Stitzer, M. L. (2003). Community Reinforcement Approach and Contingency Management Interventions for Substance Abuse. In Handbook of Motivational Counseling (pp. 421–437). John Wiley & Sons, Ltd. https://doi.org/10.1002/9780470713129.ch22

APPENDIX A

Ways to encourage participants when receiving draws, redeeming prizes, and missed appointments

ENCOURAGING PARTICIPANTS TO REDEEM

There is some research to suggest that CM participants who spend their banked earning (rather than save them) have better treatment outcomes (Krishnamurti et al., 2020). Therefore, some tips to increase spending could include using the following at each session:

- Reiterate that they can spend their study bank account at any time.
- Discuss with the participant which gift card they are saving towards and what they plan to purchase with it. Or discuss what the amount they have earned so far could be used for.
- Ask the participant if they would like to redeem a gift card.
- Highlight which gift cards have the smallest monetary value needed to make a purchase in the Prize Catalogue.
- Link the celebration of any prize value to the gift card they are working towards. For example, "Congrats on the $20 draw, that brings your total up to $100, which is a good amount for the night out you planned to use your Boston Pizza gift card for."

Say the following (get specific, and tailor it to the participant):

- "Congrats on the $20 draw, that brings your total up to $100, which is a good amount for the night out you planned to use your Boston Pizza gift card for."
- "You mentioned working toward a gift card to Toys R Us. What are you working towards buying there?"
- "As you earn more draws, you'll increase your chances of winning those gift cards."
- "The draws will keep going up until you get to the maximum of ten. With ten draws, you will have a very good chance of winning [desired gift card]."

VALIDATING ADHERENCE AND INFORMING ABOUT DRAWS DUE AT THE NEXT SESSION

- If a participant attended their TAU, validate their adherence and encourage them to continue attending their treatments by asking some follow-up questions about what kinds of gift cards they are working towards (Petry, 2012).

Say the following (Petry, 2012, p. 216):

- "I am so glad to see you here today. I know it isn't always easy to come after a day of attending treatment."
- "What kinds of gift cards are you working towards?...Any other gift cards you would like to work toward?"
- "As you earn more draws, you'll increase your chances of winning those gift cards."
- "Are there any gift cards that you would like us to look into getting in the future?"

Draws due:

- "You earned [number of draws earned] draws today and got [chosen gift card and amount]. The next time I see you on [date of next scheduled session], you can earn [number of draws earned if behavioral goal is met] so long as you continue to attend your treatments."
- "The draws will keep going up until you get to the maximum of ten. With ten draws, you will have a very good chance of winning [desired gift card]."

WITHHOLDING INCENTIVES AND INFORMING ABOUT DRAWS DUE AT THE NEXT SESSION

- Participants who do not attend their scheduled treatments and do not have an excused absence are not able to draw from the prize bowl (Petry, 2012).
- Their draws (including possible bonuses) reset to ONE.
- Say the following to participants who did not attend their scheduled treatments. Be sensitive and compassionate. Then inquire about the gift cards they are working towards and remind them that they can achieve this with attendance.

Say the following (Petry, 2012, p. 217-218):

- "You did not attend your scheduled treatments this week. Coming back after not attending can be hard to do and is a really big step, so I think it shows good progress that you came here today."

Say the following (Petry, 2012, p. 216):

- What kinds of gift cards are you working towards?"
- "As you earn more draws, you'll increase your chances of winning those gift cards."
- "Are there any gift cards that you would like us to look into getting in the future?"

Draws due (Petry, 2012, p. 216):

- "The next time I see you on [date of next scheduled session], you can earn [number of draws earned if behavioral goal is met] so long as you continue to attend your treatments."
- "The draws will keep going up until you get to the maximum of [maximum number of draws]. With [maximum number of draws] draws, you will have a very good chance of winning [desired gift card]."

Reminder about non-attendance at the next study session

- Some CM programs may choose to reset incentives should a participant not attend their study session, despite attending their treatment. In our study, if participants do not attend their study session, their draws will pause that week and not reset.
- Remind the participant of the importance of informing you if they are unable to attend their scheduled session

Say the following (Petry, 2012, p. 216):

- "Just as a reminder, it's really important that if you can't make it on your scheduled testing day you need to let me know ahead of time."

EXPRESSING ENTHUSIASM FOR PRIZES WON AND GIFT CARDS REDEEMED

- It is important to display enthusiasm.
- Express enthusiasm when the participant has won a prize.
- Also express enthusiasm if the participant has chosen to redeem a gift card.

Say the following (Petry & Ledgerwood, 2010, p. 13):

- "That's exciting that you won a [size] prize today!
- "That's exciting that you chose to redeem [gift card] today!

APPENDIX B

Group Attendance Sheets from Project Engage

GROUP ATTENDANCE SHEET

ID Number	Name (Print)	Signature	Date

RESEARCH CM GROUP ATTENDANCE SHEET (FOR CM STAFF)

(from Ethier et al., 2020)

Client ID#: _____

Week	Date	Attended (Y/N)	Excused Absence (Y/N)	Number of Draws	Prize(s) drawn	Comments
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						

APPENDIX C

PRIZE INVENTORY DOCUMENT USED IN PROJECT ENGAGE

(Petry, 2012)

You may want to use separate forms for Small, Medium, and Large Prize inventories

Description	Cost	Date of Purchase	Date Selected	Client Initials	Date	Date	Date	Date	Problem?

INSTRUCTIONS:

1. Enter each prize on its own line. You will need to use multiple sheets.
2. All items listed on PIL should be in tcabinet.
3. Prize Release Forms should be reconciled with each item selected by client.
4. Audit Dates: To be done semi-monthly, to ensure inventory in cabinet matches Inventory Log.

APPENDIX D

	Area	Actions	How will this be verified?	S	M	A	R	T
1								
2								
3								
4								

PILOT TWO: Goal Completion – Weekly Step Plan

S = SPECIFIC M =MEASURABLE A= ATTAINABLE R= RELEVANT T = TIME-BOUND