Key Findings

Analysis of California Senate Bill 110
Substance Use Disorder: Contingency Management Services

Summary to the 2021–2022 California State Legislature, April 9, 2021

CALIFORNIA HEALTH BENEFITS REVIEW PROGRAM

SUMMARY[1]

The version of California Senate Bill 110 analyzed by CHBRP would as law, regulation, and funding allow, require the Department of Health Care Services (DHCS) to cover contingency management (CM) as an aspect of substance use disorder (SUD) treatment for Med-Cal beneficiaries.

Benefit Coverage: SUD treatment coverage is standard for Medi-Cal beneficiaries. Federal law and regulation are unclear as to whether Medicaid funds can be used for CM. This analysis assumes Medi-Cal will be able to fund CM. Affecting only the benefit coverage of Medi-Cal beneficiaries, SB 110 would not exceed essential health benefits (EHBs).

Medical Effectiveness: Evidence for SUD treatment with CM varies by SUD. For stimulants (including methamphetamine and cocaine), there is *clear and convincing* evidence that CM can increase during-treatment abstinence, and *limited* evidence that CM can increase posttreatment abstinence (3-6 months). For cannabis use disorders, there is a *preponderance* of evidence that CM can increase during-treatment abstinence, and the evidence is *inconclusive* regarding posttreatment abstinence (3-6 months). For both stimulants and cannabis, there is *clear and convincing* evidence that the effect of CM on increased abstinence does not persist beyond six months.

Cost and Health Impacts[2]: This analysis models CM for SUDs typically monitored with urinalysis: stimulants and cannabis. Both models increase proportionately: twice the participants would mean twice the costs and outcome impacts. For 1,000 participants, annual cost of stimulant use disorder treatment with CM could cost $524,000 (without CM, $345,600) and could result in 13,000 more stimulant-free days as well as participation in 2,400 more group counseling sessions. For cannabis use disorder, treatment with CM could cost $250,600 (without CM $172,800) and could result in 7,500 more cannabis-free days.

BILL SUMMARY

As law, regulation, and funding allow, Senate Bill (SB) 110 would allow the Department of Health Care Services (DHCS) to cover contingency management programs as substance use disorder (SUD) treatment for Medi-Cal beneficiaries. SB 110 would specify CM as having an incentive structure, including, but not limited to, scaling rewards for continued evidence of specified behaviors or adherence to treatment goals, that rewards participants for specified behaviors, such as negative urinalysis.

SB 110 would be relevant to the benefit coverage of all Medi-Cal beneficiaries. These beneficiaries can be enrolled in health plans regulated by the Department of Managed Care (DMHC), in County Organized Health System (COHS) managed care programs, or be primarily associated with Medi-Cal's fee-for-service (FFS) program.

As SB 110 specifies urinalysis as a behavior for which participants may be eligible for reward. Therefore, this analysis has focused on stimulant (includes methamphetamine and cocaine) and cannabis use disorder, the SUDs for which urinalysis is a more common component of treatment.

CONTEXT

SUD is a chronic, relapsing disease. CM is a behavioral treatment based on operant conditioning principles that involves providing incentives for meeting specified goals or engaging in target behaviors. CM related to SUD treatment generally involves giving patients tangible rewards such as prizes, cash, or vouchers to reinforce goal behaviors, such as abstinence, medication adherence, or greater/continued engagement with treatment. SUD services such as counseling are already a Medi-Cal covered benefit. CM is often intended as a way to improve the outcomes of these services. CM is not a benefit that directly covers a health care screening, treatment, service, or item. Rather it is an incentive, analogous to, for example, incentive payments for members participating in wellness programs to encourage healthy behaviors. The total cash value a

[1] Refer to CHBRP's full report for full citations and references.
[2] Similar cost and health impacts could be expected for the following year, though possible changes in medical science and other aspects of health make stability of impacts less certain as time goes by.

patient could receive through CM ranges widely, with a mean of $914.46 and a median of $466 earned.

CHBRP has assumed that CM for SUD treatment programs would be allowed for Medi-Cal beneficiaries (and not be limited to Medicaid's usual $75 limit on incentives).

