Clinical Insights

Contingency Management for the Treatment of Stimulant Use Disorder

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The US is amid a stimulant (methamphetamine and cocaine) epidemic, with rates of use and related mortality rising sharply. Stimulants are implicated in nearly one-half of drug overdose deaths in the US.[1] In contrast to opioid use disorder, effective medications for stimulant use disorder (StUD) are lacking. Among studied behavioral interventions, such as cognitive behavioral therapy and community reinforcement approaches, contingency management (CM) has the strongest supporting evidence and is the current standard of care.[1] Numerous randomized clinical trials of CM demonstrate reductions in substance use and improved care engagement compared with standard StUD treatment approaches.[1,2] Administering CM requires no special training or certification, making it a potentially appealing intervention for primary care settings. However, lack of awareness about CM, in addition to implementation and sustainment challenges, has led to underutilization of this evidence-based treatment. This article provides clinicians with an overview of CM, summarizes evidence supporting CM, and discusses implementation practicalities and barriers to program sustainment.

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Description of CM

CM is a behavioral intervention based on principles of operant conditioning, where one provides a positive stimulus (eg, prizes or money) in close proximity to a desired behavior. CM can be conceptualized in a framework that emphasizes the target behavior, CM protocol (reinforcement schedule and delivery method), and reward type (**Box**). Reinforceable behaviors must be measured objectively and frequently. Validated target behaviors include abstinence (measured by point-of-care drug screens), clinic attendance, and medication adherence (eg, methadone dosing, administration of extended-release naltrexone).

To maximize the impact of CM, the health care team must provide tangible and desirable reinforcement as close as possible to the target behavior. Most protocols escalate the size of reinforcement for consistent behavior, while withholding and resetting the size of reinforcement if the behavior does not occur. An example protocol is the Veteran's Health Administration (VHA) abstinence-based CM protocol for StUD, which uses twice-weekly point-of-care urine drug screens over a 12-week program.[3] Patients present to the clinic twice a week, meet with a health care professional, and produce a urine sample. The sample is read immediately, and the results are shown to the patient. If the findings are negative for stimulants, the patient receives the reinforcement. With each consecutive negative screen result, the value of the incentive increases.

In most CM programs the reward is either cash or a gift card of escalating value (eg, $4, $6, $8; fixed magnitude of reinforcement) or an increased number of draws out of a raffle with variable amounts of prize options (eg, $1 to $100; variable magnitude reinforcement).

Box. Key Components to Consider When Implementing a Contingency Management (CM) Program for Stimulant Use Disorder

Target Behavior
- Identify clear, measurable goals tailored to the patient's treatment plan
- Target behavior options may include
  - Abstinence: point-of-care negative UDS results
  - Adherence: injectable buprenorphine or naltrexone and dosing of methadone
  - Attendance: presenting to the clinic visit and attending a group meeting

Reinforcement Schedule
- Select a schedule that works for the patient
- Most commonly, CM visits occur once or twice weekly for 12 wk
- Example schedules:
  - Abstinence/UDS: twice weekly
  - Methadone: daily
  - Injectable buprenorphine or naltrexone: monthly
  - Clinic visit: weekly

Delivery Method
- The closer the reward is delivered to the target behavior, the better result (ie, point-of-care UDS and face-to-face visits)
- New data have demonstrated success with mobile app and telephone-based and video-based methods

Reward Magnitude and Type
- The type of reward can be customized based on clinic needs and clinic abilities
- Cash, vouchers, and prizes are all common rewards
- Two main types of rewards:
  - Variable magnitude (eg, raffle)
  - Fixed magnitude (eg, escalating voucher)

Abbreviation: UDS, urine drug screen.

Evidence of CM in Substance Use Disorders

While CM is best supported for StUD, research supports its use for alcohol, opioid, tobacco, and cannabis use disorders. Two well-conducted meta-analyses included 23 and 38 individual randomized clinical trials with sizes ranging from 19 to 442 participants.[4,5] Both demonstrated CM to be effective in short-term and long-term abstinence (odds ratio, 1.22; 95% CI, 1.04-1.44[4]; risk ratio, 2.51; 95% CI, 1.43-4.43; 9 studies; 1303 participants[5]) from stimulant use compared with placebo or alternative treatment options (eg, cognitive behavioral therapy, community-based reinforcement approach) with a number needed to treat (NNT) between 6 and 10. CM has demonstrated positive results across numerous patient populations and cultural groups.[4-6] To our knowledge, the largest implementation effort to date was through the VHA, which demonstrated successful dissemination and efficacy: on average, patients attended more than one-half their scheduled CM visits, and 91% of patients' urine sample results were negative for their target substance.[3] Outside

of the VHA, some states, including California, Washington, and Montana, have demonstrated the ability to initiate large-scale CM implementation efforts.[2] None of the alternative approaches for StUD have had similar effectiveness to date.

Limitations of CM

Most clinical trials on CM have been conducted in specialty addiction settings, and more research is needed on implementation in diverse clinical settings (eg, primary care, rural health).[4,5] CM is most effective in short-term follow-up (NNT of 3 to 5 for abstinence), with an increased rate of return to use over time, although sustained abstinence has been demonstrated up to 1 year after CM (NNT of 12 to 20).[4]

Cost is a significant factor in initiating a CM program. Most programs outside of the VHA are short-term grant-funded endeavors. Paying for incentives and hiring staff to administer the program are costly and represent major limitations to CM's implementation. Some states have started state-funded CM programs,[2] and some insurance payers and federal agencies have begun paying for CM services. For example, the Substance Abuse and Mental Health Services Administration recently authorized incentive values up to $750 per year per patient.[7] While definitive cost-effectiveness has not yet been demonstrated,[8] these funders have proceeded to support the program given its demonstrated effectiveness for this refractory and difficult-to-manage condition.

Clinical and Practical Considerations

Logistically challenging aspects of CM involve having enough staffing support and program resources to run the program, track patients, and support point-of-care testing, which can have variable requirements depending on the health system.[2] Health systems interested in initiating CM programs can look to online resources, such as the Addiction Technology Transfer Centers website,[9] which offers guidance on protocol development, staff training, funding opportunities, and integration of CM into existing clinical workflows.[2]

Historically, uptake of CM has been slowed by legal concerns that it may violate the federal Anti-Kickback Statute, which prohibits financially rewarding referrals to health care services reimbursed by federal health care programs. Conflicting interpretation of this statute is a barrier in uptake of CM, as some have seen CM as paying patients to come in for medical services. However, the Office of Inspector General published its Final Rule in December 2020 stating that CM is not in violation of this statute and can be considered on a case-by-case basis. Disseminating this guidance to general internists may aid in adoption of CM.[2]

Conclusions

Illicit stimulant use is a rapidly emerging public health crisis with few treatment options. CM is an evidence-based, adaptable, and underused behavioral treatment. CM requires funding and staff support that may not be readily available in primary care; however, emerging evidence from state, insurance payer, and health system–run models demonstrate the feasibility of large-scale implementation. Results of these implementation efforts paired with existing randomized clinical trials demonstrating CM's effectiveness highlight its potential to help overcome the overdose crisis and improve care for people with StUD.

ARTICLE INFORMATION

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