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1 NOVEL PCP ANALOGS WITH HIGH INHIBITORY POTENCY AT $\alpha 7$ nAChRs

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Aims: This study was aimed to examine functional activity of recently developed phencyclidine (PCP) analogs, RTI-4793-84 and RTI-4793-89 on three subtypes of neuronal nAChRs, $\alpha 4\beta 2$, $\alpha 7$ and $\alpha 3\beta 4$. Methods: using patch-clamp technique in a whole-cell configuration. Results: Similar to PCP (IC₅₀~28 μ M), the co-application of the analog 84 with ACh at its EC₅₀ concentration on $\alpha 4\beta 2$ -expressing cells resulted in a decrease of the peak amplitude of the ACh-induced currents with an IC₅₀ of ~31 μ M, whereas the analog 89 inhibited the currents by 50% at higher 100 μ M concentration. The inhibitory effect of the analogs was slightly more potent but comparable to each other and PCP (IC₅₀~6 μ M (Fryer & Lukas, 1999)) in $\alpha 3\beta 4$ nAChRs (IC₅₀s were ~14 and 10 μ M, respectively). In contrast, we observed stronger inhibitory activity of the PCP analogs on $\alpha 7$ nAChRs, where 50% inhibition of the ACh-evoked current was induced by the analog 84 at ~0.4 μ M, being comparable to PCP action (IC₅₀~1 μ M), and even more potent effect was observed with the analog 89 (IC₅₀~0.07 μ M). Conclusions: Overall, our functional data suggest that PCP analogs 84 and 89 act as inhibitory modulators of a different potency on $\alpha 7$, $\alpha 4\beta 2$ and $\alpha 3\beta 4$ neuronal nAChR subtypes with predominant effect of analog 89 on $\alpha 7$ nAChRs at concentrations below 1 μ M. Supported by DA-12001

3 D-CYCLOSERINE AUGMENTS EXTINCTION LEARNING AND DELAYS RE-ACQUISITION¹ OF COCAINE SELF-ADMINISTRATION IN SQUIRREL MONKEYS

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Aims: Relapse to cocaine use can be precipitated by exposure to drug-associated stimuli. Extinction of cocaine conditioned responses by repeated exposure to such stimuli in the absence of drug (cue-exposure therapy) can reduce the salience of drug cues and the risk of relapse. Clinical studies involving extinction of specific anxieties have shown that this therapeutic approach can be augmented by administration of the glycine partial agonist D-cycloserine (DCS). The aim of this study was to investigate the ability of DCS to similarly augment extinction learning and delay the re-acquisition of cocaine self-administration (SA). Methods: Squirrel monkeys (n=5) were trained to self-administer cocaine under a second-order FI(FR) schedule in which completion of each FR produced a 2-sec visual stimulus, and completion of the first FR after the FI elapsed produced the visual stimulus paired with an i.v. cocaine injection. In the extinction session, subjects were pretreated with DCS or vehicle and completion of each FR produced the visual stimulus, but cocaine injections were discontinued. Extinction training lasted until response rates declined to < 10% of baseline rates established during the cocaine SA phase. Results: Pretreatment with a maximally effective dose of DCS (3 or 10 mg/kg depending on the subject) resulted in a significantly lower response rate during extinction relative to vehicle. After four days without additional testing, a probe re-test of extinction revealed no significant effect of the prior DCS treatment compared to vehicle treatment. On the following days, monkeys pretreated with DCS during extinction training showed markedly delayed re-acquisition of cocaine SA, relative to those pretreated with vehicle. Conclusions: The results support the use of cue-exposure therapy in conjunction with DCS administration to promote extinction of cocaine conditioned responses and slow the rate of relapse to cocaine self-administration. Support: DA11716, DA 17700, DA24315, RR00168

2 PSYCHIATRIC DIAGNOSIS, INNER RESOURCES, AND THEIR RELATIONS TO PATIENTS' OUTCOME IN METHADONE MAINTENANCE TREATMENT

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Aims: to compare the inner resources between psychiatric diagnosis groups (DSM-IV-TR Axis I, no axis I, and no Axis I & II), its stability within the 3 sub groups after 1y, and its relation to outcome among former heroin addicts currently in MMT program. Methods: Between September 2003 and April 2006, all 90 MMT admitted patients were studied and followed up for 1year. Sense of coherence (SOC) questionnaire was used to measure the inner resources at baseline (BL) and after 1y for those who stayed 1y in treatment. Lifetime psychiatric diagnosis (DSM IV-TR) was taken from patients' charts. Drug abuse for opiates, cocaine, benzodiazepines, cannabis and amphetamines in the 13 month after admission was recorded, and defined as positive if at least one urine test for any of the drug was positive. Results: Four patients (4.4%) had no DSM-IV-TR Axis I & II diagnosis, 69(76.7%) had no axis I diagnosis and 17(18.9%) had Axis I diagnosis. BL SOC scores differed significantly between groups: Axis I patients had the lowest SOC scores (107.7+21.73) compared to no Axis I patients (121.31+26.44) and compared to no Axis I&II patients (158.25+32.38; F(d.f.)=6.4, p=0.003). Of the 90 patients, 77(85.6%) stayed in treatment 1y or more with no differences between psychiatric groups, but differed significantly in discontinuation any drug usage: specifically: 66.7% of no Axis I&II, 55.2% of no Axis I, and 6.3% only of Axis I (Chi square, p=0.002). SOC stayed stable at BL and after 1y in each psychiatric group (Axis I BL 108.81+21.95, 1y 104.75+22.54; no Axis I BL 124.59+25.75, 1y 127.17+26.18; No Axis I & II BL 173+15.71, 1y 167.33+29.67; Repeated measured Time effect F(d.f.)=0.7, p=0.5, Group effect F(d.f.)=11.1, p<0.0005). Conclusions: Patients with no axis I and no Axis I&II have achieved more cohesion of personality and are related to higher level of functioning, while almost all Axis I patients who are characterized with low SOC, couldn't stop drug usage. Support: internal(M.A)

4 THE EFFECTS OF MORPHINE ON DELAY DISCOUNTING IN PIGEONS

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Aims: Studies on delay discounting are thought to be particularly relevant to drug abuse because drug abusers often discount delayed rewards more than healthy controls; however, ethical and safety concerns limit studies in humans. Pigeons are used widely in behavioral pharmacology and have very stable operant responding that is sensitive to a variety of drugs. Moreover, pigeons have comparatively long life spans, making chronic dosing studies and complex behavioral procedures feasible. The purpose of the present study was to develop a delay discounting procedure in pigeons and to assess the effects of acute morphine injections on delay discounting. Based on experiments in rats, it was hypothesized that morphine would increase delay discounting. Methods: Seven adult White Carneau pigeons were tested on a delay discounting task with repeated opportunities to peck 1 key to immediately receive a small food reinforcer (1.5 s food hopper presentation) or a 2nd key to receive a larger food reinforcer (4 s food hopper presentation) available after an increasing delay (0-16 s). Results: When both reinforcers were immediately available, pigeons responded predominantly and often exclusively on the key associated with the larger reinforcer. With increasing delay to the larger reinforcer, pigeons responded increasing on the key associated with the smaller (immediately available) reinforcer. Morphine (0.32-3.2 mg/kg, i.m.) had no effect on responding when both reinforcers were immediately available, but dose dependently decreased choice of the large reinforcer when its delivery was delayed, indicating greater delay discounting. Performance returned to baseline the following test session. Conclusions: These results demonstrate stable performance under this schedule condition and suggest that morphine increases discounting of delayed reinforcers in pigeons. As such, this could be an especially useful procedure for assessing the effects of chronic drug treatment on delay discounting. Support: Supported by DA05018 and a Senior Scientist Award to CPF (DA17918).

5 DO CANNABIS USERS REQUIRE LESS OPIOIDS TO TREAT PAIN?

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Aims: Animal studies show up to a 20-fold potentiation of opiate effects by cannabinoids; however, human studies are equivocal. To date, there have been no well-controlled studies of the impact of cannabinoids on analgesia in patients maintained on opioids for pain. The aim of the current study was to examine preliminary information about the relationship between cannabis use and opioid dose needed to produce analgesia in patients with pain. **Methods:** Changes in methadone dose, VAS pain and functional interference were examined over 12 weeks (8 treatment visits) for N=25 opioid abusing patients with chronic non-cancer pain; 14% were self-administering cannabis at baseline per GC/MS. **Results:** Cannabis users were maintained on significantly lower doses of methadone throughout the 12 weeks of treatment (M=63.5 mg, SE=27.6) compared to non-cannabis users [M=130.9, SE=12.4; F(1,22)=5.0, p < .05]. However, cannabis users and non-users had comparable pain levels across the 12 weeks ("Worst": users M=8.1, SE=.9 vs. non-users M=7.8, SE=.4; "Average": users M=6.3, SE=.8 vs. non-users M=5.8, SE=.3). Similarly, patients using vs. not using cannabis at baseline were not significantly different on most measures of functional interference although some trends emerged over time; cannabis users reported generally higher interference scores for general activity (M=6.4/10 vs M=5.3/10), work (M=8.6/10 vs M=5.9/10), and life enjoyment (M=7.9/10 vs 5.7/10). **Conclusions:** There are several explanations for these findings. Referring providers may have prescribed lower doses to illicit drug users. However, if this was the case, we would expect to see significantly higher pain ratings and poorer functioning among cannabis users vs. non-users. The alternative explanation is that cannabis, in combination with lower opioid doses, provided similar analgesic benefit to higher opioid doses when used alone. Further research on the opioid/cannabinoid interaction in humans with pain is needed. **Support:** NIH/NID grant R01DA13169

7 MALE-FEMALE DIFFERENCES AND RISK OF DEVELOPING A DEPENDENCE SYNDROME SOON AFTER ONSET OF EXTRA-MEDICAL USE OF PSYCHOSTIMULANT COMPOUNDS

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Aims: **AIMS:** In this study, we seek to estimate (a) the risk of developing a cocaine dependence syndrome within 24 months after onset of cocaine use, (b) the risk of developing a stimulant dependence syndrome within 24 months after onset of extra-medical use of psychostimulant drugs other than cocaine, and (c) the size of male-female differences in these estimates. Some data suggest that 5%-6% of cocaine users develop a dependence syndrome within 1-2 years after onset of use (Wagner & Anthony, 2007); O'Brien & Anthony (2005) found a statistically robust excess risk for female cocaine users. **Methods:** **METHODS:** Data are from 55,279 participants in the 2006 National Survey on Drug Use and Health, with confidential computer-based self-interviewing. Analyses included formal estimation of cumulative incidence and male-female variation in risk (with sample weighting; Taylor series variance estimation). **Results:** **RESULTS:** Based on experiences of 621 cocaine users in the nationally representative sample, an estimated 7.9% developed a cocaine dependence syndrome within 24 months after onset of use (95% CI = 4.6%, 10.4%); male cocaine users were numerically less likely to develop cocaine dependence, but the male-female difference was not significant by conventional standards (p>0.10). For 471 extra-medical users of stimulants (other than cocaine), an estimated 5.5% developed a stimulant dependence syndrome within 24 months after onset of use (95% CI = 2.5%, 8.6%); male users were less likely to develop stimulant dependence, but p>0.10. **Conclusions:** **CONCLUSION:** Consistent with estimates from 1990-92 but not from 2000-2001, our estimates from 2006 indicate no male-female difference in risk. Nonetheless, it may be noteworthy that an estimated 1 in 14-20 users of these drugs develop a dependence syndrome within a relatively short span of time after onset of extra-medical use. **Support:** **SUPPORT:** NIDA award K05DA015799 & T32DA021129.

6 EFFECT OF THE OREXIN 1 (HYPOCRETIN 1) RECEPTOR ANTAGONIST SB 334867 ON HIGH-FAT FOOD SELF-ADMINISTRATION AND RELAPSE TO FOOD SEEKING IN RATS

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Aims: Many studies have demonstrated an important role of orexin 1 (also termed hypocretin 1) receptors in home-cage food consumption. However, the role these receptors play in operant food self-administration or reinstatement of food seeking in an animal model of food relapse is unknown. **Methods:** We trained food-restricted rats (16 -20 g/day) to lever press for high-fat (35%) food pellets (3-6 h/day, every other day for 13 d). We then tested the effect of the orexin 1 receptor antagonist SB 334867 (10 and 20 mg/kg i.p.). Separate groups of rats were trained to self-administer high-fat pellets for 14 days, then following extinction of the food-reinforced responding over 10-16 days, we tested the effect of orexin A (3 and 6 µg, i.c.v.) on reinstatement of food-seeking and the effect of SB 334867 on orexin A-induced reinstatement. We also tested the effect of SB 334867 on reinstatement of food seeking induced by non-contingent pellet exposure (pellet-priming) or the pharmacological stressor yohimbine (2 mg/kg i.p.). In preliminary studies, we also explored the role of an orexin 2 receptor antagonist S-DMDPA (10 µg, i.c.v.) on operant pellet self-administration and orexin A-induced reinstatement of food seeking. **Results:** SB 334867 attenuated high-fat pellet self-administration. In contrast, SB 334867 had no effect on reinstatement of lever responding induced by orexin A, pellet-priming or yohimbine. Results from our preliminary studies indicate that S-DMDPA did not effect pellet self-administration but attenuated orexin A-induced reinstatement of food seeking. **Conclusions:** These data suggest that orexin 1 receptors play an important role in operant high-fat pellet self-administration, but not in relapse to food seeking. In contrast, orexin 2 receptors do not influence operant pellet self-administration, but may play a role in relapse to food seeking during dieting. **Support:** This research was supported by the Intramural Research Program of the NIH National Institute on Drug Abuse.

8 SAFETY OF ATOMOXETINE IN ADHD PATIENTS WITH OR WITHOUT COMORBID ALCOHOL ABUSE AND DEPENDENCE

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Aims: A significant proportion of ADHD patients have comorbid alcohol abuse or dependence. To evaluate the safety of atomoxetine (ATX) in adults with ADHD with or without comorbid alcohol abuse/dependence. **Methods:** This post-hoc analysis compared placebo-controlled acute phase (up to 12 weeks) data from 1 trial of adults with ADHD and comorbid alcohol abuse/dependence with 3 trials of adults with ADHD but no alcohol abuse/dependence. ATX-treated patients were stratified by alcohol consumption (heavy, n=25; non-heavy, n=47; and non-drinker, n=541) as were placebo-treated patients (heavy, n=43; non-heavy, n=32; non-drinker, n=405). Heavy drinker is defined as having ≥4 (female) and ≥5 (male) alcoholic drinks per day for >14 days. Safety was assessed via reasons for discontinuation, treatment-emergent adverse events (TEAEs), and changes in vital signs and laboratory analytes. **Results:** Within treatments (ATX and placebo), overall discontinuation and lost-to-follow-up rates significantly differed among alcohol use groups (p ≤ .001). There were no significant treatment differences in discontinuation rates within the heavy or non-heavy drinking groups. In general, alcohol abusers experienced a greater frequency of TEAEs across body systems in both the ATX and placebo groups. TEAEs (≥5%) occurring significantly more often in the ATX versus placebo group included dry mouth, nausea and fatigue (in both heavy drinkers and non-drinkers). No statistically significant differences were observed in diastolic and systolic blood pressure, and pulse among alcohol use groups in patients receiving ATX, and there was no treatment by alcohol use group interaction. No significant differences occurred in lab analytes by alcohol use group or treatment. **Conclusions:** Prospective data from a study of alcohol abusers demonstrated that ATX may be a safe treatment alternative for this population of adult patients with ADHD. **Support:** Research funded by Lilly Research Laboratories.

CPDD 2008 Annual Meeting, San Juan, Puerto Rico

9 SMOKING CUES INCREASE CAFFEINE URGES IN OUTPATIENTS WITH SCHIZOPHRENIA

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Aims: There is high concordance between nicotine and caffeine use and individuals with schizophrenia are particularly prone to using both substances. In this study, we examined the effects of smoking abstinence and exposure to smoking cues on urge to drink caffeinated beverages in smokers with schizophrenia (SCZ) and control heavy smokers without psychiatric illness (CON). We hypothesized that abstinence and smoking cues would increase caffeine urges in both groups and that SCZ would be particularly prone to experiencing the effects of smoking abstinence and cues on caffeine urges. **Methods:** 17 SCZ and 26 CON participants (46.3 ± 8.6 yrs, X% male, 27.5 ± 10.9 cigarettes per day) completed study sessions in which they were either non-abstinent or 5-hr abstinent from smoking. During these sessions, participants rated their urges to smoke and drink caffeinated beverages while exposed to (a) neutral stimuli and (b) smoking-associated stimuli. 2 x 2 x 2 (Group x abstinence x cues) ANOVAs were used to examine the effects of abstinence and smoking cues on smoking and caffeine urges in SCZ versus CON. **Results:** SCZ reported higher caffeine urges than CON ($p < .05$). Exposure to smoking cues increased caffeine urges ($p = .01$), and this effect was more pronounced in the SCZ group ($p = .01$ for the group x cues interaction). The groups did not differ on smoking urge. Smoking abstinence ($p < .05$) and exposure to smoking cues ($p < .001$) increased smoking urges in both groups, as expected. **Conclusions:** Prior studies have shown that smoking and caffeine use are strongly associated and that SCZ smoke and use caffeine more heavily than CON smokers. However, we believe that this is the first report that exposure to smoking-related stimuli increases caffeine urges in SCZ smokers. **Support:** DA14002 to J. Tidey

10 ASSOCIATION BETWEEN CANNABIS-RELATED BEHAVIORS AND OPRM1 IN THE NICOTINE ADDICTION GENETICS PROJECT

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Aims: While a recent study found potentiation of mu-opioid receptor (encoded by OPRM1) activity in cannabis treated rodents (Ellgren et al., 2007), no study has investigated the association between cannabis-related behaviors and OPRM1 in humans. We examine association between 20 SNPs in the OPRM1 gene and (i) age of onset of cannabis use; (ii) lifetime frequency of times used and (iii) a factor score of DSM-IV cannabis abuse and dependence criteria, using data on 490 Caucasian families (N=2246, mean offspring age: 40) ascertained for the Australian arm of the Nicotine Addiction Genetics Project (PI Madden). **Methods:** Single SNP and haplotype association analyses were conducted in UNPHASED. Participants were selected for heavy tobacco use; cannabis-related data were adjusted for ascertainment effects using a community sample of Australian adults allowing for generalizability of results. **Results:** 10 individual SNPs residing in a large LD block spanning intron 1 were strongly associated with frequency used and the cannabis abuse/dependence factor (p -values 0.02 - 0.001), while modest association with 6 SNPs ($p < 0.10$) was noted for age of onset. Suggestive association between a functional polymorphism, rs1799971 (Asn40Asp) and age at onset ($p=0.08$) was noted. Haplotype association analyses revealed a 5 marker haplotype (rs9478500 (C), rs3823010 (A), rs3778149 (G), rs3778150 (C) and rs1381378 (A)) to be overtransmitted in those with higher susceptibility to cannabis-related behaviors. We also tagged the gene ($r^2 > 0.80$), with 7 SNPs spanning exon1, intron1 and intron3. The association between the cannabis-related behaviors and OPRM1 was largely restricted to intron 1, although modest evidence ($p = 0.05$) for overtransmission of a haplotype spanning the entire gene, including the functional polymorphism rs1799971, was noted. **Conclusions:** OPRM1 contributes to risk associated with cannabis-related behaviors in humans. **Support:** DA12854, AA13321, DA23668, DA18660, DA19951

11 PREVALENCE OF MUSCLE-BUILDING SUBSTANCES AMONG STUDENTS

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Aims: To determine the muscle-building substances consumption amongst a sample of students in the Valencian Region (Spain). **Methods:** 11,239 students aged 14-18 years, 47.6% males and 52.4% females and attending public and private schools, were the target population. The sample was stratified according to their educational level, by whether or not the school was public or private and finally by gender. The study was carried between March and May 2006. Ethics approval was obtained. The questionnaire included information regarding sociodemographic data, family relationships, educational background and patterns of muscle-building substances and drug use. The statistical analysis was performed using SPSS version 14.0. **Results:** 3.5% of surveyed students reported that they have consumed muscle-building substances. Males reported to take more than females (6.5% of males, 0.9% of females; $X^2=223.804$, $p<0.001$). The older they are, the more frequent the reporting of consumption we found -increasing from 2.5% in those aged 14 years, to 4.3% in those aged 18- ($X^2=10.935$, $p<0.001$). Among users of muscle-building substances it exists a higher prevalence consumption of cannabis 64.2% ($X^2=49.71$, $p<0.001$), cocaine 23.8% ($X^2=66.27$ $p<0.001$), hypnotics 22.9% ($X^2=11.79$, $p<0.001$), ecstasy 16.8% ($X^2=75.24$ $p<0.001$), LSD 14% ($X^2=79.55$, $p<0.001$) or heroine 4.1% ($X^2=57.57$, $p<0.001$), compare to nonusers. Nevertheless, the prevalence is lower in tobacco and alcohol consumption. It can also be stated that secondary school pupils report a consumption of 3.1% while medium degree or technical education students report 4.6% ($X^2=13.82$, $p<0.001$). **Conclusions:** There is a clear association between muscle-building substances use and polyconsumption. This relation should be studied in depth to design prevention campaigns specially designed for teenagers. **Support:** Fundación para el Estudio, Prevención y Asistencia a las Drogodependencias. Generalitat Valenciana.

12 SMOKED MARIJUANA AFFECTS RISK TAKING BUT NOT DECISION MAKING IN A LAB STUDY OF ADULT MARIJUANA SMOKERS

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Aims: Chronic drug use is associated with impairments in neurocognitive functioning, including executive functions of decision making and risk taking. However, the relationship between the direct effects of drug use and cognitive performance is not well understood. A recent study has shown that smoked marijuana had few direct effects on decision-making tasks, but it may be that marijuana smoking induces selective cognitive impairments across different cognitive domains. The objective of this study was to assess the acute effects of marijuana on decision making and risk taking, both executive functions, conjointly under controlled conditions. **Methods:** Healthy marijuana smokers (N=16M,8F), averaging 2.2 (+ 1.8) marijuana cigarettes/day, 4.0 (+ 1.5) days/week, participated in this within-subject, double-blind study. In each session, participants completed the Balloon Analogue Risk Task (BART), the Iowa Gambling Task (IGT), and subjective-effects questionnaires before and after smoking 70% of a marijuana cigarette under controlled conditions. Marijuana strength (0.0, 1.98, 3.56% $\Delta 9$ THC) was counterbalanced across sessions within participants. **Results:** Marijuana produced time and dose-dependent increases in ratings of "High" and "Good Drug Effect" [$p < 0.0001$]. Smoking marijuana reduced risk taking behavior compared to placebo based on the BART; there was a significant main effect for marijuana dose [$p=0.04$] and for time [$p=0.003$], but there was not a dose by time interaction [$p=0.13$]. There were no main effects for either dose ($p=0.14$) or time ($p=.09$) on decision-making, as measured by subtracting the 'bad' choices in card selection from the 'good' choices on the IGT. **Conclusions:** Thus, smoked marijuana has a selective effect on cognition, by decreasing risk taking without affecting decision making. Given that individuals seeking treatment for their marijuana use often report procrastination and dissatisfaction with job progress, future studies defining the relationship between marijuana's effects on risk taking, as measured here, and the clinical consequences of marijuana use are needed. **Support:** NIDA

CPDD 2008 Annual Meeting, San Juan, Puerto Rico

13 ASSESSING STIGMA TOWARD NICOTINE-DEPENDENT CLIENTS AMONG SOCIAL WORKERS

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Aims: The aim of the current study is to determine personal smoking behaviors and level of stigma towards nicotine dependent clients among social work students, replicating a study of medical students (Anthony et. al., 2006). **Methods:** All MSW students (N=120) from a large Midwest university were asked to participate in randomized incentive based in-class (10 minutes) and corresponding web-based surveys (20 minutes) on their personal behaviors and willingness to treat clients with certain neuropsychiatric conditions. **Results:** The study found the prevalence of current smoking (23%) was higher than medical students (3%) and national rates (22.5%). Students reported the lowest level of stigma and reluctance to practice associated with depression (M 24.2) and the highest levels related to nicotine dependence (M 38.8) ($t=10.1$; $p<.001$). Stigma linked to nicotine dependence were statistically different from every condition, including alcohol (M 29.7; $t=2.3$; $p=.03$). **Conclusions:** Educational interventions are needed to reduce stigma toward nicotine dependent clients and train social workers in brief interventions that might reduce their clients - as well as their own - smoking behaviors. **Support:** Tobacco smoking is the number one cause of preventable morbidity and mortality across the world. However, counselors have often advised clients not to quit smoking when dealing with a co-occurring addiction (Bobo, 1989; Hughes & Kalman, 2006). This may be a result of counselors' own smoking patterns and stigma associated with their behaviors. In a recent study Siebert (2003) found that those who were current or past marijuana smokers were less likely to see their client's use as problematic.

14 HIGH-DOSE NICOTINE AND SENSORIMOTOR REPLACEMENT EFFECTS ON COGNITION IN SMOKERS WITH SCHIZOPHRENIA

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Aims: Cigarette smoking remains a highly prevalent behavior in persons with schizophrenia. Greater attentional benefits from nicotine and costs of withdrawal to working memory in these smokers are established (Harris et al., 2004; Sacco et al., 2005). However, smoking denicotinized cigarettes can also improve some areas of cognition (Smith et al., 2002). In this study, we are examining the separate and combined effects of high-dose nicotine replacement and sensorimotor replacement on neuropsychological functioning in heavy smokers with schizophrenia. We hypothesize that both nicotine and sensorimotor replacement will improve cognitive functioning and that the combination will be most effective. **Methods:** In a 2 x 2 within-subjects design, participants smoke denicotinized cigarettes, or refrain from smoking, for 5 hours, while wearing nicotine (42 mg) or placebo patches. Cognitive tests include the Connors' CPT and CANTAB subtests. Participants ($n = 9$; 30% female; $M = 47.7$ yrs) are heavy smokers (FTND: $M = 7.8$, $SD = 1.5$; cigarettes per day: $M = 29.9$, $SD = 7.2$). Statistical analyses included within-subject repeated measures ANOVAs. **Results:** Smoking denicotinized cigarettes, compared to no cigarettes, improved inhibition in a sustained attention test, ($F(1, 8) = 7.30$, $p < .05$), and accuracy rates in a spatial working memory task, ($F(1, 8) = 7.84$, $p < .05$). Nicotine replacement, compared to placebo, improved reaction time to identify a string of 3 digits in a sustained attention test ($F(1, 7) = 8.14$, $p < .05$). There were no effects of sensorimotor or high-dose nicotine replacement on motor functioning or alertness and no interactions between sensorimotor and nicotine replacement. **Conclusions:** Nicotine and sensorimotor replacement differentially affect sustained attention and spatial working memory in smokers with schizophrenia. Therefore, sensorimotor replacement may be a useful adjunct to pharmacological treatment for smoking in these patients. **Support:** This study was supported by National Institute of Drug Abuse grants T32-DA016184 (CGA), R01 DA14002 (JWT), and R01 DA17566 (JWT).

15 A THERAPEUTIC WORKPLACE FOR THE LONG-TERM TREATMENT OF DRUG ADDICTION IN METHADONE PATIENTS: EIGHT-YEAR OUTCOMES

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Aims: This study evaluated the effectiveness of a therapeutic workplace in promoting long-term abstinence and employment in methadone patients. **Methods:** Patients enrolled in methadone treatment for pregnant women were randomly assigned to a Therapeutic Workplace (TW; $n=20$) or a usual care control (UCC; $n=20$) group. TW participants were hired to work in the workplace every weekday for over 4 years. To promote abstinence, participants were required to provide drug-free urine samples to maintain daily workplace access. Initially, participants underwent job skills training, and were paid in monetary vouchers. Participants who became skilled and abstinent were hired as TW employees and paid in bi-weekly paychecks. Both groups were monitored for 8 years. **Results:** Prior reports showed that TW participants provided significantly more drug-free urine samples than UCCs during the first 3 years. Monthly assessments conducted during the fourth year when participants could work in the data entry business showed that relative to the UCC, TW participants had more urine samples negative for cocaine (57% vs 23%; $p=.01$), opiates (63% vs 30%; $p=.01$); more days employed per month (means of 10.0 days 2.4; $p<.001$), higher monthly employment income (\$483 vs \$62; $p<.001$), higher total monthly income (\$852 vs \$539; $p=.01$), and less money spent on drugs (\$127 vs \$318; $p=.02$). During the 3 years after the business closed, relative to the UCC, TW participants reported higher monthly employment income (means of \$359 vs \$150; $p=.06$), and higher total monthly income (\$1114 vs \$625; $p=.001$). **Conclusions:** These data show that TW can maintain abstinence and employment in poor and unemployed substance abusers. The intervention may have lasting beneficial effects after the intervention is discontinued, although longer-term maintenance may be required to sustain all beneficial effects. **Support:** Supported by NIDA grants R01DA13107 and T32DA07209.

16 COCAINE-INDUCED INCREASES IN LIMBIC AND BASAL GANGLIA MET-ENKEPHALIN CONTENT ARE MEDIATED BY A DOPAMINERGIC MECHANISM

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Aims: Because Met-Enkephalin (Met-Enk) has been linked with both mesolimbic and mesocortical dopamine function, we previously determined that cocaine (Coc) treatment profoundly influences Met-Enk systems by increasing Met-Enkephalin-like immunoreactivity (Met-Enk-LI) content in several limbic and basal ganglia regions. The present study was designed to investigate the mechanism responsible for these effects by determining the impact of pre-treatment with selective DA receptor antagonists on cocaine-induced changes in limbic and basal ganglia Met-Enk-LI levels. **Methods:** Male Sprague-Dawley rats received five administrations (6-h intervals) of Coc (30 mg/kg, i.p.) in the presence or absence of selective dopamine receptor (D1, SCH23390; or D2, eticlopride) antagonists, and were sacrificed 3h after drug treatment. **Results:** The Met-Enk-LI changes induced in cortical tissues (agranular insular and cingulate cortices), anterior and posterior caudate by Coc administration were prevented by pre-treatment with either dopamine D1 or D2 receptor antagonists. **Conclusions:** These results suggest that a combination of dopamine D1 and D2 receptors activity are important for the Met-Enk-LI increases in these brain regions caused by cocaine treatment. **Support:** Supported by NIDA grants DA09407 and DA00378

CPDD 2008 Annual Meeting, San Juan, Puerto Rico

17 SCIENTIFIC COLLABORATION BETWEEN THE UNITED STATES AND THE EUROPEAN UNION IN SUBSTANCE ABUSE (2002-2006)

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Aims: Since beginning of the 20th century there has been a consistent trend towards collaboration between researchers in all major branches of science. Collaboration in research takes place when two or more scientists work together on a scientific problem or project. We can determine the scientific collaboration patterns analyzing the articles published in scientific bibliographic databases. International scientific cooperation between the United States and the European Union is analyzed through Web of Science. **Methods:** Bibliometric and social network indicators were used to identify the collaboration patterns, productivity, journals of publication, main subjects of the cooperation and centres. **Results:** 384 co-authored articles had been analysed during the 2002-2006 period. The number of publications increase, going from 42 (11%) in 2002, to 100 (26%) in 2006. The most productive journal was Alcoholism-Clinical and Experimental Research, followed by Addiction and Drug and Alcohol Dependence. At the institutional level we should point out that the collaborations of some institutions are focused on only with one or few institutions: The National Institute on Alcohol Abuse and Alcoholism (US), The University of Yale (US), The Karolinska Institute (Sweden), among others. Germany and United Kingdom were the countries with most papers published in collaboration with the United States. Sweden, Finland and the Netherlands performed better than larger ones, especially when figures were corrected for number of inhabitants. **Conclusions:** United States and European countries researchers engage in collaboration activity, and develop new coalitions among institutions. Future works could provide a more in-depth analysis of the scientific production of identified groups, their scientific impact and repercussions and the scientific quality of the published papers. **Support:** Plan Municipal de Drogodependencias. Ayuntamiento de Valencia. Spain.

19 WHO COLLABORATIVE STUDY ON SUBSTITUTION THERAPY OF OPIOID DEPENDENCE AND HIV/AIDS

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Aims: To establish whether opioid substitution therapy (OST) is as effective in developing countries as in developed countries and to demonstrate the feasibility of conducting a 6-month treatment evaluation study to inform program managers of the effectiveness of their OST programs. Injecting drug use (IDU), principally of opioids, is a leading mode of HIV transmission in developing countries. OST has been shown to reduce IDU and unsafe injecting practices in developed countries. **Methods:** Longitudinal, multi-site cohort study conducted in Asia (China, Indonesia, Thailand), Eastern Europe (Lithuania, Poland, Ukraine), and the Middle East (Iran). 730 OST entrants were interviewed at treatment entry, 3 and 6 months. Standardised instruments assessed drug use, physical and psychological health, criminal involvement, blood borne virus risk behaviours, and prevalence of HIV/Hep C. **Results:** Heroin was the most commonly used opioid in Asia & Australia, whereas in Iran and European countries, it was heroin and opium straw. Participants from Asia had higher seroprevalence rates for HIV than their European counterparts (Asia: 37% vs. Europe: 18%). Treatment retention at 6 months ranged from 55% in Australia to 88% in China. Marked decrease in heroin and other opiate use was evident in all countries over the course of the study with abstinence ranging between 69% in Thailand (excluding Australia, 52%) to 100% in China. Reductions in injection risk behaviour were seen in all countries. Of those participants retained in treatment, the proportion of those engaging in any IDU risk activity fell from 60% to 14% over 6 months. Overall improvements in physical and psychological health were evident. Low level methadone dosing countries (<60mg) achieved similar outcomes to high level dosing countries. **Conclusions:** OST is effective in developing countries in reducing illicit opioid use and injecting risk behaviours. The feasibility of the evaluation protocol has been established. **Support:** This study was funded by the WHO Department of Mental Health and Substance Dependence.

18 TEACHING MEDICAL STUDENTS TO PERFORM SCREENING AND BRIEF INTERVENTIONS FOR UNHEALTHY SUBSTANCE USE

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Aims: Patients with substance use disorders (SUD) seek medical care, however these disorders are seldom identified or addressed. One reason is lack of physician education regarding the spectrum of substance use or skills to perform brief interventions. Thus, we created an elective to teach medical students how to perform alcohol and drug screening and brief interventions (SBI) for hospitalized patients as part of the SAMSHA-funded Massachusetts Screening Brief Intervention, Referral and Treatment (MASBIRT) program. **Methods:** The elective was designed for medical students during pre-clinical years prior to potential exposure to negative attitudes towards patients with addictions during their clinical years. Students receive 16 hours of training with the following learning objectives: to identify patients with unhealthy alcohol and drug use using the WHO Alcohol, Smoking, and Substance Involvement Screening Test (ASSIST); to perform brief interventions using motivational interviewing; and to discuss issues dealing with perceptions of patients with addictions. Students then perform supervised SBI on inpatients at Boston Medical Center. Students independently performed SBI after demonstrated proficiency. Medical students who completed the elective received a certificate for inclusion in their residency program applications. **Results:** Eight 2nd-year medical students participated in the elective from Oct-Dec 2007. Evaluation included pre and post-elective standardized written survey measuring attitudes and knowledge about SUDs and performing brief interventions. Evaluation will include medical student interviews during clinical years to see if SBI skills are used in their patient encounters. **Conclusions:** This elective offers an innovative way to introduce SBI skills to medical students during pre-clinical years with the goal of having a positive and lasting impact on physicians' attitudes and clinical performance. **Support:** SAMHSA1U79TI018311

20 CURRENT TOBACCO USE AND OTHER HEALTH RISK BEHAVIORS IN A PRIMARY CARE SAMPLE OF WOMEN

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Aims: In addition to the increased morbidity and mortality directly related to tobacco use, smoking has been linked to other health behaviors associated with poor health outcomes. The aim of the current study was to determine if women in a primary care setting, who reported current smoking, were more likely to report the presence of other health risk behaviors, including alcohol misuse, drug use, violence exposure, and unhealthy eating. **Methods:** N = 140 women presenting to an urban, hospital-affiliated gynecology clinic were surveyed using a battery of self-report questionnaires. Measures included the Patient Health Questionnaire (PHQ), Violence Exposure Questionnaire (VEQ), and the Lifestyle Assessment of Women (LAW), which included demographic questions, substance use questions, and the CAGE administered separately for alcohol and other drugs. Fifty-two women (37%) reported smoking their last cigarette within 1 month of the survey and were classified as current smokers. **Results:** Demographically, women were in their early 30's (mean age 33, SD 9.7), predominantly Black (60%), and single (55%). The only demographic difference between current smokers (CS) and nonsmokers (NS) was mean years of education (12.2 and 13.8 years, respectively (p = .001)). CS women were significantly more likely to report ever consuming 6 drinks at one time (57% vs. 30%), ever using marijuana (67% vs. 33%), ever using crack/cocaine (33% vs. 4%), and ever using heroin/narcotics (18% vs. 4%). CS women were also significantly more likely to have + Alcohol CAGE (23% vs. 4%) and Drug CAGE scores (28% vs. 10%) than NS women (.0001 < p < .009). No group differences existed in prevalence of either lifetime physical or sexual abuse. However, CS women were more likely than NS women to report a history of both physical and sexual abuse (28% vs. 13%, p = 0.042). There were no group differences in eating behaviors. **Conclusions:** Women who smoke are more likely to report other risky health behaviors and clinicians should recognize smoking as a potential marker for non-tobacco related health outcomes. **Support:** Supported by NIH grants NIDA R01 DA11476 and NIAAA AA 11802.

21 ONLINE ENHANCEMENTS OF SMOKING CESSATION: PERU, 2007

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Aims: In a more general global health and pharmacogenetics research program for Screening, Brief Intervention, Referral, and Treatment (SBIRT), here we focus on tobacco-oriented SBIRT. Our target populations reside in countries where (a) many physicians and allied professionals continue to smoke tobacco, and (b) many use the internet regularly. This study protocol was adapted for professional schools in Peru and Chile; our aim here was to evaluate the protocol's combination of pre-delivered incentives and post-delivered reinforcers with respect to achievement of minimally acceptable participation levels in genetically-informative research, and to estimate 'falsely negative' smoking self-reports. **Methods:** A standard protocol is for a multi-wave longitudinal research design, starting with a classroom survey requesting an anonymous but coded saliva specimen (for cotinine and genotyping assays) and coded opscan questionnaire. Then a prepaid gift card is given as a pre-delivered incentive for post-classroom log-in. Another random-value gift card reinforcer is delivered upon completion of the coded online survey (i.e., coding linked saliva with classroom and online responses to multi-item assessments of smoking and related constructs). **Results:** Of 120 enrolled students, 119 completed classroom questionnaires, 112 gave saliva for cotinine and genotyping, and 91 completed the online survey. 0 of 40 non-smoker salivas, selected at random, were cotinine-positive. No pronounced gradient linked reinforcer level (size of prepaid reinforcer) to online participation level, in part due to unexpectedly high 76% level achieved at the smallest reinforcer value. **Conclusions:** In this anonymous longitudinal research context, with ID-coding for linkage of specimens and self-report assays, we found acceptable (76%) to excellent (>90%) participation levels, and no evidence of falsely negative tobacco smoking status. We sketch how this study fits into a more general SBIRT and pharmacogenetics research program. **Support:** NIDA/NIH/FIC awards: D43TW05819; K05DA015799.

22 INFLAMMATORY PAIN ALTERS LEVELS OF PROSTAGLANDIN E2 AND D2 DURING THE FEMALE REPRODUCTIVE CYCLE

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Aims: The complexity of the female endocrinological cycle is likely to have an influence on differences observed in nociceptive responses; where intrinsic hormonal changes during the female reproductive cycle (i.e. peri-adolescent, puberty, menstruation, pregnancy, and menopause) may alter the perception of pain and induction of inflammatory responses. The aim of this study was to determine whether the female reproductive cycle affects inflammatory-mediated intracellular responses to chronic inflammatory pain. **Methods:** For the developmental study, female Sprague-Dawley rats were used at 3 weeks (peri-adolescent), 6 weeks (adolescent), 8 weeks (adult), and 52 weeks of age. For the estrous cycle study, the rats were staged according to the cell type in the vaginal epithelium. Sixty minutes after a subcutaneous injection of 5% formalin (50ul), trunk blood was collected. Serum levels of prostaglandin E2 (PGE2) and prostaglandin D2 (PGD2), important mediators in inflammatory responses, were examined using the enzyme immunoassays. **Results:** While after formalin administration, the stage of the estrous cycle had no effect on PGE2 serum levels, females in proestrus had significantly higher PGD2 serum levels than females in either metestrus or diestrus. PGE2 serum levels in peri-adolescent and adolescent rats were significantly higher than levels in the 52 week aged group. On the other hand, peri-adolescent rats had significantly higher PGD2 levels than adult and aged groups. **Conclusions:** Taken together, our results suggest that the female reproductive cycle influences the physiological responses associated with inflammation and chronic pain. **Support:** Supported by: SCORE 506-GM60654, MBRS-RISE GM60665, DA00325 and SNRP NS41073.

23 A BRIEF BEHAVIORAL INTERVENTION TO ENHANCE MEDICATION ADHERENCE AMONG HIV-INFECTED INJECTION DRUG USERS

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Aims: A significant percentage of HIV-infected injection drug users (IDUs) in the U.S. jeopardize their own health as well as community health via interrelated and modifiable health-risk behaviors including: drug- and sex-related HIV risk behaviors and sub-optimal adherence to HIV medication regimens. Though HIV medications have vastly improved in the past decade, optimal adherence to regimens is critical to their effectiveness and remains a challenge when treating HIV-infected persons with drug addiction (e.g., Murphy et al., 2007; Parsons et al., 2005). In this presentation, we describe our theory-based behavioral intervention - part of which is specifically designed to enhance HIV medication adherence - and discuss our preliminary outcomes. **Methods:** We are currently pilot testing a theory-driven "community-friendly" behavioral intervention that was designed based on a meta-analysis of the behavioral HIV risk reduction literature focused on randomized controlled trials (RCTs) with IDUs (Copenhaver et al., 2006) and elicitation research with HIV-infected IDUs and treatment providers in the New Haven, CT community. The intervention consists of 4 weekly group sessions (50 minutes each) that focus on enhancing participants' adherence to HIV medication regimens as well as HIV risk reduction. Intervention sessions are co-facilitated by trained bachelor's level clinicians. **Conclusions:** Findings to date indicate that it is feasible to deliver a brief behavioral risk reduction/medication adherence group intervention to HIV-infected IDUs in a community-based setting. Implications of the preliminary outcomes are examined. **Support:** Grant support was provided to Michael Copenhaver by NIDA (K23-DA017015).

24 MODULATION OF THE NEUROADAPTIVE CHANGES IN GLUTAMATE AND DOPAMINE TRANSPORTERS DURING THE EXTINCTION OF COCAINE SELF-ADMINISTRATION

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Aims: Dopamine and glutamate transmission has been implicated in cocaine addiction. However, the effects of the extinction of cocaine self-administration on protein transporters of both neurotransmitter systems are unknown. **Methods:** A yoked-box procedure was used to examine the time course of the effects of extinction of cocaine self-administration on excitatory amino acid transporters (EAATs) and dopamine transporter (DAT) binding. Rats were tested simultaneously in triads, with only one rat actively self-administering cocaine (CONT), while the other two received yoked injections of either cocaine (NONCONT) or saline (SALINE). The brains of rats belonging to each triad were removed and processed for quantitative autoradiography immediately after the last session of cocaine self-administration (DAY 0) or after 1-, 5- and 10-days of extinction. **Results:** EAATs binding levels were significantly lower in the CONT group in the CA1 field of hippocampus and the cerebellar cortex on DAY 0 and significantly higher after 1 day of extinction in the infralimbic cortex, compared to NONCONT and SALINE groups. No other differences in EAATs binding were observed after 5 or 10 days of extinction in any of the brain regions analysed. However, in slices adjacent to those of EAATs, DAT binding levels were significantly enhanced in CONT animals in all the extinction days compared to SALINE and NONCONT groups in different forebrain and mesencephalic regions, including the nucleus accumbens, ventral tegmental area or caudate putamen. **Conclusions:** These results suggest that the extinction of cocaine self-administration differentially modulates glutamate and dopamine transporters, inducing a widespread effect on the dopaminergic carrier protein. **Support:** This work was supported by the grants FIS G03/05 ("Red de Trastornos Adictivos"), BSO2001-109, FIS 01-05-01, and "Plan Nacional sobre Drogas (2001-2003 and 2004-2006)

CPDD 2008 Annual Meeting, San Juan, Puerto Rico

25 WHAT DO ADDICTION CLINICIANS UNTRAINED IN COGNITIVE BEHAVIORAL THERAPY (CBT) REPORT ABOUT THEIR USE OF AND INTEREST IN CBT PRACTICES?

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Aims: To describe the relationship between supervisor and counselor reports of CBT skill utilization, interest and attitude variables. **Methods:** Data are from a national study of clinical teams at community-based addiction programs enrolled in a randomized trial of CBT training. Consenting subjects completed a web-based questionnaire asking (1) how often in client sessions in the past month they used any CBT skills and 13 specific CBT skills; (2) interest in predominant use of CBT, and (3) attitudes toward evidence-based practices (EBPs). Subjects were 171 clinicians (30 supervisors and 141 counselors) untrained in CBT: 67.2% female and 69.6% Caucasian. **Results:** On average, supervisors were in their role 7.4 years and counselors in theirs 6.8 years. Supervisors and Masters-level subjects reported a slightly higher frequency of using any CBT skills than did counselors (53.3% vs. 51.1%, $p=0.87$) and non-Masters respectively (51.9% vs. 50.8%, $p=0.65$); similarly, supervisors' average score on use of specific CBT skills (5-point scale, 1=never, 5=almost always) was slightly higher than that of counselors (3.40 vs. 3.26, $p<0.3$). Interest in using CBT as a predominant approach was positively correlated with frequency of utilization of CBT skills ($p<0.02$). Supervisors' average score (5-point scale, 1=strongly disagree, 5=strongly agree) on attitudes toward EBPs was more favorable than that of counselors (4.02 vs. 3.81) with marginal significance ($p<0.04$). Attitude score was significantly and positively related to frequency of using any CBT ($p<0.01$) and utilization of specific CBT skills ($p<0.001$). **Conclusions:** Dissemination of EBPs continues to challenge the addiction field. Prior to training, supervisors vs. counselors and Masters vs. non-Masters clinicians reported slight differences in CBT utilization. Thus, supervisors and Masters clinicians in this sample may benefit from additional training on CBT and may not yet be prepared to supervise counselors in learning CBT. **Support:** NIDA-R01 DA016929

27 THE ROLE OF NMDAR 2A AND 2B IN PCP-INDUCED NEUROTOXICITY AND DEVELOPMENT OF LOCOMOTOR SENSITIZATION

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Aims: The relationship between PCP-induced neurotoxicity in perinatal rats and the later development of behavioral deficits is unclear, as is the role of specific NMDAR subunits in both. This lab has reported that activation of synaptic NMDAR can prevent PCP-induced death in cortical neurons. This study used drugs that are selective for NR1/NR2A and NR1/NR2B, synaptic and extrasynaptic, respectively, to test the hypothesis that the behavioral and neurotoxic effects of PCP are mediated by blockade of synaptic NMDARs. **Methods:** An organotypic corticostriatal slice culture was treated on DIV 9 for 12 hrs with 3 μ M PCP or varying doses of either the selective NR2A antagonist, NVPAAM007, or the selective NR2B antagonist, ifenprodil. Neurotoxicity was measured using TUNEL labeling or a caspase-3 enzymatic assay. In addition, Sprague-Dawley rat pups were treated on postnatal days 7, 9, and 11 with 10 mg/kg PCP, 10 mg/kg NR2A antagonist, or 1 mg/kg NR2B antagonist. Animals were sacrificed 8 hrs after the last of 3 injections in order to measure neurotoxicity or tested for locomotor sensitization to PCP challenge on postnatal days 28-35. **Results:** In corticostriatal slices, we found that NVPAAM007 is neurotoxic, while ifenprodil is not. Further, rat pups treated with either PCP or PEAQX (NR2A antagonist) showed marked elevation of both TUNEL-positive labeling and caspase-3 activity in the cortex, while ifenprodil showed no effect. Rat pups were treated with saline or PCP on PN7, 9 and 11, challenged with PCP between PN28-35 and locomotor activity measured. This regimen caused a sensitized locomotor response to PCP challenge. A similar response to PCP challenge was observed following treatment with ifenprodil on PN7, 9 and 11. **Conclusions:** These preliminary data suggest that sensitization to PCP involves blockade of NR2B receptors and may not be the result of the neurotoxic effects of PCP. Future experiments with PEAQX will be performed in order to help distinguish the role of NR2 subunits in PCP-induced sensitization and the link between neurotoxicity and locomotor sensitization. **Support:** F31DA022824 & DA02073

26 CLINICAL RELATIONSHIPS BETWEEN COGNITION, COMMITMENT LANGUAGE AND BEHAVIORAL CHANGE IN COCAINE-DEPENDENT PATIENTS

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Aims: Relationships among cognitive abilities and verbal expressions of commitment to behavioral change were investigated in an outpatient cognitive behavioral treatment of adult cocaine dependent patients. Shifts in commitment strength to change during a psychotherapeutic session predict better substance abuse outcomes than no shift or a shift toward drug use (Amrhein et al., 2003). Cognitive impairments may impede therapeutic engagement, realized as limited commitment language to reduce substance use—a heretofore unstudied relationship. **Methods:** Participants (N=24) were patients in placebo-controlled randomized medication trials for cocaine dependence, including 12 CBT-RP weekly sessions. Patients were evaluated with a SCID I/P interview (Axis I, DSM IV version). A baseline neuropsychological battery was administered; two raters coded patients' commitment language strength across in-session temporal deciles. Utterance codes indicated strong commitment to change (e.g., "I am very determined to quit using"), neutrality (e.g., "I think about changing my cocaine use"), or continued use ("I will probably use as soon as I get paid"). This study was based on a patient subset from Aharonovich et al. (2006). **Results:** Significant associations between cognitive functioning, commitment strength and treatment outcome emerged. An in-session marker for verbal engagement, a shift in commitment strength to change substance use, predicted general cognitive function ($r = .45$, $p < .05$) and treatment retention ($r = .84$, $p < .05$) but not drug use ($r = -.11$, $p > .96$). Mean commitment strength across session deciles predicted reduced drug use ($\beta = 16.95$, $p < .01$). **Conclusions:** Patient cognitive abilities are neither necessary nor sufficient to produce change in drug use, though they may influence verbal engagement during psychotherapy and treatment retention. However, high overall patient commitment to change predicts reduced drug use, independent of those abilities. **Support:** This research was supported in part by a grant from NIDA (K23-DA16743).

28 10-YEAR USE PATTERNS AFTER ADOLESCENT SUD TREATMENT: IMPACT ON RELATIONSHIP STATUS IN ADULTHOOD

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Aims: A central developmental milestone of young adulthood is the ability to form stable intimate relationships (Benson et al., 2004). Past research has suggested that relapse status impacts interpersonal functioning 2 years after adolescent substance use treatment (Brown, Myers, Mott & Vik, 1994), and adolescent substance use may have long term implications for the development of stable relationships in young adulthood (Krohn, Lizotte, & Perez, 1997). The purpose of this investigation was to examine the marital and relationship status of individuals in their mid-20s who had received substance use treatment in mid-adolescence. **Methods:** Six substance use trajectories have been identified in a sample of 153 individuals (41.2% women) across 10-years after treatment for adolescent substance use disorders (SUDs): "Abstainer/Infrequent users" ($n = 44$), "Late Adolescent Resurgence" ($n = 27$), "Early 20s Resurgence" ($n = 22$), "Heavy Drinkers" ($n = 25$), "Heavy Drinkers/Drug Dependent" ($n = 26$), and "Chronic/Severe" ($r = 9$; Anderson, Ramo, Cummins & Brown, 2007). Trajectory groups were compared on their marital and dating status, number of children (supported/unsupported) and the substance use characteristics of their partners at 10 years after treatment. **Results:** Abstainers/Infrequent users were more likely to be in stable intimate relationships (domestic partners/married) with less alcohol and drug use among their partners at ages 24-26. While these young adults did not differ on their number of children, Abstainers/Infrequent users took financial responsibility for their children more than their alcohol and drug using counterparts on average. **Conclusions:** These preliminary results suggest that youth who can maintain abstinence or infrequent substance use status from adolescence to young adulthood after SUD treatment are more likely to attain stable, intimate relationships than their substance using counterparts. **Support:** NIAAA 07033 (S. Brown)

CPDD 2008 Annual Meeting, San Juan, Puerto Rico

29 ARE SAMPLES OF SUBJECTS IN CLINICAL TRIALS OF PHARMACOTHERAPIES FOR ALCOHOL DEPENDENCE REPRESENTATIVE OF THE GENERAL POPULATION OF ALCOHOL-DEPENDENT INDIVIDUALS?

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Aims: To determine whether subjects enrolled in clinical trials (CT) to study the efficacy of pharmacotherapies for alcohol dependence are representative of those with alcohol dependence in the general population. **Methods:** We first compared demographic characteristics and patterns of alcohol use for subjects in several recently published clinical trials to population-based samples of those with alcohol dependence using epidemiologic data from the 2006 National Survey of Drug Use and Health (NSDUH) and the 2005 Treatment Episode Data Set (TEDS). **Results:** Among subjects in recent CT, average age was typically in the mid-forties, with two to three times as many males as females, and had an employment rate of around 60%. This profile of demographic characteristics is similar to that found for treatment seekers in the NSDUH for gender (2.3 times more males than females), and employment (59.3% currently employed full or part time), but those seeking treatment in the NSDUH tended to be younger than those in clinical trials with more than half (55%) under 35 years old. Those with untreated alcohol dependence in the NSDUH compare to those treated were more likely to be employed (74.5% employed full or parttime), and female (1.7 times more males than females), but similar with respect to age. Those receiving treatment in the TEDS sample were less likely to be employed (36.1%), predominantly male (three times more males than females) than CT and NSDUH samples, and similar in age range to CT but older than NSDUH samples. **Conclusions:** These findings suggest that samples of subjects in pharmacotherapy trials may be slightly older than treated and untreated alcohol dependent samples in the general population, more often previously treated, and have a higher percentage of employment than the general population of alcohol dependent individuals. This is particularly true with regard to employment in comparing the CT sample with the TEDS state supported treatment population who are much less likely to be employed. **Support:** This was supported by GlaxoSmithKline.

31 TOBACCO AND DRUG USE ACROSS THE TRANSITION FROM HIGH SCHOOL TO COLLEGE

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Aims: The transition from high school to college is associated with major changes in social context and has a substantial impact on substance use behaviors. Previous studies have noted a strong comorbidity between tobacco and other substance use. Here we examined this relationship in a longitudinal perspective. **Methods:** Based on data from an ongoing longitudinal study, we examined whether tobacco smoking in the senior high school year predicts drug use during first year of college. High school seniors (n=1,024) were administered a diagnostic interview at the end of the high school and at the end of their first year in college. **Results:** At baseline assessment, tobacco use was strongly associated with drug use, predominantly marijuana, (OR=9.4, 95% CI: 7.2-12.3). Smoking onset typically preceded or correlated in time with the onset of drug use. Drug use (OR=17.9 CI: 12.4-25.8) and smoking (OR=8.0 CI: 5.6-11.4) in high school predicted drug use in college. A logistic regression analysis has shown that smoking in high school significantly predicted drug use in college even after controlling for drug use and other covariates at baseline assessment (Wald Chi-square=6.6, df=1, p=0.01). Smoking significantly predicted both new onsets of drug use (OR=4.1 CI: 2.3-7.3) and reduced likelihood of quitting drug use in college (OR=0.47 CI: .26-.84). **Conclusions:** These preliminary results suggest that adolescent tobacco involvement prospectively predicts both initiation of and persistence in drug use across the transition from high school to college. **Support:** Supported by grants from the National Institute of Alcohol Abuse and Alcoholism (AA13989) and National Institute on Drug Abuse (DA018899).

30 IMPULSIVITY PREDICTS THE ESCALATION OF COCAINE SELF-ADMINISTRATION IN FEMALE RATS

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Aims: Preclinical research indicates that impulsivity predates drug addiction and confers susceptibility to the initiation and persistence of drug taking. For example, impulsivity, as measured by the delay-discounting task, predicts the acquisition, extinction, and reinstatement of cocaine-seeking in rats. The purpose of the present study was to extend these results to the escalation of cocaine self-administration. **Methods:** Female rats were initially screened for high (HiI) and low (LoI) impulsivity using a delay-discounting procedure. Rats were then implanted with iv catheters and trained to lever press for 0.4 mg/kg cocaine infusions under an FR 1 schedule during short-access (ShA), 2-hr sessions. Once cocaine intake stabilized, responding was assessed under 2 daily progressive ratio (PR) sessions (9-11 am and 1-3 pm) for each of 3 randomly selected doses of cocaine (0.2, 0.8, and 3.2 mg/kg). Following PR testing, the cocaine dose was changed to 0.4 mg/kg and the session length was extended to 6-hr for 21-days. After the 21-day escalation phase, responses and infusions under the ShA FR 1 and PR-dose response conditions were reassessed. **Results:** Initial results indicate that HiI rats escalated their cocaine intake during long access (LgA), while LoI rats did not. In addition, HiI but not LoI rats, significantly increased their ShA cocaine intake following LgA. When comparing pre- and post-LgA infusions under a PR schedule, LoI rats exhibited a rightward shift in their dose response curve following LgA, while HiI rats showed no change. The results from the present study indicate that HiI rats showed enhanced responding for cocaine during the ShA and LgA conditions, while LoI rats increased their cocaine intake under a PR schedule following LgA to cocaine. **Conclusions:** This study provides evidence that impulsivity predicts excessive drug-taking, and it suggests that impulsive behavior may be a useful target for the treatment of cocaine abuse. **Support:** Supported by R01 DA003240-23, K05 DA015267-06 (MEC), F31 DA020237-01 (JLP), and F31-DA023301-01 (JJA).

