

### A pilot specialty jail diversion program for justice-involved veterans with co-occurring disorders



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**Aims:** To describe MISSION DIRECT-VET (MDV), a jail diversion program for justice-involved veterans with co-occurring mental health and substance use disorders (COD) and present the baseline service needs of program participants.

**Methods:** MDV is a 12-month wraparound intervention delivered by case manager and peer support specialist teams in four Massachusetts courts. This pilot enrolled 90 veterans who completed baseline assessments which included the ASI-Lite, BASIS 24, PCL-C, and NOMS.

**Results:** The sample was predominantly male (96%), Caucasian (87%) and completed some college (50%). The average age was 40, over half served in Iraq/Afghanistan (58%), most were in the Army or Marines (83%), nearly half were less than honorably discharged from the military (48%), and had an average of four prior incarcerations. Participants reported use of alcohol (52%), marijuana (18%), or cocaine (12.2%) in the 30 days before their most recent arrest while 54% of the sample reported little or no difficulty managing their daily tasks and 48% reported little or no difficulty coping with problems in the two weeks prior to baseline. Many of the participants reported a history of inpatient substance abuse (61%) and/or mental health treatment (44%) prior to entering MDV. Additional baseline needs/risk data will be included in the presentation.

**Conclusions:** MDV is one of the first veteran-centric programs in Massachusetts designed to divert veterans from jail into treatment. These findings have the potential to guide development of other diversion programs to meet the needs of justice-involved veterans including future Veterans Treatment Courts. An evaluation of the MDV program is underway and MISSION-Criminal Justice Treatment Manuals have been developed to assist with model fidelity and replication.

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### Acute cocaine and concordance across measures of impulsive choice for food



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**Aims:** Several rat studies have demonstrated that chronic cocaine increases impulsive choice for food pellets (i.e., preference for a smaller, immediate food reinforcer over a larger, later one). These studies employed one of several impulsive choice procedures that can quickly assess impulsivity within one session (i.e., Fixed and Adjusting Delay procedures). However, research has yet

to determine if acute cocaine produces similar effects within these procedures.

**Methods:** Impulsive choice was assessed twice daily in an AM (Fixed Delay) and PM (Adjusting Delay) session. Change in impulsive choice for food pellets was examined following injection of a range of acute ip cocaine doses (2, 5, and 15 mg/kg) prior to experimental sessions. Test sessions for each dose were conducted across two days in a counterbalanced fashion for the two choice procedures.

**Results:** Baseline levels of impulsivity were positively correlated between the two procedures. Cocaine dose dependently increased impulsivity in the Fixed Delay procedure, but had no systematic effect on impulsivity in the Adjusting Delay procedure.

**Conclusions:** These results were intriguing given that baseline measures of impulsivity were positively correlated between the two procedures. Possible reasons for the inconsistent effects of acute cocaine across these procedures will be discussed, including potential limitations in employing the Adjusting Delay procedure to measure drug effects.

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### The impact of cannabis use on opioid-dependence treatment: A systematic review



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**Aims:** High rates of cannabis use have been reported among individuals being treated for opioid dependence; estimates range from 32% to 66%. Given this high comorbidity, there is a need to examine the extent to which cannabis use impacts treatment for opioid dependence. The present review sought to examine the literature to (1) determine whether cannabis use has an effect on opioid dependence treatment and treatment outcomes and (2) examine other behaviors that are associated with cannabis use among those in treatment for opioid dependence.

**Methods:** Relevant studies were identified through PubMed, PsycINFO, and citations from identified studies. Six hundred seventy five abstracts were reviewed and 16 articles met inclusion criteria. Included studies examined patients being treated in inpatient and outpatient settings. Rates of cannabis use, treatment setting/modality, treatment outcomes, and other therapy-related behaviors were recorded. Treatment was broadly defined to include both pharmacological and behavioral interventions aimed at reducing illicit opioid use.

**Results:** Overall, cannabis use was not associated with treatment retention or relapse on opioids or other drugs; however, cannabis use, particularly frequent use, was associated with other behaviors that may have an impact on substance use treatment such as financial difficulties, acquisitive crime and needle sharing.

**Conclusions:** This review underscores the importance of monitoring cannabis use in opioid dependence treatment. Although cannabis use may not be associated with relapse on opioids, the associations between cannabis use with needle-sharing and acquisitive crime suggests that cannabis use may be a proxy for other high-risk behaviors. Future studies should examine how cannabis

use is related to high-risk behaviors and explore interventions aimed at reducing needle-sharing. In addition, given the increasing prevalence of medical marijuana, research should explore the potential impact that medical use of cannabis may have on opioid dependence treatment.