Treatment for Substance Use Disorders

Treatments for SUD include residential, inpatient, and outpatient care using behavioral therapy, counseling, and/or prescription medication. Mutual help groups (e.g., Alcoholics Anonymous, Narcotics Anonymous) also support those with SUD to achieve and maintain sobriety. CM can be used as an adjunct to psychosocial treatments (e.g., CBT) for SUD or as a standalone behavioral treatment. Descriptions of treatments for stimulant (including methamphetamine and cocaine) and cannabis use disorder (modeled in two case studies presented in the *Benefit Coverage, Utilization, and Cost* section) follow.

Stimulants are a class of drugs that includes prescription medications to treat ADHD as well as illicit drugs such as cocaine and methamphetamine. Repeated misuse of stimulants can lead to psychological consequences, such as hostility, paranoia, psychosis, as well as physical consequences of high body temperatures, irregular heartbeats, and the potential for cardiovascular failure or seizures. In California, it is estimated that 33% of all admissions to state- and county-contracted SUD programs are for stimulant use disorders – representing nearly 50,000 admissions annually. It is estimated that there are approximately 3,035 deaths from stimulant use disorder in California each year.

Cannabis, also known as marijuana, is the most commonly used psychoactive drug in the United States, after alcohol. Acute effects of cannabis use include nausea, vomiting, and abdominal pain, while chronic impacts include cognitive impairment, pulmonary disease, and sleep disturbance. Chronic use of cannabis has been linked to psychological and physical health consequences, including increased risk for psychiatric disorders (e.g., psychosis, depression, anxiety, and other SUDs), decline in cognitive function, impairment in learning and coordination, reduced educational and workplace outcomes, and lung inflammation/chronic bronchitis. It is not clear to what extent cannabis use increases the risk of mortality related to these health consequences. It is estimated that 2,782 (7/100,000) Californians are seen in EDs and 543 (1/100,000) are hospitalized for cannabis related issues each year.

For many patients with SUD, attitudinal barriers are the most significant barrier to treatment initiation and persistence. The stigma of SUD and the ability to acknowledge an SUD affect patient desire to seek care, even more so for those who have co-occurring psychiatric conditions. Many people with SUD believe they can solve the problem themselves.

Another barrier for patients participating in treatment specifically using CM is the requirement to travel to the provider's office, sometimes up to two or three times a week. This can cause more of a burden for patients who do not have flexible schedules and those who are living in areas with a shortage of providers administering CM programs. However, when CM is administered as an adjunctive component of psychosocial treatments in the context of intensive outpatient programs (IOPs), patients are already traveling to attend therapy the required two to three times per week.

Medical Effectiveness

There is *clear and convincing*[3] evidence that CM is more effective than treatment as usual (TAU) with regard to abstinence during treatment, lower program attrition, and higher treatment adherence. There is *limited*[4] evidence that CM is effective at improving abstinence rates 3-6 months posttreatment and *clear and convincing* evidence that CM is not effective at improving abstinence maintenance rates beyond six months posttreatment. These results held true for both CM alone and in combination with other psychosocial treatments, such as group counseling. The strength of the evidence for during-treatment and posttreatment effectiveness varies by SUD:

- For cannabis use disorder, there is a *preponderance*[5] of evidence that CM increases during-treatment abstinence. Evidence is inconclusive regarding increased posttreatment (3-6 months) abstinence.

[3] *Clear and convincing* evidence indicates that there are multiple studies of a treatment and that the large majority of studies are of high quality and consistently find that the treatment is either effective or not effective.

[4] *Limited evidence* indicates that the studies have limited generalizability to the population of interest and/or the studies have a fatal flaw in research design or implementation.

[5] *Preponderance of evidence* indicates that the majority of the studies reviewed are consistent in their findings that treatment is either effective or not effective.

- For stimulant use disorder (including methamphetamines), there is a *clear and convincing* evidence that CM increases during-treatment abstinence. There is limited evidence that CM increases abstinence 3-6 months posttreatment.

There is clear and convincing evidence that CM is not effective at improving abstinence beyond six months posttreatment for both stimulants and cannabis. There is *limited* evidence that CM is not effective in impacting health care utilization associated with outcomes related to treatment for SUDs.