32 DO CLIENT PERCEPTIONS OF DRUG COURT INFLUENCE THEIR OUTCOMES?

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Aims: Although a number of evaluations have indicated that drug court clients perceive the programs as positive and effective, the overall value of such perceptions are not yet known. In a 2001 meta-review of drug court evaluations, Belenko reported that generally no conclusions could be drawn about client and staff perceptions due to small sample sizes and selection bias. To date, only one study has looked at the relationship of client perceptions to outcomes. This study found that program graduates were significantly more satisfied than non-graduates (Saum et al, 2002). One limitation of this study is that it defined success solely as program completion. Moreover, it did not attempt to control for the differential effects of client progress on perceived satisfaction. The current study aims to extend and replicate this research by analyzing the association of client perceptions of drug court with a variety of client outcomes including abstinence, attendance, and graduation status. In addition, the study will examine 18-month outcomes accounting for differential client progress prior to the perceptions assessment. **Methods:** Offenders from an urban felony drug court (N = 98) were asked to complete a perceptions questionnaire at 12 months post-entry. Participants were asked to rank how much they were helped by the judge, court hearings, court team, case management, urine testing, inpatient treatment, outpatient treatment, and self-help groups. **Results:** Findings revealed a significant relationship between satisfaction with outpatient treatment and graduation status (p = .03). In addition, the relationship between satisfaction with urinalysis testing and graduation status approached significance (p = .10). Post-program outcomes will be analyzed using 18 month follow-up ASI and urinalysis data. **Conclusions:** Measuring client perceptions of drug court may have practical utility in identifying clients who are more or less likely to be successful in the program, and allowing programs to tailor services to best assist the clients. **Support:** Supported by National Institute on Drug Abuse grant # R01- DA-14566.

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33 INCIDENCE AND PERSISTENCE OF CANNABIS DEPENDENCE AMONG COLLEGE STUDENTS

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Aims: Prior studies have documented the extent of cannabis dependence among college students, as defined by DSM-IV criteria, but prospective data on the incidence or persistence of cannabis dependence in this population are lacking. The present study uses longitudinal data from the College Life Study to: 1) examine the patterns of change in diagnostic status among past-year cannabis users with respect to cannabis dependence during the first three years of college; and, 2) identify correlates of changes in cannabis dependence. **Methods:** At study outset, participants were 1,253 students, ages 17 to 19, attending a large public university in the mid-Atlantic region of the U.S. Participants were assessed for cannabis use, abuse and dependence in three annual personal interviews; 85% participated in all three assessments. Additional information was gathered on demographics, psychological functioning, and other domains. **Results:** Among 58 cannabis-dependent first-year students, 57% remained dependent in the second year, and 33% were persistently dependent all three years. Among 557 first-year students classified as non-dependent past-year cannabis users, incident cannabis dependence was observed in 8% by the second year and 13% by the third year. Incident dependence was similar across race and gender, but was independently associated with elevated depression scores (as measured by the CES-D) in the first year ($X^2(df)=4.8(1)$; $p<.05$), holding constant cannabis use frequency and other factors. Not surprisingly, first-year students who met DSM-IV criteria for cannabis abuse were at particularly high risk for subsequent incident dependence ($AOR=3.2$, 95% $CI=1.8-5.7$, $p=.0001$). **Conclusions:** Future research should investigate the long-term social, psychological, and academic consequences associated with different cannabis dependence trajectories among college students. **Support:** NIDA R01DA14845, A. Arria, PI

34 SEXUAL DIMORPHISM IN THE EFFECTS OF HOMER1A DELETION UPON THE BEHAVIORAL RESPONSE TO ACUTE, BUT NOT REPEATED, COCAINE

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Aims: In mammals, the Homer1 gene encodes a number of transcriptional variants of which ania-3 and Homer1a are induced in an immediate early gene (IEG)-like fashion by synaptic activity, including cocaine administration. Earlier work demonstrated that deletion of the entire Homer1 gene produces a cocaine "pre-sensitized" phenotype in mice that is characterized by an enhanced behavioral response to cocaine. Thus, the present study sought to delineate the role for Homer1a in cocaine addiction-related behaviors, and to assess for potential sex differences in this regard. **Methods:** Male and female Homer1a knock-out (KO), heterozygous (HET) and wild-type (WT) littermates were compared for cocaine-induced changes in psychomotor activation and reward in a place-preference paradigm (4 injections of 3, 10 or 30 mg/kg, every other day). **Results:** Compared to WT mice, Homer1a HET and KO animals exhibited decreased behavioral responsiveness to cocaine as indicated by a shift downward in the dose-response function for both acute cocaine-induced locomotion and locomotor sensitization, as well as by a shift to the right in the dose-response function for a cocaine-conditioned place-preference. While the effects of Homer1a deletion upon locomotor sensitization and place-preference did not depend upon sex, the genotypic differences in the acute cocaine-induced locomotion were sex-dependent and only observed in female subjects. **Conclusions:** These data indicate that (1) the induction of Homer1a appears to be necessary for the full expression of the psychomotor-activating and rewarding properties of repeated cocaine and (2) a sexual dimorphism may exist in the glutamatergic mechanisms mediating cocaine addiction-related behaviors. **Support:** Supported by a NARSAD Young Investigator Award to KKS and NIDA grants DA-11742 and DA -10309 to PFW.

35 CLIENT'S DRUG TREATMENT SATISFACTION: POSTTRAUMATIC STRESS DISORDER AND PERCEIVED HEALTH

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Aims: Clients in residential drug treatment programs are often chronically addicted, disproportionately impacted by serious medical conditions (e.g. HIV, HCV), and have a co-occurring psychiatric disorder such as PTSD which is highly prevalent among substances abusers. Fortunately, residential treatment has been shown to be effective in reducing/eliminating drug use and improving psychiatric and medical health among these clients. Importantly, client's treatment satisfaction is a significant predictor of length of time in treatment which is strongly connected to these positive post-treatment outcomes. Although client's treatment satisfaction has important implications for treatment outcomes few studies have examined the extent to which client's psychiatric and perceived health status influences treatment satisfaction. This project examined the relationship between PTSD and client's perceived health as well as the extent to which these variables influenced client's treatment satisfaction. **Methods:** A survey including the Posttraumatic Stress Disorder Checklist-Specific, a perceived health rating, and a client satisfaction scale was administered to 353 clients at 4 residential treatment programs in NY. **Results:** We found that clients diagnosed with PTSD rated their health significantly worse than those without a PTSD diagnosis. Additionally, findings revealed a significant correlation between treatment satisfaction and perceived health indicating that as the client's health rating increased so did his/her treatment satisfaction. However, there was no direct relationship found between clients with PTSD and those not having PTSD on treatment satisfaction. **Conclusions:** Simultaneously addressing addiction, psychiatric, and medical issues can improve clients' treatment satisfaction consequently producing greater positive post-treatment outcomes. **Support:** Project Samaritan, Inc., Samaritan Village, Inc., and Palladia Annual Collaborative Project

36 SELF-PERCEIVED PAIN AND PHYSICAL CONDITION AFTER 1 YEAR IN MAINTENANCE TREATMENT FOR OPIATE DEPENDENCE: COMPARISON BETWEEN METHADONE AND BUPRENORPHINE PATIENTS

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Aims: Pain management of buprenorphine maintenance treatment (BMT) patients could be a problem because of the partial opiate agonist activity of buprenorphine and its high affinity to the mu receptor making analgesic treatments unsuccessful. How to manage pain in BMT patients has been a frequently asked question by physicians in BMT training sessions. Our objective was to compare methadone and buprenorphine patients at 12 months follow-up on self reported pain and physical condition. **Methods:** Subjects were recruited prospectively from Addiction Treatment Clinics in Aquitaine, France. All opiate dependent patients admitted consecutively to a methadone or buprenorphine maintenance program were offered to participate. Baseline and 12-month follow-up assessments included the Addition Severity Index (ASI), Nottingham Health Profile (NHP) and HIV and HCV status. Self-perceived pain was assessed using the pain dimension of the NHP. ASI was used to assess physical and psychological status, substance use and substance-related problems. **Results:** 138 subjects completed the study (71% males, mean age 33 years at follow-up, 62 buprenorphine and 76 methadone). At baseline, methadone patients were more likely to be older (2 years), to have a chronic medical problem and past surgery, to be HIV and HCV positive, to receive a sickness/disability allowance and to report depressive symptoms and cognitive impairment ($p<.05$). After controlling for these baseline-confounding factors, self perceived pain (NHP-pain dimension score) and physical condition (ASI items) at 12 months were not statistically different between buprenorphine and methadone patients. **Conclusions:** Based on this study, BMT patients do not report and do not complain more of chronic or acute pain in comparison to methadone maintained patients. This is consistent with our previous report of experienced buprenorphine prescribers' report that pain management was not an issue in BMT. **Support:** NIDA through ISAP/UCLA

37 IMPROVEMENT OF PAIN ASSESSMENT AND PAIN MANAGEMENT IN PATIENTS ON OPIOID MAINTENANCE THERAPY: A NEW FRENCH CLINICAL RESEARCH PROGRAM

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Aims: Chronic administration of opioids has been associated with hyperalgesia. This may partially explain the high rate of chronic pain problems in opioid maintenance therapy. Hyperalgesia may also be an important contributors to treatment failures. In order to examine implication that chronic opioid use has for pain and addiction treatments and proposals for future directions to improve the management of this pain hypersensibilisation, we plan a one year longitudinal research program in outcome patients followed in a specialized centre for addiction. The aim of this clinical program is to assess and describe, before and after opioid maintenance therapy initiation, links between opiate addictive disease and pain thresholds. **Methods:** Psychometric tools, such as ASI, HAD, SF36 for addiction and MPI, BPI, QDSA and Catastrophizing Scale for pain, and psychophysics assessments with mechanical pressure and electrical tests to assess changes in pain tolerance, will be used. Prior to each assessment session, an urine sample will be analyzed, to provide data on concurrent opioid, cannabis and alcohol use, and a blood sample to correlate previous data with methadone or buprenorphine blood levels. Clinical and pharmacological measures will be repeated four times, i.e. one before treatment and 3, 6 and 12 months later. **Conclusions:** This research program will allows us : (1) to do a full description of pain tolerance in well-characterized groups of opioid addicts on methadone or buprenorphine maintenance in comparison to drug-naïve individuals (2) to improve management of iatrogenic pain and (3) to adapt opioid prescription practices to baselines pain thresholds before opioid maintenance therapy, with a final objective to provide adequate comfort to this particularly pain-sensitive population. **Support:** CSST SATIS CMP B - Pôle de Psychiatrie CHU G Montpied 63003 Clermont Ferrand cedex 01

39 EARLY LIFE TRAUMA AND ENHANCED SENSITIVITY TO CURRENT LIFE STRESSORS AMONG COCAINE-DEPENDENT INDIVIDUALS

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Aims: Both clinical and preclinical studies have shown that exposure to early life trauma is associated with increased risk for adverse outcomes, such as substance use disorders. Daily hassles (e.g., traffic, auto maintenance, job dissatisfaction) have also been associated with increased rates of substance use problems and relapse. While research has documented that early life trauma or daily hassles can influence substance use, the relationship between these two variables has not yet been explored. This study preliminarily investigated the link between exposure to early life trauma, sensitivity to current daily stressors, and cocaine dependence. **Methods:** Participants were individuals with (n = 100) or without (n = 50) cocaine dependence who were participating in a larger study on HPA axis functioning, stress reactivity and cocaine dependence. Participants completed the Early Trauma Inventory and the Daily Hassles Scale. **Results:** In comparison to controls, cocaine-dependent individuals reported almost twice as many daily hassles in the past month (14 vs. 25, p < .001). In addition, cocaine-dependent individuals perceived those daily hassles more negatively than controls (p < .001). The relationship between exposure to early life trauma and negative perception of current daily hassles tended to be stronger for participants with than without cocaine dependence (p = .09). **Conclusions:** The findings extend previous research by examining the influence of exposure to early life trauma on sensitivity to current daily hassles. Early life trauma may place cocaine-dependent individuals at risk of increased a) frequency of current daily hassles and b) negative perception of such hassles. **Support:** Supported by National Institute on Drug Abuse grants P50 AR049551 and K25 DA00435 (Brady), and National Institute of Health grant 5 M01 RR001070 (Reves).

38 INDIVIDUAL DIFFERENCES IN IMPULSIVE-LIKE BEHAVIOR AND SENSITIVITY TO MONEY AS A FUNCTION OF SENSATION-SEEKING STATUS

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Aims: Previous research indicates that high sensation seekers are at increased vulnerability to drug abuse relative to low sensation seekers. This enhanced risk has been characterized by earlier initiation and greater frequency of drug use among high sensation-seeking adolescents, and increased sensitivity to the reinforcing and other behavioral effects of drugs in laboratory studies, such that high sensation seekers exhibit higher break-points on progressive ratio schedules maintained by drug delivery. The present study examined sensitivity to a generalized reinforcer (i.e., money) and impulsive-like behavior as a function of sensation-seeking status among healthy young adults. **Methods:** Twenty participants scoring in the top and bottom quartiles of gender-adjusted population norms on the impulsive-sensation seeking scale of the Zuckerman-Kuhlman Personality Questionnaire (10 high- and 10 low-impulsive sensation seekers) completed one session in which performance on several behavioral tasks was assessed. Participants completed a progressive ratio task in which they could earn up to \$4.00 (in .50 increments) by completing progressively increasing response requirements. Other measures included performance on the Balloon Analog Risk Task, a hypothetical delay-discounting task, and a delay-discounting task with a lottery outcome. **Results:** Breakpoints on the progressive ratio task did not vary as a function of sensation-seeking status. Likewise, performance on behavioral measures of impulsivity did not vary between high and low sensation seekers. **Conclusions:** These data suggest that group differences in drug-maintained behavior between low and high sensation seekers are not observed when behavior is maintained by money. Moreover, sensation-seeking status was not associated with performance on any laboratory measure of impulsivity (delay discounting, BART). **Support:** Supported by DA-05312, DA-024127, University of Kentucky Department of Behavioral Science.

40 ALPHA-1 NORADRENERGIC RECEPTORS CONTRIBUTE TO PSYCHOSTIMULANT-LIKE EFFECTS OF MDMA IN HUMANS

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Aims: MDMA (3,4-methylenedioxymethamphetamine, 'Ecstasy') is widely used illicit drug that has some psychostimulant-like effects (increased heart rate, blood pressure, positive mood). Users also report feelings of sociability and empathy, although these have not been measured in clinical settings with validated instruments. Like the stimulant methamphetamine, MDMA increases synaptic concentrations of norepinephrine (in addition to serotonin and dopamine). We sought to investigate the role of alpha-1 noradrenergic receptors in MDMA effects by administering MDMA alone and in combination with the alpha-1 antagonist prazosin. **Methods:** 16 healthy MDMA-experienced participants (8 males and 8 females) received placebo, 1.5 mg/kg PO MDMA, 1-2 mg PO prazosin, or both drugs in a four-session balanced controlled trial in a laboratory setting. Pharmacokinetic and pharmacodynamic (physiological, neurocognitive, and self-report) measures were made and Emax and AUC were analyzed using linear mixed-effects models. **Results:** MDMA alone increased measures of peak typical psychostimulant effects [e.g., heart rate (HR) (p < 0.001), diastolic blood pressure (DBP) (p < 0.001), Subjective Drug Effects Questionnaire (SDEQ) euphoria (p < 0.001), Visual Analog Scale (VAS) drug liking (p < 0.001)] and increased self-report Interpersonal Adjective Scale Revised (IASR) sociability (p = 0.002) while impairing categorization of emotional faces (p = 0.003). Prazosin alone did not significantly affect these measures. Co-administration of prazosin significantly decreased some psychostimulant-like effects of MDMA (e.g., DBP p = 0.002; SDEQ euphoria p = 0.014), nonsignificantly tended to decrease VAS measures (e.g., VAS drug liking p = 0.06), and did not alter self-report IASR sociability (p = 0.19). **Conclusions:** Alpha-1 noradrenergic mechanisms may contribute to psychostimulant-like effects of MDMA. Although statistically significant, the influence of prazosin on MDMA effects was modest, suggesting a role for other receptors or neurotransmitters. **Support:** Supported by NIH DA 016776.

- 41** **ADOLESCENTS WITH ATTENTION DEFICIT DISORDER AND CO-OCCURRING SUBSTANCE USE DISORDERS: REFERRAL SOURCES AND RECRUITMENT IN A MULTI-SITE CLINICAL TRIAL**
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- Aims:** Limited clinical research in adolescents with co-occurring substance use and psychiatric disorders has impeded development of evidence-based treatment guidelines. The aim of this report is to identify productive referral sources and methods of recruiting these adolescents for research. **Methods:** Data were collected from the initial 302 consented and 195 randomized participants in the National Institute on Drug Abuse' Clinical Trials Network's Randomized Controlled Trial of Osmotic-Release Methylphenidate for Attention Deficit Hyperactivity Disorder in Adolescents with Substance Use Disorders. 11 participating substance treatment clinics were encouraged to recruit from usual patient referral sources and to establish new referral sources. **Results:** Across demographic groups and sites the largest referral source has been study clinics themselves (49.3% of total participants consented; 48.7% of total participants randomized) followed by juvenile justice (10.6% consented, 10.8% randomized), relatives and friends (8.9% consented, 11.3% randomized), schools (7.3% consented, 6.7% randomized), mental health clinics (6.6% consented, 5.1% randomized), newspaper ads (5.6% consented, 6.7% randomized), primary care clinics (3.0% consented, 2.6% randomized), social services (2.6% consented, 2.1% randomized), bus ads (1.7% consented, 2.1% randomized), radio ads (1.7% consented, 1.0% randomized), flyer/brochure (1.3% consented, 1.0% randomized), university email (1.3% consented, 2.1% randomized). **Conclusions:** Preliminary results support the feasibility of recruiting adolescents with co-occurring disorders to this multi-site clinical trial. Additional research is warranted to evaluate whether free treatment, establishing new referral sources to augment existing clinic sources, or other factors are important aspects of successful recruitment. **Support:** This work is supported in part by NIDA grants U10 DA15831, U10 DA13716, K24 DA022288
- 42** **FOOD RESTRICTION AND HIGH-FAT DIET DIFFERENTIALLY AFFECT THE BEHAVIORAL EFFECTS OF QUINPIROLE AND RACLOPRIDE IN RATS**
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- Aims:** Eating disorders and drug abuse are highly co-morbid. Several drugs of abuse act predominantly on dopamine (DA) systems and nutritional status can modulate DA systems. While food restriction decreases sensitivity to behavioral effects of direct-acting DA drugs, little is known about other dietary manipulations (e.g. high fat diet) on the effects of direct-acting DA drugs. This study explored whether food restriction decreases and high fat diet increases the sensitivity of rats to direct-acting DA drugs. **Methods:** Three groups (n=8 each) of male Sprague Dawley rats had free or limited (10 g/d) access to standard chow or free access to a high fat diet for 5 weeks before and 3 weeks after an 8-week period during which all rats had free access to standard chow. Dose-response curves were generated weekly for quinpirole (DA agonist)-induced yawning and hypothermia (0.01-1.0 mg/kg s.c.) and raclopride (DA antagonist)-induced catalepsy (0.1-3.2 mg/kg s.c.). **Results:** Before diet manipulation, quinpirole produced yawning and hypothermia while raclopride produced catalepsy in all rats. Food restriction markedly decreased sensitivity to quinpirole-induced yawning and raclopride-induced catalepsy but increased sensitivity to quinpirole-induced hypothermia; normal sensitivity returned to both drugs when rats again had free access to standard chow. In contrast, free access to a high fat diet increased sensitivity to quinpirole-induced yawning but not to quinpirole-induced hypothermia or raclopride-induced catalepsy; sensitivity to quinpirole was partially restored when rats again had free access to standard chow. **Conclusions:** These data indicate that changes in diet can alter sensitivity to some behavioral effects of direct-acting DA drugs. A better understanding of the relationship between nutritional status and DA systems could facilitate the development of treatments for eating disorders and for substance abuse. **Support:** This work is supported by Senior Scientist Award DA17918
- 43** **DYSFUNCTIONAL REWARD PROCESSING IN ALCOHOL DEPENDENCE ASSESSED BY FUNCTIONAL MAGNETIC RESONANCE IMAGING IN COMBINATION WITH A DOPAMINERGIC PROBE**
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- Aims:** A dysfunctional mesocorticolimbic dopamine system has been reported in alcohol dependence. For example, an increase in ventral striatal activity has been shown in response to alcohol-associated cues using functional magnetic resonance imaging (fMRI). The objective of this study was to examine the neural substrates implicated in altered reward processing in alcohol dependence, using fMRI in combination with a dopaminergic probe. **Methods:** Among alcohol dependent (n=14) and healthy control participants (n=9), fMRI data were collected before and after a single blind oral administration of a 30 mg dose of dextroamphetamine (d-amph). fMRI blood oxygen level-dependent activation was measured during an alcohol-craving task during which alcohol-associated and affectively neutral pictures were presented to participants pre- and post-d-amph. **Results:** There was greater ventral striatal activity in alcohol dependent participants than controls at both pre- and post-d-amph. Examining the GROUPxDRUG interaction, the alcohol dependent and control groups did not differ in terms of ventral striatal activity but did in the medial orbitofrontal cortex (mOFC). mOFC activity remained stable from pre- to post-d-amph in the alcohol dependent group whereas it showed a significant decrease in controls post-d-amph. **Conclusions:** These results confirm greater ventral striatal activity in AD during presentation of alcohol-associated cues and they suggest this effect remains after d-amph administration. The GROUPxDRUG interaction results suggest that d-amph does not differentiate the AD and control groups in the ventral striatum, but rather differentiates them in terms of mOFC activity. **Support:** This work was funded by the Canadian Institutes of Health Research and Sunnybrook Health Sciences Centre
- 44** **COCAINE MODULATES HUMAN DENDRITIC CELL DIFFERENTIATION AND T-CELL ACTIVATION WITH DOWNSTREAM EFFECTS ON HIV REPLICATION**
G.C. Baldwin, S. Kiertscher, J. Zhuo, A. Harui, D.P. Tashkin and M.D. Roth, Medicine, David Geffen School of Medicine at University of California-Los Angeles, Los Angeles, CA
- Aims:** Dendritic cells (DC) activate antigen (Ag)-specific T cell proliferation and cytokine production, both of which may enhance HIV infection. We hypothesized that cocaine's effects on DC might synergize with the process of Ag presentation to enhance HIV infection. Our aim was to define the effects of cocaine on DC phenotype, function, and on HIV replication in activated T cells. **Methods:** DC were generated from peripheral blood monocytes with GM-CSF/IL-4 and the effects of cocaine on DC differentiation determined by flow cytometry and realtime RT-PCR. In addition, control and cocaine-exposed DC were used to stimulate T cells in MLR assays in the presence of an HIV reporter virus to examine the effects on T cell proliferation (CFSE dilution), cytokine production and HIV replication. **Results:** Human monocytes exposed to cocaine differentiated into DC that expressed less CD86 and CD11c, but increased CD83 and CXCR4, compared to control DC. Realtime RT-PCR revealed that cocaine decreased the expression of Th1-related genes and increased the expression of co-receptor and Th2-related genes. Although cocaine-exposed DC induced normal levels of T cell proliferation, these cells expressed less CD25 and produced a Th2 cytokine profile compared to the Th1-biased response induced by control DC. T cell activation during the MLR induced HIV infection in the responding T cells, however the frequency and magnitude of HIV infection was enhanced when stimulated with cocaine-exposed compared to control DC. **Conclusions:** Cocaine may influence the immune response to HIV by impacting the phenotype and function of human DC, the Th1/Th2 characteristics of DC-activated T cells, and the frequency of HIV-infected T cells. These effects are currently being tested in a humanized mouse model. **Support:** NIH/NIDA DA08254 and DA023386

45 EXPECTANCIES OF ALCOHOL CONSUMPTION AMONG ALCOHOL-DEPENDENT PATIENTS: VALIDATION OF THE FRENCH VERSION OF THE VAV QUESTIONNAIRE

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Aims: Validation of the French version of a Dutch questionnaire, Vragenlijst Alcohol Verwachtingen (Wiers and al., 1997) in a population of French alcohol patients **Methods:** Study conducted at the OutPatient Unit for the Treatment of Addiction, Beaujon Hospital, among 105 alcohol dependent patients (DSM-IV) in treatment. Alcohol consumption was retrospectively evaluated (previous month) with a self-administered questionnaire. Four sub-scales of expectancies were measured: positive and negative expectancies for low and high dose of alcohol. **Results:** 105 patients : 36,2% women, 63,8% men. Mean age 46,7 y. Internal consistency was high (Cronbach's $\alpha > 0,80$) accounting for a good reliability of the VAV questionnaire regarding the four sub-scales (0,81 - 0,90). Correlation with age : younger subjects have higher positive expectancies. Patients with parental history of alcoholism have a tendency (NS) to show higher VAV scores for positive expectancies for a low dose. No link between "alcohol status" (abstinent or not) and VAV scores. Subjects with a higher level of consumption (quantity by occasion) endorsed more positive expectancies for a low dose of alcohol ($p = 0,03$). No significant link between scales of expectancies for a low dose and other characteristics of consumption (weekly quantity, frequency). Level of positive expectancies for a high dose of alcohol had no influence on patterns of alcohol consumption. Inverse and significant correlation between negative expectancies for a high dose and weekly quantity ($p = 0,005$), weekly frequency ($p = 0,007$) and frequency of heavy drinking ($p = 0,005$). **Conclusions:** Strong claims can be made for the reliability and validity of the VAV questionnaire in a French version. Negative expectancies could be a protective factor for alcohol consumption as positive expectancies for a low dose could play an "initiating role" among alcoholics. Expectancies might be considered as a phenotype among alcohol dependent patients and further analyze is required to assess scaling properties and validity as a predictive item for relapse in clinical practice. **Support:** ARMA INSERM APHP

47 SUBSTANCE ABUSER IMPULSIVITY DECREASES WITH A 9-MONTH STAY IN A THERAPEUTIC COMMUNITY

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Aims: Substance abuse continues to be a major public health problem. Keeping substance abusers in treatment is a challenge and researchers continue to investigate ways to increase retention. The aim of this study was to investigate the relationship between impulsivity in substance abusers and length of stay in the context of therapeutic community. **Methods:** The sample consisted of 138 individuals who were the historical controls for an experimental study on a mindfulness-based intervention to decrease stress and improve retention of substance abusers seeking treatment in a TC. The Barratt Impulsiveness Scale - 11 (BIS-11) was used to assess impulsivity at admission and at nine months in a therapeutic community. Weeks retained in treatment was the outcome measure. Time to dropout was examined using Kaplan Meier survival curves and the log-rank test. The T test for paired comparison was used to examine differences between baseline impulsivity and impulsivity at nine months, as well as baseline impulsivity and gender. **Results:** On admission, female participants were on average more impulsive than their male counterparts. Impulsivity significantly decreased in subjects who completed nine months in the therapeutic community. Legal stipulation increased length of stay, on average, by three months. **Conclusions:** The results of this study suggest that treatment in a TC may act to promote coping skills that attenuate impulsivity and thus the negative consequences of impulsive actions. These findings are tentative due to the small sample size, but represent a preliminary step in determining how impulsivity impacts treatment in a TC. Future investigations should examine how the TC acts to temper impulsivity and how interventions might be tailored to positively influence impulsivity in substance abuse recovery. **Support:** This research was funded by NIH/NIDA R01 DA017719, awarded to Dr. Marianne Marcus.

46 PERSONALITY DISORDER DIAGNOSES AND PSYCHOTHERAPY OUTCOME IN A RESIDENTIAL THERAPEUTIC COMMUNITY

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Aims: Personality disorders are the most common psychiatric condition in residential addiction treatment programs and may interfere with long-term retention and symptom reduction. Prior research indicated that Dual Focus Schema Therapy (DFST) results in better reductions in substance use and utilization of therapy than addiction-focused counseling. The current study evaluated the efficacy of DFST in comparison to Individual Drug Counseling (IDC) for decreasing early attrition and psychological symptoms within a therapeutic community. **Methods:** A randomized clinical trial compared the efficacy of two 6-month, manual-guided individual psychotherapies (DFST vs. IDC) delivered to 105 adult and adolescent substance abusers with high rates (83% diagnosed by structured interview) of DSM-IV personality disorders. Linear regression and hierarchical linear modeling tested attribute by treatment interactions. **Results:** Participants diagnosed with paranoid (53%), antisocial (47%), and borderline (31%) personality disorders reported more psychiatric symptoms, interpersonal conflict, and dysphoric mood than non-diagnosed participants over the 6-month trial. Our primary hypotheses that DFST would yield better outcomes than IDC were not supported. IDC resulted in better reduction in psychiatric symptoms. Both therapies resulted in reductions in symptom indicators, and there was some evidence of patient-treatment matching favoring IDC over DFST. Paranoid personality disorder participants assigned to IDC showed significant reductions in interpersonal conflict and psychiatric distress over time relative to DFST. Participants with Antisocial and Borderline personality disorder reported significantly less dysphoria when treated with IDC than when treated with DFST. **Conclusions:** DFST results in improved substance-related outcomes for patients with co-occurring personality pathology, but the extent of added benefit beyond standard counseling models for particular patient subgroups requires further investigation. **Support:** National Institute on Drug Abuse grant R01 DA14967 (Ball)

48 REINSTATEMENT OF HEROIN-SEEKING IN RATS IS POTENTIATED BY INFUSIONS OF MORPHINE INTO THE SUBSTANTIA NIGRA

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Aims: Recent evidence has implicated a critical role of dorsal striatal mechanisms in cocaine-seeking during relapse in subjects with a history of cocaine self-administration. In order to assess the role of nigrostriatal mechanisms in heroin-seeking behavior, the present study determined whether infusions of a mu opioid receptor agonist (morphine) into the substantia nigra (SN) would potentiate drug-seeking in the presence and/or absence of heroin-paired cues in rats with a prior history of heroin self-administration. **Methods:** Male rats ($n = 10$) were implanted with jugular catheters and intracranial cannulae aimed at the SN and then allowed to lever press for heroin infusions (25 ug/50 ul i.v. infusion; FR1-TO 20s schedule of reinforcement) for 12 days. Subjects then responded during daily extinction conditions, whereby no programmed consequences occurred. Following extinction to criterion, six separate reinstatement tests were conducted to evaluate heroin-seeking in either the presence or absence of previously heroin-paired cues. Prior to each test, rats received bilateral intra-nigral infusions of either morphine (3 ug or 10 ug) or vehicle (saline). **Results:** All subjects readily responded for heroin reinforcement. Following extinction, presentation of either drug-paired cues or intra-nigral administration of morphine robustly reinstated lever pressing at levels ranging from 4-5x (cues alone or 3 ug morphine) to 10-12x (10 ug morphine) over extinction baseline. These effects on heroin-seeking were selective, in that non drug-paired lever responding was unaffected and morphine failed to alter general locomotor activity. **Conclusions:** These results demonstrate that direct stimulation of mu opioid receptors in the SN is sufficient to induce reinstatement of heroin-seeking in an animal model of relapse, thus implicating an important role of the nigrostriatal pathway in relapse to opiate-seeking. Such effects are likely due to enhanced dopamine release in the caudate-putamen. **Support:** Supported by NIH Grants DA010462 and DA015369.

CPDD 2008 Annual Meeting, San Juan, Puerto Rico

49 OPIOID MISUSE, ABUSE, AND DEPENDENCE: PREVALENCE, MEASUREMENT AND FACTOR STRUCTURE AMONG CHRONIC PAIN PATIENTS IN A LARGE HMO

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Aims: The appropriateness of DSM IV opioid abuse and dependence diagnoses in chronic pain populations prescribed opioids has been questioned. The assessment of opioid misuse is an area of increasing interest. Our aims were to: 1) determine the prevalence of opioid abuse, dependence and potential misuse, 2) explore the factor structure of misuse and 3) test the hypothesis that dependence represents a unique construct from misuse. **Methods:** Retrospective cohort study of pain patients with chronic opioid use enrolled for at least 3 years in a large HMO. Primary data were collected via a structured phone interview (response rate 57%). We used the Prescription Drug Use Questionnaire (PDUQp) to assess potential opioid misuse. DSM IV opioid abuse and dependence were diagnosed with the Composite International Diagnostic Interview. Factor analyses were conducted using tetrachoric correlation coefficients. **Results:** 704 of the 778 subjects were using opioids at the time of the interview. Based on a modified PDUQp the prevalence of potential misuse among current users was 18%. DSM IV opioid dependence was present among 11% of subjects, all of whom met criteria for physiological dependence. DSM IV abuse criteria were modified to remove the criteria specific to using in dangerous situations e.g. driving, resulting in a prevalence of 13%, of which 38% also were dependent. Preliminary factor analyses revealed 3 factors for the PDUQp which we labeled 1) Addiction behaviors, 2) Addiction concerns, and 3) Dose concerns and frustration with physician. Abuse and dependence criteria loaded together as a factor largely separate from misuse. **Conclusions:** Potential opioid misuse appears to be measuring several latent constructs including addiction concerns, addiction behaviors and opioid dose concerns in conjunction with frustration towards physicians. In this population, abuse and dependence appear to constitute a single construct, largely distinct from potential misuse. **Support:** NIH/NIDA R21 DA018695-01A2

50 ANALYTIC APPROACH FOR COUNSELOR TRAINING PROJECT WITH A SUCCESSIVE COHORT DESIGN

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Aims: The well-acknowledged communication gap between researchers and community-based substance abuse treatment programs has hindered practitioner adoption of empirically-derived addiction treatment technologies. This NIDA-funded program addresses the need for knowledge exchange between researchers and community practitioners. Field clinicians will be offered evidence-based training (based on Behavioral Couples Therapy [BCT]), and then receive post-training support system, designed using principles of constructivist learning theory. A specially designed, computer-based Multimedia Support Center (MSC) will offer the material in a world wide web-like fashion. The design of the project offer interesting analytic challenges. **Methods:** Participants will be randomly assigned to one of three follow-up conditions; (1) enhanced Post-Training Support Center, (2) telephone support and (3) no additional support. Assessments will be made prior to training, immediately following training and six months after training. A successive cohort design is being employed to allow for alterations to the program between training waves. Although the traditional approach to analyzing data collected in repeated measures analysis of variance, multilevel modeling offers many advantages and will be used with this project. Multilevel modeling avoids the statistical and conceptual disadvantages of aggregation, while allowing examination of cross-level and multiple level effects. Data for this project occurs in three levels: time (repeated measures), treatment condition, and workshop location. Using a piecewise growth multilevel model, differences at the 6 month post-training follow-up assessment can be determined in terms of clinicians' acceleration or deceleration across the time frame of the study. **Conclusions:** The long-term implications of this research are significant, as dissemination of evidence-based interventions to broad audiences of community-based practitioners could occur without many of the limitations inherent in traditional technology transfer efforts. **Support:** This project is supported by NIDA R01 DA018295.

51 TREATMENT OUTCOMES OF MMT PATIENTS WITH AND WITHOUT CHRONIC PAIN 13

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Aims: Background: Despite the growing awareness of the pernicious effects of co-occurring chronic pain and opioid dependence, few research studies have systematically compared the treatment outcomes of currently enrolled methadone maintenance treatment (MMT) patients with and without chronic pain. **Aim:** We conducted a preliminary study to explore differences on treatment outcomes among MMT patients with and without chronic pain. **Hypotheses:** We predicted that in comparison to non-pain patients, MMT patients with chronic pain would exhibit significantly (a) higher psychiatric distress and (b) lower resilience. **Methods:** Trained research assistants administered a battery of standardized questionnaires to 122 MMT patients over a six-month period. **Data Analysis:** Differences between pain groups were examined using chi-squares for frequency data and t-tests for continuous data. **Results:** Mean participant age was 41.1 years (SD, 10.4); 66 (54%) were men, 73 (60%) described themselves as white, and the median MMT duration was 45 months. Forty-three (35.2%) reported chronic pain (i.e., physical pain of moderate or greater severity lasting at least 6 months). Chronic pain patients were significantly older than their non-chronic pain counterparts (44.7 vs. 38.8; $p<.01$) but were similar on other demographic variables. In comparison to their non-pain counterparts, those with chronic pain reported significantly higher ($p<.05$) general psychiatric distress, anxiety, depression, and Axis-II symptoms, and significantly lower ($p<.05$) resilience. Among MMT patients with chronic pain, the mean score on catastrophizing was clinically elevated and the majority (92.5%) expressed an interest in receiving pain management services. **Conclusions:** MMT patients with chronic pain exhibit elevated psychiatric distress and may benefit from interventions that address chronic pain, psychiatric distress, and resilience. **Support:** Supported by NIDA K24 DA00445(RS)

52 THE OPIOID RENEWAL CLINIC: CAN URINE DRUG SCREENS PREDICT TREATMENT OUTCOME? 13

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Aims: 1. To describe the detection of illicit substance abuse among patients receiving opioid pharmacotherapy in the Opioid Renewal Clinic (ORC) at the Philadelphia VA Medical Center 2. To evaluate the results of urine drug screens (UDS) as they apply to treatment outcomes in the ORC in an effort to identify opportunities to better engage high risk patients in appropriate treatment. **Methods:** Retrospective chart review. Chi-square test. **Results:** Of the 335 patients referred to the ORC over a 22-month period, 171 (51%) were referred for documented aberrant behaviors, 161 of which had an abnormal UDS. Seventy-seven (45%) of those with aberrant behavior resolved within the structure of the ORC, most commonly evidenced by resolution of an abnormal UDS. Of the 94 (55%) that did not resolve their aberrant behavior, 72 were discharged from the program and 22 agreed to enter addiction treatment. Having a UDS positive for illicit opioids, alone or in combination with cocaine, was associated with having resolution of aberrant behavior ($p<.01$, $p=.01$). Having a urine drug screen positive for cocaine, alone or in combination with marijuana, was associated with being discharged from the program ($p<.01$, $p=.02$). Urine drug screen results were not associated with entering addiction treatment. The most common urine drug screen abnormality for those discharged from the ORC was cocaine, and of the 36 discharged from the ORC with a positive urine drug screen for cocaine, 7 entered addiction treatment in the two years following discharge. **Conclusions:** Having a UDS positive for illicit opioids is associated with resolution of aberrant behavior, which suggests successful management of pseudoaddiction in this population. Having a UDS positive for cocaine is associated with discharge from the ORC, which provides an opportunity for intervention in this high risk group. **Support:** VISN 4 Mental Illness Research, Education, and Clinical Center (MIRECC), Philadelphia, PA

53 IMAGING OF GABA-A BENZODIAZEPINE RECEPTOR AVAILABILITY IN MEN AND WOMEN SMOKERS AND NONSMOKERS: RELATIONSHIP WITH SUBSYNDROMAL ANXIETY AND DEPRESSION

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Aims: Women smokers often report that smoking temporarily relieves symptoms of anxiety and depression. The GABAA benzodiazepine receptor (GABAA-BZR) is a common site of action for medications to treat mood symptoms and thus may be a critical neural substrate underlying anxiety and depression. We hypothesized that there were sex-specific differences in cortical GABAA-BZR availability that contribute to the differential expression of subsyndromal anxiety and depressive symptoms in men and women. **Methods:** To date, 14 women (7 smokers, 7 nonsmokers) and 17 men (9 smokers, 8 nonsmokers) have been imaged using [123-I]Iomazenil and single photon emission computed tomography. Fifteen smokers (8 men; 7 women; age = 37.8 ± 13.8 and 38.3 ± 12.7, (mean ± SD) respectively) and 15 age- and sex-matched healthy nonsmokers (men mean age = 36.5 ± 13.1; women mean age = 41.0 ± 3.1) were included in these analyses. All smokers were imaged ~7 h after last cigarette. **Results:** Preliminary analyses show higher [123-I]Iomazenil uptake in women nonsmokers (compared to men nonsmokers) in parietal cortex (29%), frontal cortex (18%) and temporal cortex (16%; all $p < 0.05$). Similar trends were observed in women smokers compared to men smokers. In women nonsmokers, but not women smokers, self-reported depressive symptoms, as measured by the CES-D, were correlated with GABAA-BZR availability in frontal, temporal, parietal and occipital cortex (all $\mu \leq -0.8$, $p < 0.05$). No correlations were evident in men (all $p > 0.16$). There appear to be no sex differences in the correlations between state anxiety and GABAA-BZR availability. **Conclusions:** There is higher GABAA-BZR availability in women versus men regardless of smoking status, although smoking mitigates the expression of subsyndromal depressive symptoms in women only. Women with lower receptor availability appear to be more vulnerable to subsyndromal depression. **Support:** 9 P50 AA15632 and 2 T32 DA07238-16.

54 EFFECTS OF MEDICAL/PSYCHIATRIC COMORBIDITY ON HCV TREATMENT ELIGIBILITY IN METHADONE MAINTENANCE

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Aims: To describe medical/psychiatric comorbidity and eligibility for hepatitis C (HCV) treatment in methadone maintenance (MM) patients. Medical and psychiatric comorbidity is common in MM patients and may limit eligibility for HCV treatment. Yet little is known regarding the effects of comorbidity on HCV treatment eligibility. **Methods:** Medical and psychiatric diagnoses and other clinical data were obtained for the first 109 MM patients with chronic HCV entering a NIDA-funded trial offering on-site HCV treatment. **Results:** Mean age was 43; 60% were male. 83% had Genotype 1. HCV RNA was >2 million IU/ml in 46%. Median ALT was 52 (nl ≤52) for women and 60 (nl ≤69) for men. 5% had HIV infection. Liver biopsy was obtained in 17%; mean grade and stage were 1.6 and 1.9 respectively. 86% had comorbid chronic medical conditions; most commonly musculoskeletal (34%), cardiovascular (33%), endocrine/metabolic (31%), and gastrointestinal (30%). Subjects had an average of 3.7 comorbid medical conditions. Hypertension (24%) was the single most common diagnosis. 65% were taking non-psychiatric medications, most often non-opioid analgesics (30%) and gastrointestinal (29%) and cardiovascular (28%) agents. 57% had current psychiatric diagnoses and 68% were taking psychiatric medication, most commonly antidepressants (56%). 57% met past year criteria for substance abuse/dependence. Assessment for HCV treatment eligibility cleared 89% of participants psychiatrically, but cleared only 56% medically. Of the 44% not cleared medically, only 7% had contraindications to HCV treatment while 30% failed to complete the medical evaluation necessary for clearance (6% are pending). **Conclusions:** MMT patients seeking HCV treatment have multiple comorbid medical/psychiatric disorders. While the majority was cleared for HCV treatment, a significant minority (44%) was not cleared medically, mainly due to failure to complete the required assessment process rather than due to known contraindications. **Support:** NIDA R01 DA016764

55 EVIDENCE THAT STIMULANT EFFECTS OF MODAFINIL IN RATS INVOLVE DOPAMINE TRANSPORTERS

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Aims: Modafinil is a promising medication for cocaine dependence, but the drug's mechanism of action is unclear. Here we employed in vitro and in vivo methods to test the hypothesis that modafinil interacts with DA transporters (DAT) in rat brain. Locomotor and neurochemical effects of modafinil were compared to those of the dopamine (DA) uptake blocker GBR12909 and the DA releaser (+)-methamphetamine (METH). **Methods:** Assays measuring the transporter-mediated uptake and release of radiolabeled substrates were conducted in rat brain synaptosomes. Locomotor activity and neurochemistry were assessed concurrently in rats undergoing in vivo microdialysis in n. accumbens. Dialysate levels of DA and serotonin (5-HT) were determined using HPLC-ECD. All drugs were administered via indwelling iv catheters. **Results:** Modafinil inhibited the uptake of [3H]DA with an IC50 = 4.04 μM, while IC50 values for uptake of [3H]5-HT and [3H]NE were > 100 μM. Modafinil antagonized METH-induced release of the DAT substrate [3H]MPP+, shifting the EC50 value from 14.9 nM to 49.8 nM. Modafinil (20 & 60 mg/kg) produced dose-dependent increases in locomotor activity and extracellular DA. At equivalent stimulant doses, GBR12909 (1 & 3 mg/kg) and METH (0.3 & 1 mg/kg) evoked larger increases in extracellular DA than modafinil, but the locomotor effects of all drugs were positively correlated with dialysate DA ($r=0.8$, $p<0.001$). Pretreatment with 20 mg/kg modafinil reduced METH-induced hyperactivity and elevations in extracellular DA. **Conclusions:** Our data demonstrate that modafinil interacts with DAT proteins to block DA uptake and elevate extracellular DA, properties shared with existing "agonist" medications under investigation for treating stimulant dependence. On the other hand, the dopaminergic effects of modafinil can not fully explain the drug's unique pharmacological profile. Finally, the present findings suggest that research is warranted to explore the use of modafinil for treating METH dependence. **Support:** IRP, NIDA, NIH, DHHS

56 ADOLESCENT SUBSTANCE USE AND CONDOM USE IN FIRST AND RECENT SEXUAL ENCOUNTERS

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Aims: To examine the association between alcohol or drug use and condom use in two specific sexual encounters (first intercourse and most recent intercourse) in a large sample of adolescents. **Methods:** Data came from Waves 1 and 2 of the National Longitudinal Study of Adolescent Health (Add Health), a large, nationally representative study of adolescents in grades 7 to 12. The interview included questions about the first time and the most recent time the respondent had sex; the analysis included only respondents with data from both sexual events ($n=3,632$). Using multilevel logistic regression with the two sexual events nested within participants, we predicted condom use at the event from type of event (first, recent), alcohol use at the event (none, drank but not drunk, drunk), marijuana use at the event, and other contraception. **Results:** At first sex, 62% of respondents used condoms, 10% drank, and 3% used marijuana; these percentages for most recent sex were 58%, 11%, and 7%. Among females ($n=1,883$), condom use was less likely in most recent events compared to first events ($OR=.49$, 95% CI .40, .61), more likely with use of other contraception ($OR=2.84$, CI 2.31, 3.49), and less likely when the participant felt drunk (compared to the other two drinking categories; $OR=.56$, CI=.37, .84). Type of event modified the drinking/condom association: feeling drunk was related to decreased condom use only in the first sex event. Among males ($n=1,749$), condom use was more likely when other contraception was used ($OR=5.09$, CI=2.86, 4.77), with no alcohol effect. Marijuana use at the event was not significantly related to condom use in males or females. **Conclusions:** These findings support the suggestion that drinking is associated with nonuse of condoms at first intercourse and not in other kinds of sexual encounters. Moreover, we found this association was limited to females who had drunk sufficient quantities to feel drunk. **Support:** Analysis supported by R21AA015040 (NIAAA); Add Health data collection supported by P01-HD31921 (NICHD)

57 IMPLEMENTING EVIDENCE-BASED PRACTICES IN A TRANSITIONAL HOUSING PROGRAM

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Aims: The challenge in treating substance use disorders is no longer that of demonstrating efficacy. The challenge is one of implementation and institutionalization of practices. This presentation describes one agency's path through the stages of implementation as it adopted two evidenced based practices (EBP)—Motivational Interviewing and the Community Reinforcement Approach—using a multi-dimensional heuristic that includes both the stages and degree of implementation. Stages refer to a longitudinal set of events that serve to grow the practice within the agency. Degrees refer to level of institutionalization along a spectrum of paper, process and performance implementation. **Results:** Over 140 ex-offenders were assessed at baseline and discharge. Clients were mostly female (52.6%), white (63.3%) and non-Hispanic (73.4%). Two-thirds (66.3%) were between 25 and 44 years of age. Most (68.3%) had at least a high school education. Two process indicators show improvement (average length of stay increased from 54 days to 68 days, and completion rates have increased from 47% to 52%). Client level outcomes have shown improvement in areas of substance use, social connectedness, housing, and mental health. But, these changes have remained static since the first cohort entered the program, counter to an expectation that as the EBT became more institutionalized, greater improvement would ensue. This can partially be explained by the second heuristic—the stages of change. Due to a variety of factors, including staff turnover, the project has not achieved the Full Implementation stage, where one would expect to see growth in client outcomes as a result of the EBP adoption. **Conclusions:** The complexity associated with adoption of an EBP can impact the manner in which we view outcomes. Using this heuristic, one can assess the depth of implementation in context of the level of change. By doing so, it can temper unrealistic expectations of outcomes, and provide an indication of where work still needs to be accomplished. **Support:** This project was supported by SAMHSA Cooperative Agreement H79 TI 18543.

58 ADHERENCE DURING AN HIV VACCINE CLINICAL TRIAL: HIGH RISK DRUG-USING WOMEN

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Aims: Historically, high-risk, drug using women have been underrepresented in HIV vaccine trials. As HIV infections increasingly affect minority women, their participation in clinical trials of behavioral and biomedical prevention interventions becomes more important. We aim to identify factors associated with late or missed vaccinations and study retention during the course of an HIV vaccine trial. **Methods:** The data reported here were derived from participants at the Philadelphia site for the HIV Vaccine Trials Network (HVTN) 502 study testing the Merck Adenovirus 5 based HIV vaccine. The research group enrolled 124 women reporting regular use of crack cocaine and frequent unprotected sex. Analyses were conducted to identify variables that may be associated with study adherence and retention. **Results:** Study participants had a mean age of 37 years and 91% were African-American. Overall study retention was 90%. With regard to study adherence, 65% of the women presented for each of the three vaccinations on time; 28% completed at least one vaccination visit late; and 7% missed at least one vaccination visit. Analyses found no associations with increased drug use and poorer rates of adherence, in fact, participants reporting crack cocaine use at baseline were more likely to complete their scheduled injection visits on time. Baseline measures of age, race, current and past injection drug use, frequency of non-injection drug and alcohol use, number of sex partners, frequency of vaginal sex, and distance between home and office (at each visit), were all unrelated to timeliness of completion. **Conclusions:** These findings suggest that women who practice high-risk behaviors are able to participate meaningfully in clinical trials of experimental vaccines. **Support:** HIV Vaccine Trials Network (HVTN)

59 ASSOCIATION BETWEEN CHRONIC PAIN AND PRESCRIPTION DRUG ABUSE—CROSS-SECTIONAL ANALYSIS OF A VA COHORT

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Aims: We sought to investigate the association between chronic pain and self-reported prescription drug abuse in a cohort of patients at higher-than-average risk for prescription drug abuse. **Methods:** We performed secondary data analysis of responses to a telephone assessment administered to primary care patients referred for behavioral health evaluation from April 25, 2005 until October 31, 2007 (N=6378). Simple frequencies, bivariate and multivariable associations were investigated. **Results:** Mean age of the sample was 56.5 with 90.7% men. Nearly 50% of the sample was white, 41.9% black, 5% Hispanic and 3.7% Asian/other. The proportion of patients reporting current (past 6 months) abuse of prescription drugs was 4.8%. On unadjusted analysis, being unmarried (OR 1.3; 1.03-1.7); having a poor financial situation (OR 2.1; 1.6-2.6); smoking (OR 2.3; 1.8-2.9); illicit drug use (OR 4.0; 3.2-5.1); depression (OR 2.2; 1.7-2.8); and chronic pain causing significant functional impairment (OR 2.6; 2.0-3.4) were associated with prescription drug abuse. On multivariable analysis, chronic pain causing significant functional impairment persisted as a significant association with prescription drug abuse (OR 2.2; 1.7-2.9) as did having a poor financial situation (OR 1.4; 1.1-1.9); smoking (OR 1.6; 1.2-2.1); illicit drug use (OR 3.1; 2.3-4.4); and depression (OR 1.6; 1.2-2.0). **Conclusions:** In this cross-sectional analysis, the association between chronic pain and prescription drug abuse suggests a possible causal relationship wherein undertreated pain leads to misuse of prescription drugs. This phenomenon is akin to previously described "pseudoaddiction." In high-risk populations, clinicians should include pseudoaddiction as a possible explanation for aberrant drug-taking behavior. **Support:** The authors acknowledge no outside support in the preparation or execution of this study.

60 ACUTE EFFECTS OF MDMA ON EMOTIONAL PROCESSING

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Aims: MDMA (±3,4-methylenedioxymethamphetamine; 'ecstasy') produces subjective reports of altered or enhanced emotional processing when used recreationally, and when administered in controlled settings. These effects are cited as a motivation for recreational use, and they underpin the rationale for using MDMA as an adjunct to psychotherapy. However, systematic empirical data about the impact of MDMA on affective processing in humans are lacking. This study aimed to investigate subjective and behavioral indices of emotional responsivity after acute MDMA administration. We hypothesized that MDMA would increase responses to pleasant stimuli and decrease responsivity to unpleasant stimuli. **Methods:** To date, eight healthy adults with prior recreational ecstasy use have participated in this blind, partially-randomized, within-participants study. Cardiovascular and subjective drug effects were assessed, and participants rated valence (pleasantness/unpleasantness) and arousal (intensity of emotion) of standardized pictures with neutral, pleasant or unpleasant affective content after administration of placebo, 0.75mg/kg MDMA and 1.5mg/kg MDMA p.o. **Results:** MDMA produced expected dose-dependent increases in cardiovascular measures and subjective ratings of stimulation, elation, sociability, feeling any drug effect, drug liking and feeling high. MDMA did not affect overall valence ratings of affective pictures, or valence ratings of neutral, pleasant or unpleasant pictures in particular. MDMA (0.75 mg/kg) tended to increase overall arousal ratings, relative to placebo and the higher dose. MDMA (0.75 mg/kg) increased ratings of arousal to both neutral and pleasant pictures, but decreased arousal ratings to unpleasant pictures. **Conclusions:** These preliminary data indicate that a low oral dose of MDMA may enhance emotional responses to pleasant and neutral material while blunting responses to unpleasant images. Further, they suggest that the subjectively reported effects of MDMA may be dissociable from behavioral indices of effects on emotional processing. **Support:** Supported by NIDA grant DA02812.

61 FIRST IN VIVO EVIDENCE FOR A FUNCTIONAL INTERACTION BETWEEN CHEMOKINE AND CANNABINOID SYSTEMS IN THE BRAIN

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Aims: Growing evidence supports the idea that in addition to their well-established role in the immune system, chemokines might play a role in both normal and pathological brain function and could interact with other endogenous modulators. The chemokine Stromal cell-Derived growth Factor-1 α (SDF-1 α /CXCL12), a member of the CXC chemokine family, was tested for its possible effect on the analgesic responses of the cannabinoid receptor agonist aminoalkylindole, (+)-WIN 55,212-2 [(4,5-dihydro-2-methyl-4(4-morpholinylmethyl)-1-(1-naphthalenyl-carbonyl)-6H-pyrrolo[3,2,1ij]quinolin-6-one] (WIN 55,212-2) at the level of PAG, a brain region critical to the processing of pain signals, and a primary site of action of many analgesic compounds. **Methods:** Male S-D rats weighing 250-300 g were used, 8-10 rats per group. A sterilized stainless steel C313G cannula guide (22 gauge, Plastics One Inc., Roanoke) was implanted into the PAG, and the cold-water tail-flick (CWT) test was used as the antinociceptive index. **Results:** The administration of WIN 55,212-2 (0.1-0.4 μ g/ μ l) into the PAG resulted in antinociception in a dose-dependent manner. Pretreatment with SDF-1 α /CXCL12 (25-100 ng) caused a reduction in antinociceptive responses of WIN 55,212-2 in a dose-dependent manner. The inhibitory effect of SDF-1 α /CXCL12 on WIN 55,212-2-induced antinociception was reversed by AMD 3100, an antagonist of SDF-1 α /CXCL12, acting at its receptor, CXCR4. **Conclusions:** This study reports the first in vivo evidence of a functional interaction between chemokine and cannabinoid systems in the brain, showing that the activation of SDF-1 α /CXCL12 receptors (CXCR4) in the PAG interferes with the analgesic function of the synthetic cannabinoid WIN 55212-2. It suggests that, like the opioids, endogenous cannabinoids can interact with chemokines in the nervous system. **Support:** Supported by Grants DA06650 and DA13429

62 OPPRESSION AMONG POOR DRUG-USING AFRICAN AMERICAN WOMEN IN NEW YORK: IMPLICATIONS FOR PRACTICE AND POLICY

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Aims: This study used grounded theory to identify dimensions of oppression experienced by poor Black women who use drugs. Oppression is a system of power imbalance and exploitation maintained by unrealistic social norms and expectations that makes it impossible for certain groups of people to achieve those standards. Dimensions constitute ways in which oppression is manifested within the settings. **Methods:** Three case studies were randomly selected from an ongoing longitudinal ethnographic study entitled "Transient Domesticity & Violence in Distressed Households" (R01 DA009056-09). The original sample consisted of 124 adults recruited from poor neighborhoods in New York. All participants completed lengthy, in-depth interviews including questions about family structure; household dynamics, experiences growing up, violence, drug use, experiences with governmental institutions, and future aspirations. Interviews and field notes stored in FileMaker Pro were used in the analysis of oppressive events extracted from participants' experiences. **Results:** All three participants had young children, received welfare, and lived in public housing. None of participants graduated from High School nor were ever able to maintain a regular job. All participants reported using alcohol and marijuana on a regular basis. Analysis revealed five dimensions of oppression occurring within eight distinct settings. Dimensions of oppression included classism, sexism, familism, racism, and drugism. Settings included the school system; correction system; welfare system; housing and neighborhood; relationship with men; family; experiences with drug use; and employment. Findings demonstrate how dimensions of oppression have contributed to participants' inability to excel or achieve self-sufficiency in contemporary American society. **Conclusions:** The present study provides important insights regarding the specific challenges poor African American women face. Findings allow researchers, practitioners, and policy makers to design better treatment programs that target this population. **Support:** NIDA

63 ALTERED PHARMACOKINETICS OF DELTA-9-TETRAHYDROCANNABINOL IN CF-16 MICE DEFICIENT IN MDR1A P-GLYCOPROTEIN

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Aims: The aim of this study was to document the modulation of THC disposition by mdr 1 a gene. **Methods:** After 12 hours fasting, THC (25 mg/Kg) or digoxin (33 μ g/Kg) was orally administered in male mdr 1 a (+/+) and mdr 1 a (-/-) CF1 mice. Blood samples were collected at various times after THC and digoxin administration. A total of 42 (21 WT and 21 M) and 54 (27 WT and 27 M) animals were used for THC and digoxin pharmacokinetic studies. **Results:** Oral administration of digoxin to mdr 1 a (-/-) CF1 mice resulted in a mean digoxin maximal concentration about 2 fold higher than in mdr 1 a (+/+) CF1. This increase in Cmax was accompanied by a 2.4 fold increase in digoxin total exposure in mdr 1 a (-/-) CF1 mice group versus the other group. Mean digoxin AUCs were significantly different between M and WT mice (175 \pm 6.8 versus 72.5 \pm 5.7 ng.hr/mL, p<0.0001). Oral administration of THC in mdr 1 a (-/-) CF1 mice group, lead to a 1.7 fold increase in THC mean plasma maximal concentration versus mdr 1 a (+/+) CF1. This Cmax increase was accompanied by a 2.17 fold significant increase in THC oral bioavailability (416 \pm 32 versus 192 \pm 60 ng.hr/mL, p<0.001). **Conclusions:** High P-gp levels may limit the uptake of THC into the brain and reduced P-gp activity could lead to increased accumulation of THC in the brain. It is expected that human polymorphism of the MDR1 gene may also influence the dependency status to marijuana and could be important in understanding the individual variability of the THC pharmacological effects. **Support:** Funding for this project was provided by the Psychiatry and Addictology Unit and the Department of Pharmacology of Paul Brousse Hospital.