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### Preliminary report of THC influence on subject ability to discriminate between active opioid and placebo in human abuse liability study



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**Aims:** To assess the impact of THC on subjects' ability to discriminate in HAL study.

**Methods:** To fulfill HAL methodology, subjects with recreational drug experience commonly are recruited and then required to demonstrate they can discriminate between active test opioid and placebo. A positive drug screen serves as a routine exclusion for study participation to eliminate potential bias or risk of pharmacodynamic carryover. However, THC is usually exempt in HAL methodology from this exclusion, in part to improve recruitment and retention of subjects. The impact of THC on pharmacodynamic assessments in drug discrimination is typically considered insignificant but is not well characterized or understood.

In 64 subjects in a single HAL study, investigators examined the potential influence of THC, including quantitative levels where applicable, on ability to discriminate between 20 mg of intranasal oxycodone and placebo.

**Results:** Of 64 subjects, 31 (48%) were positive for THC prior to drug discrimination. Ten subjects did not complete drug discrimination and were excluded from analysis due to emesis (5), withdrawn consent (3), and inability to complete study meal (2). Of 10 excluded subjects, 60% were positive for THC. The remaining 54 patients completed drug discrimination: 39 passed and were randomized to treatment; 15 did not successfully discriminate. Positive urine drug screen rate for THC was 48.7% for discriminators vs. 40% for non-discriminators ( $p = 0.5650$ ) with corresponding mean urine carboxy-THC concentrations of 705 vs. 417 ng/mL, respectively ( $p = 0.2797$ ).

**Conclusions:** Successful opioid discriminators were associated with a higher positive THC drug screen rate and mean carboxy-THC urine concentrations when compared to non-discriminators but differences were not statistically significant. The objective measurements of THC do not correlate with subjects' ability to discriminate between active drug and placebo in this intranasal opioid HAL study. Further research is necessary to fully elucidate the influence of THC in HAL studies.

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### The effects of social learning on the acquisition of cocaine self-administration



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**Aims:** Social learning models of substance use propose that drug use behaviors are learned, in part, by observing and mimicking the behavior of others. Experimental evidence for social learning in

drug use is limited, primarily because of a lack of animal models that permit subjects to observe and mimic the behavior of others during drug self-administration sessions. Recently, we developed custom-built, operant conditioning chambers that permit two rats to be tested simultaneously in the same chamber, thus permitting an examination of social learning on drug self-administration. The aim of this study was to examine the acquisition of cocaine self-administration in three groups of experimentally naïve rats: (1) rats that were tested in isolation, (2) rats that were tested in the presence of another rat that had access to cocaine and had previously been trained to self-administer cocaine (drug-experienced), and (3) rats that were tested in the presence of another rat that did not have access to cocaine (drug-naïve).

**Methods:** Male rats were reared in isolated or pair-housed conditions for 6 weeks and implanted with intravenous catheters. Pair-housed rats were then randomly assigned to drug-experienced or drug-naïve conditions. In the drug-experienced condition, one rat of each pair was trained to self-administer cocaine in isolation before the reintroduction of its partner. In the drug-naïve condition, one rat of each pair did not have access to cocaine for the duration of the study. For all three groups, the acquisition of cocaine self-administration was measured over 15 consecutive days in the rats with access to cocaine but with no prior operant training.

**Results:** Relative to isolated control rats, acquisition of cocaine self-administration was facilitated in rats that were tested with a drug-experienced partner; in contrast, acquisition was inhibited in rats that were tested with a cocaine-naïve partner.

**Conclusions:** These data indicate that the acquisition of cocaine self-administration can either be facilitated or inhibited by social contact. Collectively, these results support a social-learning model of substance use.

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### What is the evidence for hardening? Trends in nicotine dependence in the U.S., 2002–2011



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**Aims:** There has been considerable interest in determining whether declines in cigarette smoking in the U.S. have resulted in a hardened population of “hard-core” smokers. We analyzed data from the National Survey on Drug use and Health (2002–2011) to study changes in nicotine dependence levels over this time period.

**Methods:** We used generalized non-linear factor analysis and items from the Nicotine Dependence Syndrome Scale (NDSS) to generate an indicator for dependence that was psychometrically equivalent across years in the study. This approach also allowed us to use Item Response Theory to evaluate changes in the performance of specific NDSS symptoms over time. All analyses were stratified by gender.

**Results:** As expected, the prevalence of cigarette smoking declined from 2002 to 2011. The proportion of smokers consuming >25 cigarettes per day also declined. NDSS-based nicotine dependence declined among male smokers, but remained steady among female smokers. However, when the sample was categorized by daily cigarette consumption (0–15, 16–25, >25) we found slight