Appendix A:

Summary of Studies (listed in chronological order)

Study # & Title	Country	Research Design	Type & Length of Treatment(s)	Sample	Outcome Variables	Findings
#1: McCaul et al. (1984). Contingency management interventions: Effects on treatment outcome during methadone detoxification.	USA	Experimental	Two experimental conditions. Contingency management (CM) vs control condition. Five weeks. Patients stabilized on 30 mg/day of methadone for the first three weeks (baseline period), followed by a gradual dose reduction in weeks four through nine (intervention period), followed by maintenance period during weeks 10 through 12.	**n=20** patients dependent on illicit opiates.	Abstinence (opiates and additional drug use), treatment retention, and symptomatology complaints.	The CM group showed a statistically significantly higher percentage of opiate-free urine specimens (80%) compared to the control group (60%) during weeks four through nine of the intervention when the methadone reduction protocol began. However, after methadone reduction had been completed and participants were only ingesting cherry syrup during weeks 10 through 12, the difference between groups was no longer significant with only 35% of screens opiate free in the CM group and 25% from the control group. Retention rates were statistically significantly higher in the experimental group, with 70% completing the detox program compared to 20% in the control group. However, the average number of days in treatment did not differ significantly between the groups.
#2: Iguchi et al. (1988). Contingency management in methadone maintenance: Effects of reinforcing and aversive consequences on illicit polydrug use.	USA	Experimental	Two experimental conditions. Combined CM group vs the single CM group. 12-week baseline and 20-week intervention. No follow-up period.	**n=16** participants with opiate use disorder.	Drug use and treatment retention.	During the intervention phase, the average percent of negative urine samples for illicit drug use in any two-week period ranged from 35% to 65%, with no statistically significant difference between the combined and single CM groups. Those in the single CM group exhibited better treatment retention, with more participants completing the entire program (n = 6) than those in the combined, aversive consequences group (n = 3). The single CM group had two participants drop out due to incarceration, whereas the combined, aversive CM group had a total of five drop out of the study due to incarceration (n = 2), voluntary transfer (n = 1), and a declined transfer (n = 2).

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#3: Calsyn et al. (1994). Contingency management of urinalysis results and intensity of counselling services have an interactive impact on methadone maintenance treatment outcome.	USA	Experimental	Six experimental conditions. One of the three counseling levels (medication only, standard'' counseling, enhanced'' services) combined with either no contingencies (NC), or contingency contracting (CC). 12 months. 18- and 24-month follow-up.	**n=360** participants seeking methadone maintenance treatment and counseling.	Drug use (i.e., number of weeks positive for any substance or positive breathalyzers, number of opiate positives, number of cocaine positives) and retention in treatment.	CC was statistically significantly associated with reduced number of weeks with drug positive urine drug tests (i.e., any substance, opiate, and cocaine) and alcohol use. For opiate use alone, CC was effective in reducing opiate use only within the standard counselling condition. For cocaine use alone, higher frequency of pretreatment cocaine use was a statistically significant predictor of use during treatment. Participants assigned to CC had statistically significantly higher discharge rates compared to those in the NC group, particularly in the second six months ($p < .05$). At six months, dropout rates were similar (CC = 31%, NC = 32%), but by 12 months, CC had a higher dropout rate (CC = 76%, NC = 54%). Participants in the CC condition had statistically significantly shorter out-of-treatment periods before readmission. By 12 months, 45% of discharged CC participants were readmitted, compared to 30% of those in the NC group. Level of counselling had no statistically significant effect on discharge or readmission rates.
#4: Brooner et al. (1998). Preliminary evidence of good treatment response in antisocial drug abusers.	USA (Baltimore, MD)	Experimental	Two treatment conditions. Experimental (i.e., counseling, methadone dose, and abstinence and attendance-based CM) vs control condition (methadone dose of 55 mg). 13 weeks. No follow-up period.	**n=40** individuals with a substance use disorder in methadone substitution therapy.	Retention, methadone dose, abstinence, self-reported drug use and psychosocial functioning.	The experimental and control groups submitted a similar number of opioid-negative (9.4 vs 8.4) and cocaine-negative (9.4 vs 8.4) urine specimens, and the difference was not statistically significant. Interestingly, participants in the CM group self-reported fewer days of heroin use and more days of cocaine use at three-months, but there were no statistically significant differences between the two groups. Thirty percent of the CM group compared to the 10% of the control group (which received only methadone medication) failed to complete the 13-week treatment, with no statistically significant difference. The study also compared post-treatment routine care

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						utilization rates and found that a statistically significantly smaller proportion of participants in the CM group (14%) were therapeutically transferred to routine care compared to those who received a methadone dose only (56%).
#5: Schmitz et al. (1998). Medication take-home doses and contingency management.	USA	Experimental	Two experimental conditions. High-frequency methadone dose plus abstinence-based CM vs lower-frequency methadone dose plus abstinence-based CM. 25 weeks. Four treatment phases. Phase 1: Two-week stabilisation. Phase 2: Eight-week period with no contingencies on collateral drug use. Phase 3: 12-week period during which take-home frequency (two vs five) was contingent on drug screen results. Phase 4: Four-week period without contingencies where participants returned to condition during Phase 2. No follow-up period.	**n=32** individuals with opioid use disorder.	Abstinence, Addiction Severity Index, and treatment retention.	During the first six weeks of the CM phase of the study, the intervention group with higher frequency of take-home doses showed more drug free urines than the control group, but this difference was not maintained during the second six weeks of this phase. Overall, participants using multiple substances had poorer responses to the CM compared to those individuals with a single substance use disorder. During Phase 2 of the study, which did not include CM, participants in the low frequency take-home group showed better retention than those in the high frequency take-home group. Overall study attrition was low (15%). Most dropouts occurred between weeks three and five of the study. Retention curves did not differ significantly during the CM phase of the study.