64 SOME BEHAVIORAL EFFECTS OF MODAFINIL IN MONKEYS

16

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Aims: Modafinil, a low-potency monoamine transport blocker, promotes wakefulness and, recently, has been forwarded as a candidate medication for stimulant addiction. The present studies were conducted to examine this prospect by comparing behavioral effects of modafinil and cocaine in studies of fixed-interval (FI) performance, methamphetamine-discrimination, and i.v. self-administration under a choice schedule in squirrel monkeys. **Methods:** One group of monkeys (n=4) lever-pressed (i.e., responded) under a 3-min FI schedule of food delivery. A second group (n=4) was trained to discriminate 0.32 mg/kg of i.m. methamphetamine (MA) from saline, and a third group (n=4) responded under concurrent fixed-ratio (FR) schedules of i.v. cocaine injections or food delivery (i.e., choice). When responding was stable, the effects of pretreatment with i.m. cocaine (0.03 - 1.0 mg/kg) and modafinil (3 -18 mg/kg) in all monkeys. **Results:** Cocaine and modafinil produced comparable dose-related increases in FI response rates, with peak effects observed at doses of 0.1-0.3 mg/kg of cocaine and 10 mg/kg of modafinil. Both drugs also produced methamphetamine-like discriminative-stimulus effects, with full substitution after i.m. doses of 1.0 mg/kg of cocaine and 5.6-10 mg/kg of modafinil. In studies of choice behavior, monkeys responded primarily on the injection-lever when suitable doses of i.v. cocaine were available for self-administration and on the food-lever when i.v. saline was available. Pretreatment with i.m. cocaine or modafinil led to comparable dose-related increases in injection-lever responding during i. v. saline availability, consistent with previously described 'reinstatement' effects of psychostimulants. **Conclusions:** These findings indicate that cocaine and modafinil have comparable behavioral effects in primate species and support the view that modafinil may have 'agonist-type' effects as a medication for the management of stimulant addiction. **Support:** (supported by NIH/NIDA DA03774, DA10566)

65 SELF-REPORTS OF INTEROCEPTIVE RESPONSES DURING STRESS AND DRUG CUE-RELATED EXPERIENCES IN COCAINE-DEPENDENT INDIVIDUALS

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Aims: Cocaine dependence is associated with neuroadaptations in stress and reward pathways that could alter interoceptive cues and result in enhanced craving states. Subjective reports of bodily sensations experienced in stressful and drug cue situations were assessed in 54 recently abstinent cocaine patients. **Methods:** Subjects completed a script development session, in which personal stressful, drug cue and neutral situations were elicited using scene construction questionnaires (SCQ). For each situation, subjects also identified specific bodily sensations from a list presented on the SCQ. Kappa coefficients and McNemar change test were used to determine concordance and discrepancies in bodily sensations experienced in stress and drug cue situations. **Results:** Sensations pertaining to heart and perspiration showed a significantly similar endorsement under stress and drug cue conditions (heart: kappa = .29, $p = .001$; perspiration: kappa = .26, $p = .027$). Increased breathing ($p = .025$), tension ($p = .027$), sadness ($p < .001$), and chest sensations ($p = .025$) were more likely to be endorsed under the stress than the drug cue condition and excitement ($p < .001$) was more likely to be endorsed in the drug cue condition. McNemar and kappa tests were both significant for stomach sensations (McNemar $p = .020$, kappa $p = .037$) and anger (McNemar $p = .001$, kappa $p = .001$), indicating general agreement for sensations relating to these domains under the stress and drug cue conditions. However, stomach sensations were more likely to be endorsed in the drug cue condition and anger sensations were more likely to be endorsed in the stress condition. **Conclusions:** Overall, sensations relating primarily to drug cue exposure were stomach changes and feelings of excitement, while anger and sadness sensations were more specific to stress situations. Characterization of addicted individuals' reports of bodily sensations or interoceptive cues in stress or drug cue situations could provide valuable information in identifying drug craving and guide the establishment of treatments targeting craving reduction and restoration of homeostasis. **Support:** P50-DA16556

67 PROLONGED EXPOSURE TO COCAINE SELF-ADMINISTRATION IN RHESUS MONKEYS INDUCES A SIGNIFICANT DECREASE IN FUNCTIONAL ACTIVITY IN THE PREFRONTAL CORTEX

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Aims: One problem in the translation of findings in animal models of drug abuse to human abusers is the length of drug exposure, which is typically fairly short and often differs drastically between studies. Our previous research has shown that the functional response to cocaine, as assessed with the 2DG method, depends on the duration of cocaine self-administration experience. Our longest time point, however, was only 100 days of cocaine exposure. The purpose of the present investigation was to characterize changes in functional activity to cocaine self-administration following long-term exposure of ~ 1.5 years; a duration more relevant to human users. **Methods:** Rhesus monkeys ($N = 4$) self-administered cocaine (0.3 mg/kg/injection; 30 reinforcers per session; fixed-interval 3 min schedule) for a period of 1.5 years and were compared to control animals ($N = 4$) whose responding was maintained by food presentation under an identical schedule and similar time period. Immediately following the final reinforcer, functional activity within the prefrontal cortex was assessed via the quantitative 2-[14C] deoxyglucose method. **Results:** Glucose utilization was significantly lower in primarily medial and orbital prefrontal cortical areas, such as Area 10 (-26%), Area 32 (-21%), Area 11 (-19%), Area 12 (-18%) and Area 13 (-22%) in cocaine-exposed monkeys compared to controls. The magnitude of these decreases was similar to those observed following shorter durations of cocaine self-administration. In addition, there was no further progression in spatial extent. **Conclusions:** These results suggest that the impact of cocaine in the prefrontal cortex does not expand further with protracted histories of exposure. Furthermore, these results imply that cocaine may be affecting areas critical to executive function and information processing to a similar degree following 1.5 years of exposure compared to 100 days. Whether duration of exposure affects rate of recovery during abstinence will be addressed in future studies. **Support:** NIDA DA09085, DA06634

66 CANNABIS DIMENSIONALITY: DEPENDENCE, ABUSE AND CONSUMPTION

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Aims: Genetic research on drug use disorders has typically defined phenotypes using a binary diagnosis, resulting in a loss of information if the disorder is inherently dimensional. The DSM-IV criteria for drug dependence were based on a theoretically dimensional or linear model. Evidence supports the dimensionality of DSM-IV alcohol dependence criteria, but less is known about the dimensionality of DSM-IV criteria for substance use disorders. We therefore investigated the linearity of lifetime DSM-IV cannabis dependence and abuse criteria. **Methods:** Subjects were 8,172 lifetime cannabis users in the NESARC. Validating variables included family history of drug use, early age of onset, antisocial personality disorder and treatment. Logistic or Poisson regression modeled the relationships of the validating variables to criteria for (1) cannabis dependence; (2) cannabis dependence and abuse; and (3) cannabis dependence, abuse and use. Wald statistics were used to test whether categorical, dimensional or hybrid forms best fit the DSM-IV cannabis criteria. **Results:** No evidence was found for categorical models of cannabis dependence. Wald tests indicated that models representing cannabis dependence as a linear predictor best described the association between dependence criteria and the validating variables. For models of family history, early onset cannabis use, antisocial personality, and treatment the zero intercept lines had slopes of 0.19, 0.26, 0.37, and 0.54, respectively. However, after adding the abuse criteria, with and without cannabis use, the relationships significantly differed from linearity. **Conclusions:** With ample power to detect non-linearity, cannabis dependence was shown to form an underlying continuum of severity; but adding abuse criteria, with and without a measure of consumption, resulted in a model that differed significantly from linearity. **Support:** This research was supported by grants from the National Institute on Drug Abuse (R01 DA018652) and the National Institute on Alcoholism and Alcohol Abuse (K05 AA014223) and support from the New York State Psychiatric Institute.

68 A LABORATORY MODEL OF RELAPSE TO SMOKING: EFFECTS OF INCENTIVES FOR NOT SMOKING AND RELATIONSHIP TO TEMPORAL DISCOUNTING

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Aims: Relapse often occurs shortly after stopping. Factors that support longer periods of initial abstinence may be worthwhile to identify. **Methods:** In the current experiment, we employed a laboratory model of relapse that provided monetary incentives to 9 heavy smokers for brief time periods (2 hours) of not smoking. We systematically varied procedures for delivery of monetary incentives; using schedules of delivery that were similar to those used in studies of contingency management. During experimental sessions, the monetary incentives remained constant, increased, or decreased throughout the session with a maximum of \$24.00 per session. We were also interested in whether individual differences in the discounting of delayed rewards (i.e., delay discounting) predict how long smokers can go without smoking. **Results:** Our initial evaluation of the results revealed that an increasing schedule of monetary incentives produced longer relapse times than the constant schedule ($t [10] = 5.29$, $p = .0004$), and the constant schedule longer than the decreasing schedule ($t [10] = 2.23$, $p = .0499$). Additionally, smokers that discounted delayed rewards more tended to relapse earlier compared to smokers that discounted delayed rewards less ($F [1,7.94] = 13.41$, $p = .0065$). **Conclusions:** Our results support previous reports that discounting is an important variable that designates which individuals may be most likely to benefit from contingency management or other cessation programs. The current results are also encouraging because they indicate this procedure could be used to determine environmental factors that may occasion or prolong relapse. **Support:** Supported by NIDA grant #RA37DA006526

69 BUPRENORPHINE AND NALTREXONE ARE PARTIAL KAPPA AGONISTS

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Aims: The aim of this study was to characterize the efficacy of buprenorphine and naltrexone at the human κ and μ opioid receptors using the [35S]GTP γ S binding assay. **Methods:** Compounds were tested for their ability to stimulate and inhibit [35S]GTP γ S binding to CHO cell membranes that expressed one type of opioid receptor. **Results:** Buprenorphine, naltrexone, naloxone, and the irreversible opioid, β -funaltrexamine (β -FNA), stimulated [35S]GTP γ S binding mediated by the κ receptor with Emax values of 40, 39, 19, and 61%, respectively. The EC50 values for buprenorphine, naltrexone, naloxone, and β -FNA in stimulating [35S]GTP γ S binding mediated by the κ receptor were 0.17, 3, 15, and 3 nM, respectively. Buprenorphine, naltrexone and naloxone inhibited [35S]GTP γ S binding stimulated by the κ agonist U50,488, with Imax values of 24, 54% and 76%, respectively. Adenyl cyclase assays confirmed the results found in the [35S]GTP γ S binding assays at the κ receptor. At the μ opioid receptor, buprenorphine, naltrexone and β -FNA had Emax values of 32, 14, and 16%, respectively, in stimulating [35S]GTP γ S binding. Naloxone and nalmefene produced less than a 10% stimulation of [35S]GTP γ S binding, mediated by the μ opioid receptor. Buprenorphine, naltrexone, naloxone, nalmefene, and β -FNA inhibited [35S]GTP γ S binding induced by the μ -selective peptide DAMGO, with Imax values of 48, 93, 97, 91, and 78%, respectively. As κ opioid receptor activation can lower dopamine in brain regions important to the persistence of alcohol and cocaine dependence, the partial κ agonist effect of buprenorphine, naltrexone, naloxone, and nalmefene may enhance their therapeutic efficacy in selected addictive diseases. **Conclusions:** Buprenorphine and naltrexone are partial agonists at the κ and μ opioid receptors. **Support:** Supported by NIH K05-DA00360.

70 SYNAPTIC LOCALIZATION OF HIPPOCAMPAL AMPA RECEPTORS IS ALTERED UPON THE EXTINCTION OF MORPHINE-DEPENDENT CONDITIONED BEHAVIOR

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Aims: Relapse can be triggered by exposure to environmental cues associated with drug use, as such, disruption of the learned associations between the opiate and environmental cues may be an effective approach for reducing relapse. Neuronal plasticity within the hippocampus is an integral component of the development of context-dependent associations and therefore may be a fruitful target for examining the expression and extinction of opiate-conditioned cues. Additionally, glutamatergic systems are thought to be involved in opiate-induced behavioral plasticity. In the present study, changes in hippocampal levels of AMPA receptors (GluR1, GluR2) within the synapse were investigated upon the extinction of a conditioned response to an opiate-paired environment in rats. **Methods:** Environmental conditioning was performed using the conditioned place preference (CPP) paradigm, consisting of four phases: pre-conditioning, conditioning, expression test, and extinction. Additionally, another set of animals went through an "unpaired" paradigm, in which the administration of the drug was not associated with the environment. Rats were sacrificed, their hippocampi dissected and subcellular fractionation was performed. Expression of AMPA subunits was analyzed by western blot. Statistical analyses were performed using paired t-test. **Results:** We show that PSD-associated pGluR1 levels are significantly increased in animals that have extinguished morphine CPP behavior. Interestingly, no changes in levels of any AMPA receptor subunits are observed in animals upon expression of morphine CPP. In contrast, "unpaired" administration of the drug leads to a significant increase of pGluR1 levels at the synaptosomal fraction, without affecting pGluR1 levels at the PSD. **Conclusions:** These data suggest that, within the hippocampal PSD fraction, the phosphorylation of the GluR1 subunit of the AMPA receptor may play a key role in the regulation of the mechanisms underlying the extinction of morphine-dependent conditioned behavior. **Support:** This work was supported by NIH grant DA023454 to JAM.

71 GENDER DIFFERENCES IN CHRONIC MEDICAL CONDITIONS, PSYCHIATRIC DISORDERS AND SUBSTANCE DEPENDENCE AMONG U.S. JAIL INMATES

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Aims: The number of women in jail is growing faster than the number of men but little is known about their health. We hypothesized that women in jail have a higher prevalence of chronic medical and psychiatric disorders than men in jail, in part due to higher levels of drug dependence. We sought to compare the prevalence of chronic disorders by gender, and determine if differences were mediated by substance dependence. **Methods:** Data were analyzed from a nationally representative, US Department of Justice survey of 6,982 jail inmates from 418 jails. Weighted estimates of self-reported disease prevalence were calculated by gender, and logistic regression was used to adjust for sociodemographic factors (age, race, length of incarceration, education, homelessness, employment, and marital status) and drug and alcohol dependence (using DSM criteria). **Results:** Compared to men, women had a significantly higher prevalence of most chronic medical and psychiatric disorders and drug dependence and a lower prevalence of alcohol dependence. Adjustment for socio-demographic factors and drug and alcohol dependence attenuated but did not eliminate gender differences in most conditions (e.g. diabetes adjusted odds ratio [AOR] 2.07, 95% confidence interval [CI] 1.56, 2.75; hypertension AOR 1.24, 95% CI 1.05, 1.46; depression AOR 2.20, 95% CI 1.89, 2.57; bipolar AOR 2.38, 95% CI 1.94, 2.90). **Conclusions:** Women in US jails reported chronic medical and psychiatric disorders more often than men, mediated in part by substance dependence. Targeted attention to the medical, psychiatric and drug treatment needs of women in jail is warranted to reduce gender disparities. **Support:** Supported by the Division of General Internal Medicine at the University of Colorado Denver, Department of Veterans Affairs, and the Robert Wood Johnson Clinical Scholars Program.

72 ALCOHOL AND SUBSTANCE USE AMONG PERSONS ENGAGED IN HIV PREVENTION IN A COMMUNITY MENTAL HEALTH CENTER

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Aims: We examine associations among mental health diagnoses, gender, and mental health program participation with reported alcohol and substance use for persons enrolled in HIV prevention programming in a Community Mental Health Center. **Methods:** The Addiction Severity Index (ASI) was used to assess reported alcohol and substance use for 280 case managed persons enrolled in a randomized experiment examining the impact of HIV prevention on risk behaviors among persons with serious mental illness. **Results:** Consistent with extant literature, results indicated substantial alcohol and substance use among these participants. Consistent with extant literature, results indicated substantial alcohol and substance use among these participants. Substance use was strongly associated with HIV risk. Chi square analyses indicated that those engaged in the Access program for persons who had experienced homelessness, and those in Intensive Case Management reported higher levels of alcohol (X2 (df = 2) = 6.33, p = .042) and substance use (X2 (df = 2) = 6.87, p = .032) than those receiving Resource Coordination. Men reported greater levels of substance use (X2 (df = 1) = 5.58, p = .018) than did women but not greater alcohol use (X2 (df = 1) = 2.77, p = .096). There were no differences among racial and ethnic groups in alcohol use (X2 (df = 1) = 1.09, p = .30) Whites were more likely than those of other races to report substance use (X2 (df = 1) = 5.76, p = .016). **Conclusions:** Alcohol and substance use are related to HIV risk behaviors among persons with serious mental illness. Persons with more serious illness and histories of homelessness were more likely to report alcohol and other substance use. HIV prevention among persons with mental illness needs to take substance use and severity of illness into account for the purposes of program planning. **Support:** This work was supported by the National Institute on Drug Abuse (R01 DA015627), Michael B. Blank, PhD, Principal Investigator.

CPDD 2008 Annual Meeting, San Juan, Puerto Rico

73 METHODS FOR ESTIMATING DYNAMICAL RISK FACTORS FOR HIV SPREAD ON SEXUAL AND DRUG-INJECTING NETWORKS

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Aims: Aim 1. Develop methodology for estimating HIV risk based on individual characteristics in the dynamic perspective of sexual and injecting risk networks. Aim 2. From data collected in a NIDA-funded study Sexual Acquisition and Transmission of HIV Cooperative Agreement Program (SATH-CAP) estimate behavioral and other individual characteristics associated with higher risk of acquiring HIV. **Methods:** From data collected in the SATH-CAP study, we estimated mixing (who has sex with whom and who injects with whom) matrices based on individual reports on self and sex/injecting partners. We have developed methodology that uses mixing matrix to reconstruct risk networks. We used risk networks in an agent-based modeling framework to simulate the spread of HIV. Model parameters were obtained from 3 sources: interview data collected in a SATH-CAP study, published peer-reviewed papers and educated guess. **Results:** Simulation results show that the knowledge of the actual network structure is of critical importance for the sexual transmission and of less importance for injection-related transmission. In addition to "usual" risk factors (such as number of sex partners, not using condoms, not use drugs before sex, high rate of partner change) social position in the risk network, size and diversity of the network provide the base on which usual risk factors play the role in HIV transmission. **Conclusions:** We have developed a simulation model that puts individual risk factors in dynamic perspective. Our approach become especially useful in identification of risk factors when the actual prevalence is low and the sample size is not big enough. Analysis of simulation trends allows one to estimate which individuals are most likely to be infected in a long run and combining them with the actual cases allows one to identify a wider range and combination of risk factors. Although the model is primarily focused around HIV risks, it has a broad application to problems related to social, sexual and drug using networks. **Support:** This work was supported in part by the SATH-CAP project, grant number UO1DA017394.

74 EFFECTS OF BUPRENORPHINE AND HEPATITIS C ON LIVER ENZYMES IN ADOLESCENTS AND YOUNG ADULTS

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Aims: To determine whether buprenorphine treatment was associated with changes in liver function among opioid dependent subjects aged 15-21. **Methods:** 152 subjects seeking treatment for opioid dependence were randomized to 2 week detoxification with buprenorphine/naloxone (DETOX) or 12 weeks buprenorphine/naloxone (BUP), each with weekly individual and group drug counseling. Liver function tests (LFTs) were evaluated at 4, 8, and 12 weeks, including ALT, AST, GGT, LDH, Total Bilirubin, and alkaline phosphatase. 111 patients had at least one set of LFTs during treatment and were included in analyses of treatment effects. Because of highly skewed distributions, non parametric tests (chi square, Mann-Whitney U, logistic regression) were used. **Results:** 24.8% of participants had one or more abnormal LFTs at baseline, and 31.5%, 29.1%, and 24.1% at 4, 8, and 12 weeks respectively. Two individuals in the DETOX group and 2 in the BUP group developed markedly elevated LFTs. 19% of participants were Hep C positive at baseline and 4 seroconverted within 12 weeks, 2 in each group. No significant differences were found between treatment groups on total LFT abnormalities, but patients in the BUP group had fewer elevated transaminase values during treatment ($p = .041$). There were highly significant differences in rates of Hep C by site. Hep C status was weakly associated with total LFT abnormalities, but more strongly associated with transaminase abnormalities ($p = .004$). When logistic regression was used with any abnormal transaminase as the dependent variable, Hep C status was highly significant ($p = .008$), but treatment group lost significance ($p = .077$). **Conclusions:** No evidence was found for hepatotoxicity of buprenorphine in this sample. Hep C was present in a significant minority of participants and was a significant predictor of transaminase elevation. The high rate of seroconversion points to the importance of effective treatment and prevention in this population. **Support:** Supported by the NIDA Clinical Trials Network.

75 WORK- AND HEALTH-RELATED DISPARITIES FOR LOW-INCOME WORKING ADULTS WITH MENTAL HEALTH AND/OR SUBSTANCE MISUSE DISORDERS

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Aims: This study examines whether work and health disparities exist for low-income working individuals with different mental health and substance use diagnoses. **Methods:** Based on ICD-9 diagnoses, 445 participants in the Texas Demonstration to Maintain Independence and Employment were classified into five groups: severe mental illness (SMI), SMI with co-occurring substance misuse, other behavioral health diagnosis (BH), BH with substance misuse, and substance misuse alone. Participants were patients in the Harris County Hospital District, working at least part time, and had additional physical impairments. Data were from a telephone survey. **Results:** Groups differed on educational levels, gender and ethnic background. For work-related disparities, results showed no significant differences among groups. Across groups, the average work motivation score was 2.8 on a scale of 1-4, 72% had not changed jobs in the past year, 86% expected to still be employed in 3 years, and the average number of hours worked in the past month was 121. For health-related disparities, perceived mental health and ability to perform instrumental activities of daily living were significantly higher among the BH-only and substance-only groups. All groups were equally satisfied with the past-year health care they had received, involved with family and community, got needed care including emergency care, and were similar in perceived physical health. **Conclusions:** Low-income working individuals with behavioral and/or substance use disorders typically have high work motivation and intend to continue work over the next several years regardless of diagnostic status. Findings suggest that low-income working individuals can access and benefit from public health care despite their behavioral health problems. **Support:** The DMIE project is supported by a grant from the Centers for Medicare and Medicaid Services through the Texas Department of State Health Services.

76 PARENT MONITORING AT AGE 11 AND SUBSEQUENT ONSET OF CANNABIS USE: RESULTS FROM A PROSPECTIVE STUDY IN TWO SOCIALLY DISPARATE COMMUNITIES

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Aims: To estimate, prospectively, the influence of parental monitoring at age 11 on the onset of cannabis use by age 17. **Methods:** Data are from a longitudinal study of low birth weight and normal birth weight children who were randomly selected from the 1983-1985 newborn discharge lists of 2 major hospitals in southeast Michigan, one serving an inner-city community and the other, a suburban community ($n=713$). Parent monitoring was elicited from the children at age 11 via a 10-item scale. It was standardized to have a mean of 0 and a standard deviation of 1. For focus on new onsets after age 11, individuals who used cannabis by the age 11 assessment were excluded, yielding a sample size of $n=637$. Multiple logistic regression was used to estimate the association between parent monitoring at age 11 and cannabis use at age 17 controlling for sex, tobacco smoking at age 11, maternal education, maternal marital status, maternal smoking, friends' tobacco smoking at age 11, friends' alcohol use at age 11, birth weight and community (urban vs. suburban). **Results:** An estimated 35% of the cohort had tried cannabis by the age of 17. Parent monitoring at age 11 was significantly associated with cannabis use at age 17, with an estimated unadjusted relative risk (RR) of 0.7 (95% CI 0.6, 0.8). A statistically robust association remained after controlling for potential confounders (estimated adjusted RR = 0.7, 95% CI = 0.6, 0.9). **Conclusions:** This investigation found an inverse association linking lower levels of monitoring at age 11 with onset of cannabis use between 11-17. Consistent with evidence reported elsewhere, these findings from prospective research help confirm the theory that parenting and familial characteristics might exert long-lasting influences on a child's risk of starting to use illegal drugs. **Support:** This study was supported by grants MH-44586 and MH-71395 from the National Institutes of Health.

CPDD 2008 Annual Meeting, San Juan, Puerto Rico

- 77 PRE-EXPOSURE TO METHAMPHETAMINE IMPAIRS SEXUAL MOTIVATION BUT NOT SEXUAL PERFORMANCE**
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Aims: The present study aimed to investigate the effects of pre-exposure to methamphetamine on locomotor activity, sexual motivation, and sexual performance in adult male Japanese quail. Methods: Male Japanese quail (N = 27) were administered methamphetamine (1.0 mg/kg or 3.0 mg/kg i.p.) or saline once daily for 10 days and locomotor activity was measured. After a 10 day withdrawal period, sexual motivation was measured in a straight-arm runway and sexual performance with a female quail was later assessed. Sexual motivation and performance were measured once daily for 10 days. Results: Subjects pre-exposed to 3.0 mg/kg i.p. methamphetamine displayed decreased locomotor activity compared to saline controls ($F(2, 95) = 3.981, p = 0.0360$). Subjects pre-exposed to methamphetamine had decreased sexual motivation relative to saline controls as evidenced by significantly slower runtimes toward a female in the runway ($F(8, 72) = 2.265, p = 0.0321$). Subjects pre-exposed to methamphetamine did not display deficits in sexual performance such as cloacal contact movements and were also as efficient at copulation as saline controls. F-values ranged from 0.279 to 1.963. Conclusions: Although speculative, the results may suggest that pre-exposure to 3.0 mg/kg i.p. methamphetamine may have induced locomotor tolerance as quail pre-exposed to methamphetamine displayed significantly less locomotor activity than controls. Moreover, methamphetamine appeared to selectively impair sexual motivation, as evidenced by slower runtimes toward a female in the runway, but not sexual performance or copulatory efficiency. Support: This research was supported by USPHS DA00508.
- 78 RECENT CHEMICAL CONTROLS IN RESPONSE TO DEATHS ATTRIBUTED TO THE ILLICIT MANUFACTURE OF FENTANYL**
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Aims: The illicit manufacture of controlled substances has serious implications, evident by the recent fentanyl problem. Methods: Data from the Centers for Disease Control and National Forensic Laboratory Information System identified over 1000 deaths attributed to illicit fentanyl from April 2005 to November 2006. The highly potent opioid fentanyl has been found to be a very dangerous substitute for heroin. Lethal quantities of fentanyl are suspected in these deaths, resulting from improper dosage concentrations of illicit fentanyl or illicit fentanyl combined with heroin and cocaine. The primary synthetic routes to fentanyl are by the Janssen and Siegfried methods. Since 2000, four of five domestic fentanyl laboratories seized were found to be manufacturing fentanyl by the Siegfried method. Results: In response to the fentanyl problem, the DEA introduced and finalized regulations under the CSA to control precursors chemicals used in the illicit manufacture of fentanyl. N- Phenethyl-4-piperidone (NPP) was controlled as a List I chemical. Conclusions: NPP is used to make 4-anilino-N-phenethyl-piperidone (ANPP) and ANPP is under evaluation for placement into Schedule II as an immediate precursor of fentanyl. In addition to regulatory controls, a recent clandestine laboratory producing fentanyl was seized. Support: Drug Enforcement Administration
- 79 USE OF A PEER LEADER INTERVENTION MODEL TO REDUCE NEEDLE-RELATED RISK BEHAVIORS AMONG DRUG INJECTORS IN UKRAINE**
R.E. Booth¹, W.K. Lehman¹, C. Latkin², J.T. Brewster¹, L. Sinitsyna^{3,4} and S. Dvoryak⁴, ¹Psychiatry, University of Colorado Denver Health Sciences Center, Denver, CO, ²Health Policy and Management, Johns Hopkins Bloomberg School of Public Health, Baltimore, MD, ³Counterpart International, and ⁴Aims: This study was designed to assess change in needle-related risks following interventions with injection drug users (IDUs) in the Crimea. Methods: Participants were recruited through street outreach by former IDUs in the cities of Simferopol and Nikolayev, Ukraine. Using a computer assisted self-interview, they were interviewed about their risk behaviors at baseline and again at follow-up six months later. The intervention was based on a social network model in which peer leaders were recruited and asked to bring in up to three members of their injecting network. The five session intervention model, delivered in small groups, was designed to motivate leaders to become peer educators and to provide them with skills training on how to encourage members of their social networks to reduce their HIV-related risk behaviors. Results: Findings supported the feasibility of the intervention: peer leaders recruited an average of 2.4 network members; two-thirds attended at least four of the five training sessions; and a positive relationship was observed between greater session attendance and increased communication with network members about HIV prevention. Moreover, leaders who did not engage in high risk behaviors at follow-up were much more likely to have had network members who did not participate in high risk activities compared to leaders who continued high risk behaviors. Conclusions: Despite these promising findings, 44% of the peer leaders and 54% of network members continued to engage in high risk behaviors following the intervention. Without sustained intervention efforts, the escalating HIV epidemic in Ukraine is likely to continue. Support: This research was supported by the National Institute on Drug Abuse, DA017620-05S1
- 80 BLOCKADE OF D1-FAMILY DOPAMINE RECEPTORS IN THE DORSOLATERAL STRIATUM ATTENUATES CONTEXT-INDUCED REINSTATEMENT OF HEROIN SEEKING**
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Aims: In humans, exposure to environmental contexts previously associated with heroin intake can provoke drug relapse but the neuronal mechanisms mediating this relapse are largely unknown. Using a drug relapse model, we previously found that re-exposing rats to heroin-associated contexts, following extinction of drug-reinforced responding in different contexts, reinstates heroin-seeking. This effect is attenuated by inhibition of glutamate transmission in the ventral tegmental area (Bossert et al. J Neurosci 2004) and medial accumbens shell (Bossert et al. Neuropsychopharmacology, 2006), components of the mesolimbic dopamine system. More recently, we found that context-induced reinstatement of heroin seeking is attenuated by injections of the D1 receptor antagonist SCH 23390 into medial and lateral accumbens shell, but not accumbens core (Bossert et al. J Neurosci 2007). Here, we examined whether blockade of D1 dopamine receptors in dorsolateral striatum, an area involved in stimulus-response habit learning and context-induced reinstatement of cocaine seeking, would attenuate context-induced reinstatement of heroin seeking. Methods: Rats were trained to self-administer heroin for 12 days; drug infusions were paired with a discrete tone-light cue. Subsequently, heroin-reinforced responding was extinguished in the presence of the discrete cue in a context that differed from the drug self-administration context in terms of visual, auditory, tactile, and circadian cues. During subsequent tests for context-induced reinstatement, the rats were injected with vehicle or SCH 23390 and were then re-exposed to the original heroin self-administration context. Results: SCH 23390 injections (1.0 µg/site) into dorsolateral striatum attenuated context-induced reinstatement of heroin seeking. This decrease was not due to motor deficits because this dose of SCH 23390 had no effect on high rates of lever pressing for sucrose solution. Conclusions: Results demonstrate an important role of D1 dopamine receptors in dorsolateral striatum in context-induced reinstatement of heroin seeking. Support: NIDA/IRP

81 INCREASED SENSITIVITY IN ADOLESCENT VERSUS ADULT RATS TO THE LOCOMOTOR ACTIVATING EFFECTS OF TOLUENE

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Aims: Of the volatile organic solvents (inhalants) that are commonly abused, toluene has received particular attention from the scientific community. Inhalant abuse is typically considered to be a problem primarily among adolescents which raises concerns regarding toxicity and future drug use. Most preclinical studies have assessed outcomes of exposure to inhalants in adult animals so it is unclear whether these neurobehavioral effects extend to younger animals. We hypothesized that adolescent Sprague-Dawley rats would be more sensitive to the locomotor effects of binge high-dose toluene than adult animals given equivalent exposures. **Methods:** To compare behavioral outcomes, adolescent (Postnatal Day 28; PN28) and adult (PN90) Sprague-Dawley rats were exposed to toluene using six 5-min exposures (total of 30 min daily) with a 30 min interval separating the beginning of consecutive exposures. Animals were exposed 6 days/week, for 2 consecutive weeks, to toluene concentrations of 0, 8000 or 16,000 parts per million (ppm). Locomotor activity was quantified both during binge toluene exposures and for 30 min following completion of the final daily toluene exposure. Animals were also re-assessed for possible long term effects on locomotor activity 10 days following completion of binge toluene exposures. **Results:** In adolescent animals, toluene significantly increased locomotor activity as compared to air controls while only minimal differences were noted among adult animals exposed to varying concentrations of toluene. During recovery from binge toluene exposures, adolescent animals returned to baseline locomotor activity levels more quickly than did their adult counterparts given equivalent exposures. **Conclusions:** The present results demonstrate that inhalation exposure to abuse patterns of high concentrations of toluene can significantly alter spontaneous locomotor behavior in rats and that the expression of these effects depends on the age at time of testing. **Support:** Supported by NIH grant DA019151 to SEB.

83 EFFECTS OF SUSTAINED ABSTINENCE AND IMPULSIVITY ON THE RELATIVE REINFORCING EFFECTS OF CIGARETTE SMOKING

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Aims: We have reported previously that a period of sustained abstinence decreases the relative reinforcing effects of smoking. The purpose of the present study was twofold: (1) to further examine that relationship with a larger sample size and (2) to investigate how baseline impulsivity relates to this effect. There is an emerging literature demonstrating that impulsivity discriminates between current, former, and never smokers and predicts relapse risk. **Methods:** Subjects were 150 adult smokers (72 male 78 female) who participated in one of three experiments involving a common protocol. The protocol involved a 14-day study period during which daily earnings were contingent on biochemically verified abstinence for all 14 days in one condition (14C) or non-contingent for days 1-13 and contingent on day 14 in a second condition (1C). Abstinence from smoking was verified by breath CO and/or urine cotinine. On day 14 all subjects completed a 3-hr preference session where they made a total of 20 exclusive choices for either smoke or money. All subjects also completed a baseline delayed discounting (DD) procedure wherein they chose between a constant delayed reward and an adjusted immediate reward. **Results:** Subjects in the 14C condition were significantly less likely than those in the 1C condition to ever choose the smoking option in the preference session (34% vs. 59%, $p < .01$). Baseline DD was a significant predictor ($p < 0.05$) of smoking preference in the 1C but not the 14C condition. In the 1C condition subjects who chose to smoke in the preference session were significantly ($p < .05$) greater discounters of money (more impulsive) than those who were non-smokers in the preference session. **Conclusions:** These results provide further robust evidence that a two-week period of smoking abstinence decreases the relative reinforcing effects of smoking. These results also suggest that at least in part that effect involves abstinence negating the positive influence of DD (impulsivity) on the probability of smoking. **Support:** NIDA grants: R01DA08076/10-14 & T32 DA07242-17

82 DRUG ABUSE PROBLEMS AMONG MEDICAL AND NONMEDICAL USERS OF PRESCRIPTION OPIOIDS

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Aims: This study aimed to assess the prevalence of drug abuse among four mutually exclusive groups of lifetime medical and nonmedical users of prescription pain medications (i.e., Vicodin®, OxyContin®, Tylenol®, 3, Percocet®, Darvocet®, morphine, hydrocodone, oxycodone): 1) non-users ($n = 1622$), 2) medical users only ($n = 1422$), 3) medical and nonmedical users ($n = 407$), and 4) nonmedical users only ($n = 104$). **Methods:** A Web survey was self-administered in 2005 by a probability-based sample of 3,639 full-time undergraduate students (68% response rate) at a large public, Midwestern, 4-year university in the United States. The survey consisted of measures to assess prescribed use and nonmedical abuse of opioid analgesics. A modified version of the Drug Abuse Screening Test, Short Form (DAST-10) was also administered. **Results:** The prevalence of a positive screen for drug abuse, using a 3+ cutoff on the DAST-10, was lower among non-users (5.1%) and medical users only (6.5%) than among medical and nonmedical users (30.3%) and nonmedical users only (41.3%). Further, there were no gender differences among any of the four groups. Logistic regression analysis indicated non-users and medical users had significantly lower odds of a positive DAST-10 score than either nonmedical users only ($p < 0.001$) and medical and nonmedical users ($p < 0.001$). Most medical users reported no history of nonmedical use and were not at increased risk for reported drug abuse problems (as measured by DAST-10). In contrast, medical users of prescription opioids who also engaged in nonmedical use were at substantially increased risk for drug abuse problems. **Conclusions:** These data suggest that there is a significant amount of nonmedical use of opioid analgesics among college students and that nonmedical users are at increased risk for substance abuse problems. In contrast, if the analgesic is used as prescribed, there appears no increased risk as measured by the DAST-10. **Support:** This study was supported by NIDA grants: DA0187272; DA018239; and DA020899.

84 D-CYCLOSERINE AND COCAINE CUE EXTINCTION

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Aims: A number of animal studies have demonstrated that D-Cycloserine (DS), a partial glutamate agonist, enhances learning processes underlying extinction of conditioned fear responding. A recent study demonstrated that DCS pretreatment significantly accelerated extinction of cocaine conditioned place preference in rats. This pilot project extends these findings by exploring the impact of DCS on response to cocaine cues in cocaine-dependent individuals. **Methods:** Subjects were administered 50 mg of DCS or placebo two hours before each of two cocaine cue exposure (CE) sessions. Subjective (e.g., craving) and physiologic (heart rate, blood pressure) responses were measured prior to and at regular intervals during and following cocaine cue exposure. Six subjects (3 placebo, 3 DCS) were tested in sessions scheduled one week apart and 10 subjects (5 placebo, 5 DCS) were tested in sessions conducted 24 hours apart. The mean baseline craving, measured after drug administration but before CE, was higher in DCS-treated subjects (5.1 vs. 2.8; $P = 0.06$). **Results:** For those tested one week apart, the DCS group showed a significant decrease in craving across the two CE sessions while the placebo-treated group did not. For those tested 24 hours apart, the DCS group had high baseline craving and craving remained high throughout the initial CE session; however, they demonstrated significantly less craving at the beginning of the second CE session as compared to CE session one and compared to the placebo group. The placebo group showed less craving in the first CE session than the DCS group, but increased craving in the second CE session. **Conclusions:** These data suggest complex actions of DCS in cocaine-dependent individuals. Acute administration may increase cocaine craving independent of cocaine CE through glutamatergic stimulation of dopamine release in the nucleus accumbens. There is some evidence suggesting DCS facilitation of extinction of response to cocaine cues, but baseline differences in craving and the small number of subjects tested make data interpretation difficult. **Support:** None

CPDD 2008 Annual Meeting, San Juan, Puerto Rico

85 HIGHLIGHTS FROM THE 2007 ONTARIO STUDENT DRUG USE AND HEALTH SURVEY

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Aims: To assess current drug use and related problems among Ontario students in 2007, and trends since 1977. **Methods:** Data are from the OSDUHS, which is a biennial ongoing student survey that employs a two-stage (school, class), stratified (region) cluster sample design. In 2007, anonymous questionnaires were completed in-class by 6323 Ontario students in grades 7 to 12. Outcome measures included annual prevalence for alcohol, tobacco, and 22 other drugs, problem-use of alcohol and drugs, drinking-driving and cannabis-driving. Drug use estimates based on 16 cross-sectional surveys from 1977 to 2007 were also examined among grades 7, 9, and 11. All data were weighted to account for the complex survey design and analyzed using logit trend analyses. **Results:** In 2007, alcohol (61%) is the most common drug used, followed by cannabis (26%), prescription opioid pain relievers (21%; non-medical use), and cigarettes (12%). Past year use of solvents, hallucinogens (i.e., mescaline or psilocybin), and tranquilizers is reported by about 6% of students. The remaining drugs are used by fewer than 5%. The least common drug is GHB, used by less than 1%. Past-month binge drinking is reported by 26% of students; drunkenness by 24%, and 19% indicate hazardous/harmful drinking as measured by the AUDIT. Eighteen percent may have a drug-use problem (CRAFT), and 3% of students indicate cannabis dependence (SDS). Among drivers, 12% report drinking-driving in the past year, while 16% report cannabis use and driving. Long-term trends show the peak years for drug use were 1979 and again in 1999, and most drug use is relatively lower in 2007, with the exceptions of solvent use and binge drinking. The prevalence of smoking and LSD use are at all-time lows. **Conclusions:** One of the more positive findings is a continuing decline in cigarette smoking. Other student drug use is currently lower compared to earlier decades, but problems still remain (e.g., risky drinking). New concerns over prescription opioid misuse have emerged. **Support:** Centre for Addiction & Mental Health

87 MORPHINE SENSITIZES TO SYSTEMIC INFECTION WITH ACINETOBACTER BAUMANNII IN A MURINE MODEL

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Aims: An increased incidence of *Acinetobacter baumannii* infection in wounded soldiers returning from combat has raised questions about factors mediating its pathogenesis. Previous work in our laboratory has established that morphine is immunosuppressive. We hypothesize that morphine given for analgesia on the battlefield might predispose to *A. baumannii* infection. **Methods:** Using a clinical isolate strain of *A. baumannii* provided by Walter Reed Army Institute of Research, a systemic, intraperitoneal infection model in two strains of mice (C3HeB/FeJ and C57BL/6J), using male and female animals, was established. Animals were implanted subcutaneously with slow-release pellets containing morphine (25mg or 75mg), or naltrexone, or a placebo pellet. Challenge was with a 0.1LD₅₀ dose of *A. baumannii* administered 48 hr after pellet implantation. **Results:** Mice receiving morphine pellets and challenged with *A. baumannii* had 100% mortality. Animals implanted with a morphine plus a naltrexone pellet all survived, indicating that sensitization to infection occurred by an opioid-receptor mediated mechanism. At 12h post infection there were significantly higher bacterial loads in the organs of animals treated with morphine pellets versus mice receiving placebo pellets, confirming that mortality was due to increased replication of bacteria. Morphine had no effect on growth or viability of *A. baumannii* when grown in vitro in the presence of morphine at potentially physiological doses ranging from 10⁻⁶ to 10⁻¹²M, ruling out any direct effect of the opioid on the pathogenesis of the bacterium. **Conclusions:** These data support the hypothesis that morphine potentiates an *A. baumannii* infection in mice. **Support:** Supported by NIDA grant DA13429, NIDA grant T32DA07237, and USAMRMC grant W81XWH-06-1-0147

86 POLYDRUG USE AND IMPLICATIONS FOR LONGITUDINAL RESEARCH: TEN-YEAR TRAJECTORIES FOR HEROIN, COCAINE, AND METHAMPHETAMINE USERS

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Aims: A typical approach to categorizing substance users for epidemiologic purposes or to identify substance use problems at treatment admission is by indicating the primary substance used or for which treatment is sought. But does focus on the primary drug limit the validity of conclusions from longitudinal analysis of drug use patterns over time? This analysis combined data from 5 longitudinal studies and examined 10-year patterns (beginning with initiation of primary drug) of heroin, cocaine, methamphetamine (MA), marijuana, and alcohol use. **Methods:** Growth models were used to examine patterns of substance use over time and relationships between patterns for the different substances. The sample was composed of primary users of heroin (n=629), cocaine (n=694), and MA (n=474). **Results:** The combined sample was 73% male/27% female, and 34% white, 32% African American, 30% Hispanic, and 4% other racial/ethnic groups. The average age of initiation of the primary drug use was 21 years with regular use beginning at an average age of 23. The average age of first drug treatment was 29 years. During the first 10 years following initiation of their primary drug, the sample spent an average of 4.5 months in drug treatment and 17 months in prison or jail. Results show substantially lower levels of use of non-primary heroin, cocaine, and MA than of the primary drug, as measured by days of use per month. Growth models showed generally declining patterns of primary drug use for heroin and MA users over the 10-year period and a pattern of slight increase then decrease for cocaine users. Levels of non-primary drugs remained at consistently low levels or declined in tandem with the primary drug. **Conclusions:** In summary, analyses support the validity of longitudinal analysis results relating to drug use over time based on classification by use of primary drug for heroin, cocaine, and MA users. Future focus on individuals who diverge from the general patterns may also be helpful in identifying strategies for prevention or intervention. **Support:** Grant #P30 DA016383 from the National Institutes on Drug Abuse

88 BRAIN ACTIVATION IN A COGNITIVE CONTROL TASK CORRELATES WITH OUTCOME MEASURES AFTER COGNITIVE BEHAVIORAL TREATMENT IN COCAINE-DEPENDENT INDIVIDUALS

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Aims: Neuroimaging studies have suggested metabolic differences in prefrontal and striatal brain regions of cocaine abusers relative to comparison subjects. Cognitive behavioral therapy (CBT) is an effective treatment thought to increase cognitive control over behavior. However, no studies have examined the neural correlates of cognitive control as related to CBT treatment for cocaine dependence. The objective of this study was to determine the correlation between regional brain activation and treatment outcomes during the Stroop task in cocaine-dependent individuals. We hypothesized that corticolimbic circuitry activation would correlate with treatment retention and abstinence. **Methods:** Nineteen treatment-seeking cocaine-dependent individuals performed a Stroop task while undergoing functional magnetic resonance imaging prior to initiating CBT delivered within a randomized controlled trial. Outcome measures for the trials included percent negative drug screens, days abstinent, and treatment retention. Correlations between regional brain activation during Stroop task performance and treatment outcomes were analyzed using SPM2 simple regression. **Results:** During Stroop task execution, cocaine-dependent individuals activated brain regions similar to those reported in non-addicted individuals on this task, including the ACC, dlPFC, insula and striatum. Regional brain activations at baseline correlated differentially with outcome measures: longer duration of self-reported abstinence were significantly correlated with increased activation of vmPFC, percent drug-free urine screens correlated with dorsal striatal activation, and treatment retention correlated with diminished activation of dlPFC. **Conclusions:** These findings suggest that the function of specific brain regions underlying cognitive control are related to discrete outcome measures for CBT for cocaine dependence and may help to dissect mechanistic correlates of CBT, leading to improved drug treatment in the future. **Support:** NIDA P50-DA09241, RO1-DA020908, R37-DA15969, T32-DA007238

89 LOCAL BLOCKADE OF COCAINE ACTIONS IN BRAIN BY LOCAL GENE TRANSFER OF COCAINE HYDROLASE

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Aims: We have found that human butyrylcholinesterase (hBChE) mutated into an efficient cocaine hydrolase can accelerate cocaine breakdown, rescue rats from normally lethal overdoses, and selectively abolish cocaine-primed reinstatement behavior. We also showed that such a hydrolase, transduced in liver by adenoviral vector, blocks Δ -FosB induction in the neostriatum during a course of cocaine injections. Our current aim was to determine the efficacy of brain hydrolase transduction. **Methods:** Pentobarbital-anesthetized rats were given stereotaxic injections of type-5 adenoviral vector encoding cocaine hydrolase or empty vector (2 μ l, 1011 pfu/ml) randomly into right and left caudate nuclei. After two days of recovery, the rats received 4 days of twice-daily cocaine, 30 mg/kg, or saline, i.p. Brains were then harvested and sections were immunostained for FosB and hBChE. **Results:** Immunohistochemistry for hBChE demonstrated substantial transgene expression at the injection site, 4 to 7 days after vector. Expression in neurons was confirmed by double staining with the neuron-specific antibody, ANA-1. Confocal fluorescence microscopy also showed that cocaine treatment induced abundant striatal FosB reactivity on the side injected with empty vector. Numerous FosB-positive nuclei were likewise observed in the contralateral striatum injected with hydrolase vector. However, these positive nuclei were absent or markedly reduced in the zone where hBChE transduction had occurred. **Conclusions:** The results indicate that expression of a cocaine hydrolase in brain reduces cocaine access to local targets and prevents this drug from inducing a molecular signal associated with addiction-related changes in neural circuitry. This phenomenon might be useful in investigating the relative importance of various cocaine targets. The findings also support the concept that hydrolase gene transfer could contribute to a therapy of drug abuse by disrupting mechanisms that sustain drug-seeking behavior. **Support:** Supported by NIDA R01-DA23979 and the Minnesota Partnership for Medical Genomics and Biotechnology.

91 ASSESSING THE ROLE OF OXYTOCIN IN THE INTEROCEPTIVE CUES OF 3,4,3-METHYLENEDIOXYMETHAMPHETAMINE (MDMA, "ECSTASY") USING A DRUG DISCRIMINATION PARADIGM

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Aims: MDMA ('Ecstasy') use results in distinctive mood changes, most likely due to its enhancement of serotonin (5HT) release. Activation of 5HT-1A postsynaptic receptors stimulates the release of oxytocin, which in the CNS functions as a neuromodulator of aspects of mood regulation. This study examined whether treatment with the oxytocin agonist carbetocin, and the oxytocin antagonist atosiban, would affect conditioned behavioural responses in rats trained to respond to MDMA and a related stimulant, amphetamine (AMP), using a three lever drug discrimination paradigm. **Methods:** Male and female Sprague Dawley rats (n=22) were trained to discriminate between 1.5mg/kg MDMA, 1.0mg/kg AMP and saline. In the first study, the extent to which operant responding generalized to the training drugs following administration of carbetocin (1, 2, 6.4, 20mg/kg) or atosiban (2mg/kg) was evaluated. In the second study, rats were tested with combinations of carbetocin (2mg/kg) and either MDMA (0.38, 0.75, 1.5mg/kg) or AMP (0.25, 0.5, 1.0 mg/kg), as well as combinations of atosiban (2mg/kg) with either MDMA or AMP. **Results:** The results supported the hypotheses that carbetocin would partially mimic the subjective effects of MDMA but not of AMP, that combining carbetocin and MDMA would not affect MDMA interoceptive cues, and that combining carbetocin and AMP would lead to increased MDMA-appropriate responding. The effect of atosiban on MDMA discrimination merits further investigation; 25% of subjects generalized to the AMP-appropriate lever after being treated with atosiban and the MDMA training dose. Atosiban did not affect AMP-appropriate responding following AMP treatment. **Conclusions:** It was concluded that oxytocin receptor activation is involved in MDMA-specific interoceptive cues, and that this is one of the features of MDMA that distinguishes it subjectively from AMP. **Support:** This work was supported by a Clive and Vera Ramaciotti Establishment Gift; atosiban was a gift from Ferring Pharmaceuticals.

90 OVERDOSE WITHIN 12 MONTHS OF TREATMENT FOR SUBSTANCE USE DISORDERS

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Aims: Overdose (OD) is a leading cause of death for individuals with substance use disorders (SUDs). There are limited prospective data on ODs during the months following treatment for SUDs. **Methods:** Variables associated with an OD in the 12 months after leaving an initial treatment episode were examined in an analysis of the Drug Abuse Treatment Outcomes Study (DATOS), a longitudinal naturalistic multisite study. Participants included 2,966 patients with one or more SUDs. Non-fatal OD was ascertained by a positive response to "Have you ever overdosed on drugs?" Multivariate logistic regression analyses were used to identify variables associated with OD. **Results:** By 12 months, 93 (3.1%) participants had an OD. Baseline variables that were associated with OD included lifetime history of OD, injection drug use, and polydrug use. After controlling for baseline predictors, variables assessed at 12 months associated with OD included frequency of cocaine and heroin use, depressed mood, and suicidal ideation. **Conclusions:** Findings underscore that injection drug users with a history of OD should be a focus of prevention efforts. **Support:** Supported by NIH grants R01DA20030, R01AA16149 and T32MH20061

92 COGNITIVE IMPAIRMENT AND TREATMENT RETENTION AMONG CANNABIS DEPENDENT PATIENTS

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Aims: Retention in pharmacologic treatment trials that target drug abuse is generally low. Specifically, our research group has conducted psycho-pharmacologic treatment trials in both cocaine and cannabis dependent individuals with retention rates ranging from 40 -65%. Identifying reasons for treatment dropout can lead to better interventions that lengthen study participation, treatment exposure and outcome. Previously, we found that impaired cognition predicted treatment dropout from cognitive behavioral therapy (CBT) in a sample of cocaine dependent patients. In the current study, we tried to replicate these findings in a sample of cannabis dependent users enrolled in a 12-week psycho-pharmacological trial that included weekly CBT sessions. **Methods:** Twenty-two patients were assessed for cognitive performance at treatment entry with the computerized MicroCog (MC). The sample was predominately male (82%) and 41% Caucasian, 23% Hispanic, 32% African American and 4% Asian. The average age was 36+/-11 years. All participants met DSM-IV criteria for cannabis dependence. Treatment completion was defined as attending \geq 10 weeks. Secondary analysis compared cognition between patients who had greater therapy attendance (\geq 8) and those who attended fewer CBT sessions ($<$ 8). **Results:** Baseline demographics and pattern of marijuana use did not differ between the groups. Based on the MC, only reaction time on the analogies task differentiated between completers (n=14) and dropouts (n=8) (t= 2.17 p=0.04). The dropout group processed the analogies task significantly slower than the completers. No significant cognitive differences were found between groups based on the number of CBT sessions attended. **Conclusions:** While dropouts in our cocaine dependence treatments showed poorer attention and memory, the dropouts in this cannabis dependence study showed slower reaction time on an abstract reasoning measure. This suggests a substance-specific difference in impairments types and their associations to treatment retention. Larger studies will need to confirm these findings. **Support:** NIDA Grants:K23DA16743,P50DA09236 and R01DA15451

CPDD 2008 Annual Meeting, San Juan, Puerto Rico

93 FEASIBILITY AND UTILITY OF A CONCURRENT RECOVERY MONITORING SYSTEM IN DELAWARE STATE

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Aims: Simple and efficient monitoring systems measuring indicators of patient functioning during the course of outpatient substance abuse treatment have been difficult to implement in community treatment programs. This investigation piloted the development and implementation of a six-item concurrent recovery monitoring (CRM) measure for clinicians to assess recovery functioning across multiple domains at each individual outpatient session. **Methods:** All counselors at four publicly-funded outpatient treatment sites in the state of Delaware were trained in this paper-and-pencil CRM assessment instrument to be collected during each individual session. Counselors, supervisors, and program directors participated in focus groups at Months 1, 3, and 6 to provide feedback on how they used CRM, barriers to implementing the system, and suggestions for enhancing its utility. **Results:** By Month 3, all sites had achieved a CRM item administration error rate in of < 5%. By Month 3, a majority of counselors (N = 12) reported that they were using the CRM to monitor client progress (83%), with 58% reporting the process was useful in opening sessions, and 50% reporting they looked for changes in client abstinence-confidence ratings to intervene clinically. Program directors (N = 5) generally reported not using CRM data to make programmatic level changes; this situation did not improve by Month 6. Directors reported that it was too difficult to aggregate and summarize pencil-and-paper data on their clients. A Web-based system allowing for electronic data entry, automated client-level progress reports, and aggregated summary reports for directors was proposed. Counselors and directors reported they were "considerably" or "extremely" likely to use client-level progress reports and aggregate program-level reports if they were easy to generate. **Conclusions:** A prototype of this proposed electronic system is in development and planned for implementation in all publicly-funded outpatient programs in Delaware State in 2008. Support: NIDA R21 DA019787

95 WOMEN METHAMPHETAMINE USERS' NARRATIVES OF MATERNAL BLAME

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Aims: Women methamphetamine (MA) users' narratives of maternal blame are examined in the context of their life histories. **Methods:** Thirty women in residential treatment completed in-depth interviews. Participants were aged 18-45 years (mean age, 28.5 years). Approximately half (56%) are Latina, 30% Caucasian, 7% Native American, and 7% mixed. Over half (57%) had not completed high school. Almost all (97%) were unemployed and receiving public assistance. Almost all (97%) have children. **Results:** With regard to family histories, eleven out of the 30 women had at least one parent who was drug-dependent. Twelve women described early childhood abuse/molestation. Participants were an average age of 15 when they started using MA. Most were introduced to MA by friends or family members, including mothers. A predominant theme in the interviews was the perceived impact of the women's mothers on the women's current life circumstances. Five dominant "mother narratives" emerged: "My mom did not pay any attention to me as a child."; "My mom did not protect me from abuse."; "I used with my mom."; "I experienced 'maternal neglect.'"; and, "I never had a real mother/daughter relationship with my mother, and that's why I can't have one with my children." One participant conveyed this overarching sentiment of maternal blame: "We know that all my issues stem from my mother." These "issues" that are attributed to mothers range from the women's perceived (in)ability to be mothers to problems with intimate relationships. Participants who used MA with their mothers had especially emotional narratives; one participant stated that smoking with her mother was "another level [of] absolute shame and guilt and disgust." **Conclusions:** Further investigation is necessary to understand why these maternal blame narratives are prominent (e.g., the extent to which treatment programs promulgate a trope of maternal blame) and to untangle the ways in which these experiential constructions affect women's recovery processes and relationships with their own children. Support: Supported by NIH/NIDA 1 K01 DA017647-01A2.