Since SUD is considered to be a chronic, relapsing disease, treatment effects often do not last beyond the time period in which they are applied. This is true for other behavioral treatments that are considered to be the "gold standard" such as cognitive behavioral therapy (CBT), and for medication assisted therapies (MAT) such as those including methadone and buprenorphine, if the treatment period is not sufficiently long (often one or even many years). Thus, the long-term effects of a typical 12-week CM or CM + CBT program are expected to be limited.

COST AND HEALTH IMPACTS

Currently CM services are not mentioned as a core Medi-Cal benefit. CM programs run by SUD providers may exist in California, but CHBRP is unaware of such services being reimbursed as Medi-Cal covered benefits.

SB 110 does not specify how the DHCS should implement CM for SUD. As the amount of funding that would be available, if any, is unknown, CHBRP has modeled a limited expansion — for only 1,000 beneficiaries in each of two programs — intending to provide two examples that could be expanded, depending on the amount of available funds. The cost of expansion would be roughly linear (twice as many participants would cost twice as much) although some administrative savings may be realized as the number of participants increases.

CHBRP has modeled CM as an addition to outpatient treatment for stimulant (includes methamphetamine and cocaine) and cannabis use disorders, because urinalysis is referenced by SB 110 and because urinalysis is a common aspect of treatment for these two SUDs.

The actual design of CM programs may differ materially from these hypothetical programs, but the selected pair are similar to models in current use and to models that have been evaluated in the scientific literature.

Both hypothetical models combine counseling, a benefit covered by Medi-Cal, with CM. A stand-alone CM program would be expected to have lower expenditures due to lower utilization of counseling services.

Model 1: CM and Stimulant Use Disorder Treatment

The first model is for a 12-week outpatient stimulant (including methamphetamine and cocaine) use disorder treatment program with and without CM. It has the following parameters:

- The CM program can begin at any time during the year, but each beneficiary can only participate in one 12-week CM program per year.
- Duration of the CM program addition to the SUD treatment program lasts 12 weeks for each beneficiary. The model describes total impact, but staggered enrollment could mean a provider offering CM throughout the entire year.
- The SUD treatment program includes group counseling sessions. The maximum number of outpatient counseling sessions a participant could attend during the 12 weeks of CM is 24 (2 sessions per week).
- Urine samples are collected and tested at each group counseling sessions for a maximum of 24 times during the 12 weeks of CM.
- For the first negative urine sample, participants receive a voucher for $2 (redeemable at program-selected vendors for food, toiletries, and other program-approved items). For each participant, the voucher increases $2 for each additional consecutive negative urine sample. A positive urine sample would cause the reward to revert back to $2 for the next negative urine sample.
- The maximum cash value of the CM program per participant is $600.

Based on published studies, for this model, CHBRP assumes an average of 70% attendance at group counseling sessions with CM compared to an average of 60% attendance at group counseling sessions for the SUD treatment program without CM. CHBRP assumes all participants submit urine samples twice per week. CHBRP estimates 70% of the urine samples are negative for participants with CM compared to 60% for participants without CM.

In addition to the direct costs of the CM (vouchers and administration), the model projects higher attendance for the SUD treatment program with CM services, which generates additional costs for counseling and urinalysis.

Given these parameters and assumptions, CHBRP estimates the following annual costs to offer the 12-week treatment program to 1,000 Medi-Cal beneficiaries with stimulant use disorder:

- $345,600: SUD treatment without CM
- $524,000: SUD treatment with CM

There is not sufficient evidence to project applicable cost offsets or savings (such would result from reduced emergency department visits or hospitalizations) for intermittent or continuous abstinence during a 12-week SUD program.

Similarly, as there is not sufficient evidence to project additional posttreatment or long-term abstinence, no long-term offset or savings are projected.

Model 1: Public health impacts

Methamphetamine has taken over as the leading cause of overdose deaths in California (now surpassing opioid overdose deaths).

Although abstinence may not persist posttreatment, achieving periods of abstinence is a goal of treatment. In addition, as there is no FDA-approved medication to treat stimulant use disorder, CM to improve treatment engagement and abstinence may be the best treatment option available.

For every 1,000 Medi-Cal enrollees engaged in stimulant use disorder treatment, adding CM would result in an increase in 4,320 stimulant-free urine samples (13,000 stimulant-free days) and an increase in engagement in treatment for stimulant use disorder by 2,400 group counseling sessions.