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#6: Downey et al. (2000). Treatment of heroin-dependent poly-drug abusers with contingency management and buprenorphine maintenance.	USA (Detroit, MI)	Experimental	Two treatment conditions. Standard voucher-based reinforcement therapy (VBRT) vs yoked control (YC) condition. 12 weeks. No follow-up period.	**n=41** individuals with poly-drug use disorder enrolled in buprenorphine maintenance.	Attrition (attendance, retention) and drug use (longest continuous abstinence, total number of drug-free urines from heroin, cocaine, and poly-drug results).	There were no statistically significant differences between VBRT and YC groups on the percentage of drug-free urine samples and longest continuous abstinence during the intervention phase. However, those participants in the VBRT group who submitted at least one sample free from all drugs, achieved statistically significantly higher numbers of cocaine-negative urine drug samples compared to the control group. Interestingly, baseline cocaine and heroin use were a significant predictor of abstinence between the experimental and control group. No statistically significant difference in retention between the VBRT and the yoked control groups were detected, even though participants in the voucher group attended a mean of 43.5 visits as compared to a mean of 38.8 visits attended by the control group.
#7: Preston et al. (2000). Methadone dose increase and abstinence reinforcement for treatment of continued heroin use during methadone maintenance.	USA	Experimental	Four experimental conditions. Contingent vouchers (CV; opiate-negative UDTs) vs dose increase (methadone hydrochloride dose increase to 70 mg/d and CV) vs combined treatment (CV plus methadone dose increase) vs comparison standard (noncontingent vouchers and no methadone dose increase). 13 weeks. Five-week baseline and eight-week intervention. No follow-up period.	**n=285** individuals with either opiate or cocaine use disorder, or both.	Drug abstinence (longest duration of opiate abstinence, self-reported opiate use, self-reported opiate craving, use of cocaine and other drugs).	Abstinence among all four groups was improved during the intervention compared with baseline. Contingent vouchers statistically significantly increased the number of consecutive opiate-negative urine drug samples, and CM had an effect independent from that of the dose increase. Dose increase, but not CM, was statistically significantly associated with decreased self-reported opiate use. Contingency management and dose increase were independently and jointly associated with statistically significant reductions in cocaine use, as measured by urine drug samples. Retention was high at 93.3%. There were no significant between-group differences in retention. The dose increase group statistically significantly reduced opiate craving scores, suggesting that CM did not have an effect on craving.

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#8: Dallery et al. (2001). Voucher-based reinforcement of opiate plus cocaine abstinence in treatment-resistant methadone patients: Effects of reinforcer magnitude.	USA	Experimental	Two treatment phases. Phase 1 (low-magnitude CM condition) and Phase 2 (high-magnitude CM condition). No control condition. 13 weeks. No follow-up period.	**n=11** (Phase 1) & **n=8** (Phase 2) treatment-resistant individuals with opiate and cocaine use disorder enrolled in methadone treatment.	Abstinence.	The study found a statistically significant reduction in drug use (i.e., percentage of participants testing negative for opiates and cocaine and cocaine only but not for opiates only) over time in both low and high magnitude groups. The results from both phases revealed statistically significant trends toward greater abstinence in the high voucher condition for both drugs and cocaine only, but not for opiates only. Eight out of 11 participants who completed phase 1 (low-magnitude CM) went onto phase 2 (high-magnitude CM).
#9: Carroll et al. (2001a). Targeting behavioral therapies to enhance naltrexone treatment of opioid dependence: Efficacy of contingency management and significant other involvement.	USA (New Haven, CT)	Experimental	Three experimental conditions. Standard naltrexone treatment vs naltrexone treatment plus CM (CM) vs naltrexone treatment, CM, plus significant other involvement (CM plus SO). 12 weeks. No follow-up period.	**n=127** previously detoxified individuals with opioid use disorder.	Compliance with naltrexone treatment, frequency of opioid use (self-reported days of opioid use and percentage of opioid-free urine specimens during treatment), frequency of cocaine use (self-reported days of cocaine use and percentage of cocaine-free urine specimens during treatment), psychosocial functioning, and human immunodeficiency virus risk behaviors.	Participants across all study groups reported more than 90% abstinent days during treatment. Assignment to CM was associated with a statistically significantly greater reduction in opioid use compared with standard naltrexone treatment. Participants in either one of the CM groups had statistically significantly more mean days of abstinence from opioids, longer periods of consecutive abstinence from opioids, a higher total number of opioid-negative urine specimens, and a higher percentage of opioid-negative urine specimens compared with those in the standard naltrexone group. There was a trend towards increased abstinence from cocaine and alcohol in the CM groups, but these findings were not statistically significant. Treatment completion rates were highest in the CM plus SO group (47%), followed by the CM (42.9%) and standard naltrexone (25.6%) groups. There was a statistically significant reduction in the frequency of drug-related risk behaviours over time across groups, but there was no effect in favour of CM compared to standard naltrexone. There were no statistically significant effects for time or treatment group on frequency of sexual risk behaviours.