94 INTEGRATED PSYCHIATRIC SERVICES ARE ASSOCIATED WITH IMPROVED SERVICE DELIVERY AND BETTER TREATMENT RESPONSE

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Aims: Psychiatric comorbidity is commonplace in opioid-dependent patients and associated with a poor response to routine opioid agonist treatment. Providing integrated psychiatric services is a promising approach to improve access to care. The present study reports preliminary data from a randomized trial that compares integrated on-site with non-integrated off-site psychiatric care in opioid-dependent patients with comorbid psychiatric disorder. **Methods:** Subjects were the first 96 opioid-dependent subjects randomized to receive standard outpatient psychiatric care in either the opioid agonist treatment setting (on-site: n=48) or a community psychiatry program (off-site: n=48); all subjects received routine drug abuse treatment in the opioid agonist setting. An identical set of psychiatric services was used in both on-site and off-site treatment settings. Subjects completed a psychiatric interview (SCID-IV) administered by trained interviewers. Three-month outcomes compare rates of attendance and adherence to treatment schedule and changes in psychiatric problems (SCL-90 scores). Sample mean age was 39 yrs, 64% female, 52% African-American. **Results:** Subjects in the onsite versus off-site condition had a much shorter delay in the onset of psychiatric care (6-days vs 33-days, p<.003). The onsite condition was associated with better adherence to scheduled sessions with a psychiatrist (78% vs 52%, p<.001) but overall adherence to psychiatric care was low in both groups (33% vs 25%, ns). Subjects in the onsite versus off-site group nonetheless had a higher mean number of psychiatric sessions (12 sessions vs. 5 sessions, p<.001), and this difference was related to greater reduction in psychiatric problems (change score: .29 vs .09, p<.05). **Conclusions:** These findings provide strong but preliminary support for integrating psychiatric care in drug abuse treatment settings. Despite low overall adherence in both conditions, the onsite group received more services and had a much larger reduction in psychiatric problems. Support: NIH R01DA016375

96 HEPATITIS C TREATMENT AMONG METHADONE-MAINTAINED PATIENTS: DIRECTLY OBSERVED THERAPY COMPARED WITH STANDARD-OF-CARE

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Aims: Despite the high prevalence of hepatitis C (HCV) among methadone maintained patients, few are offered and few successfully complete hepatitis C treatment. This pilot study, using a randomized control trial design, is the first to compare integrated treatment with directly observed therapy in a methadone maintenance program to standard-of-care treatment by a hepatologist. Specific aims include: 1. Comparison of integrated vs. standard-of-care treatment in regards to successful hepatitis C treatment for hepatitis C mono-infected as well as HIV/HCV co-infected patients. 2. Evaluation of the feasibility of integrating hepatitis C treatment within a methadone program. 3. Several secondary aims will be explored in this study, including, psychiatric co-morbidity, and relapse to substance use. **Results:** Phase I, an assignment to directly observed therapy to evaluate feasibility of integrating hepatitis C treatment into a methadone maintenance program, has provided several important lessons. Phase II of this study is currently enrolling with subjects randomized to both arms. **Conclusions:** This is a pilot study, using a randomized control trial design, to evaluate the integration of hepatitis C treatment into a methadone maintenance program compared with standard-of-care treatment. Phase I of this study has provided several important lessons on the feasibility of this work including: 1. System-level lessons in creating an infectious disease clinic within a methadone maintenance program. 2. System-level lessons in having existing methadone clinical/nursing staff (and not research staff) provide directly observed therapy for hepatitis C treatment. 3. System-level lessons in having methadone staff assist in managing the side-effects of hepatitis C treatment. Support: NIDA K23 DA 022143 (RDB)

CPDD 2008 Annual Meeting, San Juan, Puerto Rico

97 RELATIONSHIP BETWEEN TRAUMA HISTORIES AND SEXUAL BEHAVIORS AMONG METHAMPHETAMINE USERS

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Aims: We explored the relationship between trauma histories and self-reported sexual behaviors among methamphetamine (MA)-dependent individuals. **Methods:** A self-reported pilot survey about drugs and sexual behaviors was completed by MA dependent individuals (N=250; 62.4% males; 61.9% Caucasian; mean age 33.9 years; and 12.2 mean years education) in outpatient drug treatment. Most (88.4%) were heterosexual. Average length of MA use was 11.9 years, with smoking the most common route (70.4%), followed by nasal (16%) and injection (11.6%). Of the sample, 17.2% were sexually abused as a child, 20% were raped or sexually assaulted, and 8% had been in treatment for trauma. More women than men reported experiencing childhood sexual abuse (62.8% vs. 32.4%, $p<.001$) and sexual assault/rape (78% vs. 27.5%, $p<.001$). **Results:** Having experienced childhood abuse or sexual assault/rape was significantly associated with becoming involved in unusual sex acts while under the influence of MA (48.8% vs. 27.5%, $p<.05$; 44% vs. 28%, $p<.05$). Those who reported childhood sexual abuse or sexual assault/rape were more likely to question their sexual orientation while under the influence of MA (34.9% vs. 5.8%, $p<.001$; 30% vs. 6%, $p<.001$). Those who reported sexual assault/rape were more likely to report having a problem with sexual preoccupation/obsession before getting involved with MA (24% vs. 13%, $p<.05$). Difficulty in stopping inappropriate or dangerous behavior while using MA was more likely to be reported among MA users with childhood sexual abuse than those without abuse histories (30.2% vs. 15.5%, $p<.05$). Substantially more MA users with childhood sexual abuse or sexual assault/rape reported that sexual behavior under the influence of MA caused feelings of depression (34.9% vs. 18.6%, $p=.06$; 32% vs. 18.8%, $p<.05$). **Conclusions:** Substance abuse treatment clinicians should be sensitive to MA users with trauma histories and appropriate intervention strategies should be tailored to attend to the possible connections between trauma histories, MA use, sexual behaviors, and mental health. **Support:** Women, Methamphetamine, and Sex NIH/NIDA 1 K01 DA017647 -01A2 P.I.A. Brown

99 GENDER DIFFERENCES IN THE SOCIAL AND SUPPORT NETWORKS OF INNER-CITY CURRENT AND FORMER DRUG USERS

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Aims: The aim of the present study was to describe gender differences in the social and support networks of current/former drug users. The composition and function of support networks have been found to relate to drug treatment outcomes, HIV risk behavior, depression, and health care utilization. It is hypothesized that females have larger networks, provide more support, and receive more material aid. **Methods:** Participants were current/former drug users recruited from areas with high levels of drug use (n=1604, 61.4% male) and were given a network inventory. Gender differences on network characteristics were tested using t and χ^2 tests, then tested by gender in bivariate and multivariate regression models to determine which characteristics are associated with current (vs. former) drug use. **Results:** Men had significantly greater overall support and more non-kin (both drug users and non-users) in their support network. Women reported larger social networks, more female kin in their support network, more individuals in their network who they give support, a greater degree of closeness to their network, more dense social networks, and are more likely to report a sexual partner in their social network. There were no differences in the size of the support network. In multivariate models, number of non-kin in the support network, number who could provide material support, and number of professionals were associated with no current drug use for men, while only number of network members who could provide material support maintained significance for women. **Conclusions:** Results indicate some gender differences in the social and support networks of current/former drug users. This may indicate differences in social capital to facilitate drug cessation. Material support seemed to have the most robust (negative) association with drug use. This relationship may be bidirectional, as current drug users may have exhausted the material resources available to them, and their lack of material resources may have increased their likelihood of drug use. **Support:** Supported by NIDA grants 5T32DA007292 and R01DA13142

98 HIV RISK AMONG TREATMENT-SEEKING MARIJUANA, COCAINE AND OPIOID USERS

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Aims: High risk sexual behaviors occurring in the context of drug intoxication have been suggested to be one important mechanism by which drugs of abuse contribute to HIV transmission. We hypothesized that, since evidence exists for stimulant-induced sexual desire, cocaine users on average would have higher sex risk scores than marijuana and opioid users, as measured by the 45 item, self-administered, Risk Assessment Battery (RAB). Further, we expected, given the higher rates of IV drug use, that opioid users would have higher drug risk scores than the other 2 groups. **Methods:** Sixty participants (MJ, n=20, Cocaine, n=20, Opioid, n=20) who were screened for 1 of 6 treatment protocols beginning in January 2006 and for whom there were complete and available baseline RAB data were included. Demographic and RAB data were collected. RAB sex risk, drug risk and total risk scores were calculated for each participant. Group means for each drug class were compared using one-way ANOVA. **Results:** The sample was predominantly male (85.0%) and 48% Caucasian, 27 % Hispanic, 20% African American, 2% Asian and 3% Other. The average age was 39.9 +9.7 years. The mean RAB sex risk score across groups was 3.9 +1.8, and no difference was found among the 3 groups. The average drug risk score across groups was 0.2 +0.9, and a statistically significant difference was found among the 3 groups (MJ: 0.0, Cocaine: 0.0, and Opioids: 0.7 +1.6) ($F=4.03$, $p<.05$). The mean RAB total risk score across groups was 4.1 +2.4, and no difference was found among 3 groups. **Conclusions:** No difference was detected between mean sex risk scores among cocaine, marijuana and opioid dependent treatment seekers. As expected, the opioid group had the highest mean drug risk score. The small sample size may have limited our ability to detect a between group difference in sex risk. Across the sample, sex risk scores were low. The sex risk sub-scale may not be sensitive enough to detect differences within certain substance using populations. **Support:** 903-D001, T32 DA007294-15, K02-DA00465

99 THE ROLE OF ANXIETY IN THE TREATMENT OF MARIJUANA DEPENDENCE

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Aims: Despite high rates of anxiety among marijuana users, the role of anxiety on the treatment of marijuana dependence remains unclear. Yet, pre-treatment anxiety may be linked to greater impairment that interferes with treatment. Also, because anxiety is related to relapse risk factors (withdrawal, craving) and marijuana users report using to manage anxiety, anxiety may increase relapse among marijuana treatment responders. Thus, anxiety may be an important target for marijuana treatment. Motivation-enhancement therapy (MET) and cognitive-behavior therapy (CBT) are efficacious treatments for marijuana dependence, yet it is unknown if they decrease anxiety. There is no known evidence that MET decreases anxiety; yet CBT teaches skills to cope with negative affect. **Hypotheses:** First, it was predicted that baseline anxiety would be related to greater psychiatric impairment. Second, it was expected that baseline anxiety would be related to poorer treatment outcome. Third, CBT was predicted to lower post-treatment anxiety relative to MET. **Methods:** The sample consisted of 450 (32% female) patients in the Marijuana Treatment Project randomly assigned to MET alone, MET plus CBT (MET-CBT), or a control. **Results:** At baseline, anxiety was related to greater depression ($r=.66$, $p<.002$), DSM-IV marijuana abuse ($r=.17$, $p<.002$) and dependence symptoms ($r=.16$, $p<.002$), marijuana problems ($r=.39$, $p<.002$), other drug use ($r=.13$, $p<.01$), and less education ($r=-1.4$, $p<.01$). Baseline anxiety was related to greater post-treatment marijuana problems ($\beta=.22$, $p=.02$) and attending fewer therapy sessions ($\beta=-.12$, $p=.07$) among females (not males). A random effects regression showed a significant Time X Treatment interaction, $F(1, 792) = 4.41$, $p = .04$. Specifically, MET-CBT showed less anxiety than MET at 4-month (MCBT=33.2 vs MMET=37.0) and 9-month (CBT: M=32.5 vs MET: M=37.5) follow-ups ($p's<.05$). **Conclusions:** Results suggest baseline anxiety is related to greater impairment that may affect treatment outcome (especially among women). CBT appears to be superior for decreasing anxiety among these patients. **Support:** National Research Service Award from the National Institute of Drug Abuse (F31DA021457).

CPDD 2008 Annual Meeting, San Juan, Puerto Rico

101 NATURAL HISTORY OF OPIOID ADDICTION: THE RELATIONSHIP BETWEEN TIME USING OPIOIDS, PATTERNS OF USE, AND PROBLEM SEVERITY IN CLIENTS IN TREATMENT

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Aims: We examined the natural history of opioid addiction based on the years a person has used opioids relative to their age. We expected the longer individuals have used opioids, the more likely they are to use high-risk routes of administration, to use street drugs, and to have serious ancillary problems. **Methods:** Data from 11,453 admissions to substance abuse treatment were obtained using the ASI-MV® Connect, a real-time electronic surveillance system. Clients reported use of heroin, methadone, or other opiates and number years they had used. After adjusting for client age, groups were created by median split to compare clients with a short history of opioid abuse versus a long history. **Results:** Those with long opioid abuse histories were more likely than those with short histories to inject an opioid (60% versus 35%, $p < .001$) and less likely to take opioids orally only (19% versus 40%, $p < .001$). Clients with long opioid histories had higher lifetime abuse rates for heroin (48% versus 27%, $p < .001$) and methadone (36% versus 13%, $p < .001$). There was no difference in rates of lifetime prescription opioid abuse. Clients with long opioid histories were more likely to abuse prescription opioids in the past 30 days (52% versus 40%, $p < .001$). Those with long histories had significantly higher severity of drug problems and employment problems ($p < .001$), as well as legal ($p = .001$) and medical ($p < .05$) problems. Those with shorter histories had more severe alcohol problems ($p < .05$). While these are cross sectional data, both groups reported abusing prescription opioids more years than heroin ($p < .001$), suggesting a progression from prescription opioid abuse to heroin. **Conclusions:** These data may document a natural history of opioid abuse to higher risk routes and progression to street opiates. Greater severity of ancillary problems may document the impact of progression to higher risk behaviors. **Support:** Support by Alpha Pharma Pharmaceuticals LLC, Endo Pharmaceuticals, and a grant from the National Institute on Drug Abuse (NIDA).

102 STRESS-INDUCED POTENTIATION OF CUED REINSTATEMENT OF COCAINE-SEEKING IN AN ANIMAL MODEL OF RELAPSE

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Aims: Stress and drug-associated cues are two critical factors that can trigger relapse in abstinent cocaine users. However, only recently have investigators begun to examine the interaction of these factors in the relapse to cocaine-seeking after prolonged withdrawal. Simultaneous presentation of these factors may enhance cocaine-seeking behavior to a greater extent than seen after either factor alone. In the current study, we examined the ability of different magnitudes of footshock to cause reinstatement of cocaine seeking in either the presence or absence of cocaine-associated cues. **Methods:** Male, Long-Evans rats ($n=12$) underwent jugular catheter implantation surgery. After 5 days of recovery, rats self-administered i.v. cocaine (0.2 mg/0.05 ml infusion) whereby active lever responses resulted in a cocaine infusion and presentation of a light-tone stimulus complex. After self-administration (2 hr/day for 10-12 days), animals underwent extinction, during which responding had no programmed consequences. Upon reaching extinction criterion (<15 active lever presses for 2 consecutive days), rats underwent seven reinstatement tests in counterbalanced order: 0.25 mA, 0.5 mA, and 0.75 mA of footshock alone, presentation of cocaine-associated cues alone (light-tone), or 0.25 mA, 0.5 mA, and 0.75 mA of footshock prior to cue-induced reinstatement. **Results:** Both 0.5 mA and 0.75 mA significantly reinstated responding (2-3x over extinction levels) on the previously drug-paired lever, as did presentation of cocaine-associated cues (4-5x over extinction levels). When presented together, 0.5 and 0.75 mA of footshock potentiated cue-induced reinstatement (7-8x over extinction levels). **Conclusions:** These data suggest that stress-cue interactions are an important consideration in assessing relapse and developing treatment approaches to preventing relapse in cocaine users. **Support:** Supported by: DA021690, DA016511, DA015369, and 5 RO1 T32 07288-16

103 THE NOBLE STUDY: ASSESSING THE EFFECTIVENESS OF RESIDENTIAL VS. INTENSIVE OUTPATIENT PRISON-BASED TREATMENT AND INMATES' VIEWS ON HIV/AIDS-RELATED BEHAVIORS AND SERVICES

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Aims: The NOBLE Study is a 5-year NIDA-funded study that will employ a prospective, random assignment research design to (1) assess the differential clinical effectiveness and cost-effectiveness of long-term residential treatment versus intensive outpatient prison-based treatment and (2) determine whether one treatment modality is more effective than the other in reducing high-risk behaviors among drug-involved offenders assigned to the appropriate modality (e.g., based on recidivism risk and substance abuse severity). A secondary aim of this study is to qualitatively assess (via 3 waves of focus groups) inmates' views and attitudes regarding (1) the effectiveness of prison-based drug treatment in addressing HIV/AIDS related issues, (2) social networks inside and outside of prison and their perceived impact on HIV risk behaviors, (3) the accessibility and effectiveness of in-prison HIV/AIDS-related programs and services, and (4) DOC policies regarding testing, housing, and medical treatment of HIV-positive inmates. **Conclusions:** Studies indicate that more intensive and costly treatment does not always yield benefits above and beyond what is obtainable from less intensive and less costly treatment alternatives. However, many of these studies did not examine which clients receiving varying levels of treatment intensity experienced better outcomes. A lack of reported differences may be due to ineffective matching of clients to the appropriate modality or intensity of treatment. In addition, the results of recent research highlights the need for additional research that focuses on assessing the effectiveness of corrections-based HIV/AIDS-related treatment and prevention programs and services from the perspective of the inmates who are the potential recipients of these programs and services. This paper will provide an overview of the NOBLE Study and will present the results of the first wave of HIV/AIDS-related focus groups with inmates. **Support:** Supported by: NIDA Grant 1-R01-DA0020621-01

104 INFANT MORTALITY AMONG DRUG-DEPENDENT WOMEN

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Aims: Infants born to women who are dependent on illicit drugs are at increased risk of early death. The aim of this paper is to present preliminary results from the first population level study in the international literature to compare infant mortality rates and reasons for death among infants born to drug (the drug group) and non-drug (the non-drug group) dependent women. **Methods:** Data from three administrative databases: the NSW Pharmaceutical Drugs of Addiction System; the NSW Midwives Data Collection; and, the Registry of Births Deaths and Marriages were linked for the period 1998-2002 using probabilistic linkage methods. **Results:** Preliminary results found 42 deaths of infants born to women in the drug group ($n=3044$) and 2698 infant deaths to women in the non-drug group ($n=674427$). This represents an IMR of 13.5 per 1,000 live births in the drug group and an IMR of 4.0 per 1,000 live births in the non-drug group, a relative risk of 3.5 (95% CI: 2.6, 4.7) for infant death in the drug group. Whereas 68% of deaths occurred in the neonatal period in the non-drug group, deaths were equally likely to occur in the neonatal and late infant period in the drug group. Infant death in the drug group was significantly associated with; unbooked deliveries, low birthweight, prematurity, admission to neonatal intensive care and special care nursery. Infants in the drug group were more likely to die from; Sudden Infant Death Syndrome, poor growth and maternal drug use. **Conclusions:** Maternal drug use is associated with late infant death, particularly with Sudden Infant Death Syndrome. Infants with high risk indicators require close supervision. The development of innovative campaigns to reduce SIDS in this cohort should be a major priority for drug researchers. **Support:** Support for this project is through HERON (Health Evaluation and Research Outcomes Network), through the National Health and Medical Research Council 262121. We would like to thank staff of the NSW Department of Health Centre for Epidemiology and Research who maintain the Health Outcomes Information Statistical Toolkit (HOIST) - a SAS based data warehouse on which the source and linked datasets were held.

105 ASSOCIATION OF P2RX7 GENE WITH ALCOHOL USE IN COMORBID BIPOLAR PATIENTS

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Aims: Alcohol use disorder is highly prevalent in patients with bipolar disorder (40-60%). Linkage studies have revealed several candidate genes which might be associated with both bipolar and alcohol use disorder. The P2RX7 gene has been consistently associated with bipolar disorder. We investigated the association of five P2RX7 gene polymorphisms (SNPs rs3751143, rs2230912, rs208294, rs1626329 and rs1621388) with alcohol use disorder comorbidity in bipolar patients. **Methods:** The study was a retrospective analysis of a genomic database consisting of 278 bipolar disorder patients. Diagnosis of bipolar disorder was performed using the structured clinical interview for DSM-IV Axis I disorders (SCID-I). Restriction fragment length polymorphism (RFLP) analyses of SNPs were performed for P2RX7 gene. **Results:** There were 179 (64%) females in the database. Seventy one (25.5%) of the bipolar patients were comorbid with alcohol use disorder. Transmission disequilibrium test (TDT) showed that for SNP rs3751143, there was significant over transmission of "I" allele ($p < 0.04$) in bipolar patients with alcohol use disorder comorbidity. In addition, two SNPs (rs2230912 and rs3751143) of P2RX7 gene showed significant differences in allele frequency between alcohol use disorder comorbid and non-comorbid bipolar patients ($p < 0.03$ and $P < 0.01$ respectively). **Conclusions:** Overall, the results indicate a significant association of P2RX7 gene SNPs with alcohol use disorder comorbidity in bipolar patients. This research provides good evidence to continue to investigate the impact of P2RX7 in comorbid alcohol and bipolar disorder. **Support:** Canadian Institutes of Health Research

106 EFFECTS OF HERKINORIN, A SALVINORIN ANALOG WITH M-OPIOID EFFECTS, IN A NEUROENDOCRINE BIOMARKER ASSAY

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Aims: The aim of these studies was to determine the in vivo effects of herkinorin, a salvinorin analog with μ -opioid effects in vitro. These studies used a neuroendocrine biomarker assay for the in vivo pharmacodynamics of μ and κ opioids. This assay is also responsive to opioids with limited ability to cross the blood-brain barrier. **Methods:** Herkinorin (0.01-0.32 mg/kg, i.v.) was studied in gonadally intact male and female rhesus macaques ($n=3-4$ each). Serum prolactin levels were quantified with an immunoradiometric assay. Studies had either a timecourse design (5-120 min after administration), or a cumulative dose-effect curve design. Prolactin levels were analyzed as Δ ng/ml levels (i.e., by subtraction of individual pre-injection baseline). In pretreatment studies, a single dose of antagonist (either nalmeferine or quaternary naloxone) was administered before re-determination of herkinorin (0.32 mg/kg) time course. **Results:** In males, herkinorin caused only marginal increases in prolactin levels (e.g., mean of 19 Δ ng/ml), up to the largest dose that could be studied. By contrast, in females, herkinorin caused more robust prolactin increases (e.g., mean of 324 Δ ng/ml at the maximal dose). Herkinorin (0.32 mg/kg) displayed a fast onset and short duration of action. In antagonist pretreatment studies, nalmeferine (0.01 or 0.1 mg/kg) caused dose-dependent and complete prevention of herkinorin's effect in females. Pretreatment with the peripherally selective antagonist, quaternary naloxone (3.2 mg/kg) produced a near-complete prevention of the effects of herkinorin in females. **Conclusions:** Herkinorin produced robust neuroendocrine effects in females but not in males. Antagonist studies with nalmeferine suggest that both μ and κ receptors mediate this effect. Furthermore, herkinorin may produce this effect by acting primarily outside the blood-brain barrier in vivo in non-human primates. **Support:** Work supported by NIH-NIDA Grants DA017369 (ERB), DA05130 and DA00049 (MJK) and DA018151 (TEP)

107 EMPIRICAL VALIDATION OF SPATIAL CLUSTER DETECTION FOR MONITORING LOCAL PATTERNS OF PRESCRIPTION OPIOID ABUSE

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Aims: Consideration of the spatial distribution of opioid abuse at the local level may facilitate the application of public health interventions. We applied a geographic information system (GIS) in combination with spatial statistics to generate local risk maps of prescription opioid abuse and identify hotspots of product-specific abuse. **Methods:** Using ASI-MV® Connect, a real-time electronic surveillance system, patient-level data were collected from 29 addiction treatment facilities in New Mexico. A spatial scan statistic was used to test whether product specific opioid abuse was randomly distributed over space. Significant clusters were investigated to determine whether they were a result of local increases in prescriptions. Simulated clusters were used to examine the sensitivity of abuse data for the detection of clustered rate increases. **Results:** Analysis provided insight into product-specific and compound-specific geographical areas of abuse. A cluster of high rates of abuse around Albuquerque had a relative risk of 2.9 ($p < .001$) for OxyContin. Vicodin ($p=0.001$) and MS Contin ($p=0.031$) abuse were significantly clustered near Las Cruces, NM and El Paso, Texas with relative risks of 2.3 and 5.9, respectively. At the compound level, there was no significant clustering of cases beyond chance, after accounting for drug availability. Our simulation of oxycodone clusters revealed that over 50% of clusters were identified with only 15% increases in rates of oxycodone in a given 3-digit ZIP code, while increases in cases of abuse required for these clusters ranged from 9 to 125 (median=25). **Conclusions:** This study illustrates the potential value of a multi-disciplinary approach to rapidly identifying geographic clusters of prescription opioid abuse among patients at treatment facilities and assessing risk in the surrounding community. A better understanding of local risk distribution may have implications for response strategies to future introductions of prescription opioids. **Support:** Work supported by Alpharma Pharmaceuticals LLC, Endo Pharmaceuticals, and a grant from the National Institute on Drug Abuse (NIDA).

108 CEREBRAL MORPHOLOGICAL CHANGES IN HUMAN MDMA (ECSTASY) POLYDRUG USERS: A VOXEL-BASED MORPHOMETRY STUDY

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Aims: MDMA, known as "Ecstasy", is a popular "club" drug that elicits psychotropic effects via blockade of serotonergic and dopamine uptake. There is considerable evidence from animal and human studies that MDMA causes acute depletion of serotonin and long term dysfunction in cortical and sub-cortical serotonergic afferents arising from midbrain nuclei. Morphological studies in human Ecstasy users have been inconsistent. A prior study by our group using voxel-based morphometry (VBM) to assay grey matter density in structural MRI scans at 1.5 Tesla found that Ecstasy users had multiple areas of reduced cerebral grey matter density, particularly in inferior frontal, temporal, and visual cortical areas, and the midbrain. **Methods:** The current study used the improved, optimized VBM procedure implemented in SPM2 and 3.0 Tesla MRI in a new cohort of Ecstasy users to examine changes in both cerebral grey matter density and volume in 29 Ecstasy polydrug users compared to a non-Ecstasy exposed polydrug control sample of 24 subjects. **Results:** After correcting for total grey matter volume, Ecstasy users demonstrated regional volumetric decreases in the anterior cingulate, left superior frontal gyrus, right caudate, and right claustrum compared to control subjects. With respect to grey matter density, Ecstasy users demonstrated decreased grey matter density in bilateral insula and the right claustrum. Interestingly, Ecstasy users evinced relatively greater grey matter volume bilaterally in the inferior parietal lobule, and increased density in the left inferior parietal lobule and supramarginal gyrus. **Conclusions:** The results of this study suggest that Ecstasy use is associated with relatively specific differences in cortical grey volume and density. However, these findings have little overlap with the earlier VBM study. Additional work is needed to determine whether these morphological findings are affected by polydrug exposure, pre-exist Ecstasy use, resolve with abstinence, or are associated with neuropsychological or behavioral sequelae. **Support:** NIDA RO1 DA15137-01

CPDD 2008 Annual Meeting, San Juan, Puerto Rico

109 OUTCOMES MONITORING AS A CLINICAL INTERVENTION

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Aims: Substance abuse treatment (SAT) programs have been repeatedly called upon to institute outcomes monitoring (OM) to justify their effectiveness and improve performance. OM in SAT has typically focused on aggregate post-treatment outcomes. Consequently, it has little direct clinical value and is burdensome to implement. TRI/Penn are working with the individual SAT programs and large SAT systems (e.g., VA, states) to develop OM as a clinical intervention. The rationale for, and steps taken to create, implement and test such an approach will be described. **Methods:** Using Concurrent Recovery Monitoring (CRM) as a conceptual framework, TRI/Penn are developing and evaluating OM systems to serve the dual roles of clinical and managerial support in outpatient SAT. CRM contends that periodic during-treatment outcomes are appropriate to evaluate the effectiveness of outpatient SAT and fit a chronic care model of addiction where ongoing patient monitoring and adaptation of treatment type and intensity are necessary. Thus, during-treatment monitoring creates opportunities for improved decision-making on an individual patient basis and for obtaining credible aggregate outcomes. System development has included extensive feedback from providers and patients, and iterative pilot testing. **Results:** The current TRI/Penn system is computer/web-based and assesses alcohol and other drug use, risk factors, protective factors, health/well-being, and services - domains that research and practice suggest can provide clinical guidance and treatment outcomes. Individual patient status and progress reports are included and an aggregate database is maintained. The essence of the intervention is counselors' systematic monitoring of patients to make more informed clinical decisions and adapt treatment. Provider and patient feedback concerning feasibility/acceptability, reliability/validity data, and future plans will be presented. **Conclusions:** OM designed as clinical intervention rather than a program evaluation task may better serve both purposes. **Support:** NIDA, NIAAA, VA

110 INCIDENCE AND PERSISTENCE OF NONMEDICAL USE OF PRESCRIPTION ANALGESICS AMONG COLLEGE STUDENTS

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Aims: Recent studies have documented the extent of nonmedical use of prescription analgesics (NPA) by college students, but no investigations have examined how this behavior changes over time. Using three years of prospective data from the College Life Study, we: 1) Describe the patterns of change in NPA with respect to incidence, persistence, and cessation of use; and 2) Examine the patterns of change in frequency of NPA. **Methods:** At study outset, participants were 1,253 freshman students ages 17 to 19 attending a large public university in the mid-Atlantic region of the U.S. In annual personal interviews, participants were assessed for NPA; 85% participated in all three annual assessments. **Results:** Among 158 lifetime NPA cases at baseline, 29% persistently continued NPA all three years; 59% ceased NPA by year three; the remaining 12% used intermittently. Among the 45 persistent users, 56% increased their frequency of use over time, with average frequency of use increasing from 8.7 (SD=9.6) days in their lifetime at baseline, to 23.2 (SD=76.1) days in the past year by year three. Interestingly, the increase in frequency of NPA use was more dramatic from baseline to year two than from year two to three. Among 895 individuals who had never used analgesics nonmedically at baseline, "new" or incident NPA was observed in 9% by year two and 13% by year three. The risk for incident NPA was similar across race, gender, and sorority/fraternity affiliation, but was significantly higher for students living off campus ($X^2(df)=14.1(1)$, $p<.0001$). **Conclusions:** Prescription analgesics have substantial abuse potential for college students. For many students, NPA is a persistent behavior, rather than an isolated episode of experimentation. Implications for prevention and early intervention are discussed. **Support:** NIDA R01DA14845, A. Arria, PI

111 TEACHING CONDOM USE SKILLS: PRACTICE IS SUPERIOR TO OBSERVATION

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Aims: HIV/STI prevention efforts often include a condom skills component. We hypothesized that teaching condom use skills through exposure to a practice exercise would be superior to viewing a demonstration only, which in turn, would be superior than exposure to neither. **Methods:** Men in substance abuse treatment enrolled in a study (NIDA CTN0018) comparing a five session, gender-specific HIV prevention intervention, with a one session HIV education intervention, were administered male and female condom skills measures (MCS, 14 items; FCS, 11 items) at pre-intervention, 2 weeks, 3 months and 6 months post-intervention. Participants were classified as exposed to the demonstration only (DO, n=161), exposed to the demonstration plus practice exercises (DP, n=121), and exposed to no sessions (NS, n=212). The MCS and FCS scores were compared for the intervention exposure groups across the assessment time points using mixed effects linear regression. **Results:** There were intervention group-by-time effects ($p<.0001$) for both the MCS and FCS. Post hoc, pairwise linear trends across time indicated that for MCS the DP group is superior to the DO ($F(1,968) = 8.20$, $p = .0043$) and NS ($F(1,968) = 24.04$, $p < .0001$) groups, but the DO and NS groups are not different. For the FCS, pairwise comparisons indicated that the DP group is superior to the DO ($F(1,962) = 11.22$, $p = .0008$) and NS ($F(1,962) = 22.60$, $p < .0001$) groups, but the DO and NS groups are not different. When baseline scores are removed from the primary outcome model there is only an intervention group effect, suggesting that differences observed between groups occurs between the baseline and 2 week post intervention and remains stable through the 3 and 6 month follow ups. **Conclusions:** Practice of condom use was superior to a condom use demonstration alone in teaching condom skills. Differential benefits were maintained over six months. **Support:** Supported by NIDA grant U1U10DA13714-01.

28 112 DETECTION OF PRESCRIPTION OPIOID ABUSE/DIVERSION USING RESEARCH ABUSE DIVERSION AND ADDICTION-RELATED SURVEILLANCE (RADARS®) SYSTEM DATA

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Aims: PO are often abused/diverted. It is of interest to know how quickly newly marketed PO are abused/diverted and the impact of PO availability on AD. Using RADARS System signal detection systems (SDS), we describe the average SDS order for detection of newly marketed PO and impact of PO availability on AD. **Methods:** The RADARS System is a surveillance network utilizing 4 SDS (key informant [KI], drug diversion [DD], poison center [PC], opioid treatment program [OTP]), each capturing data on different facets of the PO AD spectrum. KI obtain data primarily from clinicians treating drug abuse; DD primarily from police departments and drug task forces; PC exposures and tablet identifications (ID) from the public and physicians; and OTP from anonymous patient questionnaires. Four new PO (fentanyl, hydromorphone, oxycodone, tramadol) were evaluated to determine the average SDS order for detection. Pearson's correlation evaluated the impact of PO availability on AD case count between PO. **Results:** The new PO were detected within the first 3 months of their release, and the average SDS order was DD, KI, PC, OTP; with KI and PC having close averages. PC tablet ID calls detected all PO before AD reports, usually within a matter of weeks. Greater PO availability was associated with higher AD case counts; yet as availability increases, AD rates based on PO availability decrease. **Conclusions:** The SDS order of detection appears reasonable: diverted PO may increase the supply for abuse, and abuse must take place for treatment to be sought (diversion [DD]=>abuse [PC]=>treatment [KI, OTP]). RADARS System data are valuable in detecting AD of new PO and PC ID calls may be useful in identifying which products may be later abused/diverted. Early detection can aid in identifying unexpected AD outbreaks and facilitating interventions in appropriate geographical regions and populations. **Support:** RMPDC operates the RADARS System and provides data to industry, regulatory agencies and researchers on a subscription basis.

CPDD 2008 Annual Meeting, San Juan, Puerto Rico

113 FACTORS ASSOCIATED WITH TOBACCO SMOKING IN MEXICAN HIGH SCHOOL STUDENTS

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Aims: In this study we investigated factors associated with tobacco smoking among high school students from the Mexican west-central state of Jalisco. **Methods:** We used the abbreviated version of Drug use screening inventory (DUSI-R) which has been validated in several Latinoamerican countries including Mexico. It was applied to a random, multistaged, clustered sample of students from 25 schools in 10 geo-political areas of the Jalisco State high school system (U de G) over a 6 month period. Students participated voluntarily. **Results:** We evaluated 2842 students (51.8 % female, 48.2 % male) age range from 14 to 22 years; 31 % had a part time job. General smoking prevalence was 19.7 % (n=559), (11.3 % male, 8.4 % female). Most smoked from 1-5 cigarettes a day (86.5%) and 13.2 % more than that. 72.4 % referred to have good or excellent health. 87.6 % of smokers also accepted drinking alcohol while only 1.2% and 1.4% accepted using cocaine or cannabis. The overall problem density score for smokers was higher (3.3, moderate) than in non-smokers (2.5, low). The factors with higher severity indices were behaviour patterns, emotional disorders and leisure scores (all at moderate level). **Conclusions:** Most of the smokers seem to have a low nicotine dependence (less than 5 cigarettes a day). Nevertheless, students who smoke present differences in psychosocial factors compared with non-smokers thus prevention programs should be aimed at modifying or reducing those risks factors identified and enhance protective factors. **Support:** We received support from Consejo Nacional de Ciencia y tecnología (CONACYT) through its Consejo regional and from the Universidad de Guadalajara.

114 FACTORS ASSOCIATED TO BUPRENORPHINE TREATMENT ADOPTION BY PUERTO RICAN PHYSICIANS IN PRIVATE PRACTICE

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Aims: In Puerto Rico (PR), drug treatment is available for 8% of the population with assessed need. Expansion of buprenorphine treatment is essential to close this gap. In 2004, only 25 of 65 certified physicians were prescribing buprenorphine. Using a technology transfer model and data from a cross-sectional study we identify factors associated with decision to prescribe buprenorphine by certified providers in PR. **Methods:** 112 providers were listed in SAMHSA's physician locator for PR in January, 2006. 105 were eligible (4 not residing in PR, 1 retired, 1 passed away, and 1 part of the study staff) and invited to respond to a 58 item mail survey with variables related to: physicians', practice and treatment characteristics. Providers failing to reply after 3 follow-up contacts were considered non-responders (response rate 46%). Non-parametric statistical analysis was conducted to determine the strength of association of each of the variables with physicians' report of whether they had engaged patients in treatment ($p \leq 0.10$). Sample size limited use of multivariate analysis. **Results:** 31 of 48 participants were prescribing at time of survey. 69% males vs. 31% females with a mean age of 50 years (SD = 10). 77% have treated patients infected with HIV, HCV+ and/or drug dependence. Treatment was perceived as beneficial by 96% while 65% perceived that treatment is expensive. Factors associated with treatment adoption were sex, demand for the service and perception of treatment cost. Barriers for treatment implementation associated with adoption were concerns about medication safety and about how comfortable other patients will feel in the presence of buprenorphine patients. **Conclusions:** PR providers adopting buprenorphine treatment have prior experience servicing HIV+ patients and drug users. Buprenorphine is providing an opportunity to treat this needy population. Buprenorphine training should emphasize medication safety and stigma. Data from studies on providers and patients should help identify the specific concerns regarding cost that may be hindering expansion. **Support:** Reckitt Beckinsler Pharmaceuticals.

115 CROSS-SUBSTITUTION BETWEEN LSD AND COMMONLY CO-ABUSED DRUGS

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Aims: Commonly abused substances LSD, (+)-methamphetamine, cocaine, and nicotine are often taken in combination with themselves and other substances. Because the use of multiple drugs with LSD could produce stimulus effects substantially different from LSD alone, this study examines the ability of (+)-methamphetamine, cocaine, and nicotine to substitute for LSD as well as the ability of LSD to cross-substitute. **Methods:** Adult male Sprague-Dawley rats were tested using a two-lever choice drug discrimination procedure. Groups of rats were trained to discriminate between commonly abused substances (LSD, cocaine, (+)-methamphetamine, and nicotine) and saline using a FR10 schedule of food reinforcement. LSD, cocaine, (+)-methamphetamine, and nicotine were tested for substitution in LSD-trained rats. LSD was tested in cocaine and (+)-methamphetamine-trained rats. **Results:** Cocaine (44%) and nicotine (53%) partially substituted in LSD-trained rats, but methamphetamine (20%) failed to substitute. LSD partially substituted in methamphetamine-trained rats (54%) but did not substitute in cocaine-trained rats (18%). The partial substitution for each of these substances occurred at doses which significantly decreased rate of responding. **Conclusions:** The modest amount of cross-substitution in these commonly abused substances suggest that the stimulus effects of these compounds may overlap to some degree, although possibly only at high doses. The patterns of cross-substitution may give insight to why these substances are widely co-abused. Co-abuse of two or more of these substances may lead to differences in the subjective effects. Future studies administering different combinations of these substances of abuse in different behavioral assays may yield a better explanation of how behavior is affected. **Support:** Supported by NIH N01DA-2-8822 and NIH N01DA-7-8872.

29 116 FAMILY ATTENTION AND COCA PASTE USE IN NORTHERN CHILE, 1999 AND 2005

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Aims: Little is known about epidemiology or etiology of adolescent coca paste smoking, but general theory suggests that lapses in familial attention (e.g., parental monitoring) might account for occurrence of this unusual form of youthful drug involvement. This hypothesis is tested by drawing upon epidemiological survey data from the four northernmost regions of Chile, where there proximity to coca-producing areas. **Methods:** We conducted nationally representative probability sample surveys of school-attending youths (public-private) in Chile (n = 5,791 in 1999; n = 7,347 in 2005), all age 12-20 years old. Standardized anonymous questionnaire assessments were taken in the classroom setting. After matching on school and grade level, coca paste smokers were compared with non-smokers, and relative risk estimates (RR) were derived from conditional logistic regression. **Results:** Cumulative incidence of coca paste smoking was estimated at 6% in 1999, 5% in 2005, with the Tarapaca region at the highest level and the Atacama region at the lowest level. The odds of having started to smoke coca paste were smallest for youths at the highest level of family attention, as compared to those at the lowest level, under the CLR model that holds constant school- and grade-level socially shared characteristics, as well as individual level covariate terms in the regression model (RR=0.6 in 1999; RR=0.75 in 2005; $p < 0.05$). **Conclusions:** Most evidence on a hypothesized protective influence of family attention is from the United States, and has been focused upon tobacco, alcohol, and cannabis. These findings are novel in that they are from Chile in Latin America; the hypothesized protective effect is observed in relation to cumulative incidence of coca paste smoking; there is replication in 1999 and 2005. Clearly, more research is needed to understand the epidemiology and etiology of coca paste smoking and to identify other social, cultural, or individual modifiable conditions that might provide protection against this form of youthful drug involvement. **Support:** CONACE, Government of Chile, NIH/FIC/NIDA TW005692, NIDA K05DA015799

117 COCAINE ABSTINENCE IN A RANDOMIZED CONTROLLED TRIAL OF 3 VS 9 MONTHS OF VOUCHER-BASED REINFORCEMENT THERAPY: YEAR 1 OUTCOMES

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Aims: This study examined whether the length of voucher-based reinforcement therapy (VBRT) affects the maintenance of cocaine abstinence during and after VBRT. This study also evaluated whether longer periods of cocaine abstinence during VBRT affects the maintenance of abstinence after VBRT. **Methods:** Cocaine-dependent methadone-maintained adults (N=130) were randomized to receive vouchers for providing cocaine-abstinent urine samples for either 12-weeks (n=62) or 36-weeks (n=68). In both conditions, participants provided urine samples three times weekly during VBRT, and were able to receive vouchers for cocaine-negative samples according to an escalating schedule (Higgins et al., 1991). Participants also provided a urine sample for research purposes every two weeks during the first year following study intake. **Results:** Results indicated that there was a trend in which participants receiving 36 weeks of VBRT provided more cocaine abstinent urine samples in weeks 13 through 36 compared to the participants that received 12 weeks. Results also showed that those receiving 36 weeks of VBRT had greater continuous abstinence during intervention weeks 13-24 than those receiving 12 weeks of VBRT (p=0.001). Finally, as the duration of cocaine-abstinence in the last 12 weeks of VBRT increased, the likelihood of a participant providing a cocaine-negative sample following VBRT increased (p<0.001). **Conclusions:** These results suggest that a longer duration of VBRT could lead to increased abstinence compared to a shorter duration VBRT, and that participants with longer periods of abstinence during VBRT are more likely to maintain that abstinence following VBRT. Future research should further explore the relationship between length of reinforcement and duration of abstinence to determine if there is an optimal length of voucher delivery. **Support:** Funded by NIDA grant # R01-DA-17444-01

118 MODELING TRANSITIONS IN BEHAVIOR DURING NALTREXONE-BASED INTERVENTIONS FOR OPIOID DEPENDENCE

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Aims: Promoting a change from one behavioral state (e.g. drug use) to another (e.g. abstinence) is the hallmark of a successful intervention. We investigated changes in opiate use by modeling transitions among four clinically important states encountered among detoxified opiate-dependent individuals treated with naltrexone: no opiate use, blocked opiate use, unblocked opiate use, and treatment drop-out. The effects of baseline characteristics and two psychosocial interventions, Behavioral Naltrexone Therapy (BNT) and Compliance Enhancement (CE), on these transitions were tested. **Methods:** After detox, 64 participants were randomly assigned to one of two 6-month outpatient interventions, BNT (n=33) or CE (n=31). A continuous Markov model was fitted on the transitional probabilities among four defined behavior states (no opiate use, blocked opiate use, unblocked opiate use, and treatment cessation). The effects of baseline characteristics and treatment type on these transitions were tested using a proportional hazard model. **Results:** A transition from abstinence to treatment cessation was approximately 3.6 times greater among participants in CE relative to BNT ($\chi^2(6)=14.06$, p<.04). On average, the transition to treatment cessation was greater among unblocked opiate users. This pattern was more pronounced among those in the medication management program (CE) during the first three weeks of treatment. Treatment effects on other transitions were not significant. **Conclusions:** BNT benefited heavier opiate users by decreasing the transition from abstinence to treatment cessation. Continued opiate use while being blocked (i.e. extinction) accounted for a relatively low proportion of transitions to abstinence. Investigating transitional patterns among behavioral states can be useful in understanding the process of change during treatment and guide the development of more targeted intervention practices. **Support:** This study was supported by grants R01 DA-10746 and K02 00288 (E.V.N.).

119 ADOLESCENT LOW-RATE SMOKERS DESIRE AND ATTEMPT TO QUIT AS MUCH AS 30 HEAVIER SMOKERS

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Aims: The vast majority of cigarette smokers initiate their smoking during adolescence and progress in common sequence from experimentation to occasional use, and ultimately to regular, chronic use. We have previously shown that even minimal tobacco use among adolescents is associated with pro-smoking attitudes. **Methods:** For the present analysis, we examined data from the 2005-07 South Carolina Youth Tobacco Survey, a statewide random sample of high- and middle school students, to assess interest in and attempts to quit. Past 30-day smokers were categorized as smoking a) 1-2 (n=309), b) 3-9 (n=278), c) 10-29 (n=273), or d) all 30 days (n=246). **Results:** Interest in quitting for each of these groups was a) 55%, b) 44%, c) 46%, and d) 41% (a vs. b: p=.05; a vs. d: p=.01; all others n.s.). There were no group differences in the incidence of any quit attempts in the past year: a) 55%, b) 50%, c) 51%, and d) 52%, and in general there were no differences in the number of quit attempts made. The incidence of 1-2 quit attempts was a) 30%, b) 30%, c) 26%, and d) 38%, while the incidence of 3 or more quit attempts was a) 25%, b) 28%, c) 35%, and d) 21%. The unanticipated finding that extremely low rate smokers (1-2 days in past 30) had similar or greater desire and attempts to quit leads to the possibility that these smokers were once heavier smokers who have now reduced in an effort to quit. However, only 9% of adolescents who reported smoking 1-2 days in the past month had smoked 100+ cigarettes in their lifetime; 78% had smoked <25 cigarettes total. **Conclusions:** These results suggest that adolescent low-rate smokers, despite a limited smoking history, have both motivation and experience in quitting. Tobacco control efforts should capitalize on this motivation with focused prevention strategies that arrest the progression from low-rate to regular smoking. **Support:** Supported by NIDA Career Development Award (K23DA020482). **Correspondence:** M. Carpenter: carpen@mus.edu.

120 IMPULSIVITY (DELAY DISCOUNTING) AND DRUG SELF-ADMINISTRATION IN RHESUS MONKEYS

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Aims: Monkeys were trained under a delay discounting (DD) schedule to study impulsivity and drug self-administration in 3 experiments to study 1) access conditions, 2) treatment, and 3) drug withdrawal. **Methods:** Responding on one drinking device resulted in 1 delivery (phencyclidine-PCP, ethanol, saccharin-SACC) immediately, and responding on a second device resulted in 6 or 12 deliveries after a delay. The delay adjusted such that responses on the immediate device decreased the delay to the larger delivery by 1 sec, and responses on the delayed device increased it by 1 sec. The daily mean adjusted delay (MAD) was considered a measure of impulsivity; lower MAD = higher impulsivity. In Exp. 1 effects of fixed ratio (FR) for liquid deliveries (FR 8,16,32,64,96), magnitude of the larger-delayed reinforcer (6 v.12), and PCP concentration (.06,.12,.25,.5,1 mg/ml) on DD for PCP were studied. In Exp. 2 DD for PCP or ethanol was compared and 2 nondrug alternative reinforcers were introduced, unlimited food and a concurrently available SACC solution (v. water). In Exp. 3 monkeys self-administered PCP or ethanol in one component and had a DD schedule for SACC in the next component. **Results:** Exp. 1 Increasing the FR increased the MAD, training the monkeys to be less impulsive. There were no changes in MADs due to concentration or number of deliveries (6 v. 12), but at 12 deliveries, changing the FR per delivery from 8 to 32 increased the MAD across all PCP concentrations. Exp. 2 Unlimited food significantly increased the MAD for PCP while reducing the PCP consumed. Exp. 3. When PCP was replaced with water (drug withdrawal), monkeys became more impulsive for SACC, although SACC intake did not change. **Conclusions:** Impulsivity for drug taking is a unique measure of the strength of the addictive behavior and its responsivity to drug access conditions and treatment interventions. **Support:** Supported by R01 DA02486, K05 DA015267 (MEC), F31 DA020237 (JLP), T32 DA07097 (JLN).

CPDD 2008 Annual Meeting, San Juan, Puerto Rico

- 121** PSYCHOMOTOR, SUBJECTIVE, AND COGNITIVE EFFECTS OF KETAMINE AND TRIAZOLAM IN HEALTHY VOLUNTEERS
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Aims: Results from a previous study conducted in this laboratory showed that ketamine impaired working memory and the encoding of episodic memory without producing significant deficits in the retrieval of episodic memory or attention. The aim of this study was to compare the psychomotor, subjective, and cognitive effects of ketamine with those of triazolam in healthy volunteers in an outpatient laboratory setting. Methods: Single, acute doses of ketamine (0.2 and 0.4 mg/kg; im), triazolam (0.2 and 0.4 mg/70 kg; po), and placebo were administered to healthy volunteers (N = 10) under counterbalanced, double-blind, double-dummy conditions across five sessions. The time course and peak physiological, psychomotor, subjective, and cognitive effects were examined. Results: Ketamine and triazolam produced similar dose-dependent increases in participant ratings of "drug effect," "confused or disoriented," and "difficulty concentrating." Performance on psychomotor and working memory tasks was similar after doses of ketamine and triazolam that produced equivalent participant ratings of "drug effect." Participants' free recall of words that they had previously studied (a measure of episodic memory), was impaired when words were studied during the period of drug effect, and was impaired to a greater extent after triazolam than ketamine. Conclusions: Together, these data suggest that ketamine and triazolam temporarily impair psychomotor performance and working memory to a similar extent, but impairment in the encoding of episodic memory during the period of drug effect appears to be greater at doses of triazolam that produce equivalent participant-rated subjective effects as ketamine. Thus, positive modulation of GABAA receptors appears to have a greater effect on the encoding of episodic memory than antagonism of NMDA receptors. Support: This work is supported by USPHS Grants DA003889 and T32 007209.
- 122** BUPRENORPHINE AND METHADONE IN A VA NARCOTIC TREATMENT PROGRAM IN NEW YORK CITY: RETENTION IN TREATMENT AND RESPONSE
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Aims: To assess the treatment outcome of opiate addicts who chose either buprenorphine or methadone when entering a traditional narcotic treatment program. Treatment response and retention of both groups will be compared. Methods: Medical record review of 101 consecutive admissions and readmissions, 2003-2007 to a VA community-based traditional narcotic treatment program (NTP) in New York City. Review of patient demographics and choice of medication, either buprenorphine or methadone, and follow-up of patients that discontinued treatment. Data analysis will attempt to determine which populations choose one medication over the other, the time to reduced or discontinued opiate use for each medication, the length of time the patients in each group remain in treatment and the numbers who sought continuing treatment or readmission after discharge. Review of the treatment outcome of a subgroup of patients who chose to transfer from one to the other medication. Results: All patients are veterans living in the New York City area, median age 52, primarily male, median history of opiate addiction 18 years with 45% having concomitant medical and psychiatric disorders. Preliminary results indicate that younger patients, those who are working or have not had previous methadone experience choose suboxone. Patients on buprenorphine appear to discontinue opiate use within days, but remain in treatment for shorter periods than methadone patients. Conclusions: Buprenorphine can successfully be used in a traditional NTP which also offers methadone. Buprenorphine's longer action and flexible take-out privileges offered patients on buprenorphine may contribute to lower compliance with the required structure of a NTP. Patients do well on both medications. Staff flexibility that individualizes treatment is essential. Support: Department of Veterans Affairs, New York Harbor Healthcare System and New York University School of Medicine
- 123** INTERNET SURVEY OF PRESCRIPTION OPIOID ABUSE AMONG COLLEGE-AGED INDIVIDUALS
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Aims: This project evaluated trends in non-medical prescription drug use among college-aged individuals using an online internet survey. Recreational drug use websites provide an ideal medium for drug abusers to communicate in an anonymous and unrestricted manner. These websites may reveal patterns of drug use/abuse among active abusers. Methods: An online survey was conducted of individuals who visited a recreational drug use website during October 2007. The survey explored knowledge and perception of risk from prescription drug use of individuals enrolled in college and those who are not in college. Results: 858 valid responses were received, of which 58% were between the ages of 16 and 24, (85% male; 93% white). There was no difference in prescription drug use between those enrolled in college and those who were not. An equal percentage of college students and non-college respondents reported using prescription opioids non-medically (94%) with various hydrocodone preparations reported as most misused. This compares with 93% of respondents in a different survey of 522 college students on Facebook, who had misused a prescription opioid in the past year, again, mostly hydrocodone. Both the college students and non-college respondents on Erowid indicated that over 80% of their friends abused prescription drugs. Most (84%) believed that trying prescription opioids once or twice posed little to no risk of harm, whereas 88% believed the risk of harm was moderate to great for regular use. The primary reasons for using prescription opioids were to get high or de-stress. Conclusions: Internet-based surveys of individuals who visit recreational drug-related websites appear to be a useful tool for evaluating trends in prescription opioid abuse. These data in concert with data from other post-marketing surveillance systems may help to define prescription opioid abuse and indicate trends among younger populations. Two separate online college drug use surveys, drawn from different sources and two years apart, provided remarkably similar results, supporting the reliability of these data. Support: Supported by Alpharma Pharmaceuticals LLC
- 124** LOW, BUT NOT HIGH, DOSE COCAINE INDUCES GREATER STRIATAL EXPRESSION OF C-FOS AND ZIF268 IN ADOLESCENTS COMPARED TO ADULTS
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Aims: Adolescence is a critical period for drug addiction. Age-related differences in dopamine system structure or function could contribute to this vulnerability. We have previously shown that adolescent male rats have greater behavioral responses to cocaine than adults. We have also shown that the magnitude of acute behavioral response predicts the magnitude of cocaine sensitization in adolescence. The purpose of this study was to compare the magnitude and patterns of neuronal activation induced by cocaine in adolescent and adult rats. Methods: Adolescent (postnatal day 28, PN28) and adult (PN 65) rats were treated with saline or cocaine (10 or 40 mg/kg ip) in locomotor test chambers and killed 30 minutes later. Coronal sections corresponding to +1.6, +0.4 and -0.4 relative to bregma were hybridized with c-fos or zif268 probes. Results: Saline-treated adolescents had greater levels of zif268 than adults in most regions. Saline-stimulated c-fos levels were near zero in both age groups. We observed higher levels of both genes in rostral regions of the striatum and higher levels of c-fos in the more medial and caudal regions of the caudate in adolescents compared to adults after 10 mg/kg cocaine. Levels of zif268 in both ages were comparable after 40 mg/kg cocaine in all striatal regions. However, as a percent of control, 40 mg/kg cocaine induced a significantly greater change of zif268 in adults. We also correlated the expression of both IEGs in the caudate and accumbens with behavioral responses of individual animals. The expression of both genes was correlated with acute behavior in the nucleus accumbens shell, but only c-fos induction was correlated with locomotion in the caudate. Conclusions: These data suggest that young adolescents may have greater postsynaptic responses to lower doses of cocaine than adults. Higher levels of IEG induction could make adolescents more vulnerable to lasting cocaine-induced alterations and may underlie the faster progression from first use to addiction in adolescents. Support: Supported by DA19114.

125 MALE-FEMALE DIFFERENCES IN TOBACCO DEPENDENCE: MEXICO, 2001-2002

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Aims: Our research group is probing into male-female (M-F) differences in manifestations of tobacco dependence (TD) among smokers found within community probability sample surveys completed as part of the WHO World Mental Health Surveys Initiative. In this report, we focus upon epidemiological data from Mexico. Methods: Data are from an epidemiological survey completed in Mexico in 2001-2 (n=5782), with a diagnostic assessment based on 7 items designed to tap DSM-IV nicotine dependence constructs. An 'analyze, then summarize' approach was taken such that M-F differences are disclosed with respect to TD's individual clinical features. Results: Estimated occurrence of tobacco dependence was numerically smaller among active male smokers (7%) as compared to female smokers (8%), but $p > 0.4$. Profiles of individual TD clinical features showed very little evidence of M-F differences; one noteworthy tendency involved the occurrence of a withdrawal syndrome, which occurred slightly more often among female smokers than among male smokers ($p = 0.06$). Conclusions: In Mexico, the evidence indicates M-F parity in the occurrence of tobacco dependence, as well as clinical features of TD, among recent smokers. The tendency for more frequent withdrawal syndromes in female smokers might be due to variation in smoking topology, which will be explored in future analyses. Support: NIDA Awards R01DA016558, K05DA015799, & see WMH web site.