Although the quantitative impact of SB 110 on premature death associated with stimulants is unknown, it stands to reason that there could be a reduction in premature deaths due to overdose during periods of abstinence, as well an increase in productivity due to an increased ability to work for those who are abstinent.

Model 2: CM and Cannabis Use Disorder Treatment

The second model is CM added to a cannabis use disorder use disorder treatment program with and without CM. It has the following parameters:

- The CM program can begin at any time during the year, but each beneficiary can only participate in one 12-week CM program per year.
- Duration of the CM program addition to the SUD treatment program lasts 12 weeks for each beneficiary. The model describes total impact, but staggered enrollment could mean a provider offering CM throughout the entire year.
- The SUD treatment program includes group counseling sessions. The maximum number of outpatient counseling sessions during the 12 weeks of CM is 12 (1one session per week).
- Due to the longer amount of time cannabis is stored in the body and can therefore be detected in the urine, urine samples are collected and tested once per week for a maximum of 12 times during the 12 weeks of CM.
- CM rewards begin at the third group counseling session as a positive urinalysis test before the third week may be the result of cannabis use prior to the start of the program. During the program, a relapse with a larger amount of cannabis (especially edibles) may be stored in the body for a longer period of time and may therefore cause positive urinalysis in the following weeks, even if the candidate does not continue to use cannabis.
- For the first negative urine sample, participants receive a voucher for $15 redeemable at program-selected vendors for food, toiletries, and other program-approved items). For each participant the voucher increases $10 for each consecutive additional negative urinalysis; a positive urinalysis would cause the scaling reward to start at $15 again upon a negative urinalysis.
- The maximum cash value of the CM program per participant is $600.

Based on published studies, CHBRP assumes an average of 60% attendance at group counseling sessions with and without CM.

CHBRP assumes all participants submit urine samples at each group counseling session they attend. CHBRP

estimates 45% of the urine samples are negative for participants with CM compared to 30% for participants without CM.

In addition to the direct costs of the CM (vouchers and administration), the model projects greater participation for the SUD treatment program with CM services, which generates additional costs for counseling.

Given these parameters and assumptions, CHBRP estimates the following annual cost to offer the 12-week treatment program to 1,000 Medi-Cal beneficiaries with cannabis use disorder:

- $172,800: SUD treatment without CM
- $250,600: SUD treatment with CM

There is not sufficient evidence to project applicable cost offsets or savings (such would result from reduced emergency department visits or hospitalizations) for during treatment or following month's posttreatment abstinence.

Similarly, as there is not sufficient evidence to project additional posttreatment or long-term abstinence, no long-term offset or savings are projected.

Model 2: Public health impacts

In the first year postmandate, CHBRP estimates that for every 1,000 Medi-Cal enrollees engaged in cannabis use disorder treatment, adding CM to this treatment would result in an increase in 1,080 cannabis-free urine samples (7,500 cannabis-free days). It stands to reason, based on the effectiveness of CM for cannabis use disorders, there could be an increase in productivity due to an increased ability to work for those who are abstinent.

Long-Term Impacts

Some interventions in proposed mandates provide immediate measurable impacts (e.g., maternity service coverage or acute care treatments) while other interventions may take years to make a measurable impact (e.g., coverage for tobacco cessation or vaccinations). When possible, CHBRP estimates the long-term effects (beyond 12 months postmandate) to the public's health that would be attributable to the mandate. As there is no research that examines long-term (more than one year) impacts of CM for SUDs treatment on health care utilization, it is not possible to estimate the long-term health and cost impacts of SB 110.

A key barrier to abstinence for any SUD is patient interest and readiness to abstain. CHBRP anticipates the demand for treatment of SUDs would continue as relapsed patients reattempt abstinence and first-time initiators would join the pool of patients seeking care. However, limited patient readiness for SUD treatment and limited number of providers remain significant barriers to care. To the extent that SB 110 results in an increase in SUD treatment with CM, and the extent to which this leads to long-term abstinence, it is possible SB 110 would contribute to reductions in substance use–related morbidity and mortality, such as cardiovascular disease, cancer, HIV, and hepatitis C.

Essential Health Benefits and the Affordable Care Act

Because SB 110 affects only the benefit coverage of Medi-Cal beneficiaries, it would not exceed essential health benefits (EHBs).