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#10: Carroll et al. (2001b). Contingency management to enhance naltrexone treatment of opioid dependence: A randomised clinical trial of reinforcement magnitude.	USA (New Haven, CT)	Experimental	Three experimental conditions. Standard naltrexone maintenance vs standard naltrexone plus low-value CM vs standard naltrexone plus high-value CM. 12 weeks. Six-month follow-up.	**n=55** detoxified individuals with opioid use disorder entering treatment at a naltrexone maintenance program.	Compliance with naltrexone, percentage of days abstinent from opioids, retention (weeks in treatment), length of longest abstinence (self-report), and urinalysis results (number of drug-free urines, percentage of urines positive for opioids or cocaine).	Assignment to either CM condition was associated with statistically significant reductions in opioid and cocaine use over time compared with standard naltrexone treatment. There were no statistically significant differences between the high- and low-value CM. At 6-month follow-up, there were no group differences between the CM condition and standard naltrexone treatment. There was no significant difference in retention by magnitude of reinforcement. Longer treatment retention was associated with significantly less frequent opioid use during follow-up. There was a significant reduction in in the frequency of self-reported drug- and sex-related risk behaviours over time across groups, suggesting that participants in all conditions significantly reduced their level of HIV risk behaviours during treatment. There was no differential effect of CM or magnitude of reinforcer compared with standard naltrexone treatment.
#11: Katz et al. (2002). Voucher reinforcement for heroin and cocaine abstinence in an outpatient drug-free program.	USA (Baltimore, MD)	Experimental	Two experimental conditions. Voucher vs no-voucher conditions. Both groups received intensive cognitive–behavioral counseling. Three months. No follow-up period.	**n=52** detoxified individuals with opioid use disorder.	Abstinence (i.e., number of opiate- and cocaine-negative urine samples, longest duration of continuous abstinence in days, percentage of participants abstinence for four weeks), retention (i.e., total number of counselling visits).	No statistically significant differences were found between the voucher and no-voucher groups on mean number of opiate- and cocaine-negative urines submitted (voucher: 8.3 vs. no-voucher: 6.2), longest duration of continuous abstinence (voucher: 16.8 vs. no-voucher: 12.1 days), or percentage of participants abstinent for four weeks (voucher: 20.7% vs. no-voucher: 9%). Despite the lack of significant group differences in drug use outcomes, a positive urine drug sample at intake was strongly associated with poor outcomes. No statistically significant differences were found between the voucher and no-voucher groups in terms of mean days retained in treatment (35.9 vs. 39.3 days).

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#12: Petry & Martin (2002). Low-cost contingency management for treating cocaine- and opioid-abusing methadone patients.	USA (Hartford, CT)	Experimental	Two experimental conditions. Standard treatment vs standard treatment plus CM. 12 weeks. Six-month follow-up period.	**n=42** individuals with cocaine and opioid use disorder enrolled in a methadone maintenance program.	Weeks of continuous abstinence from both opioids and cocaine.	The study found statistically significant group differences with respect to duration of continuous abstinence from both substances. Specifically, participants in the CM condition achieved about two more weeks of consecutive abstinence from opioids and cocaine than patients in the standard condition. The positive effects of CM were sustained at six-month follow-up assessment with a statistically significant difference. No statistically significant differences in retention rates between the CM (89%) and standard treatment (87%) groups were found.
#13: Preston et al. (2002). Abstinence reinforcement maintenance contingency and one-year follow up	USA (Baltimore, MD)	Experimental	Two experimental conditions. Contingent vouchers and take-home methadone doses (contingent group) vs noncontingent vouchers and take-home doses (noncontingent group). 12-week maintenance phase. Three-, six-, and 12-month follow-up.	**n=110** adults with an opiate use disorder who had completed a CM trial earlier.	Drug abstinence, self-reports (craving questionnaire etc.), and retention. .	The proportion of opiate negative urine drug samples was higher in the contingent group compared to the noncontingent group, but the difference was not statistically significant. Abstinence was statistically significantly lower in the received noncontingent vouchers. The Contingent groups also self-reported less frequent use of heroin. Cocaine abstinence rates showed exhibited statistically significant variations over time in relation to the maintenance phase contingency. Generally, participants who received incentives contingent on opiate abstinence during the maintenance phase tended to have higher rates of cocaine abstinence, though these rates fluctuated considerably over time. Analyses for three-, six-, and 12-month follow-up assessments revealed no statistically significant impact maintenance contingency on opiate abstinence. There were no significant differences in retention rates between participants randomized to the contingent or noncontingent groups. Heroin craving tended to increase over the maintenance phase, independent of contingency intervention or methadone dose.

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#14: Kosten et al. (2003a). Desipramine and contingency management for cocaine and opiate dependence in buprenorphine maintained patients.	USA	Experimental	Four experimental conditions. Desipramine and CM (DMI + CM) vs desipramine and no CM (DMI + NCM) vs placebo and CM (PLA + CM) vs placebo and no CM (PLA + NCM). 12 weeks.	**n=160** participants with opiate and cocaine use disorder.	Abstinence (urinalysis for drug use), cocaine and opiate use (self-report), depressive symptoms and psychosocial functioning (structured clinical interview), desipramine plasma levels and side effects, and retention.	The DMI + CM group had the largest rate of opiate-negative (65%), cocaine-negative (60%), and opiate plus cocaine-negative drug urine samples (50%) compared to other groups with a statistically significant difference. The DMI + CM group also had the longest duration of consecutive opiate and cocaine abstinence, averaging three weeks compared to 1.3 weeks for the other groups with the difference achieving statistical significance. The odds of having negative urine drug samples were the largest in the DMI + CM group, the smallest in the PLA + NCM group, and in between for the PLA + CM and the DMI + NCM groups. There were no significant differences in retention rates between groups. The average retention was 9.2 weeks, with 49% of participants completing the study.
#15: Kosten et al. (2003b). Effects of reducing contingency management values on heroin and cocaine use for buprenorphine- and desipramine-treated patients.	USA	Experimental	Four experimental conditions. Desipramine (150 mg) plus contingencies (DC), desipramine without contingencies (DNC), placebo plus contingencies (PC), placebo without contingencies (PNC). 24 weeks. No follow-up period.	**n=75** participants from Kosten et al. (2003a) study (#40) with heroin and cocaine use disorder.	Abstinence (i.e., illicit drug use urinalysis, self-reported cocaine and opiate use) and treatment retention.	The efficacy of CM statistically significantly diminished when the rates of opioid and cocaine-negative urine drug samples are compared with the previous study. Similar patterns were observed when opioid and cocaine negative samples were compared separately. The study concluded that increasing the requirement for earning vouchers and eliminating escalating CM schedule warrants further research. No significant differences in retention rates between groups were found. A total of 42 out of 75 (56%) participants completed the entire trial, through 24 weeks.
#16: Katz et al. (2004). Abstinence incentive effects in a short-term outpatient detoxification program.	USA	Experimental	Two experimental conditions. Voucher vs no-voucher group. Both groups received intensive cognitive–	**n=211** individuals with opioid use disorder enrolled in an outpatient treatment program that did not include	Abstinence.	Among abstinence-contingent CM participants, 31% were negative for opiate and cocaine on Friday (the last day of the detoxification program) compared with 18% of the noncontingent control group. The difference was statistically significant. Fewer (12–13%) participants were negative for