126 SPENDING HABITS OF ADOLESCENTS PARTICIPATING IN A CONTINGENCY MANAGEMENT-BASED SMOKING CESSATION RESEARCH PROGRAM

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Aims: Contingency management (CM) procedures, which provide monetary reinforcement for achieving and maintaining abstinence from cigarettes, are efficacious in enhancing abstinence in an adolescent smoking cessation program (Cavallo et al., 2007; Krishnan-Sarin et al., 2006). However, a notable concern often raised is how adolescents spend the money that they receive from such a program. The aim of this study was to assess adolescent spending in a CM-based smoking cessation project. Methods: We assessed spending habits of 38 adolescent smokers at baseline (prior to quitting) and during treatment using a questionnaire asking about spending in a number of categories, including cigarettes, other substances, durable goods, and disposable goods. Results: On average, subjects earned \$53 (SD = \$23) per week and \$209 (SD = \$106) total for study participation. The week prior to treatment, 79% spent money on cigarettes, 21% spent money on other substances, 68% spent money on disposable goods, and 29% spent money on durable goods; during treatment, 11% spent money on cigarettes, 18% spent money on other substances, 89% spent money on disposable goods, and 23% spent money on durable goods. There was no significant difference in the weekly ($F(1, 36) = 1.03, p = .32$), or the total ($F(1, 36) = 1.06, p = .31$) amount of study money earned for those who purchased cigarettes/other substances compared to those who did not. Subjects who spent some study money on disposable goods, such as food and personal items ($F(1, 36) = 9.45, p < .01$) and durable goods, such as clothing and electronics ($F(1, 36) = 4.58, p < .05$) earned significantly more money weekly than those who did not. Conclusions: In conclusion, it appears that participation in a CM based program for smoking cessation did not lead to greater spending on cigarettes and other substances and may produce increased "prosocial" spending. Support: Supported by: NIDA P50 DA09241, K05-DA000457, K05-DA00089

127 PREDICTING SEXUAL DEBUT

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Aims: To examine the association between age of first alcoholic drink and sexual debut. Methods: We used 1999-2005 data from the Youth Risk Behavior Surveillance System (YRBSS), a cross-sectional, nationally representative survey of students in grades 9-12 established by the Centers for Disease Control and Prevention. All analyses were performed using SAS-callable SUDAAN version 9.0.1. An extended Cox proportional hazards model was used to model time until becoming sexually active (i.e., age at first sexual intercourse), with drinking alcohol (a time-dependent variable based on age at first drink) as the primary predictor of interest, adjusting for gender and race. Results: The 58,081 participants evaluated in this study included similar numbers of males and females in grades 9-12. Onset of first alcoholic drink (adjusted hazard ratio [aHR], 3.3; 95% confidence interval [CI] 3.1-3.5) was associated with an increased risk of becoming sexually active when compared with participants who had not yet had their first drink of alcohol. Being male (aHR, 1.1; 95% CI, 1.1-1.2) was also associated with an increased risk of becoming sexually active when compared with females. African Americans (aHR, 2.4; 95% CI, 2.2-2.6), Hispanics (aHR, 1.3; 95% CI, 1.2-1.4), and other races (aHR, 1.3; 95% CI 1.1-1.4) were also at an increased risk of becoming sexually active when compared with Caucasians. Asians (aHR, 0.6; 95% CI 0.5-0.7) were at lower risk when compared with Caucasians. The overall Cox regression model was significant ($\chi^2 6 \text{ df} = 2294.55$). Conclusions: These results provide evidence for the important role of first drink of alcohol, gender, and race in predicting sexual debut. Moreover, our results underscore the public health relevance of delaying first alcohol use to help postpone adolescents' first sexual intercourse. Support: K12 Multidisciplinary Clinical Research Career Development Program. PI: Victoria Fraser; National Institutes of Health Sept 2007 - Sept 2009; Role: Scholar.

32 128 EARLY OUTCOMES OF A 1-SESSION INTERVENTION TO PREVENT ALCOHOL-EXPOSED PREGNANCY IN PRECONCEPTION WOMEN

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Aims: To test a one-session MI-based intervention to prevent alcohol-exposed pregnancy (AEP) in child-bearing age women who drink at risky levels and use ineffective contraception. Methods: A three-armed, RCT of 258 women to test a 50-minute counseling intervention against informational video and assessment only groups is a shorter adaptation of the efficacious Projects CHOICES and BALANCE interventions aimed to prevent brain damage and other permanent problems in offspring of women who drink while pregnant. The intervention targets preconception women and their readiness to change drinking and/or contraception behaviors. All participants receive an hour-long assessment and are followed at 3- and 6-months. Results: Preliminary analysis of 70 participants shows they are on average 27.9 yo, mostly single or cohabitating (78.3%), with 1.5 sex partners in the past 90 days. 40% are employed and 31.9% attend school, with 13.9 years of education. Most are Black (47.8%) or White (40.6%) and drink an average of 8.3 drinks/wk with 35.7% binge drinking (4 or more drinks per occasion) weekly or more. First intercourse was at age 16.3, first use of contraception at age 16.7, and most (72.9%) had a pap smear in the past year. About half (47.1%) report never using marijuana, 85.7% report never using cocaine, with only a handful reporting any use of other illicit drugs. Nearly half (44.3%) smoke. Out of 100, participants rated readiness to change their use of alcohol a 48 and readiness to use effective contraception a 70. 16 women have attended the first follow-up. By June, group differences on the first 100 women enrolled will be available. Conclusions: Participants do not report risky lifestyles except binge drinking and most do not consider their drinking a problem or something they are ready to change. However, their drinking and contraception behavior puts them unknowingly at high risk for AEP. Three month results of changes in drinking, contraception and AEP risk by group assignment will be provided. Support: R01 AA14356-0142

CPDD 2008 Annual Meeting, San Juan, Puerto Rico

129 GENDER DIFFERENCES IN HIV RISK BEHAVIORS AMONG ADOLESCENTS IN SUBSTANCE ABUSE TREATMENT

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Aims: Adolescent HIV infection has drawn public concern. Sexual behavior and injection drug use are the main sources of transmission for HIV infection among adolescents. The present study estimated the prevalence of HIV risk behaviors across a spectrum of risky sexual and injection drug use behaviors among adolescents admitted to substance abuse treatment. **Methods:** The study sample of 6821 boys and 2698 girls, aged 12-18, was pooled from 86 sites funded for substance abuse treatment studies. Rates of different risky sexual and injection drug use behaviors were estimated by gender at treatment intake. **Results:** Study results revealed that relative to boys, girls had greater rates of engaging in sex while high on alcohol or drugs (44.8% vs. 35.2%, $p < 0.001$), having sex with an injection drug user (5.2% vs. 0.9, $p < 0.001$), trading sex for money (3.4% vs. 0.7%, $p < 0.001$), and having unprotected sex (44.3% vs. 33.3%, $p < 0.001$). In contrast, boys were more likely to have engaged in anal intercourse (7.1% vs. 5.4%, $p = 0.004$), used drugs, gifts or money to purchase sex (0.9% vs. 0.4%, $p = 0.009$) and been involved with multiple sexual partners (41.0% vs. 34.9%, $p < 0.001$). Both males and females were equally likely to use alcohol or drugs to make sex last longer or hurt less (7.0% vs. 6.5%, $p = 0.39$). With respect to injection drug use, females reported higher rates of engaging in such risk behaviors as using a needle to shoot up drugs; sharing needles, rinse water, cookers, and cotton; and re-using a needle without cleaning it. **Conclusions:** Study findings suggested that there are gender differences in the engagement of HIV risk behaviors among adolescents in treatment and it is important for substance abuse treatment settings to provide HIV prevention programs. **Support:** Supported by Center for Substance Abuse Treatment (CSAT), Substance Abuse and Mental Health Services Administration (SAMHSA) contract 270-2003-00006 and 86 grantees.

130 EFFECTS OF PRENATAL COCAINE EXPOSURE ON TODDLERS' EMOTIONAL AROUSAL AND REGULATION: IMPLICATIONS FOR BEHAVIOR PROBLEMS ACROSS A THREE-YEAR FOLLOW-UP

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Aims: Prenatal cocaine exposure (PCE) impacts children's developing emotional arousal and regulation systems. We examined emotional responses to a frustrating task and subsequent behavior problems in 225 toddlers aged 2 ½ years (129 Prenatally Cocaine Exposed [PCE], 30 Other Drug Exposed [ODE], 66 Non Drug Exposed [NDE]). We hypothesized that PCE toddlers will show greater agitated emotional arousal and difficulty with self-regulation than NDE toddlers, particularly PCE boys. Further, we predicted that greater agitated arousal and difficulty with regulation in toddlerhood (age 2 ½) would predict increases in externalizing symptoms through preschool age (age 5 ½). **Methods:** Children participated in a toy wait task at age 2 1/2. For the task, the child is shown an attractive new toy and then it is taken away and placed on a counter out of the child's reach. The child is instructed to wait 6 minutes for the toy. Children's behaviors were later coded for emotional arousal and regulation behaviors. **Results:** ANCOVAs, covarying race and maternal education level, indicated that PCE toddlers made more references to their caregivers in the task than NDE toddlers, particularly for boys ($F(2, 216) = 3.48, p < .05$). Further, PCE toddlers tended to show greater agitated arousal than ODE and NDE toddlers ($F(1, 189) = 2.74, p < .10$). HLM analyses showed that higher agitated arousal was related to decreases in externalizing behaviors across three years (Estimate = $-.31$ (SE = $.12$), $F(1, 194.04) = 6.86, p < .05$). **Conclusions:** Findings suggest a link between cocaine exposure and emotional arousal and regulation and highlight the need to understand complex relations between emotion and risk for psychopathology in exposed youth. **Support:** (Supported by NIH grants: R01-DA-06025 and P50-DA-16556).

131 SUBSTANCE USE IN INNER CITY MINORITY MSM AND WSW

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Aims: Inner city minority men who have sex with men (MSM) and women who have sex with women (WSW) are often a hidden population at heightened risk for mental health and substance use problems secondary to stressors of poverty, marginalization, and stigmatization. **Methods:** This study used community outreach, at community events and sites, conducted by minority interviewers, to recruit minority MSM and WSW in a Bronx community. Street survey assessed prevalence and factors associated with past 30 day history of negative mood; alcohol use; and marijuana use. Frequencies, crosstabulations, and multiple logistic regressions were used. **Results:** Sample size 364 people, with men (53%) and women (47%); the majority were Latino (58%). Mental health problems: 31%- lifetime history of treatment. 22% - counseling or psychotropic medication in the past year. 63%- experienced negative of mood some of the time; younger age was positively associated with negative mood ($p < 0.0005$). Alcohol use: 74% - at least one drink in the past 30 days; younger age, being a high school or college graduate, and having either private insurance or no insurance were positively associated with drinking ($p < 0.001$). Marijuana use: 27% - some marijuana use in the past 30 days; less than high school education, being Latino, identifying as MSM or WSW, having negative mood, and using alcohol were positively associated with marijuana use ($p < 0.001$). **Conclusions:** In 'natural' sites of inner city minority MSM's or WSW's daily lives, carried out by interviewers of similar ethnicity are effective. The sample reported high rates of alcohol use and negative mood, and a substantial rate of marijuana use. For the smaller group of marijuana users, there was suggestive evidence of comorbidity. They were also distinguished by being Latino, identifying as MSM or WSW, and having less than a high school education. These associations highlight the likely need for tailored, community-based programs for outreach and linkage to substance abuse treatment and mental health services for Latino(a) MSM and WSW. **Support:** Society of American Family Physicians

33 132 TRUST IN SOCIAL NETWORK AND RISK OF SUICIDALITY AMONG DRUG USERS WITH DEPRESSIVE SYMPTOMS

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Aims: Suicide is a preventable but currently a huge public health problem, affecting the well being and productivity of the society we live in. Half of all violent deaths and almost a million fatalities worldwide are due to suicides. Drug use has been found to increase the risk for suicide. We examined the moderating effect of injection status on the association between the number of trusted people in one's social network and suicidal ideation among drug users with depressive symptoms. **Methods:** This study used data from the Self-Help In Eliminating Life-threatening Diseases (SHIELD), longitudinal HIV intervention study targeting current and former drug users in Baltimore City. The sample was limited to 234 drug users with a score of 12 or higher on the Center for Epidemiologic Studies Depression Scale (CES-D). Suicidal risk was assessed using a 22 item questionnaire. A cut-off and a score of 5 was used to identify moderate to high risk of suicide. Multiple logistic regression analysis was used to assess the moderating effect of injection drug use on the relationship between number of trusted people within social networks and suicidality after adjusting for gender and age. **Results:** We observed a statistically significant interaction effect suggesting that the association between the number of trusted people within one's social network and risk of suicide differed by injection status ($p < .03$). A trend towards decreased risk for suicide among non-injection drug users with depressive symptoms was observed, where the number of trusted people in social networks was found to be inversely associated with the risk of suicidality (OR=0.47, 95% CI: 0.21-1.05). This association was not statistically significant among injection drug users with depressive symptoms. **Conclusions:** Findings are discussed within the context of social networks and injection status. Both may be useful tools in understanding the risk of suicidality among drug users with depressive symptoms. **Support:** The SHIELD study is funded by the National Institute of Drug Abuse, Grant # R01 DA0446.

133 COCAINE USE IS ASSOCIATED WITH ALL-CAUSE MORTALITY AMONG DRUG USERS ENGAGED IN HIV CARE

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Aims: Drug use among HIV-infected persons is associated with poorer treatment adherence and HIV outcomes. Data suggest that class of abused drug affects HIV progression; specifically, stimulant use may be associated with progression. We evaluated the impact of type of drug abused on mortality and progression to AIDS. **Methods:** Based on responses to computer-assisted surveys conducted every six months in a longitudinal observational HIV cohort, individuals were classified as nondrug users, exclusive cocaine users, exclusive heroin users or polydrug users. We used Cox proportional hazards to evaluate the impact of drug type on all-cause mortality in all patients, and progression to first AIDS-defining event (ADE) in those who were ADE-free at enrollment. **Results:** Of 1625 individuals, 12.8% were cocaine users, 7.0% were heroin users, 23.4% were polydrug users, and 56.8% reported no drug use. 82.3% had been on antiretroviral (ARV) therapy at some point during follow up. Heroin and polydrug users were less likely to have received ARVs than nondrug and cocaine users ($p < 0.05$). Between February 1989 and March 2007, there were 196 deaths and 402 new ADEs (of 877 ADE-free). Adjusting for age, sex, race, HIV transmission group and CD4 nadir, cocaine users had a significantly higher probability of dying compared to nonusers (Adjusted RH: 1.40; 95% CI: 1.01-1.94). Heroin and polydrug use were not associated with death. Adjusting for duration of ARV use, cocaine use was no longer associated with death. There was no association between drug type and progression to AIDS. **Conclusions:** Among HIV-infected persons, cocaine, but not heroin or polydrug use, is associated with all-cause mortality. This appears to be at least partially attributable to duration of ARV therapy, suggesting that cocaine use is a barrier to effective ARV utilization. Further investigation of ARV utilization among cocaine users is warranted to evaluate the impact of patterns and modes of cocaine use on ARV therapy, HIV progression and survival. **Support:** National Institute of Drug Abuse RO1DA11602

134 RISK BEHAVIORS OF HIV + AND HIV - OUT-OF-TREATMENT IDUs IN MALAYSIA

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Aims: To evaluate factors associated with HIV infection among a high risk group of IDUs in Kuala Lumpur, Penang, and Johor Bahru in Malaysia **Methods:** We conducted an anonymous, face-to-face survey, using a structured questionnaire administered by trained research assistants, of IDUs reporting recent buprenorphine injection. Survey participants reported their HIV status, drug use history, and drug- and sex-related HIV risk behaviors **Results:** There were 62 HIV positive and 172 HIV negative IDUs in the sample. HIV positive and HIV negative participants did not differ significantly on demographic characteristics, duration of heroin abuse, lifetime history of opioid IDU or benzodiazepine abuse, or past 30 day IDU or sharing of injection equipment. HIV positive participants reported significantly higher lifetime ATS abuse (77% vs. 60%, $p = 0.013$), lifetime ATS IDU (22/48 vs. 27/103, $p = 0.001$), and current sharing of injection equipment with multiple individuals (70% vs. 52% of those reporting current sharing, $p = 0.048$). Although HIV positive participants were less likely to have a steady sex partner (18% vs. 34%, $p = 0.018$) or to have sexual intercourse with someone other than a steady sex partner in the past 30 days (6/62 vs. 55/172, $p = 0.001$), among sexually active participants, HIV+ individuals report comparable rates of consistent condom use with steady sex partners than HIV - IDUs (1/11 vs. 6/58) and higher rates of safe sex practices with a non-steady sex partner (6/6 vs. 10/55, $p = 0.001$) **Conclusions:** In this sample of IDUs, both HIV+ and HIV- IDUs report very high levels of drug-related risk behaviors. The pattern of most drug-related risks is similar for HIV+ and HIV- individuals, but lifetime ATS and ATS IDU appear to be additional risk factors for HIV transmission in this high risk group. Although they are less sexually active than HIV - individuals, those HIV+ individuals who are sexually active are more likely to engage in safer sex practices **Support:** University Sains Malaysia

135 EXPECTANCY, SUBJECTIVE RESPONSE AND ALCOHOL INVOLVEMENT IN CHILDHOOD

C. Chen¹, C.L. Storr², S.L. Huang¹, C.Y. Liu³ and W.J. Chen⁴, ¹Division of Mental Health and Substance Abuse Research, NHRI, Taipei, Taiwan, ²Mental Health, Johns Hopkins University, Baltimore, MD, ³Nursing, National Taipei College of Nursing, and ⁴Institute of Epidemiology, National Taiwan University, **Aims:** Laboratory and clinical evidence has shown the links between alcohol expectancies and problem drinking in young adults. In this study, we extend this line of research by investigating the effects of alcohol expectancy on the early-stage alcohol experiences in childhood. **Methods:** A school survey was conducted with a representative sample composed of 28 public schools and 1203 4th and 1252 6th graders in Taipei City. Information regarding individual, family, and alcohol-related characteristics was collected via self-administered paper-and-pencil questionnaires. Alcohol expectancies were assessed via AEQ-Children, a Chinese version translated from AEQ-A with modification to accommodate children's cognitive development and cultural context. Multivariate and complex survey analyses were performed to evaluate expectancy-related risks in the transition of alcohol involvement. **Results:** Six major features of alcohol expectancies were identified (e.g., "improved physical health" and "deteriorated cognitive and behavioural function"). Roughly 29% 4th- and 43% 6th-graders have tried alcoholic beverages at least once in their lifetimes. With covariates adjusted, having the higher expectancy of "improved physical health" was associated with a 4-fold increased risk to continue alcohol drinking among those who had negative subjective responses towards first drink (e.g., bitter). Individuals who reported higher expectancy of "deteriorated cognitive and behavioural function" were less likely to have further drinks (4th: $aOR = 0.1$, $p < 0.01$; 6th: $aOR = 0.48$, $p < 0.01$). **Conclusions:** Our evidence shows that the effects of alcohol expectancies in the progression of alcohol involvement may differ by subjective responses towards the first drink in childhood. Cognitive processes of alcohol expectancy need to be incorporated into future studies and prevention programs targeting at underage alcohol problems. **Support:** NHRI MDPP04-014 and NSC 952314B400009MY3

136 THE ANTINOCICEPTIVE EFFECT INDUCED BY DAMGO IN CHEMOKINE CCR5 RECEPTOR KNOCKOUT MICE

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Aims: Cross-desensitization between the receptors for mu opioids and the chemokine CCL5/RANTES in the regulation of antinociception has been reported in rats. The present experiments were designed to investigate the effect of chemokine CCL5/RANTES on the mu opioid receptor agonist DAMGO-induced antinociception in CCR5 receptor knockout (KO) mice (C57BL/6J). **Methods:** The animals were housed individually after intracerebroventricular (icv) surgery. Experiments began 1 week postoperatively. For the hot-plate (52.5~{°C}) test, mice were placed on the hot plate and the latency to paw lick was recorded. A cutoff time was set at 30 sec. The percent of maximal possible antinociception (MPA%) for each animal at each time was calculated using the following formula: $\%MPA = [(test\ latency - baseline\ latency)/(30 - baseline\ latency)] \times 100$. The CCR5 wild-type (WT) mice were divided into 4 groups: Vehicle + Saline, CCL5/RANTES (100 ng) + Saline, Vehicle + DAMGO (400 ng) and CCL5/RANTES (100 ng) + DAMGO (400 ng). The CCR5 receptor KO mice were also divided into 4 groups: Vehicle + Saline, CCL5/RANTES (100 ng) + Saline, Vehicle + DAMGO (400 ng) and CCL5/RANTES (100 ng) + DAMGO (400 ng). The mice were given icv injection of saline or DAMGO (400 ng) 30 min after icv injection of vehicle or CCL5/RANTES (100 ng). **Results:** The results show that icv injection of DAMGO (400 ng), in the CCR5 WT mice, produced a significant increase in the antinociception and CCL5/RANTES (100 ng) blocked this antinociception, while in the CCR5 receptor KO mice, it produced an increase in the antinociception (although the deviation is very large) which was not blocked by CCL5/RANTES (100 ng). **Conclusions:** These findings have demonstrated that the CCR5 receptor is involved in opposing the antinociception induced by the mu opioid receptor agonist DAMGO. **Support:** Supported by NIDA Grants DA 06650 and DA13429

CPDD 2008 Annual Meeting, San Juan, Puerto Rico

137 ALCOHOL USE AND PROBLEMS: A FOCUS UPON SEX-ASSOCIATED VARIATION FOR US-BORN VERSUS IMMIGRANT LATINOS AND ASIANS IN US HOUSEHOLDS, 2002-2003

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Aims: 'Convergence' theory and recent evidence from cross-national surveys prompt us to hypothesize that male-female (MF) associations with drinking and drink-related problems will be weaker for US-born Latino- and Asian-Americans, stronger for immigrants (i.e., current US residents not born in the US). That is, MF associations tend to be stronger overseas than in the US. **Methods:** This hypothesis can be tested with data from the 2002-3 National Latino and Asian American Study (NLAAS), a probability sample survey of 4649 household-dwelling adult residents in the US, which included standardized diagnostic assessments of DSM-IV alcohol use disorders (AUD). Estimation takes into account sampling weights and survey design effects. **Results:** Estimates for subgroup variation in cumulative incidence of alcohol consumption and AUD show that almost 100% of Latino males have consumed alcohol and 1 in 5-6 drinkers developed AUD (94%, 18%, respectively). Corresponding estimates for Latino females highlight the overall MF differences: 74% and 6%; for Asian males: 86%, 7%; for Asian females: 66%, 2%. As hypothesized, with or without covariate adjustment for age, MF-AUD associations among drinkers were weaker for US-born adults (Latino M-F Odds Ratio, OR = 3; Asian OR = 3), stronger for immigrants (Latino OR = 16; Asian OR = 16). **Conclusions:** This evidence tends to support 'convergence' theory such that epidemiological patterns for immigrants to the US resemble patterns observed in the home countries, and that patterns for the US-born more resemble US patterns. More probing is needed (e.g., relative to elapsed time since immigration; developmental stage). **Support:** NIDA Awards K05DA015799, R01DA016558.

138 CAN BACLOFEN AND VARENICLINE FACILITATE EXTINCTION OF THE LIMBIC BRAIN RESPONSE TO BRIEF COCAINE CUES?

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Aims: In addition, drug cues trigger powerful arousal that persists despite repeated, non-reinforced cue exposure. This failure of (Pavlovian) extinction may constitute a core pathology in addiction, and a critical relapse vulnerability. As drug cues produce limbic activation and dopamine (DA) release, we are testing two medications that modulate DA release (the GABA B agonist baclofen, and the new nicotinic-dopaminergic partial agonist, varenicline) for their impact on extinction of the limbic brain response to brief cocaine cues. **Methods:** We used "fast" event-related BOLD fMRI to measure the brain response to cocaine-related and comparison cues of 33 msec ("unseen") or 500 msec duration in chronic cocaine users (n=19; ongoing) with at least 7 days baclofen (60 mg daily) or placebo pretreatment; varenicline pilots receive 2 mg daily. 24 unique stimuli (in each cue category, presented twice), plus 48 null events, were "jittered", with average ISI of 2 sec. Session trials (240) were divided into half, to assess within-session change (extinction) of the brain response. Following SPM2 pre-processing, amygdala connectivity was used as the index response. **Results:** Placebo-treated cocaine patients showed clear failure of within-session extinction ($3 < t < 10$, $p < 0.001$ in a priori limbic regions), while baclofen pretreatment resulted in a striking reduction of limbic responding to both 33 msec "unseen" and 500 msec cues, especially in the second half of the session. Varenicline's effects, though encouraging, are preliminary. **Conclusions:** These data provide evidence that DA-modulating medications may facilitate extinction of the limbic response to drug cues, an action with potential therapeutic benefits. Using "unseen" cues as a probe may circumvent the context-dependent effects that often undermine clinical extinction efforts with cue exposure. **Support:** Supported by: NIDA (R01DA10241; R01DA15149; R01DA12162; P50; P60), VA VISN 4 MIRECC, DANA Foundation, and Alexander Foundation

139 EFFECTS OF IM PROGESTERONE ADMINISTRATION UPON RESPONSES TO ACUTE PSYCHOSOCIAL STRESS

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Aims: Progesterone is a classical steroid hormone released from the ovaries and adrenal glands that regulates neuroendocrine, reproductive and behavioral functions. Recent evidence suggests that progesterone and its metabolites, including allopregnanolone, may have rapid CNS actions that could play a role in the modulation of stress responses. The aim of the present study was to investigate the anti-stress effects of progesterone administration in healthy human volunteers. **Methods:** Male participants received 0 (N=16), 50 (N=12), or 100mg (N=13) progesterone (IM) before participating in a psychosocial stress procedure, the Trier Social Stress Test (TSST). Subjective reports (i.e., anxiety, calm), physiological signs (heart rate, blood pressure) and plasma hormone levels (cortisol, ACTH, progesterone, catecholamines) were measured at repeated times before and after drug administration and participation in the TSST. **Results:** Progesterone administration alone dose-dependently increased subjective ratings of arousal, reduced subjective fatigue, and also decreased blood pressure before the stress task. Compared to placebo, 100mg progesterone attenuated stress-induced increases in depressed mood and decreases in feelings of calm, but it potentiated stress-induced increases in diastolic blood pressure. Progesterone did not alter stress-induced changes in heart rate or cortisol. Levels of other plasma hormones will be examined and correlated with the effects of progesterone upon mood and blood pressure. **Conclusions:** If confirmed, the stress-dampening effect of progesterone or its neuroactive metabolite allopregnanolone may lead to new treatment strategies for neuropsychiatric disorders such as generalized anxiety disorder, panic disorder, depression, and also for the treatment of relapse to drug abuse. **Support:** This research was supported by NIDA R01 DA02812 and GCRC M01RR00055.

140 THE RELATIONSHIP BETWEEN CIGARETTE USE AND MATERNAL AND NEONATAL OUTCOMES AMONG PREGNANT METHADONE-MAINTAINED PATIENTS

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Aims: To investigate the relationship between cigarette use and maternal treatment and neonatal outcomes among pregnant methadone-maintained patients. **Methods:** Pregnant methadone-maintained women (N=122) completed the Addiction Severity Index and Structured Interview for the DSM-IV Axis I disorders and were then followed prospectively until delivery in comprehensive care treatment. Participants were categorized into three groups based on past 30-day cigarette use at treatment entry: no smoking (0 cigarettes/day; n=15), light (1-10 cigarettes/day; n=55), and heavy (11 +cigarettes/day; n=52) smokers. Sub-samples of each group for which maternal and neonatal outcomes were available (n=81) were compared. **Results:** : There were no statistically significant differences among groups on demographic variables, estimated gestational age at treatment entry or delivery, or Apgar scores. Approximately 79% of the total sample provided drug negative urine samples at delivery. The no smoking group had significantly higher birth weights compared to the light and heavy smoking groups (3335.71 grams [716.2]; 2534.30 grams [866.3], and 2669.65 grams [566.3], respectively; $p=.034$). Of the infants in the non-smoking group, 0% experienced neonatal abstinence syndrome (NAS) compared to 62.5% of the light and 52.6% in the heavy smoking groups ($p=.030$). Cigarette smoking at any level was associated with lower birth weight and increased incidence of NAS. **Conclusions:** Results suggest an association between any cigarette use and compromised neonatal outcomes among pregnant methadone-maintained women. **Support:** Supported by NIDA R01 DA12403, K24 DA -023186

141 BUPRENORPHINE MEDICATION CONTINGENCY EFFICACIOUS IN PROMOTING ABSTINENCE FROM OPIOIDS AND COCAINE

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Aims: This trial examined the efficacy of three different treatments for opiate-dependent individuals. Methods: Participants (n=127) stabilized on buprenorphine were randomized to either: buprenorphine-medication contingencies (Gr 1, n=43), voucher incentive procedures (Gr 2, n=44) and standard treatment without any contingency (Gr 3, n=40). Gr 1 received alternate day dosing as the incentive for opioid and cocaine free urine samples and loss of one half their maintenance dose, typically for 2 days, for a positive sample. Gr 2 received vouchers redeemable for goods and services. Gr 3 received a standard treatment. The groups were compared for a) total and b) continuous weeks of abstinence from both opiates and cocaine. Results: There was a significant difference among the three groups on the median number of total weeks of abstinence ($\chi^2(2)=6.2$, $p=0.04$). Both Gr 1 and Gr 2 had medians of 8 weeks of total abstinence, which were 3 weeks greater than that for Gr 3. Planned pair-wise comparisons however, revealed that only Gr 1 had significantly more weeks of total abstinence than Gr 3 ($\chi^2(1)=4.6$, $p=0.03$). The difference between Gr 2 and 3 was not significant ($\chi^2(1)=3.1$, $p=0.08$). Also, medication-contingency participants (Gr 1) had a median of 6 weeks of continuous abstinence, which was significantly longer than the median 2 weeks of continuous abstinence by those in standard treatment (Gr 3) ($\chi^2(1)=5.4$, $p=0.02$). Once again, the median 5 weeks of continuous abstinence by the voucher-incentive group (Gr 2) was not significantly different from that of Gr 3 ($\chi^2(1)=3.0$, $p=0.08$). Conclusions: While both incentive programs resulted in greater number of weeks in abstinence, only those receiving medication contingencies demonstrated significantly greater number of weeks in both total and continuous abstinence than those receiving standard treatment. Support: Supported by NIDA grant 7R01 DA 012997-06

142 CIGARETTE SMOKING AMONG OPIOID-DEPENDENT CLIENTS IN A THERAPEUTIC COMMUNITY

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Aims: This study's aims are 1) to examine smoking rate changes over time at 6 and 12 month intervals from admission; and 2) to investigate the relationship between smoking behaviors and drug treatment outcomes. Methods: Participants were 231 opiod users in a residential therapeutic community. The Computerized Diagnostic Interview Schedule-IV assessed current smoking and number of cigarettes per day. The Addiction Severity Index measured treatment outcomes. A Micro III Smokerlyzer Breath CO Monitor measured expired-air carbon monoxide. Repeated measure analysis was used to examine smoking behavior over time. To assess the effects of smoking behaviors on treatment outcomes, we applied regression analyses for selected ASI composite score (alcohol, drug, medical, & psychiatric), including factors for smoking (number of cigarettes & CO-level), time (admission, 6 and 12 months), and smoking by time interaction. Results: This study confirmed a high smoking prevalence (95%) among opioid users in drug treatment. 72% reported smoking at all three time points and 12% shifted from smoking to non-smoking status at some time after admission. Participants who reported higher CO-levels were more likely to report a higher degree of psychiatric problems for an average time point over 12 months. Participants who reported a greater number of cigarettes showed higher levels of drug problem for an average time point over 12 months. We found a number of cigarettes by time interaction for the ASI Drug composite score. Heavy smokers reported having a slight decrease in drug problem score over time, while light smokers showed an increase in drug problem score. The increased drug problem severity for the light smokers was still lower than that of the heavy smokers. Conclusions: Findings that smoking prevalence is high in this treatment population, and that at least some participants engage in smoking cessation efforts, suggest that smoking cessation intervention may be helpful to opioid-dependent people in drug treatment. Support: This work was supported by grant R01 DA14470, R01 DA020705, U10 DA-105815, P50DA09253, & T32 DA-007250 from NIDA.

143 EXPLORING METACOGNITION, RELAPSE, AND STRESS AS AN INTEGRATED OUTCOME MEASURE

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Aims: The purpose of this study examined an outcome measure of cognitive relapse stress appraisal (RSA) as it applied to polysubstance abusers who received eclectic treatment as a means of maintaining abstinence. This exploratory study described and measured an implicit metacognitive process used to determine the efficacy of the treatment plan for relapse prevention, while individuals were still in treatment. Methods: Participants were obtained from a stratified-random sampling procedure that placed them in four self-reported times since their last relapse, which are common benchmarks in the literature for addiction counseling. They completed the Threat Appraisal Scale and the Global Severity Index (GSI) obtained from the Brief Symptom Inventory. Results: RSA improved with longer abstinence because the eclectic treatment plan selected a favorable idiosyncratic strategy that helped an individual remain temperate when managing an induced thought of relapse. An individual's unique metacognitive process revealed knowledge and awareness of utilizing adaptive problem-solving skills and experiencing less emotional negativity to successfully remain temperate. Conclusions: Data from the TAS and GSI scores were correlated across the different lengths of abstinence to test for the strength of RSA and subsequently used as a heuristic for counselors to change the treatment plan and/or terminate treatment for clinical and cost effectiveness. This relapse stress appraisal (RSA) outcome measure, based upon an idiosyncratic cognitive strategy an individual uses to maintain abstinence when at risk of relapse, may provide a useful tool for determining the appropriate point for a change in or termination of eclectic treatment. Support: self Supported

144 VALIDITY AND RELIABILITY OF THE MARIJUANA WITHDRAWAL CHECKLIST FOR INCARCERATED YOUTH

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Aims: Recent studies with behaviorally disordered youth in either residential or day treatments found significant rates of marijuana withdrawal (Crowley, et al., 1998; Mikulich et al., 2001; Vandrey, et al., 2005). The purpose of the current study was to evaluate the Marijuana Withdrawal Checklist (MWC) (Budney et al., 1999) in an incarcerated youth population. Methods: Participants (N=92; 100% male) in the study were incarcerated youth in a state correctional facility in the Northeast region, aged 12-20 (M=17) from the following racial/ethnic backgrounds: 45.6% White, 30.4% Hispanic, 20.7% African American, 2.2% Native American, 1.1% Asian. Participants were assessed with the MWC for marijuana withdrawal symptoms within 48 hrs of entering the detention facility. Minimum average partial correlation (MAP) and parallel analysis (PA) procedures were used to conduct component analyses. Results: Two factors emerged accounting for 54.3% of the variance. Average loading per item was .696. Factor 1 accounted for 36.91% of the variance with Cronbach $\alpha=.908$. Factor 2 accounted for 17.39% of the variance with Cronbach $\alpha=.757$. The MWC was significantly correlated with a subset of questions of the Massachusetts Youth Screening Instrument-2 (MAYSI -2) related to marijuana withdrawal ($r=.841$) indicating concurrent validity. Conclusions: These results suggest that the MWC is valid and reliable instrument with an ethnically diverse sample of incarcerated male youth. Future studies will validate this instrument with female incarcerated youth. Its ease of administration will likely make it attractive to juvenile detention facilities where time and resources are often limited. Support: "Motivation and Skills for THC/ETOH+ Teens in Jail" R01 DA-018851 National Institute on Drug Abuse/National Institute on Alcohol Abuse & Alcoholism

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145 GENDER DIFFERENCES IN RISKY BEHAVIORS AMONG INPATIENT ADOLESCENTS

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Aims: To assess frequency of risky behaviors in an adolescent inpatient psychiatric sample and explore gender differences. **Methods:** 105 adolescents aged 12-18 admitted to an inpatient psychiatric unit completed the Youth Risk Behavior Survey (YRBS) modified-version. The frequency of risky behaviors related to violence, substance use, and sexual activity were assessed. Chi-square analysis determined gender differences among risky behaviors. **Results:** Self-report of adolescents in our inpatient psychiatric sample to the YRBS modified-version indicated during the 30 days preceding the survey that 22% carried some weapon with 10% carrying a gun. In the past year, 40% seriously considered suicide, while 27% attempted. Regarding sexual risky behaviors, 20% had sexual intercourse by age 12, 24% had four or more lifetime sexual partners, and 24% had not worn a condom at last intercourse. For substance use behaviors by age 12: 39% smoked cigarettes, 29% drank alcohol, and 29% smoked marijuana. Significant gender differences indicated males were more likely to carry a gun in the last 30 days, fight on school property in the past 12 months, and smoke a cigar in the past 30 days. Females were more likely to seriously consider attempting suicide in the past 12 months. Females were also more likely to have lifetime alcohol and inhalant use. There were no gender differences for sexual risky behaviors. **Conclusions:** Risky behaviors in the area of violence, sexual activity, and substance use are frequent among adolescence in an inpatient psychiatric sample. These behaviors may increase morbidity and mortality in an already vulnerable population. Gender differences were found for violence and substance use risky behaviors, but not for sexual risky behaviors. Further studies to explore whether these differences are similar in other populations of youth are warranted. **Support:** NIDA training grant T-32DA020537

146 WHO GUIDELINES FOR THE PSYCHOSOCIALLY ASSISTED PHARMACOLOGICAL TREATMENT OF OPIOID DEPENDENCE

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Aims: WHO has produced guidelines, in response to a call from the Commission on Narcotic Drugs, on the psychosocially assisted pharmacological treatment of opioid dependence. These guidelines are intended to provide guidance to member states on the pharmacological treatment of opioid dependence, including issues related to the clinical governance of opioid dependence treatment programmes. **Methods:** A steering group at WHO oversaw the guideline development process. A panel of international experts was selected and met on three occasions to produce the guidelines. The first session identified the key clinical issues, key outcomes and identified key literature reviews that needed to be conducted. The second meeting reviewed the literature and agreed on the key recommendations. The final meeting reviewed a draft of the guidelines and responses from external review. Where possible, recommendations were made on systematic reviews of the evidence, according to the GRADE methodology. **Conclusions:** In summary, the guidelines recommend the use of opioid agonist maintenance treatment over detoxification in most cases, and the use of naltrexone over detoxification alone in some cases. It is recommended that agonist maintenance treatment be supervised initially and that decisions over take home medication are then made on a case by case basis. Methadone is recommended over buprenorphine because of increased efficacy and reduced cost. Psychosocial support is recommended in combination with opioid agonist maintenance therapy, detoxification and naltrexone treatment. **Support:** No external sources of support.

147 ACCESS TO RECOVERY: A FEDERAL INITIATIVE TO INCREASE SUBSTANCE ABUSE TREATMENT CAPACITY

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Aims: The purpose of this effort is to describe the Access to Recovery (ATR) initiative promulgated by the U.S. Government. In 2004, the U.S. government embarked on a program to enhance substance use disorder treatment by infusing \$100 million per year over a three year period to broaden substance use disorder treatment over a broader array of providers, including faith based providers. Furthermore, greater emphasis was placed on the use of recovery support services as a means of extending professionally driven care. The ATR program is a services initiative to expand client choice, improve access to clinical treatment and recovery supports services, and increasing substance use disorder treatment capacity. The initial phase of ATR was funded in 14 states and one tribal organization. After three years, ATR served over 190,000 clients. About 65% of the clients for whom status and discharge data were available received recovery support services, 48% of the dollars paid were for recovery support services, 32% of the dollars paid were to faith based organizations. Faith based organizations accounted for 23% of the Recovery Support and 31% of clinical treatment providers. Preliminary Treatment Outcome data will be presented. Current data show that of those clients who reported using substances at intake into ATR, 73.1% were abstinent from substance use at discharge. Of those clients who reported not having stable housing at intake, 23.4% reported being stably housed at discharge. Of those clients who were unemployed at intake, 30.8% reported being employed at discharge. Of those clients who reported not being socially connected at intake, 62.4% were socially connected at discharge. Details of the ATR Initiative will be discussed. **Conclusions:** ATR has been a successful effort to broaden the participation of community providers in the delivery of substance use disorder services. A second three year of ATR has begun. **Support:** Center for Substance Abuse Treatment, SAMHSA

148 DRUG USE AND SYPHILIS IN LOW- AND MIDDLE-INCOME COUNTRIES: A SYSTEMATIC REVIEW

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Aims: Aim: Genital ulcer disease (GUD), including syphilis, is an important cause of morbidity in low and middle income countries (LMIC), and treatment and prevention of GUD is integral to the prevention of HIV transmission. We conducted a literature review summarizing syphilis prevalence and associated factors among drug users in LMIC to characterize syphilis prevalence and risk factors in these populations. **Methods:** We searched a PubMed portal on NCBI Entrez Databases supplemented by manual searches of footnotes, conference abstracts, relevant journals and supplements. **Results:** 29 published papers consisting of 32 studies met criteria for analysis. The majority of studies were from Southeast Asia, studies were also identified from Latin America, Eastern Europe, Central and East Asia, North Africa and the Middle East but data from some regions (eg., Sub-Saharan Africa) are scant. The studies consisted of a both IDU and non-injection drug users. The prevalence of overall lifetime syphilis ranged from 0.3% to 60.3% in studies from 14 LMIC. The pooled prevalence of lifetime syphilis was 11.7%. The prevalence of active syphilis ranged from 0.0% to 15.3% with a pooled prevalence of 2.1% in the 11 studies reporting active cases. The pooled prevalence of HIV was 4.8% in thirty-one studies reporting HIV prevalence. Women drug users in general and female sex workers had higher rates of syphilis. **Conclusions:** Drug users have a high prevalence of syphilis, but data for several regions are lacking. Further studies evaluating GUD in drug users worldwide are needed. Interventions that promote safer sex should be integrated in harm reduction programs to prevent new syphilis infections and reduce HIV transmission among drug users and their contacts. **Support:** Supported by grants R01-DA020841, P30 DA 011041 and R01 DA-03574 from NIDA

149 DELAY DISCOUNTING IN CHILDREN OF SMOKERS AND NONSMOKERS

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Aims: Delay discounting is an index of impulsive choice (Reynolds, 2006). Several studies have shown that both adult and adolescent cigarette smokers discount more by delay (i.e., perform more impulsively) than their nonsmoking counterparts (Bickel et al., 1999; Reynolds et al., 2007). However, it is not yet known if the more extreme delay discounting seen in smokers predates their cigarette smoking. Alternatively, cigarette smoking may itself increase delay discounting. Of relevance to this question is research indicating that children of parents who smoke are at increased risk of initiating smoking during adolescence and that this relationship between parent and adolescent smoking is largely genetic in basis (Maes et al., 2006). **Methods:** The current study compared delay discounting in the biological children of mothers who smoke (n=19; 10 females) to matched children of mothers who had never smoked (n=12, 6 females). Children were 12 or 13 years of age. Delay discounting was also assessed in the mothers. **Results:** Mothers who smoked had significantly higher cotinine levels (a metabolite of nicotine) than the three other groups (including their own children), which did not differ in level of cotinine. The mothers who smoked also discounted significantly more than the mothers who did not smoke [U(30) = 38.0, p < .001, one-tail test]. Similarly, the children of mothers who smoked discounted significantly more than the children of nonsmoking mothers [U(30) = 63.5, p < .05, one-tail test]. Furthermore, delay discounting was modestly correlated between the mothers and their children [rs(30) = .25, p < .10, one-tail test]. **Conclusions:** These findings indicate that the children of smokers discount more by delay than the children of nonsmokers, suggesting delay discounting may be an early risk factor for smoking during adolescence. Future prospective research to more specifically explore the relationship between delay discounting and the initiation of smoking is needed to determine the actual risk liability of delay discounting for cigarette smoking during adolescence. **Support:** None

150 COCAINE ESTERASE PREVENTS ONGOING INTRAVENOUS COCAINE SELF-ADMINISTRATION IN RATS

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Aims: Cocaine esterase (CocE), a naturally occurring bacterial enzyme, is a very efficient protein catalyst for the hydrolysis of cocaine, and has been shown to robustly protect rodents from the lethal effects of cocaine (Cooper et al., Mol Pharm 2006 70:1885-91; Ko et al., JPET 2007 320:926-33). The aim of the present study was to assess the potential of CocE to alter cocaine reinforced responding. **Methods:** Rats (N=6/group) were trained to respond for cocaine (0.1 mg/kg/inj) on an fixed-ratio 5 schedule of cocaine delivery during daily 1-hr sessions, and the capacity of 1 mg of either the wild type CocE (t1/2 in blood ~ 15 min) or an equally efficient mutant form of CocE (t1/2 ~ 4 hr) to alter ongoing cocaine self-administration. The CocEs were administered intravenously immediately before a cocaine session, and their effects were compared to sessions in which saline was exchanged for cocaine as a reinforcer. **Results:** When responding was reinforced by cocaine, rats responded at steady rates throughout the hour and generally about 80 injections were earned; when saline was substituted, responding slowed over the hour and about 25 injections were earned. When the wild type CocE was administered, responding slowed early in the session, but recovered rapidly and about 80 injections were earned. However, when rats were treated with the mutant CocE, and allowed to respond for cocaine reinforcement, responding occurred slowly and the injections earned were comparable to, or lower than, when saline was available for injection with about 15 injections earned. **Conclusions:** These findings demonstrate that a long-acting form of CocE is effective at stopping the ongoing self-administration of cocaine in rats, and provide procedures for evaluating and establishing that a suitable, stable form of CocE could prove useful as a pharmacotherapy for cocaine abuse in humans. **Support:** Research supported by USPHS Grants F013771, DA021416, and GM007767

151 REACTIVE AGGRESSION AND PROACTIVE AGGRESSION IN SUICIDAL IDEATION AND ATTEMPTS 38 152 THE EFFECTS OF ENVIRONMENTAL ENRICHMENT ON NICOTINE-INDUCED 38

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Aims: We tested the hypothesis that reactive aggression (RA), but not proactive aggression (PA), confers risk for suicidal behavior. We are aware of no studies of suicidality in substance abusers that directly compared specific measures of RA and PA. **Methods:** Subjects (n=799) were recruited from residential substance abuse treatment programs. Mean age is 38.4 (+10.2) yrs with 569 (71.2%) men and 230 (28.8%) women, 458 (57.3%) white and 341 (42.7%) black subjects, and 216 (27.0%) with <12 yrs educ. and 583 (73.0%) with at least 12 yrs educ. Primary substance of use is cocaine (338, 42.3%), alcohol (287, 35.9%), and other drug (174, 21.8%). Using suicide questions from the NCS, we created 3 mutually exclusive groups: history of suicide attempt (SA, n=201, 25.2%), history of serious suicidal ideation but no attempt (SI, n=170, 21.3%), and no such history, considered non-suicidal (NS, n=428, 53.6%). The Impulsive-Premeditated Aggression Scale (IPAS) provided continuous self-report scores on RA and PA. Multivariate, multinomial logistic analysis was used to compare the SI and SA groups to NS. Interactions of RA and PA with sex, age, and race were also tested. Covariates were primary substance of use, breadth of drug use, alcoholism severity, depression, sex, age, race, and educ. **Results:** RA was associated with SI (OR=1.04, 95% CI=1.01-1.08) but not SA. PA was associated with SI (1.14, 1.02-1.26) and SA (1.24, 1.11-1.37), and the interaction of PA and sex in SA was also significant, such that PA was more strongly associated with SA in women. **Conclusions:** PA may play a role in SA among treated substance abusers, especially among women, for example through its association with reduced sentimentality and/or fear. Because it is less common in women, PA could also serve as a better marker for psychopathology relevant to suicidal behavior. **Limitations** include the cross-sectional research design and recruitment from a small number of clinical venues. **Support:** The research was supported by NIAAA (R01 AA016149, Conner).

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Aims: Previous research has demonstrated that rats reared in enriched conditions (EC) display less sensitization to nicotine than rats raised in impoverished conditions (IC) (Green et al., 2003). It is currently unknown what effect differential rearing has on nicotine-induced conditioned hyperactivity. The present study examined the effects of mecamylamine, an antagonist to nicotinic acetylcholine receptors (nAChRs), on conditioned-hyperactivity and sensitization in differentially reared rats. **Methods:** Male Sprague-Dawley rats were reared from 21 to 51 days in either an enriched (n = 24), impoverished (n = 24), or social condition (SC) (n = 24). Rats received 10 sessions of training for the acquisition of conditioned-hyperactivity. Nicotine (0.4 mg/kg freebase; s.c.) or saline was administered prior to 1-h locomotor sessions. Following the last day of acquisition training, rats were tested for conditioned-hyperactivity with a saline injection. Rats then received 5 additional training sessions followed by a 16 day drug-free period before being tested for sensitization. Mecamylamine (1.0 mg/kg; s.c.) or saline was administered 15-min prior to the conditioned-hyperactivity test and sensitization test. **Results:** Results indicate that IC rats are more sensitive to the effects of nicotine and display greater conditioned-hyperactivity and sensitization relative to EC and SC rats. Current results suggest that mecamylamine decreases conditioned-hyperactivity and sensitization in EC, SC, and IC rats. These effects appear to be greater in EC rats relative to SC and IC rats. **Conclusions:** These results indicate that environmental enrichment may be protective against the stimulant effects of nicotine and that nAChRs may contribute to the differential expression of conditioned-hyperactivity and sensitization in EC, SC, and IC rats. **Support:** Kansas State University

CPDD 2008 Annual Meeting, San Juan, Puerto Rico

153 COMPARISON OF THE EFFECTS OF MARIJUANA SMOKED IN CIGARETTE PAPER (JOINTS) VERSUS CIGAR PAPER (BLUNTS)

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Aims: Anecdotal evidence suggests that marijuana smoked in cigar paper (blunts) compared to cigarette paper (joints) enhances marijuana's intoxicating effects, however there are no studies that have directly compared the subjective effects of these two routes of marijuana smoking. This placebo-controlled, double-blind, within-subject study compared the subjective, physiologic, and pharmacokinetic effects of marijuana smoked as joints or blunts. **Methods:** Experienced, nontreatment seeking, blunt smokers (n=24; 12 women, 12 men) were recruited to participate in a 6-session outpatient study during which the effects of three different strengths of marijuana (0, 1.8, and 3.6% THC) were smoked in the form of joints (NIDA marijuana cigarettes) or blunts (marijuana from NIDA marijuana cigarettes rolled in a Dutch Master® cigar leaf). Participants had an intravenous catheter placed at the beginning of each session. Marijuana was smoked using cued-smoking, double-blind procedures. Cigarettes were placed in a plastic cigarette holder, and blindfolded participants took 3 puffs of marijuana at 1 min intervals. **Subjective effects,** heart rate, carbon monoxide, and plasma THC and nicotine levels were assessed before and repeatedly after marijuana smoking. At the end of each 4-hour session, participants were asked to judge whether they had received a joint or a blunt. **Results:** Results show that marijuana smokers were unable to distinguish the route by which they had smoked. Across both routes, marijuana dose-dependently increased ratings of "High", "Good Effect", "Liking", and "Strong", plasma-THC levels, and heart rate. Neither route produced measurable plasma levels of nicotine. Subjective ratings of drug effect and plasma-THC levels were higher after joint smoking compared to blunt smoking. However, blunts and joints produced comparable increases in heart rate, and blunts produced higher carbon-monoxide levels than joints. **Conclusions:** These findings suggest that the cigar leaf contributes cardiovascular effects and toxin exposure independent of THC. **Support:** Supported by U.S. National Institute on Drug Abuse (DA09236).

154 ADOLESCENT PATIENTS WITH SERIOUS SUBSTANCE AND CONDUCT PROBLEMS AND SIBLINGS: DIRECTIVES FOR RETAINED DNA

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Aims: There is evidence in the general population that race/ethnicity impact directives for future use of retained DNA. There is little information regarding such directives for patients in treatment for substance and conduct problems (SCP) and their siblings in behavioral genetic research. We examined the directives in this sample regarding use of retained DNA and traits that may impact those choices. **Methods:** 349 SCP patients (age 14-18) and 383 patient siblings (age 14-33) enrolled in a genetic study. In the consent form, participants were given three options for use of retained DNA: 1) only for this specific study, 2) only for genetic studies of substance abuse or related medical problems, or 3) any genetic study. Various demographic factors and other traits were examined in relation to directives. **Results:** The three response options were combined into two categories: 1) use for any genetic study, or 2) limited use. More patients (57.0%) and siblings (59.8%) selected use for any genetic study. Females were more likely to choose any use (p<.02). African-Americans and Hispanics were more likely to choose limited use (p<.003). Mean count of across-drug total dependence symptoms were: patients 14.0 and siblings 7.5. Other aspects of substance use will be examined, i.e., onset of regular substance use with and without tobacco, and use of tobacco and other substances. Additional analyses investigating the effect of adjusting for the relationship between siblings and analyses assessing potential combined effects of significant variables will be conducted. **Conclusions:** These data replicate previous findings that limit the use of retained DNA in racial and ethnic minorities and extend those findings to this population of SCP patients and their siblings. Other traits analyzed demonstrate that patients in treatment for SCP and their siblings are likely to allow their retained DNA to be used for any study. **Support:** Support NIDA DA 011015 and DA 012845

155 A NEW APPROACH TO THE COMMUNITY REDUCTION OF CANNABIS USE: THE AUSTRALIAN NATIONAL CANNABIS PREVENTION AND INFORMATION CENTRE

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Aims: The aims of the Centre are: (1) to provide the Australian community with evidence-based information and resources about cannabis-related harms; (2) to support service providers to respond to those experiencing cannabis-related problems; and (3) to specifically engage young people to increase their knowledge and understanding of cannabis and related harms, criminal justice, and how to access assistance for cannabis related problems. **Methods:** Information provision and the interactive delivery of brief interventions will be disseminated via the NCPIC website and the free national telephone Cannabis Information and Helpline. The development and dissemination of clinical guidelines for the management of cannabis related problems in the general and indigenous communities will be a major activity for the Centre in disseminating evidence-based practice. NCPIC will be actively engaged in developing and testing new intervention types and delivery models for managing cannabis related problems. **Results:** The NCPIC is a consortium of leading expert groups in drug and alcohol treatment, prevention and training research, criminal justice, treatment agencies specialising in adolescent and mental health treatment and a national telephone crisis helpline. It commenced operation in late 2007 and key projects such as the website and helpline will be live in early 2008. These activities will be subject to a number of evaluation techniques. **Conclusions:** NCPIC will educate cannabis users, their families and the community generally by the provision of high quality information to reduce uptake and continuation of cannabis use. In addition, we will provide increased access to high quality, evidence-based interventions by the development of new interventions, improved access to current interventions and high quality training and support for those providing cannabis related treatment to reduce harms associated with cannabis use and to assess effectiveness. **Support:** The Australian Government Department of Health and Ageing

156 CHILDREN AS MOTIVATION TO REDUCE HIV RISK: GENDER DIFFERENCES AMONG IDUs IN TREATMENT

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Aims: Studies that examine data from drug-abusing parents typically investigate the impact of parental behavior on their children's well-being (e.g., Suchman, et al, 2007) and focus almost exclusively on the impact of mothers. Other approaches have examined the level of parental involvement among parents in drug treatment and find that a higher level of parental involvement is related to lower levels of addiction severity (Collins, et al., 2003). Recent studies have emphasized the unique role of fathers (e.g., McMahon, et al., 2007) and suggest that the promotion of responsible fathering may serve as a motivational influence for fathers participating in drug treatment. Our aim was to investigate gender differences in HIV risk reduction outcomes among IDUs in treatment. **Methods:** Subjects were 151 IDUs who reported being parents and were enrolled in methadone maintenance. While in treatment, subjects participated in the Community-friendly Health Recovery Program (CHRP; Copenhaver et al., 2007) which is a brief theory-driven behavioral HIV risk reduction intervention tailored for IDUs in treatment. A short HIV risk assessment battery was administered pre- and post-intervention. **Results:** A Time x Gender interaction effect was found for sex-related HIV risk reduction outcomes at post-intervention. Fathers currently living with their children showed significantly greater improvement in social motivation to reduce risk, $F(1,146) = 6.53$, $p < .05$, and marginally greater improvement in personal motivation to reduce risk, $(1,146) = 3.49$, $p = .064$, and self-efficacy to reduce risk, $F(1,146) = 3.46$, $p = .065$ compared with fathers who were not living with their children while the opposite pattern was revealed for mothers. **Conclusions:** Results suggest that living with children may differentially motivate IDU parents to reduce sex-related HIV risk. Implications of results are explored. **Support:** Grant support was provided to Michael Copenhaver by Connecticut DPH (DPH Log #2004-154) and NIDA (K23-DA017015).

157 GENDER DIFFERENCES IN PROGRESSION TO DEPENDENCE IN NON-TREATMENT-SEEKING ADULT CANNABIS USERS

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Aims: To examine the effect of gender on progression to cannabis dependence and patterns of use. **Methods:** Self-reported, retrospective data on cannabis use patterns were collected by computerized questionnaire from 198 female and 273 male, non-treatment-seeking, adult (>18 years old) cannabis smokers who had made at least one "serious" (self-defined) attempt to quit cannabis use. Gender differences were assessed using chi-square and t tests. **Results:** Men and women were similar in race/ethnicity (80% African-American, 15% white), and age (mean [SD] 31.1 [10.3] years) and reported similar cannabis use characteristics. They used cannabis as marijuana cigarettes (88.7%) and blunts (82%); 71.2% reported lifetime cannabis use > 1000 times; 90.2% met DSM-IV criteria for cannabis dependence (of whom 89.9% met criteria for physiological dependence). Men reported a younger age of first cannabis use (14.2 [2.7] years) than women (15.6 [3.7] years, $p<.001$); initiation of regular use (> weekly) (15.9 [2.9] years) than women (17.5 [4.5] years, $p<.001$); and first cannabis-related problem (18.7 [4.5] years) than women 20.0 [6.1] years; $p<.05$). Though cannabis use milestones occurred at an older age in women, the progression through the milestones was similar for men and women: interval between first and regular use (1.7 [1.9] years vs. 1.9 [2.9] years) and between regular and problem use (2.9 [3.5] years vs. 2.4 [4.2] years). **Conclusions:** These findings suggest important gender differences in the progression of cannabis use milestones that may have implications for prevention and treatment of cannabis dependence. **Support:** Supported by the Intramural Research Program, NIH, National Institute on Drug Abuse.