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			behavioral counseling. Four-five days. No follow-up period.	medication treatment.		opiate and cocaine on Monday (post-detoxification program) and the difference between groups was no longer statistically significant.
#17: Schottenfeld et al. (2005). Methadone versus buprenorphine with contingency management or performance feedback for cocaine and opioid dependence.	USA (New Haven, CT)	Experimental	Four experimental conditions. Methadone with CM vs methadone with performance feedback vs buprenorphine with CM vs buprenorphine with performance feedback. 24 weeks. No follow-up period.	**n=162** individuals with cocaine and opioid use disorder.	Maximum number of consecutive weeks of abstinence from illicit opioids and cocaine and the proportion of drug-free tests.	Cocaine and opiate use decreased significantly over time across all conditions. The effects of CM were significant during the first 12 weeks with participants achieving significantly longer periods of abstinence and a greater proportion drug-free tests, compared with those who received performance feedback. Those differences, however, were not sustained during the entire 24-week study. In addition, authors argued that a lack of significant interaction between the type of medication and CM suggests that CM improves outcomes comparably when combined with methadone or buprenorphine.
#18: Oliveto et al. (2005). Efficacy of dose and contingency management procedures in LAAM-maintained cocaine-dependent patients.	USA (New Haven, CT)	Experimental	Four experimental conditions. Levo-alpha-acetylmethadol (LAAM; 30, 30, 39 mg/MWF) with CM (LC) vs LAAM (30, 30, 39 mg/MWF) without CM (LY) vs high-dose LAAM (100, 100, 130 mg/MWF) with CM (HC) vs high-dose LAAM (100, 100, 130 mg/MWF) without CM (HY). 12 weeks. No follow-up period.	**n=140** individuals with opioid and cocaine use disorder seeking opioid maintenance treatment.	Retention in treatment, illicit opioid and cocaine use, opiate withdrawal symptoms, and depressive symptom severity.	Both the HC and HY groups had the highest rates of opioid abstinence, including statistically significantly higher percentage of urine samples negative for opioids compared to the LC and LY groups. Opioid and cocaine use decreased most rapidly over time in the HC group compared to the other three groups. All group differences were statistically significant. The highest rates of abstinence from both cocaine and opioids were observed in the group receiving a high dose of LAAM and CM. CM had little effect on opioid use, except in the high-dose group, where its addition accelerated the decrease in opioid-positive urine drug tests over time. Fifty-three percent of the total sample completed the 12-week treatment. There were no statistically significant differences between the experimental groups in treatment retention, suggesting no effect of combining LAAM with CM.

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#19: Gross et al. (2006). A comparison between low-magnitude voucher and buprenorphine medication contingencies in promoting abstinence from opioids and cocaine.	USA	Experimental	Two experimental conditions. Contingent medication vs voucher vs control. 12 weeks. No follow-up period.	**n=60** participants with cocaine and opioid use disorder.	Abstinence and retention.	Participants in the medication contingency group were found to achieve statistically significantly more weeks of continuous abstinence from opiates and cocaine compared with participants in the voucher group (six and three weeks, respectively). Participants who received standard counselling did not differ significantly from participants in either of the other two groups. Participants in the contingent medication, voucher, and control groups stayed in treatment an average of 10.4 weeks, 11.3 weeks, and 11.8 weeks, respectively. Eighty percent of participants in the voucher group, 65% of participants in the medication contingency group, and 80% participants in the control group completed the 12-week treatment. None of these differences were statistically significant.
#20: Peirce et al. (2006). Effects of lower-cost incentives on stimulant abstinence in methadone maintenance treatment: A National Drug Abuse Treatment Clinical Trials Network study.	USA	Experimental	Two experimental conditions. Usual care (daily dose of methadone and individual and group counseling as required) with incentives vs usual care. 12-weeks. No follow-up period.	**n=388** individuals with stimulant use disorder enrolled in methadone maintenance programs.	Drug use, alcohol use, retention, and counseling attendance.	The CM group was twice as likely the control group to submit stimulant- and alcohol-free tests. The CM group was also 1.5 times more likely to submit opioid-negative urine drug samples than the control group. Stimulant and alcohol use outcomes were compared at the 6-month follow-up assessment and there were no statistically significant differences detected between the groups. More than 60% of participants in both conditions (CM: 67.1%; control: 64.8%) were retained in the study, with no statistically significant difference between the two groups.

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#21: Poling et al. (2006). Six-month trial of bupropion with contingency management for cocaine dependence in a methadone-maintained population.	USA	Experimental	Four experimental. conditions. CM and placebo (CMP) vs CM and 300 mg/d of bupropion hydrochloride (CMB) vs voucher control and placebo (VCP) vs voucher control and bupropion (VCB). 25 weeks. No follow-up period.	**n=106** individuals with opioid and cocaine use disorder.	Abstinence (i.e., total number of stimulant- and alcohol-negative samples provided, percentage of stimulant- and alcohol-negative samples provided, longest duration of abstinence), retention (i.e., counseling attendance), and depressive symptoms.	Opiate use decreased significantly for all groups, with no statistically significant differences between groups. The CMB group showed a statistically significant reduction in cocaine-positive urine samples compared to the other three groups, in addition to more consecutive weeks of abstinence. The CMP group showed a statistically significant increase in cocaine-positive urines during weeks three through 13, but then showed a decrease from weeks 14-25. There were no statistically significant reductions in cocaine use among participants in either VCP or VCB groups. There were no differences in rates of retention between the intervention and control groups over the 25 weeks of the study.
#22: Brooner et al. (2007). Comparing adaptive stepped care and monetary-based voucher interventions for opioid dependence.	USA	Experimental	Four experimental conditions. Motivated stepped care (MSC) only vs contingent voucher incentives (CVI) only vs MSC plus CVI (MSC+CVI) vs standard care (SC). 24 weeks. Three-month follow up.	**n= 236** participants with opioid use disorder.	Abstinence (i.e., urine samples negative for opioids, cocaine, sedatives alcohol, or "any drug" use) and retention (i.e., counseling attendance)	The analyses showed that both CVI and MSC had statistically significant positive effects on abstinence. Participants in MSC conditions, including MSC + CVI and MSC-only, were three times more likely to test negative for sedatives and 1.5 times more likely to test negative for any drug than participants in non-MSC conditions. Participants in CVI conditions were 1.5 times more likely to test negative for cocaine (73.3% vs 63.5% for non-CVI) and twice as likely to test negative for any drug (54.5% vs 38.4% for non-CVI) than participants in non-CVI conditions. Overall, participants in the MSC + CVI were at a higher probability of submitting a negative urine sample for all drugs (i.e., opiate, cocaine, sedative, and any drug) and took less time to submit first negative urine drug sample as compared to those in the SC condition. This group also had higher odds of submitting negative urine drug samples (for any drug) at follow-up. All findings were statistically significant. There were no group differences in terms of alcohol

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						use. Assignment to MSC + CVI and MSC-only statistically significantly improved treatment attendance during the six-month randomized phase, with MSC + CVI maintaining higher attendance in the three-month follow-up. Retention rates varied across treatments, with CVI-only showing the highest retention (72.9%) and MSC-only the lowest (44.1%) over the nine-month trial.
#23: Bickel et al. (2008). Computerized behavior therapy for opioid-dependent outpatients: A randomized controlled trial.	USA	Experimental	Three experimental conditions. Therapist-delivered community reinforcement approach (CRA) treatment with vouchers vs computer-assisted CRA treatment with vouchers vs standard treatment. 23 weeks. No follow-up period.	**n=135** outpatients with opioid dependence.	Continuous abstinence and retention.	Findings showed that therapist-delivered and computer-assisted CRA plus vouchers interventions had comparable weeks of continuous opioid and cocaine abstinence (mean = 7.98 and 7.78, respectively). Both approaches produced statistically significantly greater number of weeks of abstinence than the standard intervention, with a small to medium effect size. An average of 58%, 53%, and 62% of participants in the standard, therapist-delivered CRA plus vouchers, and computer-assisted CRA plus vouchers conditions, respectively, were retained in the 23 weeks of treatment. The percentage of participants retained in treatment did not significantly differ across treatment conditions.
#24: Neufeld et al. (2007). A behavioral treatment for opioid-dependent patients with antisocial personality.	USA	Experimental	Protocol reinforcing abstinence from monitored illicit drugs and adherence to scheduled counseling sessions. Two experimental conditions in a nine-step care model. Contingency management (CM) vs control group.	**n=128** individuals with opioid use disorder and antisocial personality.	Adherence to scheduled counseling sessions, abstinence, Addiction Severity Index, and retention.	No statistically significant differences between groups were detected. When participants could earn decision-making rights regarding methadone dosage levels, dispensing times, number of weekly take-home doses, and how many weekly counselling sessions they were required to attend, those in the intervention group attended a significantly higher percentage of scheduled counselling sessions than those in the control group. Intervention group participants attended 83.2% of sessions over the course of six months (26 weeks), while

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			Six months. No follow-up period.			control group participants attended 53.4% of sessions.
#25: Chopra et al. (2009). Buprenorphine medication versus voucher contingencies in promoting abstinence from opioids and cocaine.	USA	Experimental	Three experimental conditions. Medication contingency condition with community reinforcement approach (CRA) vs voucher contingency condition with CRA vs standard counseling. 12 weeks. No follow-up period.	**n=120** individuals with opioid use disorder receiving buprenorphine.	Abstinence and retention.	For combined opioid and cocaine abstinence, the medication contingency group achieved 1.5 more continuous weeks of abstinence than standard treatment, while the voucher incentive group had two more total weeks of abstinence compared to standard treatment. Both findings were statistically significant. For opioid abstinence alone, both the medication and voucher contingency groups showed statistically significantly more continuous weeks of abstinence than the standard treatment group. Additionally, the voucher contingency group demonstrated statistically significantly more total opioid-free weeks, and a higher percentage of opioid-negative urine drug tests (UDTs) compared to the standard treatment group. A higher percentage of the medication contingency group had opioid-negative UDTs compared to standard treatment, but the difference was not statistically significant. There were no group differences in terms of cocaine use. The proportion of participants completing the 12-week treatment was statistically significantly higher in the voucher contingency group compared to the medication contingency group.
#26: Kidorf et al. (2009). Improving substance abuse treatment enrolment in community syringe exchangers.	USA (Baltimore, MD)	Experimental	Three experimental conditions. Motivated Referral Condition (MRC) vs MRC with monetary incentives for attending sessions and enrolling in treatment (MRC+I) vs a standard referral condition.	**n=281** individuals with opioid use disorder.	Adherence to scheduled motivational enhancement, treatment readiness group sessions, rates of treatment enrolment, methadone maintenance enrolment, days of drug use, HIV risk behaviour, number	Participants who received MRC+I reported fewer days of heroin use per each 30-day assessment (19.5 days) compared to those in the MRC (25.1 days) and SRC (25.9 days) groups. Those in the MRC+I group also reported fewer days of injection use per each one of the 30-day assessments (19.1 days) compared to individuals in the other two groups (MRC = 23.5 and SRC = 23.8 days). All differences were statistically significant.