158 DOUBLE-BLIND FLUOXETINE IN COMORBID MDD-AUD ADOLESCENTS

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Aims: We are currently conducting a first double-blind, placebo-controlled trial of fluoxetine (20 mg) in adolescents and young adults with comorbid major depressive disorder (MDD) and an alcohol use disorder (AUD) (R01 AA13370) to determine whether fluoxetine decreases the drinking and the depressive symptoms of that population. **Methods:** All subjects also receive motivational and cognitive behavioral psychotherapy during this 12-week study. To date, 50 subjects have entered the treatment study. The study was recently closed to further enrollment. **Results:** Certain preliminary data are now available. 47 of the 50 subjects have completed the entire study, while the last 3 subjects continue to participate in the study. The 50 subjects include 28 women and 22 men, with 43 Caucasians, 4 African-Americans, and 3 persons of mixed race. The average age was 19.5 +/-0.9 years. All 47 subjects who have completed the study have provided data at all data collection times throughout the 12 weeks of the study. There have been no dropouts from the study to date. No subject has complained of serious or persistent side effects, and none has been discontinued from medications because of side effects. **Conclusions:** These findings suggest that fluoxetine is safe and well tolerated in this comorbid adolescent/young adult population. These findings also demonstrate the feasibility of conducting this study. By April 2008 the study will have been completed, the medication blind will have been broken, and comparisons of the efficacy of fluoxetine vs. placebo for treating the depressive symptoms and the excessive alcohol use of this comorbid population will be available. Related pilot genetics and neuroimaging (fMRI) studies will also be described, and secondary analyses involving anxiety and other symptoms will be discussed. **Support:** Supported by NIAAA grants R01 AA15173, R01 AA013370, K24 AA015320, and K02 AA00291; by NIDA grants R01 DA19142AA, and P50 DA05605; and by a VA MIRECC grant.

159 EFFECTS OF VARENICLINE AND CYTISINE ON THE DISCRIMINATIVE STIMULUS EFFECTS OF NICOTINE IN RATS

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Aims: The purpose of the present experiment was to examine the nicotinic partial agonist properties of varenicline (VCL) and cytosine (CYT) in a nicotine discrimination assay. **Methods:** Twelve rats were trained to discriminate nicotine (0.4 mg/kg, s.c.) from saline under a variable-interval (VI) 15-sec schedule using a two-lever discrimination procedure. Generalization and antagonism tests were conducted twice weekly during 2-min extinction sessions, first with VCL, followed by CYT. The effects of VCL (0.3 to 3.0 mg/kg, i.p.) and CYT (0.3 to 3.0 mg/kg, i.p.) were examined across a range of nicotine doses (0.05 to 0.4 mg/kg). **Results:** In substitution tests, VCL produced a maximum of 62.6% nicotine-lever responding, indicating partial generalization to nicotine. In antagonism tests, VCL decreased the % nicotine-lever responding produced by 0.2 and 0.4 mg/kg nicotine, indicating antagonism of nicotine's discriminative stimulus effects. The mean % nicotine lever responding produced by 0.05 mg/kg nicotine was higher after VCL pretreatment, but not statistically different from saline pretreatment. Preliminary data with CYT show that it weakly substituted for nicotine at the highest CYT dose, but did not significantly antagonize nicotine discrimination at any dose. **Conclusions:** These results suggest that VCL, but not CYT, acted as a partial agonist in a nicotine discrimination assay. Thus, one potential behavioral mechanism through which VCL facilitates smoking cessation is attenuation of nicotine's discriminative stimulus (i.e., subjective) effects. **Support:** Supported by grants from the University of Minnesota Cancer Center and Department of Psychiatry (awarded to W.A. Corrigan) and NIDA R01-DA020136 (awarded to M.G. LeSage).

40 160 PREDICTORS OF OUTCOMES FOR OPIATE IDUs IN METHADONE TREATMENT

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Aims: This study examined outcomes among opiate injection drug users (IDUs) entering methadone treatment. **Methods:** The sample consisted of 162 opiate IDUs recruited through street outreach in Denver, Colorado between December 2000 and November 2004 who entered methadone maintenance treatment between baseline and follow-up. Participants were randomly assigned to receive a case management, motivational interviewing or risk reduction intervention. We conducted structured interviews to examine drug use, productivity, criminal behavior and HIV risk. **Results:** The average age of participants was 39 years old, and 35% were female. Additionally, 48% were Caucasian, 22% Hispanic, 20% African-American, 5% Native American and 5% another ethnicity. Participants reported injecting drugs on average 116 times in the month prior to the interview. They had been injecting for an average of 19 years, and 83% reported prior treatment. At 6 month follow up, participants had significantly reduced their drug use, illegal income and HIV risk behaviors, and productivity improved. Logistic regression showed that more time in treatment predicted negative morphine urinalysis ($p<.001$), less drug injection ($p<.001$), no dirty needle use ($p<.033$), not sharing works ($p<.03$) and no illegal income (marginally: $p<.068$). Being in treatment at the time of follow-up predicted less injection ($p<.043$). Being employed at follow-up was marginally predicted by being male ($p<.058$) and in the case management intervention ($p<.070$). Having less contact with an outreach worker predicted less illegal income at follow up ($p<.025$). Not being Hispanic predicted not sharing drug paraphernalia ($p<.030$). **Conclusions:** The results of this study support research showing that methadone treatment and case management may assist opiate IDUs in obtaining positive outcomes on drug use, HIV risk and productivity. **Support:** This study was supported by the National Institute on Drug Abuse, DA09832 -10.

CPDD 2008 Annual Meeting, San Juan, Puerto Rico

161 DEVELOPING MODELS FOR COMMUNITY-BASED RESEARCH: LESSONS LEARNED FROM NIDA STUDIES

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Aims: Community Engagement is a core required component of the new NIH Roadmap Clinical and Translational Science Awards (CTSA). The CTSA aims to transform business as usual at Medical Schools in the US to translate scientific results from the lab to the bedside and ultimately the curbside. However, community engagement is not natural to many investigators, since "community" includes drug abusers, heavy drinkers, criminal offenders, and persons living with HIV/AIDS -- populations many exclude from studies because they are assumed to be difficult to recruit and retain. This presentation describes the CTSA Community Recruitment being initiated at Washington University School of Medicine based on the NIDA Community Outreach Model which Dr. Cottler's group at the EPRG have used since 1989. How to achieve high rates, as well as high recruitment yield, enrollment yield, and precision, will be discussed, as well as how to customize the model for other community based research initiatives such as the CTSA, and other NIH initiatives. **Methods:** The community outreach model used CHOWS to recruit respondents from City venues such as Laundromats, beauty salons, grocery stores and the streets. Once recruited, CHOWS linked community members to our NIDA-funded HIV prevention studies. **Results:** In our most recent study, Women Teaching Women, 5,551 women were recruited for possible enrollment over a 2 year period. Flyers accounted for 6% of recruitment efforts, with street outreach accounting for 85%. Among those initially screened with various efforts, 18% were found to be ineligible upon further screening. Among the 1123 potential eligible's, 983 were screened eligible; however, at the end of recruitment period, 168 could no longer be located, 192 "no showed", 83 were uninterested in participating and 39 began the interview but stopped before it was over. The completed sample was 501 women. Response rates at the 4 and 12 months were over 90%. **Conclusions:** Efforts are clearly needed for community based recruitment. The NIDA outreach model is one successful approach that can be translated to other fields. **Support:** NIDA 11622

162 CURLS AND BEGINNERS: USE, ABUSE AND REPRESENTATIONS OF CANNABIS AMONGST HEALTH EDUCATORS IN TRAINING

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Aims: Context: In France, the number of cannabis users has doubled over the last ten years. 18-25 years old adults in further education are the most affected. **Aim:** To highlight factors linked with over consumption and whether use and representations change along initial training. **Methods:** Patients and methods: We proceeded a cross-sectional survey amongst health educators in initial training through 692 questionnaires (medical students=233, teachers = 141, nurses=215 and social workers= 103) with three or four measures depending on the length of the studies. The questionnaires were based on several parts including drug use and abuse, parental and peer-related influence, specific norms by profession and an original part about specific knowledge about addiction. In a first step, data were analysed in each group of students and comparing one to another with chi-square tests and odds-ratios. In a second step, we proceeded to a logistic regression in order to explain what factors influenced changing attitudes, norms and knowledge along and the year after initial training. **Results:** Results showed non consumption associated factors such as being a woman, elder age, never drank or smoked and fear of smoking cannabis even once and cannabis smoking associated factors like having no religion or a religion different than catholic or smoking tobacco. Cannabis use increases mostly in the second year of initial training to decrease the year after. The medical students appear different in two ways: Cannabis use reaches a peak at the end of training. Their Addiction related knowledge's score is and remains at a higher level since the beginning while it increases all along the training for the other groups. **Conclusions:** Analyzing those results will lead us to make proposals to improve health educators' initial training. **Support:** JE n°2432 PAEDI, Department of Epidemiology and Public Health, CHU G.MONTPIED F-63003 CLERMONT FERRAND CEDEX 1

163 SEXUAL BEHAVIORS AMONG FEMALE METHAMPHETAMINE USERS

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Aims: The effects of methamphetamine (MA) on women users' sexual behaviors and experiences are examined. **Methods:** Using a pilot survey, self-reported sexual behaviors of women MA users who received outpatient treatment were assessed by demographic and drug use factors (N =94; 60.9% Caucasian, 27.2% Hispanic, mean age 32.9 years; 11.9 mean years education; 83% heterosexual, 1.1% homosexual, and 16% bisexual). Average length of MA use was 11.7 years (71.3% smoke, 14.9% inject, 10.6% nasal). Most women (87.2%) reported daily use of MA and prior treatment (60%). **Results:** Women engaged in sex more frequently when using MA (56.4%). MA use was associated with increased sexual drive (56.4%), sexual performance (50%), and sexual pleasure (55.3%). About 33% indicated participating in unusual sex acts and tended to be preoccupied with sexual thoughts (38%) while using MA. Lesbians and bisexual women had significantly more sex partners in the past 6 months compared to heterosexuals (mean =2.1 vs. 1.3, p<.01). Older women (>30) were more likely than younger women to report that MA use enhanced sexual pleasure (61.1% vs. 46.2%, p<.05) and their preoccupation with sexual thoughts (34% vs. 17.9%, p<.05). Injecting women were different from non-injectors: they had significantly longer histories of MA use (mean=17.4 vs. 10.7 years, p<.01) and more previous treatments (mean=3.3 vs. 1.0, p<.001); they tended to practice "riskier sex" (57.1% vs. 28.8%, p<.10) and be more preoccupied with sexual thoughts (57.1% vs. 22.8%, p<.05) while under the influence of MA; they were more likely to report that their sexual thoughts/feelings and behaviors were associated with MA use (57.1% vs. 27.5%, p<.05); have more sexual fantasies that triggered MA use (50% vs.20%, p<.05); and have more difficulty with stopping inappropriate or dangerous sexual behavior (35.7% vs. 11.3%, p<.05). **Conclusions:** MA seems associated with sexual behaviors among women MA users. Injecting women in particular are a notable subgroup that may need specialized intervention strategies. **Support:** Women, Methamphetamine, and Sex NIH/NIDA 1 K01 DA017647-01A2 PI: A. Brown

41 164 EMPLOYMENT INTERVENTION FOR OFFENDERS

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Aims: Crime and unemployment are two very costly consequences of drug abuse. Employment post-incarceration is related to treatment completion and is strongly associated with reductions in criminal recidivism and drug use. Despite these findings, employment programs are only viewed as ancillary treatment for drug abuse and specific employment interventions targeting offenders are limited. A six-month manualized intervention which integrates drug counseling with employment using a problem solving approach has shown some success in prior work with methadone clients. A similar intervention is currently being conducted with offenders and it is hypothesized that those who receive the integrated intervention will be more likely to obtain employment, complete treatment, reduce their drug use and commit fewer crimes. **Methods:** Participants are under criminal justice supervision and mandated to drug-free treatment in a community-based outpatient program. Offenders are randomly assigned to receive either the integrated drug counseling and employment intervention (n=100) or a drug counseling only control condition (n=100). Subjects are interviewed every two weeks during the six month intervention to assess job acquisition, drug use and illegal activities. **Results:** To date, a total of 14 subjects have been recruited with an average age of 37 years, 79% are male, 43% are African American, 14% Hispanic and most subjects are dependent on alcohol and/or cocaine. Participants are under diverse levels of supervision including treatment court, alternative disposition programs, county and state parole. We will present a description of the intervention and preliminary findings from pilot data including potential predictors of treatment completion and job acquisition among subjects who would have completed the six month intervention. **Conclusions:** Providing offenders with integrated drug and employment counseling may help reduce recidivism and improve employment prospects for this group, thus reducing the large societal cost of drug abuse. **Support:** This research is supported by NIDA.

165 FEASIBILITY OF EXPANDED SERVICES FOR PHARMACY IDU SYRINGE CUSTOMERS

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Aims: Since 2001, non-prescription syringes have been available in New York pharmacies. With previous studies indicating pharmacists support syringe sales and want to expanded their public health role, we undertook a pilot study accessing the feasibility of an expanded pharmacy role in service referral and harm reduction efforts aimed at injection drug using (IDU) syringe customers. **Methods:** 13 New York City pharmacies were trained to provide information on local services, safe syringe use and disposal. Participating staff were interviewed at the end of the study. We compared technicians to pharmacists to ascertain support for expanded services and differences by type of pharmacy staff. **Results:** Among 10 pharmacists and 16 technicians, 68.7% of technicians were female vs. only 20% of pharmacists; among technicians 43.8% were Hispanic and 37.5 % were black; there were no Hispanic pharmacists and only 20% were black. Nearly all pharmacists/technicians agreed with the statement that access to syringes decreases HIV transmission, while 37.5% of technicians felt it causes drug use to increase. No respondents reported that study participation hurt business, while 50% of technicians and 20% of pharmacists said it improved business. Almost all technicians and 60% of pharmacists felt staff benefited from participating in the study. Among all pharmacy staff, 88% felt the study benefited syringe customers, 90.5% reported customers showed a lot/some interest in receiving syringe disposal containers, and 73% reported a lot/some interest in receiving alcohol prep pads/hand sanitizer; more than half (57.7%) reported some interest in referral information among syringe customers, but no one reported a lot of interest. **Conclusions:** Pharmacy staff think expanded services targeting IDUs are good for business and public health. Future studies may look at how this potentially sustainable approach to HIV prevention actually impacts business revenue. **Support:** Research supported by the Robert Wood Johnson Foundation.

166 DOES CORRECTED FEEDBACK IMPROVE RECALL OF INFORMED CONSENT INFORMATION?

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Aims: Despite its ethical importance, numerous studies have documented unacceptably poor recall of consent information among research participants. In particular, many participants fail to recall important information regarding their rights and protections. These deficiencies are likely to be magnified among drug abusers involved with the criminal justice system. One recommendation has been to structure informed consent as an ongoing process rather than a onetime event. The aim of this study was to examine the effectiveness of an ongoing corrected feedback procedure to improve the continued recall of consent information and human subject protections throughout the course of a randomized clinical trial. **Methods:** Study participants (N=135) were randomly assigned to either a feedback condition or an as-usual condition. All participants were administered consent quizzes at weeks 1, 4, 8, 12, 24, and 52 to measure their recall of the consent information, but only those in the feedback condition received corrected feedback on their incorrect responses. Rather than developing a "sham" study to test this intervention, we added the informed consent protocol into an ongoing randomized controlled trial in which we randomly assigned misdemeanor drug court clients to attend different dosages of judicial status hearings. Because this had substantial implications for participants' legal rights, it was particularly important to obtain voluntary and knowing consent to the research. **Results:** A linear mixed effect model was used to examine group differences in consent quiz scores after controlling for baseline quiz score. Results indicated that over successive quizzes, participants in the corrected feedback condition displayed significantly better recall of consent information as compared to those in the as-usual condition ($p < .01$). **Conclusions:** Structuring the informed consent process as an ongoing process using corrected feedback seems to be effective in improving the continued recall of study information and human subject protections. **Support:** This study was funded by NIDA grant R01-DA-016730 "Improving the Ethics of Informed Consent in Drug Abuse Research."

167 INHIBITION OF NICOTINE-EVOKED DOPAMINE RELEASE FROM SUPERFUSED RAT STRIATAL SLICES BY NOVEL QUATERNARY AMMONIUM SALTS CONTAINING AN N-5-(3-BIPHENYL)PENTYL-1-YL SUBSTITUENT

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Aims: We have demonstrated the N-alkylation of S(-)-nicotine (NIC) affords quaternary ammonium nicotinium salts such as N-n-octylnicotinium iodide (NONI) which inhibit nicotine-evoked dopamine (DA) release from rat striatal slices. As part of a drug discovery program, we prepared a large library of quaternary ammonium analogs to identify structural classes with high potency and selectivity for inhibition of NIC-evoked DA release. Such compounds were considered to be potential leads for development of novel smoking cessation agents. **Methods:** A sub-library of 20 quaternary ammonium analogs were synthesized incorporating a variety of azaheterocyclic head groups and an N-5-(3-biphenyl)pent-1-yl (10 analogs) or an N-5-(3-biphenyl)pent-4-yne-1-yl (10 analogs) substituent. Compounds (100 nM) were evaluated in a fast throughput NIC-evoked DA-release assay (Zheng et al., 2007), and inhibition was expressed as a percentage of the response to NIC (10 microM) in the absence of inhibitor. A "hit" represented >45% inhibition. **Results:** An unusually high hit rate of 45% was obtained in the fast throughput assay. Both N-5-(3-biphenyl)pent-1-yl and N-5-(3-biphenyl)pent-4-yne-1-yl analogs were active (50% and 40% hit rate, respectively). The most potent inhibitors were: N-5-(3-biphenyl)pent-1-yl quinolinium bromide (61% inhibition), N-5-(3-biphenyl)pent-1-yl 3-picolinium bromide (55% inhibition), N-5-(3-biphenyl)pent-1-yl nicotinium bromide (51% inhibition), N-5-(3-biphenyl)pent-1-yl 3,4-lutidinium bromide (51% inhibition), and N-5-(3-biphenyl)pent-4-yne-1-yl 3,4-lutidinium bromide (51% inhibition). None of these compounds had any affinity for alpha4 beta2 or alpha7 nicotinic receptors. **Conclusions:** A novel class of quaternary ammonium salts of azaaromatic heterocycles has been discovered which affords unusually high hit rates as inhibitors of NIC-evoked DA release. Such analogs may provide a good source of lead compounds for subsequent development as smoking cessation agents. **Support:** Supported by USPHS grant DA017548

168 DIFFERENTIAL SUCCESS RATES IN RACIAL GROUPS: RESULTS OF A CLINICAL TRIAL OF SMOKING CESSATION AMONG FEMALE PRISONERS

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Aims: Non-white smokers have lower smoking cessation rates compared to white smokers and smoking mentholated cigarettes has been suggested as a possible reason for lower success. This study examined smoking cessation rates between white and non-white smokers during a randomized clinical trial and investigated the role of mentholated smoking in cessation. **Methods:** 250 female prisoners participated in a randomized controlled smoking cessation trial of 10-week group psychotherapy and nicotine replacement. General Estimating Equations (GEE) were used to model smoking cessation across the 12-month follow-up and examined the impact of smoking mentholated cigarettes on quit rates. **Results:** White smokers had significantly higher smoking cessation rates across time compared to non-white smokers. The interaction between race and smoking menthol cigarettes was not significant, nor was there a main effect for smoking menthol cigarettes, even when controlling for age and baseline smoking rate. When examining the estimated marginal means of smoking cessation across the four groups (white, menthol smokers (n=41); white, non-menthol smokers (n=69); non-white menthol smokers (n=101); and non-white, non-menthol smokers (n=39)) the highest quit rates continued to be observed in the white smokers, regardless of menthol smoking. **Conclusions:** These results suggest that other smoking behaviors may be important factors in the racial differences observed in this study. Alternatively, more culturally sensitive interventions may be needed that take into account different smoking behaviors of non-white smokers to increase smoking cessation rates in this group. **Support:** K23DA15774 and product support provided by GlaxoSmithKline.

- 169** **ADOLESCENTS WITH SUBSTANCE/CONDUCT PROBLEMS: RISKY DECISIONS AND BRAIN ACTIVATION**
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Aims: Adolescents with substance and conduct problems (SCP) make risky decisions, pursuing reinforcers (eg, drugs, sex, fast driving, fights), despite possible adverse consequences. In a risk-taking game SCP adolescents, vs. normals, will (a) take more risks, perseverating in behavior initially reinforced but later punished; (b) show significantly different fMRI activation in orbitofrontal cortex (OFC), anterior cingulate cortex (ACC), and ventral striatum (VS). Methods: 14 SCP patients (mean 16.6 years) and 13 normal adolescents (16.5 years) completed structured diagnostic interviews. All tested drug-free before a GE 3T BOLD fMRI. Colorado Balloon Game (CBG): on each of 90 "active" balloons subject decides during a 4-sec yellow light to press a left or a right button once. Then, during 0.5-sec green light, subject presses. Next, during 3.5-sec red light subject sees consequence. Risky right presses expand the balloon: if no "pop", +5 cents on counter; if pop occurs, -10 cents. Conservative left presses skip that balloon and add 1 cent to counter. Initially, few balloons pop; later, most do, so ideally one presses mostly right initially and mostly left later; subjects are not told that. "Control" balloons requiring no decisions control for visual-auditory stimuli and motor responses. Results: Mean symptom counts: conduct disorder (Patients 6.6; Controls 0.5; $p < 0.001$); across-drug total dependence symptoms (Patients 13.4, Controls 0). CBG: Right presses on last 30 balloons (= perseveration of punished responding), Patients 16, Controls 12 ($p = 0.03$). Mean total right-presses, Patients 54, Controls 47 ($p = 0.09$). Activation intensity during yellow-light decision period in 3 prehoc regions: Patients significantly > Controls in OFC and ACC; VS, no difference. Conclusions: While making risky decisions SCP adolescents (vs. controls) persevere in previously reinforced (but later punished) responses, and their brains activate more in areas believed to inhibit behavior. Support: NIDA DA 009842.
- 170** **ASSOCIATION OF PRIOR TOBACCO DEPENDENCE WITH RECENT POSTTRAUMATIC STRESS DISORDER IN A GENERAL POPULATION SAMPLE: PERU, 2007**
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Aims: This research report is based upon the first rigorous epidemiological community survey of psychiatric disturbances to be conducted in Peru. Our specific focus is upon recent prevalence of posttraumatic stress disorder (PTSD), and the degree to which this prevalence might depend upon a background history of tobacco dependence (TD). Methods: Data are from a community probability sample survey completed in 2002 for the Peruvian National Institute of Mental Health ($n = 2077$), with diagnostic assessment from the MINI International Neuropsychiatric Interview, Spanish Version 5.0.0, ICD-10. The complex sampling plan was taken into account in estimation of these associations. We also co-vary sex, age, alcohol dependence (AD), and harmful alcohol use (HU). Results: An estimated 2.8% experienced PTSD in the month prior to assessment. The odds of PTSD were 5-fold greater for residents with TD versus those without TD, a statistically robust association ($p < 0.05$) with or without covariate adjustment. Conclusions: These data from Peru confirm associations observed elsewhere with respect to tobacco dependence and PTSD. Whether TD confers vulnerability to PTSD or whether PTSD confers vulnerability to TD is uncertain. Some common underlying diathesis might be responsible for the observed association. Experimental trials are needed to resolve these uncertainties. Support: NIH/FIC/NIDA D43TW05819.
- 171** **STUDIES ON THE DETERMINATION OF THE PHARMACOPHORIC ELEMENTS OF THE NATURALLY OCCURRING OPIOID RECEPTOR AGONIST, MITRAGYNINE AND RELATED ALKALOIDS FROM MITRAGYNA SPECIOSA**
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Aims: The aim of this study is to isolate alkaloids from *Mitragyna speciosa* as well as synthesize simplified analogs of the same to determine the pharmacophoric requirements for opioid receptor activity. Methods: We have isolated several known alkaloids from *Mitragyna speciosa*. It has been reported that mitragynine, the main alkaloidal component, has partial agonist activity and that the very minor oxidative derivative, 7-hydroxymitragynine has full agonist activity at opioid receptors. We have investigated five other alkaloids present in extracts for their opioid receptor affinities and activities. Furthermore, we have systematically synthesized several derivatives that possess affinity for opioid receptors with varying activity. To date, we have determined, that mitragynine has less affinity than previously reported and several of our analogs possess decent affinities (< 500 nM) for opioid receptors leading to novel lead compounds for opioid receptor ligands. Results: The compounds have been screened on MOP, DOP, and KOP receptors. Most of the compounds possess modest affinity on opioid receptors. We have screened mitragynine, the major component, against the neuro panel at NovaScreen. The affinities of mitragynine are not limited to opioid receptors and this may explain the ability of mitragynine extracts to attenuate withdrawal symptoms. This will lead us in the testing of our synthetic analogs of mitragynine as well. Some of our analogs have demonstrated modest affinity (< 500 nM) for opioid receptors with agonist and antagonist activity in the GTPgammaS assays. Conclusions: It has been suggested that the main activity of *Mitragyna speciosa* extracts resides in the compounds, mitragynine and 7-hydroxymitragynine. We have determined some of the necessary pharmacophoric elements through our studies. Support: Dr. Rae R. Matsumoto
- 172** **DEVELOPING AND TESTING OF A NOVEL VIRTUAL REALITY DEVICE IN METHAMPHETAMINE-DEPENDENT HUMANS**
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Aims: The objective of this study was to quantify self-reported craving for methamphetamine (MA) following exposure to MA cues delivered using Virtual Reality (VR), as compared to craving elicited by standard MA video cues. Methods: Following a successful screening session, non-treatment seeking MA-dependent participants (8 men and 2 women) completed a one-day, outpatient, within-subjects trial. During this study participants completed four cue sessions. Two of the sessions, "MA-Vid" and "neutral-Vid", were presented using previously established videos (Newton et al, 2006) and the other two sessions, "MA-VR" and "neutral-VR", were presented using the VR device. The presentation order was counterbalanced among participants to eliminate order effects. Subjective ratings (VAS) were collected every 5 min from the start of each exposure session to 10 min following the completion of the session. Results: A significant difference for self-reported change in "desire" for MA was observed between the four cue sessions at T=5, T=10 and T=15 (all $p < 0.05$). Similarly, a significant difference for change in "craving" for MA was observed between the four cue sessions at T=10 and T=15 ($p < 0.05$). Post hoc analyses revealed that MA-VR elicited a significantly greater change in "desire" for MA (at T=5, T=10 and T=15) and "craving" for MA (at T=10 and T=15), as compared to both neutral sessions. Although no significant differences were observed between the two MA sessions, MA-VR tended to elicit a greater change in "desire" at all time points. MA-VR also elicited a greater change in "crave" at all time points, as compared to MA-Vid. Conclusions: These results validate the MA-VR model as a reliable method of inducing craving for MA in a laboratory setting. Further research will be conducted to improve the VR model and implement VR technology into treatment strategies for stimulant dependence. Support: DA024548, DA17705, DA14593

CPDD 2008 Annual Meeting, San Juan, Puerto Rico

173 IMPACT OF TELEPHONE REMINDER CALLS ON ADHERENCE TO SCHEDULED COUNSELING SESSIONS IN A METHADONE SUBSTITUTION CLINIC

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Aims: Adherence to scheduled counseling is associated with better treatment outcome. The present study evaluated whether a telephone reminder the day prior to a scheduled counseling session improved patient attendance. **Methods:** Drug treatment counselors at Addiction Treatment Services Clinic recorded their patients' scheduled appointments and attendance for a 3-week baseline period during February 2007 as part of a quality improvement program. During the next 4-week period, all patients at one of the two dosing sites received a scripted telephone call one business day in advance of a scheduled counseling session as a reminder. Patients at the second dosing site did not receive reminder calls. Counselors at both sites continued to monitor attendance frequencies. **Results:** A 2 x 2 ANOVA showed a main effect for both time ($F = 9.8, p < 0.01$) and condition ($F = 6.5, p = 0.01$), but no interaction ($F = 0.12, p = 0.73$). Patients receiving the telephone intervention demonstrated higher rates of attendance compared to baseline (55% vs. 63%; $p = 0.04$), while patients in the comparison condition showed similar improvements over time in counseling adherence (61% vs. 70%; $p = 0.02$). **Conclusions:** The results suggest that telephone prompting was not associated with changes in attendance behavior. Because rates of attendance improved in both conditions, it is likely that counseling staff reacted to the study design by engaging in new behaviors to promote adherence, perhaps by scheduling appointments that were more convenient or informally reminding patients during the week of scheduled sessions. This study illustrates the potential benefit of data monitoring as a first step in performance improvement. **Support:** None

174 EFFECTS OF ACUTE SOCIAL STRESSORS AND ENRICHMENT ON THE REINFORCING STRENGTH OF COCAINE IN SOCIALLY HOUSED MALE MONKEYS

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Aims: Nonhuman primates have been found to be differentially sensitive to the reinforcing effects of cocaine depending on their rank in the social hierarchy (i.e., dominant vs. subordinate). We have hypothesized that this difference is related to the chronic stress that is unequivocally experienced by subordinates and the chronic environmental enrichment associated with being dominant. In the present studies, we examined the effects of acute exposure to stressors (acting as an intruder into a cage of unfamiliar monkeys, exposure to a toy snake or capture gloves) and enrichment (novel treats, two days in an enlarged living space or brief pair-housing with a female monkey) on the reinforcing strength of cocaine. **Methods:** Monkeys with indwelling venous catheters and vascular access ports from groups with stable social hierarchies ($n = 4$ per group) self-administered cocaine under a concurrent fixed-ratio schedule of food (1-g banana pellet) and cocaine (0-0.03 mg/kg per injection) availability. Complete dose-effect curves were generated in each daily session. **Results:** On average, the reinforcing strength of cocaine was increased (i.e., dose-effect curves shifted up and/or leftward) after exposure to stressors and decreased (i.e., dose-effect curves shifted rightward and down) after enrichment, with effects observed primarily in dominant monkeys. **Conclusions:** The findings that subordinate animals were less sensitive to these acute manipulations suggests that environmental interventions designed to decrease drug use may not be effective initially in an environment of chronic stress. Future studies will examine how chronic manipulations impact cocaine self-administration in subordinate monkeys. **Support:** Support: DA 10584

175 EFFECTS OF ACUTE AND CHRONIC COCAINE ON SELF-CONTROL BEHAVIOR

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Aims: This study assesses the effects of acute and chronic cocaine administration and delay to reinforcement on self-control behavior. **Methods:** Male Sprague-Dawley rats were exposed to a self-control procedure using discrete-choice trials. For all choice trials, a single lever press to one lever led to one pellet of food after a one-second delay; a single lever press to the other lever produced three pellets of food after a three second delay. Following training, rats were exposed to chronic or acute injections of cocaine (7.5, 15, 30 mg/kg) and tested for self-control. Delay to the larger reinforcer was either fixed at 3 s or was varied (6, 16.5, 30 s). Half of the rats who received acute cocaine injections also received the 5HT₃ receptor antagonist, Ly-278,584 (0.01, 0.10, 1.00 mg/kg) in combination with cocaine. **Results:** Acute administration of cocaine did not significantly decrease self-control behavior. However, when paired with Ly-278,584 (0.01mg/kg), 30 mg/kg of cocaine did significantly decrease self-control behavior ($p < 0.01$). During chronic cocaine administration, self-control behavior decreased as a function of cocaine dose across the first seven days of the task, but increased across the last seven days of the task. Additionally, self-control behavior decreased as a function of delay ($p < 0.01$). **Conclusions:** Under a discrete-trials self-control procedure, self-control behavior decreases as a function of increasing delay. However, cocaine administration had little effect on self-control behavior under these parameters. Results raise important points to consider for future research. Rats may become rigid in their responding during acquisition to a fixed-delay; future work should explore how multiple delay schedules of reinforcement affect self-control behavior, and investigate how cocaine administration affects acquisition of the self-control procedure. **Support:** Research and Creative Activities Funds(2005)and Graduate Student Travel Grant(2006)from Texas Christian University

44 176 GENDER DIFFERENCES IN THE ASSOCIATION BETWEEN VICTIMIZATION HISTORY AND SUBSTANCE ABUSE WITH REGARD TO PREVALENCE AND RISK FACTORS

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Aims: Differences between men and women in prevalence rates of drug and alcohol abuse have been reported among young adults. Further, significant gender-related differences in the prevalence rates of victimization have been reported. Given the high rate of overlap between substance abuse and interpersonal violence, additional research is warranted to better understanding this relation. The current study compared differences between male and female young adults in the prevalence rates of substance abuse and victimization history. In addition, multiple risk factors for substance abuse, including trauma-related factors, are investigated in this large national sample of young adults. **Methods:** The sample consisted of men and women ($N = 1,750$) who participated in the 8-year follow-up of the National Survey of Adolescents, a large epidemiological study initially conducted in 1995. Participants ranged in age between 18-26 ($M = 22$) and 51% were men. Data was collected via structured telephone interviews using Computer Assisted Telephone Interviewing and included assessment of lifetime history of interpersonal violence and past year substance abuse. **Results:** There was a significant difference in the percentage of men and women who met criteria for past year drug abuse (16.5% vs. 5.8%) and alcohol abuse (31% vs. 19%). In general, higher prevalence rates of substance abuse were found among those with victimization histories, with a few exceptions. Significant gender differences in risk factors for drug abuse also were found. Specifically, hierarchical logistic regressions revealed that sexual assault history and age were significant risk factors for women and physical assault history, lifetime PTSD, and age were for men. **Conclusions:** Results suggest that the relation between substance abuse and victimization may differ between men and women and support pursuing more gender-specific approaches to substance abuse prevention and treatment among victims of interpersonal violence. **Support:** CDC and a NIDA Career Development Award

CPDD 2008 Annual Meeting, San Juan, Puerto Rico

177 NON-MEDICAL USE OF PHARMACEUTICAL OPIOIDS AMONG MDMA USERS IN OHIO

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Aims: In the past several years, non-medical use of pharmaceutical opioids has increased substantially in the US, especially among young adults. This study aims to identify the predictors of current (last 30 day) non-medical use of pharmaceutical opioids among MDMA users (n=402) recruited in Columbus, Ohio. **Methods:** Participants were recruited in 2002-2003 using respondent-driven sampling. To be eligible for the study, participants had to be 18-30 years old, not involved in a drug treatment program, and report MDMA use at least once in the past 6 months. Descriptive statistics were used to examine demographic and drug use characteristics. Logistic regression analysis was used to identify factors related to non-medical use of pharmaceutical opioids. **Results:** The mean age of the participants was 20.9 years. About 64% were men, and 81.6% were White. About 81% reported lifetime non-medical use of pharmaceutical opioids, and 31.3% reported use in the last 30 days. Logistic regression analysis revealed that the risk of current opioid use was higher among those who had higher levels of depressive symptoms (Beck Depression Inventory-II). White ethnicity had a marginally significant association with pharmaceutical opioid use. The non-medical use of pharmaceutical tranquilizers and pharmaceutical stimulants were the strongest predictors of pharmaceutical opioid use. Increased risk of using pharmaceutical opioids was also associated with use of hallucinogens and inhalants. No statistically significant association was found between pharmaceutical opioid use and the use of alcohol, marijuana, and other drugs, including heroin, cocaine, methamphetamine, ketamine, and MDMA. **Conclusions:** Our findings suggest that the non-medical use of pharmaceutical opioids is a part of polydrug use practices that often incorporate abuse of other prescription drugs. The observed relationship between depressive symptoms and illicit use of pharmaceutical opioids may have important implications for prevention programming, and should be examined in the future research. **Support:** Financial support was provided by the NIDA grant number RO1 DA14488 (R.G.Carlson, PI).

178 PROJECT LAZARUS: PRESCRIPTION OPIOID OVERDOSE PREVENTION AND RESPONSIBLE PAIN MANAGEMENT

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Aims: There are more than 900 opioid overdose deaths in North Carolina each year - most of these fatal poisonings are preventable. The Appalachian community of Wilkes County has a rate of accidental opioid poisoning nearly 5 times greater than the national average, and 3 times higher than the North Carolina average. Most deaths occur in pain patients, but include illicit opioid users. Project Lazarus adapts prescription naloxone programs for heroin users to the pain management setting, recognizing the overlap in populations. Project Lazarus is enacted in the context of the Chronic Pain Initiative, sponsored by the Northwest Community Care Network - a multi-faceted approach to providing better pain management while reducing illicit supply. **Methods:** Thirteen subpopulations of prescription opioid users (medical & nonmedical) were provided with naloxone & education on overdose prevention. Patients were recruited for participation through clinics & outreach. Project Lazarus is evaluated through surveillance of vital statistics, emergency department utilization, process measures and qualitative studies. **Results:** We present results from the first 2 quarters of program implementation. Evaluation addresses efficacy and challenges of implementing a prescription naloxone program to reduce prescription opioid deaths. **Conclusions:** Project Lazarus is a pilot program that changes the paradigm for opioid prescribing. This is the first program of its kind in the South, the first prescription naloxone program to target pharmaceutical opioids, & the first time naloxone has been incorporated into pain management. Prescription naloxone will hopefully reduce apprehension for prescribing opioids, leading to more appropriate pain management and fewer preventable opioid poisonings. **Support:** Northwest Community Care Network. Drug Policy Alliance. North Carolina Harm Reduction Coalition.

179 SUBSTANCE USE IN THE BASQUE REGION OF FRANCE: PREVALENCE ESTIMATION AND EVALUATION OF THE CSAPA BIZIA-MDM PREVENTION PROGRAM

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Aims: To: i) estimate the prevalence of substance use and their correlates use among junior high school students in the Basque coastal region of France; and ii) evaluate the capacity of a prevention program to reduce recent substance use. **Methods:** 12 public junior high schools in the city of Bayonne, France, participated in the present investigation. 943 students completed an anonymous questionnaire concerning their use of psychoactive substances, as well as measures concerning well-established clinical and personality vulnerabilities. Two groups were randomized; one group received a drug prevention program immediately after study initiation (IP), and a second group received the prevention program 3 months after study initiation (DP). A second evaluation of recent (30-day) substance use was conducted in both groups approximately two months after study initiation. **Results:** The initial assessment revealed the percentage of subjects using substances at least 10 times over the previous 30 days: 31% for cigarettes, 45% for alcohol, and 42% for cannabis. The 30-day prevalence of other illicit drug use was lower, but lifetime rates were high (8.1%). No reduction in substance use of any type was observed in the second 30-day assessment relative to the first assessment. Both groups (IP and DP) reported an increase in substance use over the two assessments. No evidence was found concerning potential deleterious effects of the intervention. Measures of sensation seeking and ADHD were strongly correlated with past 30-day use of alcohol, tobacco and cannabis. **Conclusions:** The present findings are generally consistent with the modest or non-significant effects reported for many universal school-based prevention programs, but underscore the high prevalence of substance use in this young age group. The application of selective or indicated prevention programs may permit more substantial reductions among vulnerable youth **Support:** Charles O'Brien

180 USE OF QUANTITATIVE THC/CREATININE RATIO TO REFINE URINALYSIS RESULTS IN TEEN DRUG ABUSE STUDIES

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Aims: Most drug treatment studies employ urine drug toxicology as a study outcome, typically reporting positive vs. negative results based on presence of drug above minimum cutoff concentration. This method may be inaccurate in teen drug treatment studies when the most commonly abused drug may be marijuana, which has a long half-life. We compared urinalysis (UA) outcomes from a teen drug treatment study utilizing the standard methodology (SM), as well as two methods of estimating "new use". **Methods:** UA results from a recent randomized trial of fluoxetine vs placebo in 126 depressed, conduct disordered adolescents with substance use disorders (Riggs et al, 2007) were reanalyzed using both the Manno et al method (MM, 1984), and the Huestis and Cone method (HCM, 1998) for calculating "new use". Consecutive ratios of quantitative THC levels/creatinine were calculated for both. For the MM, a ratio had to be at least 150% of the previous ratio to be considered "new use", while for HCM, the second ratio had to be at least 50% of the previous ratio. For both methods, any UA positive for THC following a missing UA was also considered new use. **Treatment Effectiveness Scores (TES)-** the number of negative UAs - were compared between the three methods. **Results:** Difference between mean TES using SM (5.08) and MM (9.87) = -4.79 (p<.0005). Difference in mean TES between SM and HCM (6.10) = -1.02 (p<.0005) and between MM and HCM = 3.77 (p<.0005). For SM, mean TES for fluoxetine and placebo groups was 4.02 and 6.14, respectively (p<.05). However, TES between fluoxetine and placebo groups did not differ significantly for MM or HCM. **Conclusions:** TES varied significantly between all three methods of calculating negative urines. In addition, the significant difference between treatment groups in the original study disappeared when either the MM or HCM ratio calculation was used. The authors feel the HCM ratio calculation is the most accurate, yet conservative, reflection of actual drug use and should be used more regularly in teen drug treatment studies. **Support:** Supported by NIDA DA13176 and DA018679

181 SNC80-INDUCED TASTE AVERSIONS IN F344 AND LEW RAT STRAINS

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Aims: The Fischer (F344) and Lewis (LEW) inbred rat strains differ on a number of drug-induced behaviors, including morphine-induced conditioned taste aversions. Specifically, F344 rats readily acquire such aversions, whereas LEW rats do not. Given that morphine binds to and has effects at each of the major opiate receptor subtypes, it is unknown the degree to which relative sensitivities of the two strains at the mu, delta and kappa receptor subtypes might contribute to these differential effects of morphine. To address this issue, the present study examined the ability of the delta agonist SNC80 to induce taste aversions in the F344 and LEW rat strains. **Methods:** Specifically, every fourth day for a total of five conditioning trials, rats of both strains (F344; n=33 and LEW; n=32) were given limited access to saccharin followed by an injection of SNC80 (0.0, 5.6, 10, and 18 mg/kg). Conditioning was followed by a two bottle preference test between water and saccharin. **Results:** A 2(Strain) X 4(Dose) X 5(Trial) repeated-measures ANOVA revealed a significant main effect of Trial [$F(4,228)=10.2, p<.05$] and a Dose X Trial interaction [$F(12,228)=5.339, p<.05$], but no effect of Strain or Strain X Dose interaction. Tukey's post-hoc analysis revealed significant decreases in saccharin consumption on Trials 4 and 5 in all animals receiving SNC80 (relative to vehicle). On the two-bottle aversion test, a univariate analysis performed on the percent of saccharin consumed revealed only a main-effect of Dose [$F(3,57)=28.035, p<.05$]. There was no main effect of Strain or a significant Strain X Dose interaction. All SNC80-treated subjects displayed significant decreases in saccharin consumption relative to vehicle-treated subjects, with no differences among doses of SNC80. **Conclusions:** In both the one and two-bottle tests, SNC80 produced similar aversions in both the F344 and LEW rat strains, suggesting that the strain differences previously reported in morphine-induced taste aversions are not likely mediated by differential activity at the delta opioid receptor. **Support:** This work was supported by a grant from the Mellon Foundation to ALR.

182 PREDICTORS OF EARLY MARIJUANA USE AND SEX IN THE OFFSPRING OF TEENAGE MOTHERS

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Aims: Previous research has shown that a mother's background and the home environment may attenuate the effects of teenage pregnancy on child outcomes. However, no studies have specifically examined the role of drug use on early sexual intercourse in this vulnerable group. Early and current maternal and child substance use were expected to predict marijuana use and early sexual intercourse in 14-year-old offspring of teenage mothers. **Methods:** Mothers were recruited as pregnant teenagers (n=416; age range= 12-18 yrs; 68% African-American) from an outpatient prenatal clinic and interviewed about pre-pregnancy tobacco (58%), alcohol (82%) and marijuana (39%). Data collection at the 14-year phase is ongoing (n=187 tested to date). Mothers reported on current substance use (55% smokers, 13% heavy drinkers, 21% marijuana users) and adolescents provided their history of substance use (30% ever smokers, 18% ever drinkers, 20% marijuana users) and sexual activity (16% had sex by age 13). Logistic regression analysis was used to predict ever marijuana use and early sexual intercourse. **Results:** Boys, ever tobacco users, and more aggressive adolescents were significantly more likely to have used marijuana by age 14. Neither early maternal nor current maternal substance use significantly predicted an increased likelihood of marijuana use in adolescent offspring. Sex by age 13 was significantly predicted by child tobacco and marijuana use. Other significant predictors of early sex were: African-American race, lower family income, and lower maternal age at first sex. **Conclusions:** It is important to determine why some offspring of teenage mothers are resilient, whereas others are at greater risk for early drug use and sexual behavior than children of adult mothers. In the current study, there was evidence that early tobacco use may be a marker of future risk for drug use and sexual risk-taking. The results of the regression model on sex suggest that factors from the mother's background and home environment are also important in identifying children at risk for early sexual intercourse. **Support:** NIDA 09275 - PI: MC; NIAAA T32 07453 - PI: MC; University of Pittsburgh

183 MODAFINIL ATTENUATES SUBJECTIVE EFFECTS OF METHAMPHETAMINE IN METHAMPHETAMINE-DEPENDENT RESEARCH SUBJECTS

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Aims: Cognitive dysfunction may be an important treatment target for methamphetamine (METH) dependence, since long-term METH use is associated with neurocognitive impairment, including deficits in tests of inhibitory control. Modafinil is an excellent candidate medication since it has been shown to improve cognitive function, including the capacity for response inhibition, in healthy subjects, in patients with ADHD, and in patients with schizophrenia. On this basis, we hypothesized that modafinil may also be useful as a treatment for METH dependence. In an ongoing, inpatient, double-blind, placebo-controlled, within-subjects evaluation, we tested for potential interactions between modafinil and METH. **Methods:** METH-dependent volunteers, who were not seeking treatment, were randomized to receive either modafinil (200 mg, PO) or matching placebo over days 1-3. On Day 1, subjects received METH (0 and 30 mg, IV) 3 hr after modafinil or placebo; and cardiovascular and subjective effects were assessed before and after dosing with each drug. On Day 2, subjects completed a series of cognitive tasks; and on Day 3, they participated in IV self-administration sessions during which they made 10 choices for low doses of METH (3 mg, IV) or placebo. They were discharged and returned several days later for randomization to the alternate study medication. **Results:** To date, 7 participants have completed the study. Modafinil treatment has been well tolerated and not associated with increased incidence of adverse events. A preliminary analysis indicates that modafinil reduced ratings of METH-induced "any drug effect", "high", "stimulated", and "desire METH" ($p<0.05$). **Conclusions:** These data suggest efficacy of modafinil in attenuating the positive subjective effects of METH. Assessment of the effects of modafinil on cognition in this sample is continuing. **Support:** DA022539; DA017182, DA17754, DA020726; RR00865

184 EMPLOYMENT-BASED ABSTINENCE REINFORCEMENT AS A MAINTENANCE INTERVENTION FOR THE TREATMENT OF PERSISTENT COCAINE USE IN METHADONE PATIENTS: A MOLECULAR ANALYSIS

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Aims: This study assessed the extent to which employment-based abstinence reinforcement could maintain long-term cocaine abstinence in unemployed adults who used cocaine persistently during methadone treatment. **Methods:** In Phase 1, community methadone patients who used cocaine (N=111) were invited to attend an employment program where they could work as data entry trainees 20 h/wk for 6 months, and earn ~\$10/h in vouchers. After an induction period, participants were required to provide drug-free urine samples to work. Participants who acquired data entry skills and initiated opiate and cocaine abstinence progressed to Phase 2, in which they were randomly assigned to an Abstinence & Employment (AE; n=27) or Employment Only (EO; n=24) group. Both groups were hired in a model data entry business, where they could work 30 h/wk and earn ~\$10/h for 1 year, and provided urine samples every Monday, Wednesday, and Friday (MWF) that they attended the workplace. AE participants were required to provide drug-free urine samples to work under a schedule that became more intermittent as each participant's duration of abstinence increased. EO participants could work independent of their urinalysis results. **Results:** During Phase 1, participants from the AE and EO groups attended the workplace at similar rates (79% of days attended for each group) and provided similar percentages of cocaine-free MWF urines (76% vs. 79%, respectively; $p=0.5$). During Phase 2 attendance was similar for the two groups (AE=65%, EO=67%; $p=0.8$). AE participants provided more cocaine-negative urine samples than EO participants during the year in Phase 2 (87% vs. 53%, respectively; $p<0.001$). **Conclusions:** The study shows that long-term exposure to employment-based abstinence reinforcement can be an effective maintenance intervention to prevent relapse in cocaine using methadone patients. **Support:** Supported by NIDA grants R01DA13107 and T32DA07209.

CPDD 2008 Annual Meeting, San Juan, Puerto Rico

- 185** MOLECULAR MECHANISMS UNDERLYING THE CONDITIONED ASSOCIATION MADE TO A SINGLE INJECTION OF COCAINE
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Aims: Blockade of the 5-HT_{2A} receptor (5-HT_{2AR}) suppresses the development of a single-trial cocaine conditioned place preference (CPP) in rats and decreases phosphorylation of p38, a MAPK that regulates AMPA subunit migration to PSD and acquisition of cocaine CPP. We hypothesize that the development of cocaine CPP depends on 5-HT_{2AR}-activated downstream intracellular crosstalk within glutamatergic excitatory synapses. Here we are investigating the trafficking and activation of the GluR1 AMPA subunit and p38 MAPK in the postsynaptic density (PSD) fraction of NAc taken from rats that express CPP. Methods: Male rats were conditioned with a single pairing of cocaine (20mg/kg) or saline (1ml/kg) in an unbiased CPP apparatus and sacrificed immediately following a 15 min test session. Synaptosomal and PSD-enriched fractions were isolated from the NAc of individual rats using sucrose gradient and serial centrifugation; purity of each fraction was validated with appropriate antibodies. Western blots were used to detect the expression level of total and phosphorylated GluR1 and p38 MAPK in each fraction. Results: Rats that expressed cocaine CPP spent significantly more time in the cocaine-paired chamber (448 ± 35 sec) than control animals (249 ± 30 sec $p < 0.001$). Total and phospho-GluR1 expression were enriched in the PSD vs. total homogenate or synaptosomal fractions of naive rats. Phospho-GluR1 expression in PSD was low in naive rats, but is expected to be enhanced in PSD of rats that express cocaine CPP. The p38 MAPK expression was highest in the total homogenate and synaptosomal fractions in naive rats; we expect this protein to be recruited to the PSD only in animals that express cocaine CPP. Conclusions: We successfully purified NAc PSD via subcellular fractionation and have identified total and activated forms of GluR1 and p38 MAPK. Ongoing pharmacological studies will examine the indirect actions of cocaine at the 5-HT_{2AR} to modulate synaptic strength through control of trafficking and/or phosphorylation of synaptic glutamate AMPA subunits. Support: NIDA DA020314, DA020087, DA06511, DA07287
- 186** IMPACT OF METHADONE AND BUPRENORPHINE ON MORTALITY RATE. A SYSTEMATIC REVIEW
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Aims: A reduction of mortality rate has been observed among opiate dependent subjects in maintenance treatment. But, no data has to date established the link between treatment for opiate dependence and a lower risk of death. The objective was to compare mortality rates of opiate dependent subjects treated by methadone or buprenorphine to those who were not treated using published data retrieved through a systematic review of the literature method. Methods: We searched MedLine (1966 to June 2007) with no language or publication restriction. We included all papers that compared mortality rate of opiate dependent subjects treated with methadone or buprenorphine to those who were not in treatment including never treated, out-of-treatment or discharged. Results: The search strategy resulted in 97 records of which 12 were considered eligible: 10 cohorts and 2 retrospective studies. All subjects in treatment received methadone ($n=9199$). No data was available for buprenorphine. Subjects in treatment had always a lower mortality rate than subjects not in treatment or out-of-treatment ($n=8700$) (5.0 to 23.0 per 1,000 person-year versus 16.5 to 83.8 per 1,000 person-year). Mortality rate of subjects discharged of treatment was higher than mortality rate of subjects who were staying in treatment. Out-of-treatment opiate dependent subjects had higher risk to die because of natural death or overdoses than subjects receiving methadone. The risk of death decreased as soon as opiate dependent subjects entered treatment. Conclusions: These findings suggested that methadone treatment had an impact on mortality rate. Nevertheless we cannot conclude on the impact of any other opiate treatment such as buprenorphine due to lack of data. Support: Internal funds
- 187** THREE-YEAR OUTCOMES FROM THE EARLY RE-INTERVENTION EXPERIMENT WITH RECOVERY MANAGEMENT CHECKUPS
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Aims: Ongoing monitoring and early re-intervention have become standard practice when managing numerous chronic conditions. This experiment tested the feasibility and effectiveness of this approach for adult chronic substance users via quarterly Recovery Management Checkups (RMC) over 3 years. Methods: Participants ($n=446$) were recruited (93% participation) from sequential substance abuse treatment admissions and were 54% Male, 80% African American, 77% between the age of 30-49, 88% with dependence, 56% with co-occurring psychiatric problems, and 54% with moderate to high levels of crime and violence. Participants were randomly assigned to the RMC or control condition (assessment only) and interviewed quarterly for 3 years (over 95% completion per wave; 82% completed all 11 checkups). RMC included quarterly monitoring; utilized motivational interviewing to provide personalized feedback and to resolve ambivalence about substance use; treatment linkage, engagement, and retention protocols to increase the amount of treatment received. Measurement was based on urine testing, record logs, and self report using the Global Appraisal of Individual Needs (GAIN) Results: Participants assigned to RMC were significantly more likely than those in the control condition to return to treatment sooner (511 vs. 989 median days), re-enter treatment (63% vs. 45%), receive more treatment (80 vs. 58 days) and reported more total days of abstinence (751 vs. 681 days). Conclusions: RMC is an effective method of monitoring and re-intervening with chronic substance users and is associated with better long-term outcomes. Support: The National Institute on Drug Abuse Grant number R37 DA11323.
- 188** RELATIONAL DISCORD AT CONCLUSION OF TREATMENT PREDICTS FUTURE SUBSTANCE USE FOR PARTNERED PATIENTS
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Aims: To examine relational discord as a predictor of substance use after a 28-day treatment program in two independent samples from the National Institute on Drug Abuse (NIDA) Clinical Trials Network (CTN). Methods: Married or cohabiting participants were included who had follow-up assessments. Relational discord was operationalized using the Addiction Severity Index. Study 1 (CTN-0004) consisted of 59 participants from a study of motivational enhancement treatment (Ball et al., 2007), while study 2 (CTN-0005) consisted of 66 participants from a study of motivational interviewing (Carroll et al., 2006). Relational discord was assessed at baseline, 28-days, and follow-up (12 weeks for Study 1 and 8 weeks for Study 2). Days of substance use during follow-up was assessed using a substance use calendar. Results: A negative binomial loglinear model in a Generalized Estimating Equation (GEE) analysis was used to examine the relationship between relational discord status at the termination assessment and number of days of drug use during follow-up. Relational discord was experienced at the 28-day assessment by 54.2% of Study 1 participants and 43.9% of Study 2 participants. The GEE analysis for drug use during the follow-up period, when adjusted for race, baseline family discord, and days of drug use in the 28 days prior to baseline, revealed a significant main effect for relational discord status at the termination assessment (relational discord vs. no relational discord; Study 1: $\chi^2 = 5.99$, $df = 1$, $p = .01$; Study 2: $\chi^2 = 5.46$, $df = 1$, $p = .02$). That is, the pattern of the adjusted geometric means in both studies revealed that drug use during the follow-up period after the termination assessment was significantly higher for those who had relational discord at the termination assessment than for those who did not. Conclusions: Couple or family therapy may be indicated for patients experiencing relational discord at the conclusion of treatment as a next step in sequenced care. Support: National Institute on Drug Abuse, Clinical Trials Network

CPDD 2008 Annual Meeting, San Juan, Puerto Rico

189 MMTP STAFF ATTITUDES TOWARD PROVISION OF MEDICAL AND HARM REDUCTION SERVICES

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Aims: Enhancing provision of health services in MMTPs has been discussed in terms of medical services (e.g., hepatitis-related) and harm reduction (e.g., access to syringes). Staff views regarding provision of services are important factors in planning service enhancement. **Methods:** Six MMTP clinics (NY/NJ) participated in an HIV-related intervention study. Baseline surveys were administered to staff (n=93), which included items on demographics, provision of services, satisfaction with communication (comm) in clinics, and HIV knowledge. **Results:** Participants: 69% female; primarily African Amer (45%) and Hispanic (29%); 12% supervisors, 52% counselors/social workers, 19% medical staff (MDs/nurses/PAs), 17% other. Views toward service provision: HAV, HBV vaccination: good idea, 91%; neutral, 6% (remainder said bad idea); HCV testing: good idea, 92%; neutral, 3%; primary care: 91%/6%; access to sterile syringes: 71%/18%; safe syringe disposal: 80%/13%. Comm in clinic: 57% were satisfied with comm between administration and staff, 75% between staff and patients. Mean HIV knowledge score, based on 10 items, was 73%. Few relationships were found between comm satisfaction and service provision attitudes. Knowledge was significantly related to service provision views; those least favorable towards services had lower HIV knowledge scores (e.g., HIV knowledge score was 60% for staff who said that safe syringe disposal was a bad idea, compared with 74% for others (p=.02). **Conclusions:** The majority of MMTP staff was supportive of adding services; over 90% for Hepatitis services and primary care; support for syringe services was also high, about 10% had a negative view. Enhancing HIV knowledge is likely to increase staff support for services. In addition, comm with clinic administration, while not related to service provision attitudes, was satisfactory to only about half the staff, and may be important to address when implementing new services. **Support:** This research was supported by Grant No. R01 DA010425 from the National Institute on Drug Abuse.