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			Four months. No follow-up period.		of sessions attended, and retention.	There were no between-group differences in terms of cocaine use. Participants in the MRC+I group attended a statistically significantly higher proportion of motivational enhancement and treatment readiness group sessions compared to those in the MRC group. In terms of syringe sharing behaviour, there were no statistically significant differences between those who received incentives and those who did not.
#27: Epstein et al. (2009). Promoting abstinence from cocaine and heroin with a methadone dose increase and a novel contingency.	USA (Baltimore, MD)	Experimental	Two experimental conditions. Noncontingent (control) vs contingent on cocaine-negative urine drug samples, or contingent on cocaine- or opioid-negative urine drug samples ("split" contingency). 12 weeks (27-week study duration).	**n=252** heroin- and cocaine-abusing outpatients in methadone maintenance	Abstinence (i.e., percentages of urine specimens negative for heroin, cocaine, and both simultaneously, DSM-IV criteria for ongoing drug dependence assessed at study exit, longest duration of simultaneous abstinence), and retention.	CM was statistically significantly associated with increased numbers of cocaine-negative urine drug samples and urine drug samples simultaneously negative for opiates and cocaine, but not for opiate-negative urine drug samples. There was no statistically significant effect of the split or cocaine contingency on opiate-negative urine drug samples at either dose of methadone. However, for simultaneous abstinence from cocaine and opiates, the SplitHigh group (100mg methadone dose + split contingency) produced a statistically significantly higher percentage of opiate- and cocaine-negative urines compared to its same-dose noncontingent control group. CM was statistically significantly effective for reducing self-reported cocaine use but was not effective for self-reported opiate use. Retention did not significantly differ by either methadone dose or contingency. Mean retention across all three experimental groups was 15.1 weeks out of 17 for baseline and intervention only and 20.8 weeks out of 27 for the whole study.
#28: Hser et al. (2011). Effects of a randomized contingency management	China	Experimental	Two experimental conditions. Usual care (UC) with incentives vs UC without incentives.	**n=319** individuals in a community-based methadone maintenance treatment.	Treatment retention and negative drug urine.	Participants in the incentive group had statistically significantly longer periods of sustained abstinence compared to participants in the UC group. However, there were no statistically significant differences in

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intervention on opiate abstinence and retention in methadone maintenance treatment in China.			12 weeks. Three- and six-month follow up.			percentage of opioid-negative urine drug samples between the groups. Despite an increase in negative urine results across the 12 weeks of treatment, there were no statistically significant differences by group assignment, indicating that CM had no effect on improving drug use outcomes. Self-reports of opiate use were statistically significantly different between the two groups at one-month follow-up, favouring the CM group. However, there were no statistically significant group differences in self-reports of opiate use at the 3- and 6-month follow-ups. Significantly more participants in the CM group (81%) remained in treatment in comparison to those participants receiving usual care (67%). Participants in the CM group were also significantly less likely to drop out of treatment compared to those in the usual care group.
#29: Tuten et al. (2012). Lessons learned from a randomized trial of fixed and escalating contingency management schedules in opioid-dependent pregnant women.	USA (Baltimore, MD)	Experimental	Three experimental conditions. Escalating reinforcement condition vs fixed reinforcement condition vs attendance control condition. 13 weeks. No follow-up period.	**n=133** pregnant patients attending treatment for substance use disorders (methadone-maintained).	Abstinence rates, days retained in treatment, and total amount of voucher money earned.	The results showed no statistically significant differences between the escalating and fixed reinforcement conditions on drug abstinence. There were no statistically significant differences between groups in terms of lengths of abstinence. The mean number of negative urine drug tests for both opioids and cocaine was comparable across the groups. Although participants in the escalating CM condition abstained from opioids and cocaine longer than participants in the fixed CM and control groups, that difference was not statistically significant. Overall retention rates exceeded 80% across all groups with no statistically significant differences between participants in the escalating and fixed conditions.

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#30: Ling et al. (2013). Comparison of behavioral treatment conditions in buprenorphine maintenance.	USA	Experimental	Four experimental conditions. Cognitive behavioral therapy (CBT) vs contingency management (CM) vs both CBT and CM (CBT + CM) vs no additional behavioral treatment (NT). 18 weeks. No follow-up period.	**n=202** individuals with opioid use disorder.	Opioid use (i.e., proportion of opioid negative urine results over the number of tests possible), retention, withdrawal symptoms, craving, and other drug use and adverse events.	Analysis showed no impact on opioid use between the original and revised payment schedules. The study implemented CM training booster sessions to increase fidelity to CM. The CM + CBT group had the highest proportion of three and six consecutive opioid-negative samples compared to other groups, but the difference was not statistically significant. Participants across all treatment groups reported statistically significant decreases in heroin use but not in other drug use (i.e., cocaine amphetamines, sedatives, cannabis). The mean number of weeks in treatment were comparable across the groups ranging from 14.6 weeks to 15.3 weeks. None of the comparisons yielded statistically significant differences.
#31: Chen et al. (2013). Effectiveness of prize-based contingency management in a methadone maintenance program in China.	China	Experimental	Two experimental conditions. Contingency management (CM) plus methadone maintenance treatment vs methadone maintenance treatment alone. 12 weeks. No follow-up period.	**n=246** participants with opioid use disorder.	Abstinence, attendance, and treatment retention.	Both treatment groups showed an increase in negative urine drug tests, but CM participants significantly outperformed participants who received methadone maintenance only. Overall, CM participants were 1.9 times more likely to submit negative samples. By the end of 12 weeks of treatment, 81.7% of CM plus methadone maintenance treatment participants and 67.5% of methadone maintenance alone participants were retained in treatment with a statistically significant difference. CM participants had higher treatment attendance on average than participants in the methadone maintenance treatment (65.3 vs. 58.0 days). This difference was statistically significant and consistent in both urban (68.0 vs. 59.5 days) and rural clinics (63.1 vs. 54.7 days).