190 USING HEPATITIS C VIRUS AND HERPES SIMPLEX VIRUS-2 TO TRACK HIV AMONG INJECTING DRUG USERS IN NEW YORK CITY

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Aims: Objective: Assess change in the relationships between HIV, hepatitis C virus (HCV) and herpes simplex virus-2 (HSV-2) seroprevalence among injecting drug users in New York City. HCV is readily transmitted through unsafe drug injecting but only inefficiently through unsafe sexual behavior, and can serve as a biomarker for injection related risk. Conversely, HSV-2 is transmitted sexually but not through unsafe injecting, and can serve as a biomarker for sexual risk. **Methods:** 397 injecting drug users were recruited from a drug detoxification program in New York City from 2005-07. Informed consent was obtained, a questionnaire covering demographics, drug use and HIV risk behavior was administered by a trained interviewer. Blood samples were collected and tested for antibody to HIV, HCV and HSV-2. **Results:** 397 IDUs participated in the study from July 2005 to April 2007. HIV prevalence was 19% (95% CI 16% - 24%), HCV seroprevalence was 72% (95% CI 67%-77%) and HSV-2 prevalence was 49% (95% CI 44% - 54%). HIV seroprevalence was 32% among IDUs who began injecting before 1995, and 6% among IDUs who began injecting in 1995 or later. Among IDUs who began injecting before 1995, there was a very strong relationship between HCV and HIV (odds ratio = 10.98, 95% CI 1.44 to 83.51), and a non-significant relationship between HSV-2 and HIV. Among subjects who began injecting in 1995 or later, there was no relationship between HCV and HIV and a strong relationship between HSV-2 and HIV (OR = 17.66, 95% CI 2.21 -141.1). **Conclusions:** Tracking HCV and HSV-2 as well as HIV seroprevalence among IDUs can provide important insights into the dynamics of HIV epidemics among IDUs. In New York City, sexual risk is much more commonly associated with HIV seropositivity than injection risk among persons who began injecting in 1995 or later. **Support:** Beth Israel Medical Center, New York, NY

191 PROGESTERONE ATTENUATES ACUTE LOCOMOTOR RESPONSES BUT DOES NOT ALTER COCAINE-INDUCED BEHAVIORAL SENSITIZATION IN FEMALE RATS

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Aims: In clinical and pre-clinical studies, progesterone has been shown to attenuate cocaine-induced subjective and reward effects and cocaine-induced locomotor responses. This study aimed to determine if chronic and acute progesterone administration reduces cocaine induced motor sensitization in intact male and female rats. **Methods:** To this end, Fischer rats (8 weeks, N = 217) were divided into two experimental conditions. For acute progesterone treatments, rats received 13 days of saline and hormone vehicle and on day 14 a single dose of progesterone (500ug; s.c.) or vehicle (sesame oil) four hours before saline or cocaine (20 mg/kg; i.p.) administration. For chronic progesterone treatment, rats received 14 days of progesterone (500 ug; s.c. four hours before drug treatment) and saline or cocaine (20 mg/kg; i.p.). Psychomotor responses were recorded using an automated computerized apparatus for 1 hour post drug treatment. **Results:** Overall, in both males and females, cocaine increased psychomotor activation. Acute progesterone administration significantly reduced total locomotor counts in female rats receiving acute cocaine [F (6, 73) = 6.8493, p = 0.0362] but had no effects on respective behaviors under a chronic cocaine administration schedule. In male rats, progesterone administration had no effect on total locomotor behaviors after either chronic or acute cocaine administration. **Conclusions:** These findings are in accord with previous findings that cocaine-induced behaviors are attenuated by progesterone in female rats. These results further suggest that, unlike female rats, progesterone plays a limited role in the cocaine-induced psychomotor responses of male rats. **Support:** Supported by: SCORE 506-GM60654, MBRS-RISE GM60665, DA00325 and SNRP

192 INCLUSION OF WOMEN AND MINORITIES IN CLINICAL TRIALS OF FDA-APPROVED PHARMACOTHERAPY FOR SMOKING CESSATION

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Aims: Our goal was to determine whether changes occurred in the literature on FDA-approved pharmacotherapies for smoking cessation following passage of the 1993 NIH Revitalization Act, which required the inclusion of women and minorities in NIH-funded clinical research. **Methods:** Reports were searched for the gender and racial/ethnic breakdown of their samples and for subgroup analyses. We examined 3 dependent variables: 1) inclusion or non-inclusion of gender or ethnic/racial background; 2) inclusion or non-inclusion of gender or ethnic/racial subgroup analyses and 3) the percentage of females and minorities enrolled. Three main comparisons were of interest: 1) between trials beginning recruitment before 1994 and from 1994-on, 2) by funding source (NIH vs. pharmaceutical) and 3) by drug type (nicotine replacement vs. bupropion). Univariate analyses were conducted comparison-by-comparison, followed by multiple regressions, which included all variables. **Results:** Forty-five of 78 trials (57.7%) reported ethnic/racial breakdown. Significant improvement was observed in the percentage of minorities in trials beginning enrollment from 1994-on (M = 16.1%) compared to trials beginning earlier (M = 10%). The proportion of minorities in NIH-sponsored trials (M = 16.8%) was significantly higher than in pharmaceutical trials (M = 8.1%). The mean proportion of female participants declined from 1994-on (47.2%) compared to earlier (53.9%). Few studies reported racial subgroup analyses. Gender analyses were more common. **Conclusions:** Although an improvement with regards to inclusion of ethnic minorities was observed after the 1994 NIH mandate, ethnic minority inclusion remained low. Further improvements may be realized if journals required manuscript authors to provide gender and minority subgroup analyses and by enhancing minority recruitment strategies. **Support:** Supported by NIH grants K05-AA014715, P50-AA15632, T32-DA007238 and T32-AA-01549602. NIH had no role in the design or conduct of the study. The views expressed are solely those of the authors and do not necessarily represent the views of NIH.

- 193** **IMPACT OF PRIMARY DRUG OF ABUSE ON BMI: STATUS AND AT END OF TREATMENT**
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Aims: Changes in appetite, eating habits and activity affect body weight. Body mass index (BMI) is a measure of body fat. Limited data are available describing the relationship between primary substance of abuse and treatment on BMI. We predicted that patients with cocaine and opioid dependence would have lower BMIs than those with primary cannabis use disorders at the initiation of treatment and that there would be an increase in BMI during treatment for all patients. Methods: BMI and patterns of substance use at study entry and exit were collected for randomly chosen subjects from 6 clinical trials; all patients were enrolled during the first 9 months of 2007. Patients were grouped based on their drug of primary dependence (n=20 for cocaine dependence, n= 17 for cannabis dependence, and n=18 for opioid dependence). Results: Baseline demographics including BMI did not differ between the 3 groups. Individuals were enrolled in the treatment trials for an average of 9 weeks. Mean BMI scores increased by .3 +/- 1.5, however, repeated measures analysis showed no significant change in BMI over time ($F=2.02$, $p=.16$) and no between group differences ($F=1.1$, $p=.33$). On average, the frequency and amount of drug use decreased, but these changes were not correlated with the changes in BMI ($p=.81$ and $p=.90$). Conclusions: The average BMI was in the overweight range for substance-abusing patients screened for our trials. There were no significant differences in baseline BMI between different primary substance dependence groups and there were no significant changes in BMI during treatment. Further study of the relationship between elevated BMI and substance use disorders is needed. Support: Supported by NIDA Grants: P50DA09236, and R01DA15451
- 194** **COCAINE ABSTAINERS HAVE GREATER GRAY AND WHITE MATTER DENSITIES THAN CURRENT COCAINE USERS**
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Aims: Recent studies have revealed that chronic cocaine users have structural abnormalities throughout the brain. It is not known, however, whether these structural differences reverse with drug abstinence. The purpose of the present study was to compare the densities of gray and white matter in brains of abstinent drug users to current cocaine users and healthy controls. Methods: High-resolution MRI scans were acquired from a cohort of current cocaine users (n=24), current cocaine abstainers (n=14), and demographically matched, non-drug abusing controls (n=44). For each participant, distribution maps of gray and white matter densities were calculated. For all groups relative differences in gray and white matter tissue density were determined as well as the relationship between tissue density, length of cocaine use, and length of cocaine abstinence. Results: Current cocaine users had bilateral reductions in gray matter density in the OFC and cerebellum. A reduced density of white matter adjacent to the OFC and substantia nigra was also seen relative to controls. In contrast, gray and white matter densities of abstainers did not differ from controls. There was no correlation between tissue density and length of cocaine use in either group. Length of abstinence was positively correlated with gray matter density only in a small cluster within the occipital lobe. Conclusions: Consistent with prior studies, cocaine users had distributed patterns of abnormalities in gray matter density. The absence of correlations between duration of cocaine use and tissue density suggests that differences between users and controls either occurred early after use or may have been present prior to the onset of chronic drug use. The absence of significant tissue density abnormalities in abstainers or any correlation between abstinence duration and gray and white matter densities may suggest that abstinence is facilitated by healthy levels of frontal tissue density. These abstainers may also be a subset of cocaine users not exhibiting lower gray and white matter densities. Support: DA021456 (CAH), DA20074, DA06634 (LJP)
- 195** **THE EFFECTS OF INHALED L-METHAMPHETAMINE ON ATHLETIC PERFORMANCE WHILE RIDING A STATIONARY BICYCLE**
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Aims: The US version of the OTC Vick's Vapor inhaler (VVI) nasal decongestant contains 50 mg of l-methamphetamine (l-MA; d-MA is the usually abused isomer) and delivers ~4.2±3.3 µg of l-MA per inhalation. VVIs sold elsewhere (we used ones from the UK) contain similar inactive ingredients (menthol, camphor and Siberian pine oil) but no l-MA. Use of l-MA is banned in athletic competition because it may improve athletic performance but there are no studies assessing the effects of l-MA on performance. Methods: This high school science project tested the effects of 4 and 12 inhalations of l-MA from VVIs with (US) and without (UK) l-MA on athletic performance using a 2-session, ascending-dose, double-blind, placebo-controlled design. 8 students (ages 14-17) were dosed with 4 (session 1) and 12 (session 2) inhalations from the US or UK inhalers and then immediately rode for 20 min as fast as possible on a stationary bike (Schwinn 113). After a 30 min rest the alternate VVI was given and a 2nd ride performed. The primary outcome measure was miles traveled in 20 min. Secondary outcome measures included post ride urine toxicology, heart rate (HR) and blood pressure before, 1, 5 and 10 min post rides and subjective nasal dryness, energy and VVI preference. Data were analyzed using Excel statistical macros. Results: After ~16 µg l-MA miles traveled was 5.26±0.53 miles vs. 5.30±0.55 with placebo; $p=0.81$. After ~48 µg l-MA miles traveled was 5.30±0.51 vs. 5.35±0.43 with placebo; $p=0.85$. Inhaled l-MA did not alter HR or BP - following 48 µg l-MA the HR 1 min post ride was 103.4±19.5 vs. 107.6±15.6 with placebo; $p=0.63$. No l-MA was found in any post ride urines but the l-MA quantification limit of our dipstick was 8,000 ng/ml. VVIs containing l-MA produced more nasal dryness and increased energy but the students preferred the UK inhaler. Conclusions: Modest doses of inhaled l-MA probably do not improve athletic performance. Support: Supported by NIH P50 DA18179.
- 196** **MEASURING PERCEPTIONS OF COERCION IN RESEARCH WITH ADDICTED OFFENDERS**
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Aims: Autonomy is perhaps the most central principle of human subject protections. This may be particularly true for vulnerable populations such as substance abusers and criminal justice populations. Despite many efforts aimed at ensuring the autonomy of such participants, there exists no reliable and valid measure of perceived coercion for these individuals. The purpose of this research is to examine the psychometric properties of an instrument specifically designed to measure coercion among substance abusing offenders being recruited for research. Methods: Originally developed for use in two prior NIDA-funded research projects, the coercion instrument was constructed in consultation with an expert panel of scientists in the areas of substance abuse, criminal justice, and ethics. The 8 likert-scaled items are intended to assess coercive influences to participate in research and include pressures emanating from various sources such as the judge, criminal justice personnel, counselors, and researcher staff. This study examines the psychometric properties of this instrument in a sample of misdemeanor drug court offenders who agreed to participate in a larger randomized drug court study (N = 127). Our psychometric analyses evaluated the instrument's internal consistency, discriminant and concurrent validity, and factor structure. Results: Preliminary findings revealed (1) adequate levels of internal consistency for this stage of scale development ($\alpha > .60$) (2) significant concurrent validity with a modified MAES ($r = .26$, $p = .02$), and (3) evidence of discriminant validity in a randomized clinical trial examining the use of an intervention to reduce perceived coercion among drug-abusing offenders. Conclusions: Because criminally-involved substance abusers may be particularly vulnerable to coercion, there is a critical need for a method to reliably and accurately measure coercion among this population. This study provides initial support for the validity and clinical utility of such an instrument. Support: This study was supported in part by grant #R01-DA-016730 "Ethics of Consent in Drug Abuse Research."

197 TOLERANCE DEVELOPS DIFFERENTIALLY TO THE SEDATIVE EFFECTS OF ALPRAZOLAM FOLLOWING CHRONIC TREATMENT IN RHESUS MONKEYS

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Aims: Benzodiazepines are often used to treat anxiety and sleep disorders; however, repeated use can lead to the development of tolerance to some behavioral effects. **Methods:** Using quantitative behavioral observation techniques, species-typical behaviors and drug-related behaviors were recorded using a modified frequency scoring system in rhesus monkeys. We focused on observable sedative effects including sleep posture (species typical sleep posture, eyes closed, can be roused within 3 sec), moderate sedation (atypical sleep posture, eyes closed, can be roused but not within 3 sec), and deep sedation (atypical sleep posture, eyes closed, cannot be roused). During chronic treatment, alprazolam (1.0 mg/kg, iv) was administered every 4 hours for 38-40 days. Behavioral observations were conducted daily immediately after each injection and time-dependent changes were assessed on Days 1, 8, 15 and the last day of treatment. **Results:** Acutely, 1.0 mg/kg of alprazolam induced primarily deep sedation. During chronic treatment, alprazolam engendered significant deep sedation for the first two days, but this effect began to decrease by day 3. This pattern of tolerance was also evident during the assessment of time-dependent changes: Deep sedation persisted for up to 4 hrs on Day 1 of chronic treatment; however, on Day 8 and 15 deep sedation was decreased by the 2nd hr. On the last day of treatment, no deep sedation was recorded at any time point. Sleep posture emerged on Day 4 and persisted until the last day of treatment, indicating a lack of tolerance to this effect. **Conclusions:** Taken together, these results suggest the development of rapid tolerance to alprazolam-induced deep sedation, but little or no tolerance to alprazolam-induced sleep posture. These results raise the possibility that these sedative effects may be mediated by different receptor mechanisms. **Support:** DA020304, DA11792, AA16179, RR00168

198 MIXED DRUG USE INFLUENCES HIV RISK IN UKRAINIAN IDUS

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Aims: The aim of this study is to confirm and understand the influence of mixed drug use among injection drug users (IDUs) on HIV risk in Ukraine. **Methods:** This is a preliminary analysis of baseline data from a clinical trial of behavioral treatment efficacy. The sample was recruited from IDUs entering treatment in Vinnitsya, Ukraine. Instruments included Addiction Severity Index (ASI), Blood Borne Virus Transmission Risk Assessment Questionnaire (BBV-TRAQ), and Brief Symptom Inventory (BSI). **Results:** The main drug of abuse in Ukraine is home-made opiate solution. Other substances are added to heighten effects, minimize side effects, and clarify it. Of 83 people with past-month opiate use, 67.5% used dimedrol; 15.7% with benzodiazepines; 41% with hypnotics. Lifetime frequency of mixing with hypnotics or dimedrol correlates positively with HIV risk (BBV-TRAQ injection score) (Spearman's $r = .39$, $p < .001$; and $r = .23$, $p = .04$). Lifetime frequency of mixing with hypnotics correlates positively with psychological distress (BSI global score) ($r = .23$, $p = .05$). BBV-TRAQ score was higher due to frequency of container sharing (Mantel-Haenszel chi-square $p = .015$) and injecting after others ($p = .04$). Other variables affected risk but did not count in total BBV score: greater frequency of buying pre-cooked solution from the dealer ($p = .04$) and dispensing of solution by someone else's syringe ($p = .01$). Adding tranquilizers was associated with higher frequency of filter sharing ($p = .01$) and injecting after helping others ($p = .02$); due to small subgroup size, these risks did not raise BBV-TRAQ scores. ASI family subscale score was worse in those who added hypnotics (.71 v. .54, $p = .01$). This subgroup also was younger (mean age 27.5 v. 31.6, $p = .004$). **Conclusions:** Mixing opiates with other substances is associated with HIV risk in IDUs. The findings should be translated into harm reduction messages. **Support:** This project is funded by U.S. National Institute on Drug Abuse grant # 5R01DA18240.

199 STIMULANT TREATMENT PROGRAMS IN NEW SOUTH WALES, AUSTRALIA

A. Dunlop^{1,3}, A. Wodak², T. Adam², A. Baker³, B. Tulloch¹ and R. McKetin⁴, ¹Drug & Alcohol Clinical Ser, Hunter New England Area Health Ser, Newcastle East, ²Drug & Alcohol Ser, St. Vincents Hospital, Sydney, ³Mental Health Studies, U. of Newcastle, and ⁴National Drug & Alcohol Research Centre, U. of Aims: The aims of the preliminary evaluation are to; (1) evaluate the feasibility of conducting stimulant treatment programs in New South Wales (2) identify issues relating to service delivery and effectiveness in metropolitan and regional areas of NSW (3) evaluate different models of intervention for stimulant users during the first 6 months of operation of the clinics. **Methods:** Participants were recruited from self referral and referral from acute health care services (emergency departments, ambulance), primary health care, welfare services and police. Participants were screened at baseline and followed up 3 months after commencing treatment. **Results:** The STP clinics were effective in their capacity to attract primary methamphetamine users into treatment. This occurred with relatively limited counselling and medical resources. Patients did identify that having a stimulant specific clinic was important in their decision to enter treatment. Patients who entered treatment typically had high levels of dependence to stimulants and were experiencing significant psychological harms related to their stimulant use. **Conclusions:** Only a small proportion who engaged in treatment were able to be followed up, limiting the generalisability of the findings. Of the group followed up, significant reductions in methamphetamine use, and concomitant improvements in mental health and social functioning and reductions in crime were noted. **Support:** New South Wales Health has committed ongoing funding for a further 2 years to continue the evaluation of the Stimulant Treatment Program clinics. This will include enhanced follow up methods and resources.

50 200 SEMI-QUANTITATIVE BUPRENORPHINE TESTING IN AN ONGOING STUDY WITH PRESCRIPTION OPIOID ABUSERS

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Aims: Prescription opioid (PO) abuse has increased dramatically. We are evaluating a treatment for PO abusers wherein participants receive a brief buprenorphine stabilization and 2-week taper. Here we present data from a semi-quant buprenorphine assay, in the context of a double-blind, double-dummy trial, to characterize buprenorphine levels in urine, evaluate agreement with a qualitative test-strip, and inform buprenorphine providers of the clinical utility of this new method. **Methods:** Patients in our program provide urine samples thrice weekly and were initially tested for buprenorphine using a qualitative test-strip (10ng/ml cutoff; ACON Labs, San Diego, CA). We recently incorporated a more sensitive semi-quantitative urinalysis assay (5ng/ml cutoff; CEDIA, Microgenics, Fremont, CA) to identify buprenorphine values. **Results:** Thus far, 5 subjects have been stabilized on an average buprenorphine dose of 8 mg for 6 days prior to the 2-week taper. Overall agreement between the test-strip and semi-quant assay is 87% and average area under the curve during the stabilization and taper periods were 205.68 and 321.60, respectively. Semi-quant testing shows that 80% of patients have detectable buprenorphine levels (>5ng/ml) after their first dose. Urine levels increase steadily and reach an approximate peak of 58ng/ml after 9 days of stabilization. Buprenorphine levels remain >5 ng/ml until approximately Day 13 of the taper and require ≥ 3 placebo days before falling below 5ng/ml. Due to individual variability, data will be presented in group and individual format. We also will present data from participants who supplemented study drug with illicit buprenorphine, to illustrate the potential clinical utility of using this semi-quant method for identifying additional illicit buprenorphine use among individuals receiving buprenorphine. **Conclusions:** Overall, a semi-quant buprenorphine assay eliminates subjectivity of qualitative test-strips, helps identify supplemental buprenorphine use and has implications for enhancing experimental rigor and clinical effectiveness during buprenorphine treatment. **Support:** NIDA T32 DA007242 and R01 DA019989

201 RANDOMIZED CLINICAL TRIAL OF CONTINGENCY MANAGEMENT AMONG PARENTING COCAINE-DEPENDENT AFRICAN AMERICAN FEMALE RECOVERY HOUSE RESIDENTS

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Aims: This study assessed the feasibility of implementing contingency management within a self-run, self-supported recovery house program for women. Contingency management was operationalized using rent vouchers in conjunction with treatment as usual in the recovery houses. **Hypothesis:** A greater proportion of subjects randomized to the treatment group than those randomized to the control group will submit at least 27 cocaine-metabolite-negative urine samples during the 12-week study period. **Methods:** Subjects were 50 human African-American cocaine-dependent postpartum and parenting women recruited from nine recovery houses in North Carolina. They were in the after-care phase of the recovery process. Twenty-six of the women were randomly assigned to the control group, and 24 were randomly assigned to the treatment group. Written informed consent was obtained and an initial interview was conducted by a graduate research assistant. In addition to exposure to the usual recovery house protocol for 12 weeks, subjects' urine was tested for cocaine metabolites three times per week for 12 weeks. The control group was given a \$5.00 gift card per urine sample submitted, regardless of test outcome. The treatment group was credited \$35.00 towards their weekly rent per cocaine-metabolite-negative urine sample submitted. **Results:** All urine samples tested negative for cocaine metabolites. Chi-square and Fisher's Exact tests indicated that women in the treatment group were significantly more likely than women in the control group to submit at least 27 cocaine-metabolite-negative urine samples during the 12 weeks of the study (83% and 54%, respectively; $p < .05$). **Conclusions:** The results supported the hypothesis of the study and the applicability of contingency management to maintaining abstinence in the aftercare phase of the recovery process among a hard-to-reach and hard-to-treat population of substance abusers: cocaine-dependent African American postpartum and parenting women living in community-based recovery houses. **Support:** 5K23DA16638-5.

202 SMOKING CESSATION AND SELF-EFFICACY IN METHADONE-MAINTAINED INDIVIDUALS: BRIEF COMPUTER-DELIVERED MOTIVATION, WITH AND WITHOUT CONCOMITANT CONTINGENCY MANAGEMENT

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Aims: Brief interventions (BI) and contingency management (CM) have both shown varying degrees of success in reducing addictive behaviors, but few studies have combined the two interventions. **Methods:** In an exploratory trial examining efficacy vs. internalization of behaviour change, smokers ($N = 48$) from a methadone maintenance clinic were randomly assigned to either: 1) computer-delivered BI only; 2) computer-delivered BI plus CM; or 3) a control condition. Breath carbon monoxide (CO) was measured three times weekly for five weeks and at one-month post-treatment, and self-efficacy was measured at one-month follow-up using the Smoking Self-Efficacy Questionnaire (SSEQ). **Results:** At one-month follow up, BI plus CM was associated with the clearest effects on breath CO ($d = .48$ relative to control, and $d = .52$ relative to BI only; both ns). BI plus CM participants produced significantly more during-treatment CO readings below 10 ppm (31.0% of samples) than control (8.0% of samples; mean difference = 3.50, $p < .01$). However, at follow-up, the BI only group endorsed higher scores on the Internal subscale of the SSEQ relative to control ($d = .52$; ns) and BI plus CM ($d = .27$; ns). **Conclusions:** These results suggest that the addition of CM to BI may have positive effects on smoking behavior, but may also negatively impact internalization of behavior change. Findings also suggest that the addition of CM to BI is efficacious in reducing breath CO beyond the contingent reinforcement phase. **Support:** This research was supported by a grant from the Canadian Tobacco Control Research Initiative.

203 READINESS TO CHANGE AS A PREDICTOR OF DRUG-RELATED BEHAVIORS IN A SAMPLE OF RURAL FELONY PROBATIONERS

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Aims: Although research on the application of the transtheoretical model (Prochaska & DiClemente, 1984) has been met with generally favorable results, relatively little attention has been paid to the influence of pre-existing characteristics, such as cultural background and criminal justice experience, on readiness and change across time. The goal of the current study is to apply the more general transtheoretical framework to the examination of common drug-related behaviors among rural substance-using probationers in the state of Kentucky. **Methods:** Two waves of data were gathered across a 3-month interval. For both waves, data regarding demographic characteristics, previous substance abuse treatment, readiness to change, substance use frequency, and criminal behavior was collected using face-to-face interviews. **Results:** Regression analyses showed that increases in individuals' readiness to change from baseline to 3-month follow-up were accompanied by reductions in marijuana use ($\beta = -.13$, $S.E. = .01$, $p < .01$), possession of drug related paraphernalia ($\beta = -.10$, $S.E. = .34$, $p < .05$), and driving under the influence of drugs or alcohol ($\beta = -.14$, $S.E. = .07$, $p < .01$) across that same period. Importantly, these effects were also independent of the influence of demographic characteristics such as age, gender, race, marital status, number of children, type of probation offense, and treatment history. **Conclusions:** Rural drug users' readiness to change predicts positive outcomes with regard to commonly committed drug-related offenses. However, because of geographical limitations and other associated factors (e.g., transportation, cultural norms), rural drug abusers may experience more difficulty maintaining the recovery process once it is initiated. To offset these complexities, public policy makers and treatment providers must take a more structured and consistent approach toward increasing the availability of health-related services and anti-drug messages in rural areas. **Support:** This research was supported by grant #R01DA11580 from the National Institute on Drug Abuse. The opinions expressed are those of the authors.

204 INDOLIZIDINE 235B' POTENTLY INHIBITS NICOTINE-EVOKED DOPAMINE RELEASE FROM SUPERFUSED RAT STRIATAL SLICES

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Aims: Although several FDA-approved agents are available to aid in tobacco smoking cessation, relapse rates continue to be high, warranting development of alternative pharmacotherapies. Towards this aim, we are developing subtype-selective nicotinic receptor (nAChR) antagonists. We have shown that the novel azaromatic quaternary ammonium nAChR antagonists, N,N'-dodecane-1,12-diyl-bis-3-picolinium dibromide (bPiDDB) and N,N'-decane-1,10-diyl-bis-3-picolinium diiodide (bPiDI) decrease nicotine-evoked dopamine (DA) release and attenuate nicotine (NIC) self-administration. Herein, we determined the inhibitory effects in the NIC-evoked DA release assay of a tertiary amine alkaloid, indolizidine 235B', shown to be a noncompetitive open channel blocker at $\alpha 4\beta 2$ nAChRs ($IC_{50} = 74$ nM) expressed in *Xenopus* oocytes and to less potently (6- and 54-fold) inhibit $\alpha 7$ and $\alpha 3\beta 4$ nAChRs, respectively (Tsuneki et al., 2004). Also, the inhibitory effect of several structural fragments of 235B' was investigated to determine the minimum pharmacophore for antagonism. **Methods:** Striatal slices were pre-incubated with 0.1 μ M [3H]DA for 30 min, superfused with Krebs' buffer containing nomifensine (10 μ M) and pargyline (10 μ M) for 68 min, and then superfused in the absence or presence of inhibitor (0.001-10 μ M) for 36 min. NIC (10 μ M) was added to the buffer and superfusion continued for 36 min. **Results:** 235B' potently inhibited NIC-evoked DA release ($IC_{50} = 32$ nM; $I_{max} = 51\%$) and ZZ-272, a defunctionalized aza-analog of 235B', was a less potent inhibitor ($IC_{50} = 200$ nM; $I_{max} = 51\%$). **Conclusions:** Thus, not only azaromatic quaternary ammonium analogs (e.g., bPiDDB and bPiDI), but also more lipophilic, azacyclic tertiary amino analogs (e.g., 235B'), which will likely have improved membrane permeation properties, can serve as lead compounds in the development of antagonists at nAChRs mediating NIC-evoked DA release, and may have potential as smoking cessation agents. **Support:** Supported by NIH grant DA017548

205 OPIOID-INDUCED ANTINOCICEPTION: ALTERATION BY PHARMACOLOGICAL AND GENETIC MANIPULATIONS OF THE N-METHYL-D-ASPARTATE (NMDA) SYSTEM

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Aims: The present study examined alterations in opioid-induced antinociception under two conditions, 1) following administration of an NMDA antagonist (LY235959) and 2) in mice in which the NR1 subunit of the NMDA receptor had been reduced to ~10% (NR1 knockdown (KD) mice) through genetic manipulations. **Methods:** Two sets of experiments were conducted to assess the antinociceptive effects of morphine using a hot plate procedure, set at 56°C. In the first set of experiments, the effects of morphine (0.32 - 10 mg/kg, s.c.) were examined alone and in combination with an NMDA antagonist, LY235959 (0.1 - 1.0 mg/kg, i.p.). In a second set of experiments, the effects of two μ -opioid agonists, morphine (0.32 - 10.0 mg/kg, s.c.) and l-methadone (0.32-10.0 mg/kg, s.c.) were examined in NR1 KD mice and their wild-type littermate controls (NR1 WT). **Results:** In experiment 1, morphine produced dose-dependent increases in latency to respond on the hot plate and the competitive NMDA antagonist LY235959 (1.0 mg/kg) shifted the morphine dose effect curve to the left approximately 4.7-fold. In the second set of experiments, morphine also produced dose-dependent increases in latency to respond on the hot plate with ED50 values of 9.1 mg/kg in the NR1 KD mice and 4.2 mg/kg in NR1 WT mice. Similarly, l-methadone produced dose-dependent increases in latency to respond on the hot plate with ED50 values of 4.0 mg/kg in the NR1 KD mice and 1.0 mg/kg in the NR1 WT mice, indicating that both morphine and l-methadone are less potent in NR1 KD mice as compared to NR1 WT mice. **Conclusions:** These results suggest that transient pharmacological antagonism and long term genetic down-regulation of NMDA function are not equivalent models for examining glutamate mediated μ -opioid induced antinociception. **Support:** R01-DA02749 and T32-DA07244

206 "FEELING NORMAL AGAIN": PATIENT PERSPECTIVES ON BUPRENORPHINE TREATMENT

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Aims: Research has shown that buprenorphine (BUP) is a safe and effective office-based treatment for opioid dependence. Few reports, however, describe patient perspectives on this treatment. Our aims were to elicit from patients, descriptions of their attitudes and experiences with BUP. **Methods:** We conducted qualitative interviews with patients participating in a HRSA-funded demonstration program focused on attitudes and perceptions about drug use cessation and BUP treatment, differing treatment models and outcomes, and the integration of treatment into HIV care. Using standard qualitative analytic methods, we examined the interview data for common thematic elements. **Results:** This analysis is based on 17 interviews conducted at 3 sites. The sample is comprised mostly of men (71%). The mean age was 48, the mean number of years using heroin was 24, and nearly all reported previous methadone treatment experience. Participants commonly reported feeling "normal" on BUP, that they did not feel as high as with methadone, and that they were able to reengage in previously abandoned activities such as work and time with family. Many commented on BUP's efficacy in blocking the effects of heroin, which helped to discourage its use. Methadone, in contrast, not only allowed for continued use but sometimes resulted in spiraling increases of methadone and heroin as they sought to continue to get high. Participants also reported that, compared to methadone, there were fewer symptoms of withdrawal from BUP detoxification. Interestingly, several participants also described a highly nuanced ability to self-manage BUP, including self-induction, dose negotiation, and intentionally stopping BUP treatment so that they could reinstate heroin use for a period of time. Satisfaction with BUP, office based treatment, and the reduced regulations were high, and even those who relapsed intended to begin treatment again. **Conclusions:** These findings suggest that some patients see BUP as a viable and preferred form of opioid replacement therapy. **Support:** This initiative is funded by the US Health and Human Services/Health Resources & Services Administration Grant #H97HA03793.

207 PRENATAL COCAINE EXPOSURE AND INFANT STRESS REACTIVITY

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Aims: This study examined the association between prenatal cocaine and other substance exposure on infant stress reactivity at 7 months of age. A related goal was to examine if child gender, parenting, or caregiving instability moderated this association. **Methods:** Participants consisted of 168 mother-infant dyads participating in an ongoing longitudinal study of prenatal cocaine exposure (87 cocaine exposed, 81 non-cocaine exposed). Prenatal substance exposure was ascertained by a combination of self-report, hair, and urine toxicology assessments at delivery. Infant saliva samples were collected at 4 time points during lab assessments at 7 months before and after affect eliciting procedures. Cortisol reactivity was calculated by taking the difference between the peak response and baseline. **Results:** Results indicated that cocaine exposed infants had significantly higher cortisol values at time 3 (20 minutes after anger/frustration episode), and marginally higher cortisol values at time 4 (40 minutes after anger/frustration episode) compared to those in the control group. Child gender and caregiving instability moderated the association between cocaine exposure and cortisol reactivity. Boys exposed to cocaine had significantly higher levels of cortisol reactivity compared to boys not exposed to cocaine. There was no association between cocaine exposure and cortisol reactivity among girls. There was no association between prenatal substance exposure (dummy coded variable of no substance exposure vs. any substance exposure) and cortisol reactivity at lower levels of caregiving instability. However, at higher levels of caregiving instability, infants with prenatal exposure had higher levels of cortisol reactivity. **Conclusions:** Results indicate specific effects of prenatal substance exposure, including cocaine, on infant stress reactivity, and highlight the role of infant gender and caregiving instability in moderating these associations. **Support:** National Institute on Drug Abuse grant # 1R01 DA13190

52 208 SMOKING IN METHADONE MAINTENANCE PATIENTS: NICOTINE AND METHADONE RELATIONSHIPS

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Aims: Smoking is highly prevalent (85-98%) and the major predictor of morbidity and mortality in Methadone Maintenance Treatment (MMT) patients. Methadone has been shown to increase smoking in a dose-dependent manner and smoking has been shown to increase methadone self-administration. The objective of this study is to evaluate the nature of the pharmacodynamic (PD) interaction between smoking and methadone in MMT patients. **Methods:** Subjective effects of nicotine (delivered by cigarette and 4mg nicotine gum), methadone and the combination were assessed in 40 regularly smoking MMT patients using a randomized, placebo-controlled within-subject design. Outcome measures included the Addiction Research Center Inventory (ARCI), Subjective Opiate Withdrawal Scale (SOWS), Questionnaire of Smoking Urges (QSU), and Minnesota Nicotine Withdrawal Scale (MNWS) measured before and after nicotine administration both prior to methadone administration and 3 hours post-dose. **Results:** Preliminary data is available from 39 (23 male, 16 female) completed subjects for the smoking day only. Subjects had a mean age of 41±8 years, were on a mean methadone dose of 80±38mg, smoked a mean of 20±8 cigarettes/day and had a mean Fagerstrom score of 7±1. Using ANOVA, there was a main effect of methadone to decrease SOWS scores (p<0.001). There was a main effect of smoking (p<0.001) and methadone (p<0.001) to decrease MNWS scores. Methadone and smoking increased ARCI MBG scores (p<0.004 and p<0.03, respectively). Nicotine decreased smoking craving on all subscales of the QSU (p<0.001). There was a significant methadone*smoking interaction resulting in decreased ARCI mental sedation (p<0.03). **Conclusions:** Although methadone has been previously shown to increase cigarette smoking in MMT patients, in this study it had no effect on smoking craving scores and decreased nicotine withdrawal effects. Analysis of the full study results (nicotine gum and placebo effects) will further help elucidate the PD relationship of methadone and nicotine. **Support:** Canadian Tobacco Control Research Initiative for funding and Pfizer Canada for the placebo.

209 THERAPIST EFFECTS IN THE TREATMENT OF PREGNANT SUBSTANCE ABUSERS: CLINICAL TRIALS NETWORK #13

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Aims: Aim: Two robust findings in substance abuse research are that evidenced-based treatments produce relatively positive outcomes and, even in manual-guided therapies, therapist effects are generally large (e.g., PMRG, 1998). In the absence of treatment main effects (Winhusen, et al., in press), this study investigated whether treatment outcomes (TAU versus MET) among pregnant substance abusers could be attributed to therapist effects. **Methods:** Methods: 200 outpatient pregnant substance abusers were randomized to TAU or MET for pregnant substance users (MET-PS). The active treatment phase of the study lasted 4-weeks (n = 162 completed), and assessments were conducted at baseline, 4 weeks, 1 month follow-up (FU), and 3 months FU. Seven therapists (4 TAU, 3 MET-PS) had 10 or more clients assigned to them, a minimum number of clients deemed essential for deriving stable estimates of therapist effects. **Results:** Results: Controlling for baseline substance use frequency, a repeated measures MANOVA including all 7 therapists indicated that at the end of treatment and at 1 and 3 month FU, client substance use was not associated with therapist assignment. Within therapy group analyses produced similar null findings. HLM analyses were then conducted on the full sample to determine if the substance use reduction rate over FU was homogeneous, both by individual and therapist. Overall, in the unconditional model the rate of decline in days substance use was strong (b = -.85, p < .001), but such declines did not follow a common trajectory (P2(146) = 620.49, p < .001). Inclusion of therapist assignment as a level-2 variable in the conditional model was not significant. **Conclusions:** Conclusion: Findings are atypical in that we did not observe large differences in the effectiveness of therapists. Perhaps this finding may be partially explained by the nature of this population: pregnant substance abusing women may be particularly motivated to change their substance use because of their pregnancy status. **Support:** Supported by NIDA Clinical Trials Network

210 RELIABILITY AND VALIDITY OF A SHORT FORM OF THE MARIJUANA CRAVING QUESTIONNAIRE

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Aims: The Marijuana Craving Questionnaire (MCQ) is a 47-item self-report instrument that assesses marijuana craving along four dimensions: compulsivity, emotionality, expectancy, and purposefulness. Reliability and validity of the MCQ have been established in several studies. For practical use in research and clinical settings, we constructed a 12-item version of the MCQ by selecting three items from each of the four factors that exhibited optimal within-factor reliability (Cronbach's alpha coefficient) and inter-item correlation. We present data on the reliability and validity of this short form. **Methods:** Adult, marijuana users (n = 500), who had made at least one serious attempt to quit marijuana use but were not seeking treatment, completed the MCQ-Short Form (MCQ-SF) in a single session. Eighteen percent of subjects reported using marijuana on the day they completed the MCQ-SF. **Results:** We used maximum likelihood estimation and oblique rotation to a least squares fit to best match the exact loadings of the 4-factor, 47-item MCQ. We also examined congruence in factor loadings and structure between the MCQ and MCQ-SF. Confirmatory factor analysis of the MCQ-SF indicated excellent fit with a 4-factor model. Following rotation to simple structure, coefficients of congruence indicated moderate to very high similarity in factor loadings between the MCQ and MCQ-SF. Cronbach's alpha coefficients and average inter-item correlations were also consistent with reliability values obtained in the initial validation of the MCQ. **Conclusions:** These findings indicate that 1) the MCQ-SF is as valid and reliable as the 47-item MCQ in measuring marijuana craving in individuals not seeking treatment and 2) marijuana craving can be measured reliably in the absence of withdrawal. **Support:** This research was supported by the Intramural Research Program of the NIH, National Institute on Drug Abuse.

211 EMPLOYMENT-BASED REINFORCEMENT OF ACCEPTANCE OF DEPOT NALTREXONE INJECTIONS IN OPIOID-DEPENDENT ADULTS

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Aims: Naltrexone is an opiate antagonist that could be an effective treatment for opiate addiction, but its utility has been limited by poor patient acceptance. Recently developed extended-release depot formulations of naltrexone provide opiate antagonism for up to 4 weeks and should simplify naltrexone adherence. However, given the rejection of oral naltrexone by most patients, concurrent behavioral treatment will probably be needed to encourage patients to take the depot consistently. This study was designed to determine if employment-based reinforcement could increase acceptance of depot naltrexone injections in opiate dependent adults. **Methods:** Participants were unemployed heroin dependent adults. After completing an opiate detoxification and induction onto oral naltrexone, participants were randomly assigned to a naltrexone Prescription or Contingency group. Both groups were invited to attend a therapeutic workplace for 26 weeks, where they could work 4 hours every weekday and earn about \$10 per hour in vouchers. Both groups could also receive depot naltrexone injections every 3 weeks. Participants in the Contingency group could work and earn vouchers only as long as they continued to take scheduled naltrexone injections. Participants in the Prescription group could work and earn vouchers regardless of whether or not they received naltrexone injections. **Results:** Preliminary results from the first 21 participants who completed the study showed that 90% of participants in the Contingency group received all allowed naltrexone injections compared to 36% in the Prescription group. The mean percent of allowed injections received by the Contingency group was significantly higher than the Prescription group (97% vs. 47%, respectively; p < .01). **Conclusions:** The study shows that employment-based reinforcement can increase acceptance of depot naltrexone injections. **Support:** NIDA Grants R01DA019497 and T32DA07209

212 A SINGLE DOSE OF NICOTINE ENHANCES REWARD RESPONSIVENESS IN NON-SMOKERS: IMPLICATIONS FOR DEVELOPMENT OF DEPENDENCE

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Aims: Tobacco smoking, driven by the addictive properties of nicotine, is the most prevalent preventable cause of death in the Western World. Accumulated evidence suggests that nicotine may increase appetitive responding for non-drug incentives in the environment. To test the effect of a single dose of nicotine on reward responsiveness as assessed by a novel signal detection task in non-smokers. **Methods:** To test this hypothesis, we conducted a randomized, double-blind, placebo-controlled, crossover study of the effect of a single dose of transdermal nicotine on reward responsiveness in 30 healthy non-smokers. A novel signal detection task in which correct responses were differentially rewarded in a 3:1 ratio was used to assess the extent to which participants modulated their behavior as a function of reward. **Results:** Despite expected adverse effects such as nausea, nicotine significantly increased response bias toward the more frequently rewarded condition, at the expense of accuracy, independent of effects on attention or overall vigilance. Additionally, response bias on placebo was greater in participants who received nicotine in the first session, indicating that an effect of nicotine on reward responsiveness or reward-based learning persisted for at least one week. **Conclusions:** These findings suggest that a single dose of nicotine enhances response to non-drug-related rewards in the environment, with lasting effects. This effect may contribute to reinforcement of early smoking behavior and development of nicotine dependence. **Support:** Stanley Medical Research Institute and NIDA

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213 BINGE DRINKING AND NOT HEAVY REGULAR DRINKING RELATES TO PREGNANCY RISK DUE TO INEFFECTIVE CONTRACEPTION

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Aims: In order to prevent alcohol-exposed pregnancy (AEP) and associated neurodevelopmental deficits, we must better understand behaviors and characteristics that put women at risk, and the specific patterns of drinking that relate to ineffective contraception. Previous studies showed that many women are unaware they are at risk for AEP. **Methods:** 70 women of childbearing age (18-44 years) at risk for AEP volunteered for an intervention study. AEP risk was defined as risky drinking (consuming 4 or more standard drinks in one occasion or an average of 8 or more drinks per week) and being at risk for pregnancy due to recent sexual intercourse without effective contraception. Women provided a 90 day Time Line Follow Back on drinking and sexual activity and completed an interview about sexual history, drinking and drug use. Fisher's exact test compared differences between groups on nominal variables and t-tests and ANOVAs were used on continuous variables. **Results:** A statistically significant difference ($p=0.043$) was found in contraception effectiveness between Frequent Bingers (FBs) and Non Frequent Bingers (NFBs). A FB binges on at least 60 percent of drinking days. FBs used contraception ineffectively for 70% of intercourse episodes compared to 59% for NFBs. FBs drink 298 drinks compared to 90 for NFBs over 90 days ($p=0.000$). A statistically significant difference ($p=0.000$) was found in drinking levels (light, moderate or heavy) between FBs and NFBs. FBs are mainly heavy drinkers (66%) where NFBs are mainly light drinkers (59%). However, bingeing, but not drinking levels related to contraception effectiveness. **Conclusions:** The frequency with which a woman binge drinks is more related to contraception effectiveness rather than is her total alcohol consumption even among heavy drinkers. Women who binge drink may be a hidden population at risk for AEP. **Support:** NIH R01 AA014356

214 FACTORS PREDICTING THE ONSET AND DISCONTINUITY OF PRESCRIBED BENZODIAZEPINE LONG-TERM USE

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Aims: Correlates of long-term BZD use have been explored in several studies, but few have examined the process prospectively. In this study, we extend this focus to incident BZD users, and to examine individual, pharmacological, and service provider's factors predicting the onset and discontinuity of long-term use (LTU). **Methods:** Using a random sample of 187,413 National Health Insurance Program enrollees on January 1st 2000, we retrieved data of ambulatory and pharmacological services utilized between 2000 and 2002. Annual LTU was defined by 180 or more prescription days of BZDs within any given year. The onset of BZD LTU in 2001 was identified only among those who had no BZD prescriptions in prior year; and the discontinuity of BZD LTU was defined by no or short-term use of BZDs after two consecutive years LTU. Logistic regression analyses were performed to estimate the strength of association. **Results:** Individual factors such as male gender, older age, and having physical or mental disorders significantly predicts the onset of prescribed BZD LTU. People who received medical services in the department of psychiatry ($aRR=2.75$) or in the medical center ($aRR=5.87$) were more likely to become long-term BZD users. Individuals prescribed BZDs in forms of multiple agents, short-acting, and hypnotic indication were at 2 to 5 times greater risk to become long-term users once started. With respect to discontinuity of prescribed BZD LTU, the effects of pharmacological factors seem more salient as compared to individual and services provider factors. **Conclusions:** Our study highlights the importance of individual, services provider, and pharmacological factors in determining the onset of prescribed BZD LTU whereas for the discontinuity of prescribed BZD use only pharmacological factors appeared to be predictive. Future strategies for identifying individual factors and modifying prescription behaviors may be considered to reduce possible negative consequences of BZD LTU. **Support:** NHRI MDSP-01 and NHRI MOSP01-001

215 FENTANYL-RELATED DEATHS: ABUSE AND OFF-LABEL USE OF LICIT AND ILLICIT SOURCES OF FENTANYL

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Aims: This poster will review the patterns of abuse and off-label use of fentanyl, and the prevalence of abuse and death caused by illicit and licit fentanyl sources. **Conclusions:** Since 2006, there has been a significant increase in the number of media reports of deaths related to fentanyl. The nature and patterns of fentanyl use and sources of fentanyl are diverse, however. The majority of fentanyl-related deaths have been attributed to fentanyl manufactured in clandestine laboratories that was distributed as a powder mixed with heroin, or as the active ingredient in fake OxyContin tablets. For example, in early 2006, illicit fentanyl was linked to 130 deaths in Detroit and 100 in Chicago in only a few months, and between April and July 2006, there were more than 170 deaths and 300 non-fatal overdoses in Pennsylvania, New Jersey, and Delaware. However, pharmaceutical fentanyl from injectable, transmucosal, and transdermal formulations has also been reported as a cause of death among opioid abusers. In many of these cases, the product was either tampered with or taken at high doses. Still other deaths appear to result from off-label use of prescription products, such as prescribing the drugs for non-labeled indications, or administration of high doses to individuals who are not opioid tolerant, in a manner not consistent with product labeling. Data sources will include national surveys, a review of the literature, internet reports of abuse, and other sources. **Support:** Pinney Associates provides risk management services, including the monitoring of federal surveys, Internet monitoring, and field research, for several pharmaceutical companies. A portion of the data gathering and analysis relied upon in this poster was supported by Ortho-McNeil Janssen Scientific Affairs, a marketer of fentanyl products. However, no industry funding was provided for the preparation or presentation of this poster.

216 INTERACTION OF SEROTONIN 5-HT_{2A} AND 5-HT_{2C} RECEPTORS IN DOI-ELICITED HEAD TWITCH BEHAVIOR IN MICE

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Aims: Administration of hallucinogens elicits head twitch behavior in mice, and biphasic dose-effect curves have been obtained for a variety of drugs. These studies were conducted to determine the pharmacology underlying the "descending limb" of the head twitch curve for the phenethylamine hallucinogen R(-)-DOI. **Methods:** Mice were administered various doses of R(-)-DOI 10 minutes after pretreatment with saline, the 5-HT_{2C} agonists m-chlorophenylpiperazine and Ro 60-0175, or the 5-HT_{2C} antagonist SB 242084. Head twitch behavior was recorded to videotape and scored by a blind observer. **Results:** DOI induced profound head twitch behavior in mice. Both 5-HT_{2C} agonists dose-dependently suppressed the effects of the peak dose of DOI, and pretreatment with the most effective dose of each 5-HT_{2C} agonist flattened the head twitch dose-effect curve for DOI. In contrast, the 5-HT_{2C} antagonist increased head twitch behavior elicited by a dose of DOI on the descending limb of the curve, and pretreatment with the most effective dose of Ro 60-0175 did not alter DOI-elicited head twitch behavior at low doses, but produced a parallel rightward shift in the descending limb of the DOI curve. **Conclusions:** These results suggest that the descending limb of the DOI head twitch curve is mediated by 5-HT_{2C} receptors. Pretreatment with 5-HT_{2C} agonists insurmountably blocked DOI elicited twitches, consistent with high DOI doses activating 5-HT_{2C} receptors to decrease twitch behavior. Administration of a 5-HT_{2C} antagonist did not alter DOI-elicited twitches on the ascending limb, but potentiated DOI-induced twitch behavior at doses on the descending limb of the control curve. The generalizability of these results to other phenethylamine-based hallucinogens, as well as to tryptamine-based compounds, will be investigated in future studies. **Support:** These studies supported in part by USPHS grants DA09161, DA05923, and DA020645. Additional support was provided by the CPDD.

217 CONTINUING CARE FOR STIMULANT RECOVERY: AN EXPERIMENTAL TEST OF TELEPHONE SUPPORT

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Aims: This study is a prospective, randomized comparison of four models of counselor-provided telephone support as strategies to promote patient aftercare attendance and sustained abstinence from stimulant use. Drawing from clinical experience and prior literature, we developed and compared the efficacy of four low-cost telephone support protocols for patients who have completed the intensive phase of a structured, outpatient stimulant abuse treatment program. **Methods:** Participants (N=500) completing a 4-month Matrix Outpatient Model of stimulant abuse treatment were randomly assigned to one of four telephone-based, post-treatment counseling groups (n=100 per group): (1) unstructured/non-directive, (2) structured/non-directive, (3) unstructured/directive, or (4) structured/directive telephone counseling, or (5) a control group consisting of standard referral to Matrix aftercare. Data collection sessions took place at baseline, and again at 3 and 12 months later. At each contact, subjects provided urine and saliva samples, as well as self-reported drug use behaviors and aftercare attendance. **Results:** Analyses based on the first 150 subjects indicate that assignment to any of the "call" conditions (combined as a single group to maximize statistical power) was associated with substantial increases in aftercare attendance (83% compared to 66% of controls). Also, subjects in the "call" conditions were approximately one-third as likely as controls to report past-month stimulant use at the time of the 3-month follow-up. Analyses based on a larger, updated sample will be available by the time of the conference. **Conclusions:** Based on preliminary analyses, the call procedures show promise as a low-cost approach for maintaining contact with discharged patients that improves aftercare attendance and reduces stimulant use. Subsequent analyses will allow us to disaggregate the combined call conditions to examine relative effects of the four intervention styles. **Support:** This research was supported by NIDA R01 DA018208.

218 ENHANCED NICOTINE-TAKING BEHAVIOR IN A GLUTAMATERGIC MODEL OF SCHIZOPHRENIA IN RATS

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Aims: There is a poor understanding of the factors that explain the enhanced prevalence of tobacco smoking in schizophrenic subjects. Here, we explored the reinforcing effects of nicotine in an animal model of schizophrenia. **Methods:** According to the methods of Rujescu et al. (Biological Psychiatry, 2006), male adolescent Long Evans rats (n=22) were exposed to MK801 (0.02mg/kg/day for 14 days) to model schizophrenia. Control rats were exposed to saline. Two weeks later, the rats were trained to respond for food during 15 days. Then, they were trained to self-administer nicotine intravenously (30 µg/kg/infusion). Response requirement was progressively increased from Fixed-Ratio 1 (FR-1) to FR5 during 15 consecutive one-hour sessions. ANOVA was used for statistical analysis using levers and time as factors. **Results:** Analysis of food responding behavior revealed no effect of MK801 pretreatment compared to saline (F14, 510=0.0875, P=0.9). Analysis of nicotine self-administration behavior revealed a significant effect of time (F14, 510=3.9, P<0.001), a significant effect of MK801 pretreatment (F1, 510=23.1, P<0.001) and of lever choice (F1, 510=36.1, P<0.001). Overall, this analysis reveals that responding on active lever was significantly higher than on inactive lever in both groups. Responding on active lever was higher in MK801 pretreated animals compared to saline controls. Post-hoc analysis revealed significant enhanced responding on days 9 and 11 of training. **Conclusions:** Responding for nicotine was enhanced in a glutamatergic model of schizophrenia in rats, whereas operant responding for food was not modified. This suggests that the enhanced prevalence of tobacco smoking in schizophrenic subjects is related to enhanced reinforcing efficacy of nicotine. This model can be used to identify the neurobiological factors underlying this vulnerability. **Support:** TUSP and CTCRI grant

219 ANTICONVULSIVE DRUGS IN COCAINE DEPENDENCE: A SYSTEMATIC REVIEW AND META-ANALYSIS

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Aims: To evaluate the efficacy and safety of anticonvulsive treatment in reducing illicit cocaine use and preventing relapse in cocaine addicts. **Methods:** A systematic search was carried out in Medline (1966-May 2006), EMBASE and Cochrane library. The abstracts were revised to select the eligible publications. Studies included were randomized, double blind, controlled by placebo and parallel group and designed for clinical efficacy. All available outcomes of efficacy (retention in treatment, cocaine use by urine analysis, craving, severity of dependency disorder), adherence and safety were analysed. The individual results were combined through meta-analysis by computer software, developed by the Cochrane Collaboration (Review Manager). **Results:** Eighteen studies involving 1307 patients were found. On average, trials lost 50% of enrolled participants. Overall, cocaine-positive urines samples and maintenance of negative urines for at least 3 weeks were close to statistical significance with a relative risk (RR; 95%CI) of 0.92 (0.84-1.00) and 0.82 (0.66-1.01), respectively. Topiramate (one RCT) significantly decreased cocaine-positive urines, RR (95%CI) 0.61 (0.40-0.93). Carbamazepine (one RCT) showed a significant decrease in craving, RR (95%CI): -0.57 (-1.02 to -0.13)]. Treatments do not show an improvement in retention compared to placebo. Undesirable effects were more frequent with the active treatment. **Conclusions:** Available clinical evidence indicate that there is insufficient evidence to justify the use of anticonvulsive drugs in treating cocaine dependence. However, they are promising treatments to decrease cocaine-positive urines and decrease craving. **Support:** Supported in part by grants of Generalitat de Catalunya (CIRIT-2005SGR00032) and Fondo de Investigación Sanitaria (RETICS - Red Trastornos Adictivos RD06/0001/1009)

220 CHANGES IN HIV AND HCV RISK-TAKING BEHAVIOR AND SEROPREVALENCE AMONG TREATMENT ADMISSIONS OF OPIATE USERS: POSSIBLE LINK WITH FRENCH HARM REDUCTION POLICY FROM 1994 TO 2004

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Aims: Intra-venous drug users (IDUs) are at increased risk for HIV and HCV transmissions, through injecting practices and sexual behavior. In France, since 1995, syringes, needles and condoms were specifically made available to IDUs and this was extended to paraphernalia in 1999. **Objective:** To assess the changes in HIV and HCV risk-taking behavior and seroprevalence, among opiate users seeking addiction treatment, and to determine their possible link with changes in harm reduction policy. **Methods:** Subjects were recruited at intake from opiate addiction treatment centers, in Aquitaine, France, between January 1st 1994 and December 31st 2004. They were assessed with the Risk Assessment Behavior (RAB) for risk-taking behavior, and the Addiction Severity Index (ASI) for substance use history and related problems. HIV and HCV serostatus were collected from laboratory results. **Results:** 649 subjects were included. There was a reduction overtime of the use of the IV route (98% to 75%; p=0.01), of needle (65% to 10%; p<10-4) and paraphernalia sharing (65% to 20%; p<10-2 to 10-4), while the intranasal route use increased (8% to 50%; p=0.01) and general sample characteristics including age and drug use history were unchanged. Sexual behavior was stable and the level of systematic use of condom was low (33%). Prevalence of HIV positive serostatus decreased greatly (34% to 0%; p<10-4). Prevalence of HCV positive serostatus maintained on a high level, but since 2001 a slight decline was observed (72% to 53%). **Conclusions:** Change in harm reduction policy was followed by a decrease in HIV and HCV risk behavior followed by a decrease in seroprevalence in this study of opiate users seeking treatment. The delayed decline of HCV prevalence could be linked to the improved access of paraphernalia that was started in 1999. Further evaluation should assess the intranasal route potentially involved in HCV transmission. **Support:** MESR 1994, PHRC 2000, 2006, MILD/INSERM 2004

221 POTENTIATION OF CUE-INDUCED REINSTATEMENT OF COCAINE SEEKING IN FEMALE RATS BY YOHIMBINE

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Aims: Clinical research has shown that gender differences exist in cocaine dependence. Similarly, female rats exhibit higher response rates during cocaine self-administration and enhanced cocaine-primed reinstatement of drug-seeking. However, little evidence exists regarding sex differences in reinstatement behavior following exposure to stress or drug-associated cues, two factors that trigger drug craving and relapse in abstinent cocaine users, or whether an interaction between these factors can enhance cocaine-seeking during relapse. To test this hypothesis, we assessed the effects of the anxiogenic α 2-noradrenergic receptor antagonist, yohimbine, on reinstatement of cocaine-seeking in rats either in the presence or absence of cocaine-associated cues. **Methods:** Sprague-Dawley rats were trained to lever press for intravenous cocaine (0.5 mg/kg/injection) paired with the presentation of a light+tone stimulus cue for 10 days. Responding was then extinguished in the absence of reinforcement. Thirty min prior to reinstatement of cocaine-seeking either in the presence or absence of the previously cocaine-paired stimulus, rats received an injection of yohimbine (1.25 or 2.5 mg/kg, IP) or vehicle. **Results:** Yohimbine during the no cue test condition resulted in reinstatement of cocaine-seeking behavior ($p < 0.05$), an effect that was significantly greater in female rats. While cues alone produced comparable cocaine-seeking in both male and female rats ($p < 0.05$), yohimbine pretreatment in combination with the cues resulted in a supra-additive effect, with female rats demonstrating greater yohimbine+cues reinstatement. **Conclusions:** Thus, while there are no apparent sex differences in response to drug-paired cues, exposure to a stressor alone, or in combination with cocaine-associated cues, resulted in greater reinstatement in female rats. Overall, these results suggest that stress enhances the saliency of drug-associated cues and that the impact of stress activation on drug-paired stimuli may potentiate relapse risk in abstinent drug users, especially in females. **Support:** Supported by NIH grant P50 DA16511 and 1K12ZDH55885-01

222 RECALL OF INFORMED CONSENT INFORMATION: IT PAYS TO REMEMBER

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Aims: This pilot study was conducted to examine both practical and conceptual questions related to research participants' recall of informed consent information. The practical aim was to examine the efficacy of using monetary incentives to increase recall of consent information among a group of drug court clients enrolling in a clinical trial. The conceptual aim was to determine whether, and to what degree, motivation is related to participant recall. **Methods:** We randomly assigned 32 misdemeanor drug court clients, recruited to participate in a clinical research trial, to one of two informed consent procedures: either a standard consent procedure, or an incentivized consent procedure in which they received payment incentives for recalling consent information. Both groups went through an identical informed consent process and completed a 15-item post-consent quiz one week later. The only difference was that the incentivized group received \$5.00 for each of the 15 items that they answered correctly on the post-consent quiz. **Results:** Results revealed that participants in the incentivized condition recalled a significantly higher percentage ($p = .0015$) of the consent information than the nonincentivized condition (65% vs. 42% of the 15 items) respectively. **Conclusions:** These pilot data suggest that incentives may be an effective means for increasing participant recall of consent information, and that motivation may play an important role in the process. The findings also point to the importance of addressing issues related to participant motivation and attention rather than focusing solely on aspects of the consent form (e.g., length, readability) and the often immutable characteristics of the participants (e.g., intellectual functioning, reading level). Further, this indicates the potential importance of increasing the valence and meaningfulness of study-related information and participant protections in the consent process. **Support:** This study was funded in part by NIDA grant R01-DA016730, "Improving the Ethics of Consent in Drug Abuse Research"

223 CONSTRUCT AND PREDICTIVE VALIDITY OF THE URICA

C. Field¹, B.A. Adinoff², T.R. Harris³, S.A. Ball⁴ and K.M. Carroll⁴, ¹Health Promotion and Behavioral Sciences, UT School of Public Health, ²Psychiatry, UT Southwestern Medical Center at Dallas and VA North Texas Healthcare System, ³Biostatistics, UT School of Public Health, Dallas, TX and ⁴Psychiatry, **Aims:** A better understanding of how to best measure motivation to change and how motivation relates to successful behavior change among both drug and alcohol abusers would broaden our understanding of the role of motivation in the treatment of addictions. **Methods:** Two multi-site, randomized clinical trials were conducted by the National Institute on Drug Abuse Clinical Trials Network. Patients with primary drug dependence and primary alcohol dependence entering outpatient substance abuse treatment participated in either a three-session Motivational Enhancement Therapy or MET (n=431) or a one-session Motivational Interviewing (MI) study (n=423) both of which were compared to TAU. The construct and predictive validity of two composite measures of motivation to change derived from the University of Rhode Island Change Assessment (URICA): Readiness to Change (RTC) and Committed Action (CA) were evaluated. **Results:** Confirmatory factor analysis confirmed that the a priori factor structure of the URICA (CFI=.93, RMSEA=.04). Moreover, this factor structure was invariant among treatment-seeking subjects with drug and alcohol use disorders (CFI=.93, RMSEA=.04). Additional analyses did not support a moderating effect of motivation to change, as measured by RTC or CA, at baseline. Similarly, a mediating effect of motivation at four weeks following treatment did not have a significant effect upon treatment retention or relapse at 12-weeks. **Conclusions:** The construct validity of the URICA was confirmed separately in a large sample of drug- and alcohol-dependent patients. There were no moderating or mediating effects of these composite measures of motivation on treatment outcome. Thus, increased motivation to change, as measured by the composite scores of motivation derived from the URICA, does not appear to influence treatment outcome. **Support:** This work was supported by NIDA's Clinical Trials Network

56 224 CLINICAL FEATURES OF DSM-IV CANNABIS ABUSE IN A CROSS-NATIONAL CONTEXT

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Aims: Recent community surveys in Mexico and Colombia now make it possible to estimate cumulative incidence of clinical features of DSM-IV cannabis abuse in these two countries, and to compare and contrast the experience of cannabis smokers (CS) in each place. **Methods:** Data are from the World Mental Health Surveys Initiative, with probability samples in Mexico (n=4426) and Colombia (n=5,782). After excluding persons with a history of any other 'illegal' drug use, the samples included 380 CS in Mexico, 413 CS in Colombia. Standardized diagnostic assessments were used to identify these CS, to implement exclusion rules, and to assess five manifestations of non-hierarchical DSM-IV cannabis abuse with respect to cannabis-associated social maladaptation or hazard-laden use (e.g., driving while intoxicated). Estimates and 95% confidence intervals are based on appropriate sample weighting and Taylor series variance estimation. **Results:** After exclusion of the polydrug users, an estimated 1 in 8-9 cannabis smokers attributed social problems to cannabis use (13% Colombia; 11% Mexico), whereas the country-specific estimates for continuing to smoke despite social problems were 11% and 8%. Cannabis-associated work troubles occurred somewhat less frequently: 9% in both Colombia & Mexico. In Colombia, an estimated 9% of cannabis smokers had engaged in hazard-laden cannabis use, vs 10% in Mexico. Cannabis-associated legal problems were experienced by 1 in 16 of the cannabis smokers in each country (i.e., ~6%). **Conclusions:** This study's most remarkable finding is similarity in cumulative incidence of cannabis-associated problems among cannabis smokers in this cross-national comparison. Estimates derived separately indicate modestly greater hazard-laden CS among non-Hispanics in the USA, with modestly lower risk of legal problems for CS in the USA. **Support:** NIDA Awards R01DA016558, K05DA015799, D43TW05819, & see WMH web site.