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#32: Kidorf et al. (2013). Reinforcing integrated psychiatric service attendance in an opioid-agonist program: A randomized and controlled trial.	USA	Experimental	Two experimental conditions. Reinforced on-site integrated care (ROIC) with vouchers vs standard on-site integrated care (SOIC). 12 weeks. No follow-up period.	**n=125** individuals with opioid use disorder enrolled in opioid agonist program.	Drug use, retention, mental health service utilization, medication administration and adherence, and psychiatric distress.	Results indicated no significant differences in drug-positive urine samples between the two groups. CM participants attended more individual and group mental health sessions each month. Despite better attendance, both groups exhibited similar reductions in psychiatric distress and no significant differences in study retention rates were observed. Overall, 82.2% of ROIC participants and 82.5% of SOIC participants completed the study.
#33: Dunn et al. (2014). Employment-based abstinence reinforcement following inpatient detoxification in HIV-positive opioid and/or cocaine-dependent patients.	USA	Experimental	Three experimental conditions. Abstinence & work vs work-only vs no-voucher control. All participants could attend the four-hour daily therapeutic workplace training program. 26 weeks. 12-month follow-up.	**n=46** participants with opioid use disorder who also tested positive for HIV.	Abstinence (i.e., mean percent urinalysis verified opioid, cocaine, and combined), workplace performance measures (i.e., attendance, mean and total minutes worked, and total earnings), HIV risk behaviors, and retention.	During the intervention period, 45% of the abstinence & work group, 31% of the work-only group, and 42% of the no-vouchers group submitted opioid-negative urine samples. At the 12-month follow-up, these rates were 62%, 33%, and 27%, respectively. For combined opioid and cocaine use during the intervention period, 42% of participants in the abstinence & work group, 24% in the work-only group, and 36% in the no-vouchers group submitted negative drug urine samples. At the 12-month follow-up, these rates shifted to 50%, 20%, and 27%, respectively. None of these changes were statistically significant. Participants in the no-voucher group dropped out at a statistically significantly higher rate (93%) compared to those in the work-only (67%) and abstinence & work (81%) conditions. There were no significant changes in the frequency of drug injection, sharing needles, exchanging sex for drugs, or receiving money for sex among the three groups during the intervention period or at 12-month follow-up assessment.
#34: Holtyn et al. (2014). The therapeutic workplace to	USA (Baltimore, MD)	Experimental	Three experimental conditions. Work reinforcement (WR) vs methadone & WR	**n=98** individuals with injection opioid use disorder.	Enrollment in methadone treatment, abstinence (i.e., percentage of urine samples negative for	The abstinence, methadone, & work reinforcement group provided statistically significantly more opiate-negative urine samples and cocaine-negative urine samples

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promote treatment engagement and drug abstinence in out-of-treatment injection drug users: A randomized controlled trial.			vs abstinence, methadone, & WR (enrollment in methadone treatment was compulsory). 26 weeks. Six-month follow-up.		opiates and cocaine), self-reported HIV risk behaviors, workplace attendance, voucher earnings, total hours worked, and treatment retention.	than work reinforcement participants provided (opiate-negative: 75% vs 54%; cocaine-negative: 57% vs 32%). At six-month follow-up, there were no significant between-condition differences in opiate and cocaine use. No statistically significant differences were found between study groups in methadone enrolment at any of the assessment time-points. They found lower rates of sharing needles or works, trading sex for drugs or money, going to a shooting gallery or crack house, and injecting drugs across all study conditions during the intervention evaluation period and follow-up as compared to intake. Statistical analyses for these comparisons were not conducted.
#35: Christensen et al. (2014). Adding an internet-delivered treatment to an efficacious treatment package for opioid dependence.	USA	Experimental	Two experimental conditions. Internet-based community reinforcement approach intervention plus CM (CRA+) vs CM alone. 12 weeks. No follow-up period.	**n=170** individuals with opioid use disorder.	Retention and abstinence (i.e., longest continuous abstinence and total abstinence measured by the number of negative specimens).	On average, CRA+ participants had 9.7 more days of abstinence than participants in the CM-alone group. Those in the CRA+ group with a history of treatment for opioid use disorder had statistically significantly longer periods of abstinence compared to their counterparts in the CM-alone group. Participants in the CRA+ group had a higher retention rate than the CM-alone condition (80% CRA+ vs. 64% CM-alone). This difference was statistically significant CM-alone participants were twice as likely to drop out of treatment compared to the CRA+ participants. Participants in the CRA+ group were twice as likely to complete the 12-week treatment compared to those receiving CM-alone. The study also evaluated whether prior treatment status affected retention. Those in the CM-alone group with a history of opioid use disorder treatment were about 6.5 times more likely to drop out of treatment compared to their counterparts in the CRA+ group.

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#36: Peles et al. (2017). Newborn birth-weight of pregnant women on methadone or buprenorphine maintenance treatment: A national contingency management approach trial.	Israel	Experimental	Two experimental conditions. Contingency management intervention (CMI) plus standard treatment vs standard treatment only. Nine months (estimated study duration).	**n=35** individuals enrolled in methadone/buprenorphine maintenance treatment (MBMT).	Abstinence (i.e., urine toxicology for opiates, methadone, and benzoylecgonine), maternity outcomes, retention, newborn outcomes (i.e., birthweight), nicotine use, alcohol use, and depressive symptoms.	The study found that all women in the CM groups (vs. 68.8% of the control group) used substances during pregnancy, and the difference was statistically significant. After one year of childbirth, 44% of the CM group and 7% of the control group used drugs, and this was also a statistically significant difference. The two groups were statistically significantly different from one another in methadone/buprenorphine medication dose and intake period, which might have influenced the treatment outcomes. The women in the CM group had lower medication doses and were relatively new to the methadone/buprenorphine maintenance program compared to women in the standard treatment group. The CM group had a higher retention rate (100%) compared to standard treatment (87.5%) in methadone/buprenorphine maintenance program at follow-up.
#37: Kidorf et al. (2018). Treatment initiation strategies for syringe exchange referrals to methadone maintenance: A randomized clinical trial.	USA (Baltimore, MD)	Experimental	Three experimental conditions. Low Threshold (LTI) vs Voucher Reinforcement (VRI) vs standard care (SCI) consisting of standard methadone dosing and adaptive counselling. Three months plus three months of aftercare.	**n=212** individuals with opioid use disorder enrolled in a syringe exchange program (SEP) and referred to methadone maintenance.	Abstinence, retention, and Addiction Severity Index (ASI).	Reductions in the percentage of drug-positive urine samples (i.e., opioids, cocaine, and benzodiazepines) were reported for all three conditions. The odds of submitting a positive urine drug sample for any of the substances did not decline significantly more in the voucher reinforcement intervention condition compared to the standard care and low threshold intervention conditions. No statistically significant group differences in retention rates over the three-month and six-month observation periods were detected.
#38: Jarvis et al. (2019). The effects of extended-release injectable naltrexone and	USA (Baltimore, MD)	Experimental	Four experimental conditions. Usual care (UC) vs abstinence incentives (AI) vs extended-	**n=84** heroin-dependent adults who were unemployed and	Abstinence (i.e., percentage of urine samples negative for opiates and cocaine), percentage of XR-NTX	The AI group provided significantly more opiate-negative urine samples than XR-NTX participants. Participants in the XR-NTX plus AI group were statistically significantly more likely to submit opiate-negative

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incentives for opiate abstinence in heroin-dependent adults in a model therapeutic workplace: A randomized trial.			release naltrexone (XR-NTX) vs XR-NTX plus abstinence incentives (XR-NTX plus AI) group. Six months. No follow-up period.	medically approved for naltrexone.	injections accepted, and retention in therapeutic workplace.	samples compared to the AI and UC participants when the missing urine drug samples were not included in the urine drug sample count. However, these effects were not statistically significant when the missing urine drug samples were counted as positive. Cocaine abstinence rates were low and did not differ across the four groups. The XR-NTX plus incentives group had the highest average percentage of days in the workplace intervention (63.5%) followed by the AI (61%), UC (59.2%), and XR-NTX (52.4%) groups, with no statistically significant differences. The UC group had the highest mean number of weeks in the workplace (22.7 weeks), followed by XR-NTX plus incentives (20 weeks), AI (19.5 weeks), and XR-NTX (19.4 weeks) groups, with no statistically significant differences.
#39: Metrebian et al. (2021). Using a pragmatically adapted, low-cost contingency management intervention to promote heroin abstinence in individuals undergoing treatment for heroin use disorder in UK drug services (PRAISE): A cluster randomised trial.	UK	Experimental	Three experimental conditions. CM targeted at opiate abstinence (CM Abstinence) vs CM targeted at timely attendance (CM Attendance) vs treatment as usual (TAU). 12 weeks. 24-week follow-up assessment.	**n=552** individuals undergoing opioid agonist treatment (OAT) for heroin use disorder.	Heroin abstinence and retention	Results showed that CM Attendance was superior to TAU) in promoting abstinence from heroin. In weeks nine through 12, participants in the CM Attendance group were twice as likely to provide heroin-negative urine samples compared to those in TAU and this finding was statistically significantly. The CM Abstinence group did not show statistically significant improvements in the number of heroin-negative urine samples over either the TAU or CM Attendance groups. Groups did not differ significantly in the number of heroin-negative urine samples at the 24-week assessment. There were no differences between groups in self-reported heroin use at 12-week and 24-week assessments. Retention in the trial was high and comparable across trial arms. A higher proportion of the CM attendance group showed full 12-week attendance (56%) compared to CM abstinence (39%) and TAU

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						(30%) groups. The CM attendance group had statistically significant higher odds of full attendance than TAU, while CM abstinence did not differ significantly from TAU. The CM abstinence participants had a statistically significant higher risk of dropping out of treatment than both the CM attendance and TAU groups.
#40: DeFulio et al. (2022). A pilot study of a therapeutic workplace in women arrested for prostitution.	USA	Experimental	Two experimental conditions. Specialized diversion program plus Therapeutic Work (TW) vs specialized diversion program alone. Four months. No follow-up period.	**n=37** women with opioid use disorder whose cases were being processed in early resolution court for people arrested for prostitution.	Abstinence (i.e., drug urinalysis for cocaine and opioids) and self-reported HIV risk behaviours (i.e., injection drug use, sharing needles, transactional sex, and multiple sex partners unprotected).	The TW group demonstrated statistically significant increases in abstinence from opioids but not from cocaine when compared with the group that received specialized diversion program alone. An exploratory analysis was used to assess between-group differences in drug use and HIV risk behaviours in months five through eight of the study. Participants in the therapeutic workplace group had lower rates of HIV-risk behaviours at the end of the program, but the difference was not statistically significant.
#41: Novak et al. (2022). Abstinence-contingent wage supplements to promote drug abstinence and employment: Post-intervention outcomes.	USA	Experimental	Two experimental conditions. Abstinence-contingent wage supplement group (CM) vs usual care control group. 12 months & 12-month follow-up.	**n=91** unemployed adults enrolled in opioid agonist treatment.	Abstinence, employment, and retention.	During the intervention, the abstinence-contingent wage supplement group (CM) provided statistically significantly more opiate- and cocaine-negative urine samples (63.6% vs. 44.1%) and had higher employment rates (38.1% vs. 10.1%) compared to the control group. The study did not assess retention as an outcome but did assess completion rates of assessments throughout the study and found that retention rates for assessments were high, with 87.2% and 85.8% of participants completing them in the control and intervention group, respectively.