CPDD 2008 Annual Meeting, San Juan, Puerto Rico

225 METABOTROPIC GLUTAMATE RECEPTOR ANTAGONISTS INCREASE THE ANTINOCICEPTIVE EFFICACY OF μ -OPIOID AGONISTS

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Aims: The present study addressed the hypothesis that metabotropic glutamate receptor (mGluR) antagonists increase the antinociceptive efficacy of the μ -opioid receptor (MOR) agonists, buprenorphine and dezocine. **Methods:** The antinociceptive effects of buprenorphine and dezocine were first assessed in a hot plate procedure under conditions of low (53°C) and high (56°C) stimulus intensity. The antinociceptive response was evaluated by recording the latency to lick or shuffle the hind paw(s), and/or to jump from the hot plate surface. Under conditions in which buprenorphine and dezocine produced sub-maximal effects (i.e., 56°C), these drugs were assessed after pretreatment with the mGluR1 antagonist JNJ16259685, the mGluR5 antagonist MPEP, and the mGluR2/3 antagonist LY341495. **Results:** Buprenorphine (0.032-1.0 mg/kg) and dezocine (0.1-1.0 mg/kg) produced dose-dependent increases in latency to respond on a hot plate maintained at 53°C, and both drugs were maximally efficacious. When assessed at 56°C, buprenorphine (0.032-3.2 mg/kg) and dezocine (0.32-10 mg/kg) produced sub-maximal effects. Pretreatment with JNJ16259685 (1.0-3.2 mg/kg) and LY341495 (1.0-3.2 mg/kg) significantly enhanced the antinociceptive effects of buprenorphine and dezocine at 56°C, as revealed by increases in the peak effects of both drugs. In contrast, pretreatment with MPEP (1.0-3.2 mg/kg) did not modulate the antinociceptive effects of buprenorphine and dezocine. **Conclusions:** These results suggest that the mGluR1 antagonist JNJ16259685 and the mGluR2/3 antagonist LY341495, but not the mGluR5 antagonist MPEP, increase the antinociceptive efficacy of buprenorphine and dezocine. **Support:** This study was supported by USPHS grants R01-DA02749, T32-DA07244, and F31-DA022788.

226 SYSTEMS DYNAMIC MODELING AS AN APPROACH TO UNDERSTANDING THE ABUSE AND DIVERSION OF OPIOID ANALGESIC PRODUCTS: IMPLICATIONS FOR RISK MANAGEMENT SYSTEMS

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Aims: Abuse and diversion of opioid analgesics are significant public health problems arising from multiple, dynamically interacting determinants. Efforts to fully understand these complex problems and how best to intervene have been limited. The purpose of this study was to develop a systems dynamic model of abuse and diversion of opioid analgesics at the county-level to gain insights into the nature of the problem and possible leverage points for intervention. **Methods:** Building upon the CDC's Diabetes Systems Dynamic Modeling Project, and utilizing data from the Community Health Status Indicators Project and other sources, a systems dynamic model was developed using STELLA® software. Steps involved in the modeling process included defining the reference behavior pattern, specifying and calibrating the model, and testing how well the model replicated real-world behavior patterns. **Results:** Graphical output from the simulation models indicated varying abuse and diversion patterns. Identified leverage points for change highlight the advantages of promoting protective factors within communities, rather than focusing resources on secondary and tertiary interventions downstream. **Conclusions:** Systems dynamic modeling provides a useful framework for exploring the complexities involved in managing risks associated with the abuse/diversion of opioid analgesic products and enhancing stakeholder collaboration. **Support:** N/A

227 COMMON PRINCIPLES IMBEDDED IN EFFECTIVE ADOLESCENT HIV PREVENTION

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Aims: This study aimed to identify essential underlying principles common to efficacious HIV prevention programs for adolescents in order to facilitate widespread diffusion. **Methods:** Through qualitative research methods based on tenets of grounded theory, manuals from five successful small-group prevention programs were coded and analyzed to identify core principles imbedded in activities and procedures of each evidence-based program. The programs were Be Proud! Be Responsible!, Becoming A Responsible Teen, Focus on Kids, Safer Choices, and Street Smart. **Results:** There were 10 principles: Be internally directed; Commit to change; Distinguish fact from myth; Plan ahead and be prepared; Practice self-control; Know pleasurable alternatives to high risk sexual activity; Negotiate verbally, not nonverbally; Evaluate options and consequences; Show concern for others; Choose to limit your own freedom. **Conclusions:** When the necessary elements of evidence based interventions are defined as principles rather than as specific sequences of activities and scripts, community providers may have more flexibility and ownership in designing programs tailored to adolescents they serve. We propose that the methodology of this study is useful for understanding robust components of evidence-based prevention programs, even those in other fields of health and mental health. **Support:** This paper was completed with the support of National Institute of Mental Health grants #1RO1 MH49958-04, K-23 MH02050-03, and P30MH58107.

57 228 METHYLPHENIDATE-INDUCED ALTERATIONS IN VMAT-2 FUNCTION: ROLE OF DOPAMINERGIC AND MUSCARINIC RECEPTORS

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Aims: Previous studies investigated the role of dopamine (DA) receptors in mediating the impact of methylphenidate (MPD) on the vesicular monoamine transporter-2 (VMAT2) in striatal cytoplasmic vesicles (i.e., vesicles that display Michaelis-Menten kinetics and do not co-fractionate with synaptosomal membranes after osmotic lysis). This study examined effects of MPD on DA release from striatal suspensions and VMAT2 in vesicles co-fractionating with synaptosomal membranes (i.e., vesicles demonstrating substrate cooperativity and greater potential DA sequestration capacity than cytoplasmic vesicles). **Methods:** Rotating disk electrode voltammetry was used to assess DA uptake/release. Immunoreactivity was determined by western blotting. **Results:** MPD increased membrane-associated vesicular DA transport and decreased VMAT2 immunoreactivity: effects mimicked by the D2 agonist, quinpirole, and attenuated by the D2 antagonist, eticlopride. Both MPD and quinpirole increased membrane-associated vesicular DA content. In contrast, MPD increased, whereas quinpirole, decreased K⁺-stimulated DA release. Like MPD, the muscarinic agonist, oxotremorine, increased K⁺-stimulated DA release. Both eticlopride and the muscarinic antagonist, scopolamine, prevented MPD-induced increases in K⁺-stimulated DA release. These data confirm that D2 receptor activation contributes to MPD-induced redistribution of striatal VMAT2-associated vesicles. MPD also causes a D2-mediated kinetic up-regulation of dopamine transport in membrane-associated vesicles, thus permitting increased dopamine release. However, D2 activation is not sufficient to mediate MPD-induced increases in DA release, as muscarinic receptor activation likewise contributes to this process. **Conclusions:** These findings provide insight into the mechanism of action of MPD, regulation of DA sequestration/release, and treatment of disorders affecting DA disposition including substance abuse and Parkinson's disease. **Support:** DA00869, DA11389, DA04222, DA019447, DA000378

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229 NEIGHBORHOOD CONDITIONS AND THE FIRST CHANCE TO TRY CANNABIS

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Aims: Testing a 'broken windows' theory that neighborhood disadvantage promotes youthful drug involvement, we expected to find that risk of the earliest stage of cannabis involvement (first chance to try cannabis, FCTC) depends upon level of neighborhood disadvantage (ND). Whereas actual cannabis using behavior might influence measurement of ND, we assume that the transient FCTC experience does not. **Methods:** In 1999-2000, our research team drew nationally representative probability samples of school-attending adolescents in public and private schools of Panama, all Spanish heritage countries of Central America, and Republica Dominicana (PACARDO), and administered anonymous self-report questionnaires. The multi-item neighborhood disadvantage (ND) scale had acceptable reliability ($\alpha > 0.7$) and allowed sorting of youths into tertiles of ND. Separately, FCTC was assessed. Relative risk estimates are based on conditional logistic regression with matching on school-level socially shared characteristics. **Results:** Within schools, youths living in the most disadvantaged neighborhood conditions were an estimated 2-3 times more likely to have had a chance to try cannabis ($p < 0.05$), even with covariate adjustment for sex, age, prior use of alcohol or tobacco, and affiliation with drug-using peers. There was a gradient: school-matched youths living in neighborhoods with intermediate ND levels had a 1.6-fold relative risk. The ND-FCTC association is present even when items on local area drug trafficking are removed from the ND scale. **Conclusions:** Consistent with theory and prior evidence from other parts of the world, the earliest stages of illegal drug involvement (here, first chance to try cannabis) are found to depend upon levels of neighborhood disadvantage even when socially shared school-level variables and individual covariates are held constant. **Support:** NIDA/NIH/FIC awards: D43TW05819; K05DA015799.

230 SUBSTANCE USE AND SEX TRADE AMONG SOUTH AFRICANS

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Aims: The importance of understanding the relationship between sexual behavior and substance use is underscored by the high rates of sexually transmitted diseases and HIV found among substance users and their partners. Understanding the intersection is particularly relevant to HIV prevention in South Africa given: (1) 20% of the population is HIV positive with heterosexual sex accounting for the majority of cases coupled with (2) rising heroin and cocaine use rates. The purpose of the current study is to identify patterns in substance use associated with engaging in transactional sex among a sample of 400 South African non-injection drug users enrolled in the Neurobehavioral Study of HIV and hepatitis A, B, and C. **Methods:** Sequential logistic regression was employed to examine the association between substance use behaviors and transactional sex. **Results:** Approximately 50% of the sample was female, 25% graduated high school and less than 5% was employed. One third of the sample tested positive for marijuana, heroin and cocaine; 37% participated in transactional sex; and 32% tested positive for HIV/AIDS. Females were 14 times as likely to be involved in sex trade (AOR = 14.4; 95% CI = 7.82-26.63). Substance use to cope was associated with participating in transactional sex (AOR = 3.4; 95% CI = 1.9-6.14). Polysubstance users were 2.5 times more likely to be involved in transactional sex (AOR = 2.21; 95% CI = 1.31-4.79). Persons engaging in transactional sex were almost 3 times as likely to test positive for HIV (AOR = 2.7; 95% CI = 1.68-4.30). **Conclusions:** Our substance use findings are consistent with recent data suggesting the rising rates of polysubstance use. Given the low SES which characterizes the sample, it is likely the participants experience stress related to social and economic deprivation. Almost half adopted deleterious coping strategies, such as, the use of drugs to cope, which in turn, places them at increased risk for HIV through engaging in transactional sex. Findings suggests intervention efforts should focus on fostering educational achievement and employment skill and salubrious coping strategies. **Support:** NIDA RO1DA14498

231 IDENTIFICATION OF THE ENZYMES METABOLIZING BUPRENORPHINE IN PRETERM HUMAN PLACENTAS

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Aims: Buprenorphine (BUP) is used in treatment of the pregnant opiate addict. In term placenta, microsomal cytochrome P450 19 (CYP19/aromatase) was identified as the major enzyme responsible for the dealkylation of BUP to norBUP. BUP is also metabolized by preterm placentas but the activity of CYP isozymes vary between individuals and with gestational age. Therefore, the participation of enzymes other than CYP19 in the metabolism of BUP could not be ruled out. The aim of this investigation was to identify the major CYP isozyme(s) responsible for BUP metabolism in placentas of different gestational ages. **Methods:** Placentas were obtained from preterm deliveries, microsomal fractions prepared from each and then grouped according to the following gestational ages: late 2nd trimester (17-26 weeks), early 3rd (27-33 weeks) and late 3rd (34-37). Monoclonal antibodies, raised against the following human CYP isoforms were utilized to investigate the inhibition of BUP metabolism by each pool: 2C8, 2C9, 1A2, 2E1, 2C19, 2A4, 2D6 and 19 (aromatase). The amount of norBUP formed was determined by LC-MS. **Results:** Antibodies against CYP 2C9, 1A2, 2E1, 2C19, 3A4 and 2D6 did not inhibit BUP metabolism by any of the preterm placental groups. However, antibodies against CYP2B6 and 2C8 caused a slight decrease in norBUP formation in placentas of early gestational age only. The inhibition of BUP metabolism by antibodies against CYP19 increased with gestational age (~50% for pools of 2nd and early 3rd trimesters and 80% for the late 3rd). These results suggest that CYP19 becomes the major enzyme responsible for BUP metabolism around the late 2nd trimester of pregnancy through term as previously demonstrated. **Conclusions:** In conclusion, it appears that BUP and methadone are metabolized by placental CYP 19 during gestation. However, in early gestation CYP2B6 and 2C8 may also participate in BUP biotransformation. **Support:** National Institute of Drug Abuse.MSA

232 TREATMENT HISTORY AND JOB-SEEKING BEHAVIORS AMONG NATIVE AMERICANS

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Aims: Social support for abstinence and employment are predictors of successful functioning after substance abuse treatment. Unemployment problems are often significant in Native American communities. To address this problem, the Southwest Node of NIDA's CTN conducted a single-site adaptation of its national Job Seekers Workshop study (Svikis, P.I.) in a Native American treatment program (NCI). Participants were randomized to (1) a three session, manualized program or (2) a 40-minute Job Interviewing Video. Main effects for treatment on job-seeking behavior or employment rates were not found at 3-month follow-up. One explanation for these null findings is that participant characteristics, here treatment history, may have moderated treatment effects. This study tested for potential moderating effects of treatment history on job seeking behaviors at 3-month follow-up among Native Americans enrolled in the larger study. **Methods:** Intake ASI-Lite data for study participants (N=102) indicated that 14% of the participants reported having a psychiatric history and 88% reported substance abuse treatment (excluding detox). Analyses were conducted to see if these participants differed from non-psychiatric participants on job seeking behaviors reported in the Vocational Survey, an interview-administered measure. Psychiatric history was coded as categorical (yes/no), and t-tests were conducted on job seeking behaviors at 3 months. **Results:** Participants with histories of psychiatric treatment were non-significantly higher on submitting job applications (effect size, $d = .13, p < .64$). Prior substance abuse treatment was also examined as a moderator in relation to job seeking behaviors. A significantly larger proportion of participants with SUD treatment history submitted resumes to prospective employers, $P(1) = 4.47, p < .03$. **Conclusions:** Substance abuse treatment history predicted greater job seeking behaviors at 3 months. The disconnect between job-seeking behaviors and attainment of employment is discussed. **Support:** NIDA CTN

233 PHARMACOGENOMIC STUDY OF OPIOID ADDICTS NON-RESPONDERS TO METHADONE TREATMENT: PRELIMINARY RESULTS

F. Fonseca¹, A. Pastor², K. Langohr², R. Martín-Santos^{1,2}, M. Farre^{2,4}, R. de la Torre^{2,3} and M. Torrens^{1,5}, ¹Drug Addiction Unit, IAPS and, ²Pharmacology Unit, IMIM-Hospital del Mar, ³Experimental and Health Sciences, Pompeu Fabra U., ⁴Pharmacology and Psychiatry, Universitat Autònoma de Barcelona, Aims: To study the role of genetic polymorphisms of different enzymes involved in methadone metabolism and transport (cytochrome P450 CYP2D6, CYP3A5, CYP2C9, CYP2C19, CYP2B6 and MDR1) in a group of opioid dependent patients in MMT and its relationship with treatment outcome. Methods: A sample of opioid dependent patients (DSM-IV), being in the same MMT during at least 7 months were included. Patients were divided into Responders and Non Responders, based on illicit opiate use detected in urine controls. Variables assessed: socio-demographical, MMT characteristics and psychiatric comorbidity (DSM-IV). Determination of (R)-, (S)- and (R,S)-methadone concentrations in plasma was done using a fast and sensitive capillary electrophoresis technique. Genotyping was performed with DrugMEt® Pharmacogenetic Test and CYP2D6 Deletion/Duplication PCR assay and CYP2D6 *41 Sequencing Assay. Results: A total of 69 subjects have been included (71% male, mean age 38±7). Mean doses of methadone: 116±74mg/day. From total sample, 56 were classified as Responders and 13 as Non Responders. No differences in sociodemographic, neither medical, psychiatric nor toxicological characteristics were found between groups. Methadone dose and (R)-, (S)- and (R,S)-methadone plasma concentrations were not significantly different. No differences in terms of methadone maintenance treatment response were found between cytochromes P450 CYP2D6, CYP3A5, CYP2C9, CYP2C19 and MDR1 phenotypes, except that the majority of homozygous carriers of C allele of CYP2B6 1459 C>T SNP were Responders to MMT (86.4 % vs. 13.6%, X²=7.426, p=0.016). Conclusions: Preliminary results suggest that genetic variability at CYP2B6 might be associated with response to MMT. Support: Marató TV3 (01/810), FIS G03/005, FIS G03/184

234 IMPACT OF THERAPEUTIC ALLIANCE ON TREATMENT OUTCOME IN OPIOID-DEPENDENT ADOLESCENTS AND YOUNG ADULTS TREATED WITH BUPRENORPHINE

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Aims: Therapeutic alliance, representing the quality of the therapeutic relationship, has been correlated with positive treatment outcomes (Horvath & Symonds, 1991). This study tested whether participants' perceptions of therapeutic alliance were associated with a reduction in opioid use. Methods: Adolescent and young adult opioid dependent patients were randomized to either a 12-week course of outpatient buprenorphine/naloxone plus psychosocial treatment or detox plus psychosocial treatment alone. All patients were offered weekly individual therapy sessions for the first three months of treatment. The Helping Alliance Questionnaire was completed as part of the larger assessment battery administered at the 4-week follow up. The HAQ-II measured therapeutic alliance by rating 19 items on a scale of 1-6. Results: Analyses were conducted to determine whether HAQ scores at 4 weeks were predictive of opioid use, defined as composite measures of weekly urine drug test screens across the 12 weeks of active treatment. A factor analysis was first conducted to determine the underlying structure of this instrument (alpha extraction and varimax rotation). One factor emerged with an eigenvalue >1, suggesting that the 19 items included in this instrument measured one construct. In general, scores were high on participants' perceptions of therapeutic alliance with their individual counselor. Across items and treatment conditions, participants (N=98) indicated a strong, positive relationship with their therapist, with mean scores = 96.80 + 14.83. Analyses were conducted to determine whether total HAQ-II scores differed by treatment condition. Findings indicated that the experimental group reported significantly higher alliance compared to the TAU group (p=.007). However, the association between higher therapeutic alliance and lower rates of positive UA screens for opioids was not significant (r=.16; p=.11). Conclusions: Reasons why enhanced therapeutic alliance did not influence opioid use are discussed. Support: NIDA CTN

235 KEY COMPONENTS OF A CRITICAL RACE THEORY APPROACH TO THE STUDY OF DRUG ABUSE DISPARITIES

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Aims: A growing body of research on social context and health suggests that racial/ethnic disparities in the use and consequences of drug abuse may stem in part from social stratification of populations on the basis of race/ethnicity. For instance, residential segregation has been identified as a fundamental cause of health and is associated with increased exposure to risky drug use behaviors and risk environments. Yet, few comprehensive, theory-based research methodologies routinely and systematically address ways that racial stratification may contribute to observed outcomes. The aims of this presentation are (1) to introduce an alternative approach to conceptualizing disparities in drug use and consequences; (2) to increase awareness of Critical Race Theory's origins and research relevance; and (3) to provide new tools for studying links between race, ethnicity and social context. Methods: A critical race methodology represents an alternative research approach that focuses on improving understandings of the relationships between race, ethnicity and social context relative to observed health outcomes. This methodology is grounded in Critical Race Theory (CRT) and has been described as praxis to guide the conduct of antiracism research and practice. Originally developed by legal scholars and subsequently adopted by other disciplines, CRT can help drug dependence researchers to incorporate relevant social context, race, and ethnicity constructs into research on drug dependence and disparities. Conclusions: The use of a critical race methodology offers useful approaches and key concepts for studying race, ethnicity and social context in drug dependence research. The presentation introduces Critical Race Theory, describes its relevance for drug abuse research targeting racial/ethnic minority communities, highlights several key concepts, discusses strengths and limitations of the methodology and concludes with recommendations for future research. Support: Funding was received from the W. K. Kellogg Foundation's Kellogg Health Scholars Program (Multidisciplinary Track).

236 TRANSLATING IDEAS INTO PRACTICE: IMPLEMENTATION OF A PROCESS IMPROVEMENT RCT FOR 200 DRUG TREATMENT AGENCIES

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Aims: The study presents the protocol for a five-year randomized control trial designed to evaluate the cost-effectiveness of combinations of four process improvement (PI) interventions designed to improve client access to and retention in treatment across 200 agencies in five U.S. states. Research questions were: (1) What challenges arose when transforming research into practice for each intervention? and (2) How were intervention arms modified to ensure study integrity? Methods: The initial protocol outlined four PI interventions—Learning Sessions, Interest Circle Calls, coaching, and a website. Using an anthropological framework for action research, the evolution of each intervention was tracked to examine key changes over time. Results: Learning Sessions and Interest Circle Calls employ process improvement coaches or Change Leaders to teach participating agencies to use customer experiences to identify key intake issues, to select an area for change, and to pick a promising practice for implementation. Coaches use a one-day site visit and bi-monthly calls to teach PI tools and change ideas for improving client access to treatment. The website provides step-by-step instructions for implementing key promising practices designed to improve client access to and retention in treatment. Preliminary Learning Session results show an average attendance of 41 persons. Learning session evaluations support the hypothesis (alpha =0.05) that no differences exist across the evaluation scores for 56 out of 63 possible comparisons. Conclusions: The study provides a snapshot of the randomized control trial designed to test the cost-effectiveness of PI techniques in 200 drug treatment agencies. It highlights the importance of listening and reviewing the study design while developing study interventions for clinical trials involving real-world organizations. Support: The project is funded by the National Institute on Drug Abuse (5 R01 DA020832-02)

237 FIBROSCAN USED IN STREET-BASED OUTREACH FOR DRUG USERS CAN IMPROVE HCV SCREENING, MANAGEMENT AND TREATMENT: A PROSPECTIVE STUDY

J. Foucher¹, B. Reiller², V. Jullien², F. Léa³, E. Scotto di Cesare², S. Villars¹, W. Merrouche¹, J.M. Delile² and V. de Lédighien^{1,4}, ¹Centre d'Investigation de la Fibrose hépatique, Hôpital Haut Leveque, ²Centre Planterose, CEID, ³La Case, Medecins du Monde, and ⁴INSERM U889, Université Victor Segalen, Aims: Although HCV prevalence is high among drug users, they do not commonly receive regular care in academic centers. The aim of this prospective study was to assess the influence of FibroScan use on HCV screening, management and treatment in street-based outreach. Methods: From January 2006 to January 2007, all consecutive drug users were offered non-invasive evaluation of liver fibrosis with FibroScan. After FibroScan, standardized sociodemographic and drug use parameters were recorded with a structured, face-to-face questionnaire by outreach workers, and the patients were offered a consultation with a hepatologist. Results: All 298 subjects (226 males) accepted FibroScan evaluation: mean age 32 years, ever injecting heroin (69%), ever snorting or injecting cocaine (89%), ever smoking marijuana (94%), current chronic alcohol abuse (44%). Median FibroScan was 5.3 kPa. Before blood sampling, 34% of subjects reported HCV positivity. HCV positivity was found in 83 cases, all with positive HCV-RNA. Forty-five subjects agreed to meet a hepatologist and HCV treatment was initiated in 8 patients. By multivariate analysis, never snorted cocaine, consumed alcohol < 21 drinks per week, duration of injected heroin > 7 years, and FibroScan > 7.1 kPa were significantly associated with HCV positivity. By multivariate analysis, only HCV positivity and not currently consumed hallucinogen were significantly associated with FibroScan > 7.1 kPa. Conclusions: In street-based outreach for drug users, the acceptance of FibroScan is excellent. FibroScan with a hospital-based physician allows screening and management of drug users for HCV infection. Therefore, FibroScan should be used not only in academic centers but also in street-based outreaches, primary health care centers or city road centers where the prevalence of HCV infection is high. Support: supported by Roche

238 DAT GENOTYPE UNDERLIES THE INTENSITY AND DIRECTION OF CORTICOLIMBIC ACTIVATION TO SMOKING CUES

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Aims: We have demonstrated select mesolimbic neuro-activation in smokers during exposure to smoking cues (SCs) independent of withdrawal. Although group data was significant we observed considerable inter-individual variability. It is hypothesized that dopamine (DA) modulation of the mesolimbic circuitry is involved in attributing abnormal incentive value to SCs. We hypothesized that genetically-driven variation in the DA transporter (DAT) gene may affect DA transmission to prolong the reward message and intensify the craving triggered by SCs in a subgroup of stimulus-sensitive smokers. Methods: 20 smokers were genotyped for functional polymorphisms in the DAT (VNTR) gene. Perfusion fMRI images were acquired during exposure to SCs. SPM2 software was employed to generate the contrast images between carriers of the 9VNTR and 10VNTR homozygotes. Results: While brain activity to SCs did not differ across groups in a single marker analysis, carriers of at least one DAT 9VNTR allele had greater CNS responses bilaterally in the interconnected ventral striatum, and ventral medial prefrontal and orbitofrontal cortices, compared to 10 VNTR homozygotes. Analysis by group of SC vs nonSC revealed that the corticostriatal brain response was mediated entirely by 9VNTR carriers while the 10 VNTR homozygotes showed decreased brain activity ($p < 0.001$ in all three contrasts). Groups differed significantly in their relationship between neuroactivity and subjective craving reports. Conclusions: These results are pivotal as they provide initial evidence that the neural and behavioral responses to smoking-related stimuli are mediated by DAergic gene variants. As SCs play a major role in relapse, further study will determine to what extent such hereditary differences contribute to addiction and relapse vulnerability. Encouragingly, the demonstration of a neurogenetic endophenotype offers the potential to reveal relapse and addiction risk and predict treatment response with exceedingly small sample sizes. Support: P60-DA-005186 K01 DA 015426

239 TEMPORAL DISCOUNTING OF SACCCHARIN AS A REINFORCER BY RHESUS MONKEYS

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Aims: Discounting the value of delayed consequences of behavior, or temporal discounting, appears to play a role in drug abuse. In a recent study, monkeys choosing between an immediate and a delayed cocaine injection discounted the value of the delayed injection as predicted by a hyperbolic discounting function. The hypothesis of the present study was that monkeys would discount the value of a delayed non-drug reinforcer similarly. Methods: In a discrete-trials procedure (FR 1, TO 10 m), monkeys first sampled then chose (20 trials/day) between volumes of 0.05% saccharin, p.o. The delayed reinforcer was 4.0 ml and the delay between lever press and reinforcer (0-60 s) was signaled by a flashing light. The immediate reinforcer varied between 0.25 and 5.6 ml. Volume and delay were fixed for at least 4 consecutive sessions and until choice was stable for 3 consecutive sessions. Next, lever/reinforcer pairings were reversed until these criteria were met. For each delay, the immediate volume predicted to maintain 50% choice (indifference point) served as a measure of the value of the delayed reinforcer. The relationship between delay and value was assessed using the hyperbolic discounting function $V = A / (1 + kD)$ where V is value, A is amount of the delayed reinforcer, D is the delay and k is the rate of discounting. Results: Choice of the immediate reinforcer increased with its volume and this function shifted to the left as delay increased. The median R2 value for discounting functions was 0.93 (range: 0.8-0.99). Thus, temporal discounting of a non-drug reinforcer by monkeys was well accounted for by the hyperbolic function. The median k was 0.078 (0.028-0.19). For cocaine, the median k was 0.008 (0.002-0.078), i.e., saccharin was discounted at a higher rate than was cocaine. Conclusions: It is unclear whether this difference involves qualitative or quantitative differences between reinforcers. More rapid discounting of the value of non-drug than drug reinforcers may contribute to the choice between drug and non-drug reinforcers. Support: Supported by the Drug Abuse Research and Development Fund and the Robert M. Hearin Foundation.

60 240 ABUSE POTENTIAL OF A SLOW-ONSET, LONG-DURATION METHYLPHENIDATE ANALOG WITH SELECTIVITY FOR THE DOPAMINE TRANSPORTER

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Aims: We previously reported that 32,476, a methylphenidate analog with selectivity for the dopamine transporter, has an onset of 20-30 min on rodent locomotor, microdialysis, and electrical brain stimulation assays with intraperitoneal (i.p.) injection. We have now tested the compound to examine whether it 1) reduces the self-administration of cocaine, and 2) has the reduced abuse potential that is predicted by current hypotheses. Methods: Intravenous (i.v.) self-administration assays in rats with both fixed- and progressive-ratio reinforcement schedules. Data analyzed by ANOVA, individual group comparisons, and t-tests. Results: In rats trained to self-administer cocaine, i.p. injections of 32,476 decreased the i.v. self administration of cocaine in a dose-dependent manner (FR2, 3 doses, $n=9$, $p < 0.05$ and $p < 0.001$). When 32,476 was substituted for cocaine in a self-administration paradigm, the rats continued to self-administer the compound for 7 days though at a reduced rate (FR2, $n=9$, $p < 0.01$ and $p < 0.001$). However, the number of self-administrations continued to drop between days 1 and 7, suggesting that the behavior may be slowly extinguishing. Furthermore, most self-administrations occurred very early in the sessions, suggesting that the animals were not getting the expected reward. On the progressive-ratio assay, 32,476 was found to have a lower breakpoint than cocaine (2 doses, $n=9$, $p < 0.05$ and $p < 0.01$). Conclusions: These results suggest that 32,476 may be suitable as a substitution therapy for treating cocaine abuse and provide evidence for the hypothesis that a dopamine reuptake inhibitor with slow onset, long duration pharmacokinetics will have reduced abuse potential. Support: Supported by grant DA015795 from the National Institute on Drug Abuse and a grant from DNAPrint Pharmaceuticals.

241 NUCLEUS ACCUMBENS SHELL AND CORE INVOLVEMENT IN DRUG CONTEXT-INDUCED COCAINE-SEEKING BEHAVIOR IN RATS

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Aims: Previous research has indicated that the core and shell regions of the nucleus accumbens are differentially involved in conditioned stimulus-induced and cocaine-primed reinstatement of extinguished cocaine-seeking behavior. Specifically, GABA agonist-induced temporary inactivation of the core, but not the shell, of the nucleus accumbens disrupts these behaviors. The present study tested the hypothesis that nucleus accumbens subregions contribute to context-induced reinstatement in a similar manner. **Methods:** Rats were trained to press a lever for cocaine infusions (0.15 mg/infusion, IV) in a distinct environmental context in the absence of response-contingent conditioned stimuli. Lever responding was then extinguished in a distinctly different environmental context in the course of a minimum of 7 daily extinction training sessions. Subsequently, two test sessions were conducted using a counterbalanced design. Prior to each test session, rats received bilateral microinfusions of the GABAB/GABAA agonists, baclofen and muscimol (1.0/0.1 mM, respectively; 0.3 µl/side) or vehicle into the nucleus accumbens core or shell. Rats were then exposed to the previously cocaine-paired context or the extinction context, and lever pressing was assessed in the absence of cocaine reinforcement. **Results:** Contrary to our hypothesis, GABA agonist-induced inactivation of the shell or core produced equally robust disruption of cocaine-seeking behavior and impaired context discrimination. Motor and food control experiments indicated that the same manipulations did not significantly alter general activity or operant behavior. **Conclusions:** Together with the results of previous studies, the present findings confirm the critical role of the nucleus accumbens core in cocaine-seeking behavior and indicate that nucleus accumbens shell involvement is dependent on the type of trigger used to elicit cocaine-seeking behavior. **Support:** This work was supported by NIDA R01 DA17673 (RAF), NIDA R01 DA17673-S1 (DRR), NIDA T32 DA07244 (HCL), and NIDA T32 NS07431 (SAT).

242 PRE-TREATMENT WITH PKC AND PKA INHIBITORS PREVENTS THE DEVELOPMENT OF MORPHINE TOLERANCE BUT NOT PHYSICAL DEPENDENCE IN MICE

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Aims: We previously demonstrated that intracerebroventricular (i.c.v.) administration of protein kinase C (PKC) or protein kinase A (PKA) inhibitors reversed morphine antinociceptive tolerance in 3-days morphine-pelleted mice. The present study aimed at evaluating whether pre-treating mice with PKC or PKA inhibitors prior to pellet-implantation would prevent the development of morphine tolerance and physical dependence. **Methods:** Antinociception was assessed using the warm-water tail immersion test and physical dependence was evaluated by quantifying/scoring naloxone-precipitated withdrawal signs. **Results:** While mice pelleted with a 75 mg morphine pellet for 3 days developed a 5.8-fold tolerance to morphine antinociception, mice pre-treated i.c.v. with the PKC inhibitors bisindolylmaleimide I, Go-7874 or Go-6976, or with the myristolated PKA inhibitor, PKI (14-22) amide failed to develop any tolerance to morphine antinociception. Experiments were also conducted to determine whether morphine-pelleted mice were physically dependent when pre-treated with PKC or PKA inhibitors. The same inhibitors doses that prevented morphine tolerance were evaluated in other mice injected s.c. with naloxone and tested for precipitated withdrawal. The pre-treatment with PKC or PKA failed to attenuate or block the signs of morphine withdrawal including jumping, wet-dog shakes, rearing, forepaw tremor, increased locomotion, grooming, diarrhea, tachypnea and ptosis. **Conclusions:** These data suggest that elevations in the activity of PKC and PKA in the brain are critical to the development of morphine tolerance. However, it appears that tolerance can be dissociated from physical dependence, indicating a role for PKC and PKA to affect antinociception but not those signs mediated through the complex physiological processes of withdrawal. **Support:** (Supported by DA-01647 and DA-020836)

243 AN EXAMINATION OF DRUG CRAVING OVER TIME IN ABSTINENT METHAMPHETAMINE USERS

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Aims: Although methamphetamine (MA) dependence is a rapidly growing global concern, surprisingly little research has examined the trajectory of craving in individuals who are attempting to reduce their drug use - an important question for users who would like overcome MA addiction. The aim of this study was to examine changes in MA craving during abstinence from use. We hypothesized that craving would decline with increased time of abstinence and that the rate of decline would be independent of age, race, and gender. Additionally, we predicted that the rate of decline would be greater for more frequent users and for intravenous (IV) users and smokers as compared to those who insufflated as their usual route of administration. **Methods:** Participants included 857 outpatients (50% men, 50% women) receiving psychosocial treatment for methamphetamine dependence as part of the Center for Substance Abuse Treatment Methamphetamine Treatment Project. Craving was assessed on a 0-100 scale and abstinence was assessed by self-report and urine toxicology; assessments were made weekly. The majority of participants were of Caucasian (65%) or Hispanic descent (11%) and the mean age of the sample was 33 years old. The most common route of MA use was smoking (58%). **Results:** We estimated a 2-level unconditional linear growth model and found that craving decreased by 1.69 points per week of consecutive abstinence ($p < 0.002$). Craving no longer differed significantly from zero after 12 weeks of abstinence. Men had higher levels of craving than women throughout treatment ($p = 0.04$), but rate of decay was independent of gender as well as age, race, and treatment type. The hypotheses that rate of decay would be greater for more frequent users and for IV users and smokers as compared to snorters were not supported. **Conclusions:** Craving for MA declines as time abstinent from MA increases. The findings underscore the importance of rapid intervention for ongoing MA use. **Support:** DA18179

244 ROLE OF CB1 RECEPTORS ON THE REINSTATEMENT OF NICOTINE SEEKING IN RATS

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Aims: Introduction: Tobacco and marijuana smoking are responsible for a worldwide public health problem. An endocannabinoid system exists in the CNS, and plays a crucial role in the motivational effects of cannabinoids as well as non-cannabinoid reinforcers. **Rationale:** Studies have shown that conditioned place preference (CPP) for nicotine, but not nicotine self-administration is diminished in CB1 knockout mice. In addition it has been shown that Rimonabant (CB1 antagonist) blocks nicotine CPP. To our knowledge there are no studies on the effect of CB1 agonists on reinstatement of nicotine seeking behaviour. **Aim:** The aim of this study is to evaluate the effects of the CB1 agonist WIN 55,212-2 with and without associated visual cues on nicotine seeking behaviour after extinction. **Methods:** 7 Male Long Evans rats were trained to intravenously self-administer nicotine 0.03mg/kg/injection in association with a visual cue. After acquisition of stable responding for nicotine, the rats were submitted to extinction training where lever pressing would induce a saline injection without presentation of the cues. After significant and stable extinction of responding for 2 days, WIN 55,212-2, 0.1, 0.3, 1 mg/kg and vehicle were administered 15 minutes before the sessions, with and without Rimonabant 0.3, 1, and 3 mg/kg. This was performed in a counterbalanced within subject design. **Results:** Rats showed significant reinstatement of nicotine seeking behaviour with 0.3 mg/kg dose of WIN 55,212-2 (ANOVA $p < 0.05$) compared to vehicle. The same dose of WIN 55,212-2 induced a significantly higher reinstatement of nicotine seeking with introduction of visual cues (ANOVA $p < 0.05$). The effect of WIN 55,212-2 was dose dependently reduced by the co-administration of Rimonabant, with significant blockade at the 3mg/kg/dose (ANOVA $p < 0.05$). **Conclusions:** This study demonstrates that activation of CB1 receptors leads to reinstatement of nicotine seeking behaviour. **Support:** CAMH, University of Toronto

245 COMMUNITY REINFORCEMENT APPROACH PLUS VOUCHERS FOR COCAINE ADDICTS: CLINICAL VARIABLES OUTCOMES

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Aims: There is clinical evidence that the Community Reinforcement Approach (CRA) plus vouchers is effective for improving treatment retention and cocaine abstinence in outpatient programs for cocaine addicts in Spain. The main objective of the present study was to analyze the extent to which the efficacy of CRA plus vouchers in retention and abstinence is reproduced in other clinical variables. **Methods:** The study sample was recruited at random from all patients seeking treatment at two community-based clinics in Spain for problems of cocaine dependence. Participants (N=96) were assigned at random to one of the three treatment conditions: standard outpatient program, CRA plus Vouchers I, and CRA plus Vouchers II. The patients in the latter two groups received incentives of different magnitudes contingent upon cocaine abstinence. During the intake phase participants were administered the following instruments: Michigan Alcoholism Screening Test (MAST), Beck Depression Inventory (BDI), Symptom Check List (SCL-90-R) and the European version of the Addiction Severity Index, the EuropASI. These instruments were applied again after 6 months of treatment. **Results:** Patients' state in the variables considered improved across all three conditions after 6 months of treatment. Nevertheless, patients in both vouchers groups improved significantly more than patients in the standard treatment. Furthermore, patients in the high magnitude condition improved more than patients in the low magnitude condition. **Conclusions:** These results support the effectiveness of CRA plus Vouchers not only for cocaine abstinence and treatment retention but also for improving patient condition in clinical variables frequently associated with cocaine dependence. Improvement of patients in the CRA plus Vouchers groups was related to magnitude of the reinforcer. **Support:** Spanish National Plan on Drugs (MINT-03-01), University of Oviedo (UNIOVI-04-BECDOC-05) and Foundation for the Promotion of Applied Scientific Research and Technology in Asturias (BP05-002).

246 THE DOPAMINE D3 RECEPTOR ANTAGONIST SB277011A INHIBITS METHAMPHETAMINE SELF-ADMINISTRATION AND METHAMPHETAMINE-TRIGGERED REINSTATEMENT OF DRUG-SEEKING BEHAVIOR IN RATS

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Aims: Methamphetamine (METH) is very potent psychomotor stimulant and a major drug of abuse. Currently, there are no effective medications for the treatment of METH addiction. Like other drugs of abuse, METH produces strong rewarding effects by elevating extracellular dopamine (DA) in brain reward circuits. Previous research indicates that acute administration of the selective DA D3 receptor antagonist SB-277011A significantly inhibits cocaine self-administration and cocaine-triggered reinstatement of cocaine-seeking behavior. The present investigation examined whether SB-277011A similarly attenuates METH self-administration and METH-induced reinstatement of drug-seeking behavior. **Methods:** Intravenous methamphetamine self-administration and methamphetamine-triggered reinstatement of drug-seeking behavior were used in the present study. **Results:** We found that acute administration of SB-277011A (6, 12, 24 mg/kg i.p., 30 min prior to testing) did not alter METH self-administration reinforced under fixed-ratio (FR2) conditions, but dose-dependently lowered the break-point (by 10, 35, 55% respectively) for METH self-administration under progressive-ratio (PR) reinforcement conditions. In addition, the same doses of SB-277011A also dose-dependently attenuated METH priming-induced reinstatement of extinguished drug-seeking behavior. **Conclusions:** This finding suggests that SB-277011A may be effective in attenuating the acute rewarding effects of METH and relapse to METH-seeking behavior. Thus, SB-277011A or other D3-selective receptor antagonists deserve further study as potential agents for treatment of METH addiction. **Support:** Supported by NIDA IRP.

247 EXPOSURE TO A-CRA TREATMENT PROCEDURES AS A MEDIATOR OF THE RELATIONSHIP BETWEEN ADOLESCENT SUBSTANCE ABUSE TREATMENT RETENTION AND OUTCOME

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Aims: Results from several national treatment evaluation studies have concluded that retention is one of the most reliable predictors of treatment outcomes, however its use as a predictor of outcome is unsatisfactory to extent that it fails to explain "why" treatment works (i.e., mechanisms of change). As studying the mechanisms of treatment has been described as being the best short- and long-term investment for enhancing clinical practice, the primary purpose of the current study was to examine the extent to which exposure to Adolescent Community Reinforcement Approach (ACRA) treatment procedures mediated the relationship between retention and outcome. **Methods:** Using longitudinal data collection methods and path analytic techniques, the current study included 399 adolescents age 12 to 17 who received the A-CRA intervention as part of one of four randomized trials. Baseline and follow-up interviews were completed using the Global Appraisal of Individual Needs (GAIN), which has been normed using both adolescent and adult data. **Results:** Overall, our main hypothesis (i.e., exposure to procedures is a mediator of the relationship between retention and outcome) was supported by the model, which indicated a very good fit ($\chi^2(30) = 60.55$; RMSEA = .0; (90% CI = .03 to .07); NFI = .95; CFI = .97). Thus, results of the current study found that exposure to A-CRA treatment procedures was indeed a significant mediator of the relationship between treatment retention and outcome. **Conclusions:** Although retaining clients in treatment is clearly a laudable goal, especially given that retention is a necessary precursor to exposure to specific treatment procedures, the current study suggests that exposure to the specific treatment procedures may be an important mechanism of change. **Support:** This work was supported by the Center for Substance Abuse Treatment (CSAT), Substance Abuse and Mental Health Services Administration (SAMHSA; TI13356), National Institute on Alcohol and Alcoholism Abuse (NIAAA grant AA10368) and the National Institute on Drug Abuse (NIDA grant DA018183).

248 DIVERSION OF MEDICALLY PRESCRIBED STIMULANTS AND ANALGESICS BY COLLEGE STUDENTS

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Aims: While several studies document nonmedical use of prescription drugs among young adults, few examine the prevalence of prescription medication diversion among college students. This study, using data from the College Life Study, a longitudinal prospective study of 1253 college students, had two aims. First, we report the prevalence and frequency of diversion (i.e., sharing and/or selling) among 83 college students who were prescribed an ADHD medication and 291 students prescribed an analgesic (for pain and other conditions). Second, we examine the characteristics of students who diverted these prescription medications. **Methods:** The study sample consisted of students attending a public university in the mid-Atlantic region of the US who were between 17 and 19 at the start of the study. The 24-month follow-up interview contained detailed questions about diversion of prescription medications. Additional information was gathered regarding a wide variety of other variables, including demographics and childhood conduct problems. **Results:** Among 83 students prescribed an ADHD medication, 59% reported either sharing (54%) and/or selling (30%) their prescription with someone else in their lifetime. The most commonly diverted ADHD medication was amphetamine-dextroamphetamine, where 70% of the 44 students with a prescription diverted it at least once. Diversion of prescription analgesics was less common, with 31% of students either sharing (27%) and/or selling (6%) their prescription. Oxycodone was the most commonly diverted analgesic, with 100% of the 19 students with a prescription diverting it at least once. Comparative analyses revealed that prescription diverters were more likely to live off campus and to have exhibited three or more childhood conduct problems than students who did not divert their prescription. **Conclusions:** Prevention initiatives for college populations should focus on the legal and health risks of diverting prescription medications. **Support:** NIDA R01DA14845; A. Arria, PI

249 CORRELATES OF CHANGING PSYCHOLOGICAL STRESS OVER SIX MONTHS AMONG RURAL STIMULANT USERS FROM ARKANSAS AND KENTUCKY

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Aims: Chronic illicit stimulant use is commonly viewed as psychologically stressful. We hypothesized that changes in level of psychological stress over a six month period would be associated with changes in drug use, health, and criminal justice events in stimulant users from Arkansas and Kentucky. **Methods:** 462 rural users of methamphetamine, crack, and/or powder cocaine from Arkansas and Kentucky were questioned about their psychological stress (Cohen's Perceived Stress Scale), drug use, health, and criminal justice status at baseline and 6-month follow-up. Change scores were generated on each variable and correlations between change in stress and changes on all other variables were calculated. **Results:** Change in psychological stress between baseline and 6-months follow-up was found to be significantly associated with changes in health (physical and emotional), criminal justice status, but not illicit drug use between baseline and 6-month follow-up. Increased stress was associated with negative changes in self-rated physical and emotional health; increased stress was also associated with more days incarcerated and increased self-rated seriousness of legal problems. However, change in stress was not associated with any measure of change in drug use we examined. **Conclusions:** These results indicate that among rural stimulant users, changes in stress and drug use over a six-month follow-up period are not correlated, a finding that is unexpected in light of the substantial evidence for a stress-drug use connection in the literature. Subsequent analysis will focus on the roles of demographic and treatment variables as possible moderators of the stress-drug use relationship. **Support:** This research was supported by a grant from the National Institute on Drug Abuse, R01 DA15353, to Dr. Booth.

250 THE STREET DRUGS 2C-I AND 2C-T-2 SHARE DISCRIMINATIVE STIMULUS EFFECTS WITH ABUSED HALLUCINOGENS

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Aims: Although recreational use of the hallucinogens 2,5-dimethoxy-4-iodophenethylamine (2C-I) and 2,5-dimethoxy-4-ethylthiophenethylamine (2C-T-2) has been increasing, their behavioral effects have not been characterized in laboratory studies. This study provides initial characterization of the behavioral effects of these compounds. **Methods:** The effects of 2C-I and 2C-T-2 on locomotor activity were tested in mice. 2C-I and 2C-T-2 were tested in rats trained to discriminate several hallucinogenic and psychostimulant compounds with actions at dopamine and serotonin receptors. The training compounds included methamphetamine, 3,4-methylenedioxymethylamphetamine (MDMA), lysergic acid diethylamine (LSD), and dimethyltryptamine (DMT). **Results:** 2C-I (3 to 30 mg/kg) depressed locomotor activity within 10 minutes following injection and lasting 30 to 60 minutes (ED50=31.6 mg/kg). 2C-T-2 (3 and 10 mg/kg) depressed locomotor activity within 10 minutes following injection and lasting 40 to 60 minutes (ED50=6.9 mg/kg). 2C-I fully substituted for the discriminative stimulus effects of DMT (ED50=0.67 mg/kg), LSD (ED50=1.13 mg/kg), and MDMA (ED50=2.36 mg/kg), but failed to substitute for methamphetamine. Moderate suppression of response rate was observed. 2C-T-2 partially substituted only for DMT (67-73% drug-appropriate responding following 2.5 mg/kg). Response rates were substantially depressed and adverse effects were observed (2.5-10 mg/kg). **Conclusions:** 2C-I may have abuse liability comparable to known hallucinogens as it fully substituted for LSD, MDMA, and DMT. 2C-T-2 may also be liable to abuse as it shares some stimulus effects with DMT. Its adverse effects and smaller range of substitution may account for why it is not as widely used as 2C-I. **Support:** Supported by NIH N01DA-2-8822 and NIH N01DA-7-8872.

251 CANNABIS POTENCY AND CONTAMINATION: VIEWS OF KEY EXPERTS

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Aims: Issues surrounding the potency of, and presence of contaminants in, cannabis, which have been linked to adverse health outcomes have been prominent in public debate in Australia and the UK. This paper reports the views of key experts on trends in, and factors affecting, cannabis potency and contamination and their potential health effects, with a focus on Australia, which has one of the highest rates of cannabis use in the world. **Methods:** Forty two key experts, ranging from researchers to large scale cultivators, were recruited internationally and administered a semi-structured interview addressing the trends and health effects of cannabis potency and the potential presence of contaminants such as growth enhancers, pesticides and moulds. **Results:** The majority (67%) of experts agreed that plant genetics were the main determinant of cannabis potency. Nearly half (46%) agreed potency had increased over the past decade due to advances in cultivation methods, including indoor hydroponics, and 62% believed growers actively attempted to increase potency. Approximately one third (38%) believed users could titrate their dose to offset any negative effects of increased cannabis potency. Although many (66%) referred to contamination as anecdotal, there was widespread concern about poor cultivation techniques and unscrupulous market practices and the potential harms caused by moulds and pesticides. **Conclusions:** Some support was given to claims of an increase in cannabis potency over the last two decades, but few believed there was strong evidence of a link to adverse health effects. Contamination was rarely seen first-hand but still considered to be a health issue. Testing of cannabis was seen to be a priority. **Support:** NDARC is funded by the Australian Government Department of Health and Ageing

63 252 ETHNIC DISPARITIES IN HEALTH AND HEALTH-RELATED BEHAVIORS AMONG HOMELESS WOMEN

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Aims: Limited empirical research has focused on ethnic differences in the health of homeless women. Using a probability sample of homeless women in Los Angeles, we employ the Behavioral Model for Vulnerable Populations to examine the predisposing, enabling, and need factors associated with health and health-related behaviors in this population. **Methods:** A community-based probability Sample of 974 homeless women in 66 Los Angeles County shelters and meal programs underwent a one hour structured face-to-face personal interview. **Results:** Numerous ethnic differences in the correlates of health and health-behavior exist among homeless women. White women are especially vulnerable to poor health, reporting more gynecological symptoms, limitations on physical functioning, history of drug and alcohol abuse, and history of psychiatric hospitalization. White women's experience of homelessness is also more severe compared to African Americans and Hispanics; White women had been homeless longer on average and reported more exits from homelessness. No significant ethnic differences exist in key sociodemographic factors including income, health insurance coverage, work status, or receipt of food stamps. **Conclusions:** The experience of homelessness differs by ethnicity, as do the correlates of health and health-related behaviors. Notably, White women in this population experience poorer health than African American and Hispanic women on a number of measures. These ethnic differences must be considered when using the Behavioral Model for Vulnerable Populations to examine health outcomes. While most homeless women have health disparities, our findings that white homeless women had the greatest disparity on many measures suggest that this subgroup also needs to be targeted by program planners and policy makers to improve their health and access to care. **Support:** NIDA NIAAA AHRQ Robert Wood Johnson Foundation

253 EXAMINING THE SEVERITY OF ALCOHOL USE PROBLEMS ASSOCIATED WITH DSM-IV ABUSE AND DEPENDENCE DIAGNOSTIC CATEGORIES USING ITEM RESPONSE THEORY

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Aims: Item Response Theory (IRT) analyses were used to examine alcohol abuse and dependence symptoms and diagnoses in adolescents. **Methods:** 5587 adolescents between the ages of 11-19 from adjudicated, clinical, and community samples were administered structured clinical interviews. Analyses were conducted to examine the severity of alcohol abuse and dependence symptoms, and the severity of alcohol use problems (AUPs) in the diagnostic categories created by the DSM-IV. **Results:** Although the current DSM-IV diagnostic categories differ significantly in severity of AUPs (no diagnosis < abuse < dependence), there is substantial overlap and inconsistency in AUP severity of individuals across these categories. IRT-based AUP severity estimates suggest that many persons diagnosed with abuse have AUP severity greater than persons with dependence. Similarly, many persons who endorse some symptoms but do not qualify for a diagnosis (i.e., diagnostic orphans) have more severe AUPs than persons with an abuse diagnosis. An alternative diagnostic algorithm, considering all abuse and dependence symptoms conjointly, eliminated most of these discrepancies. **Conclusions:** An alternative diagnostic algorithm for alcohol abuse and dependence categorizes adolescents by severity better than does DSM-IV. **Support:** DA11015, DA12845, DA05131, DA015522, MH01865, DA016314

254 FLUMAZENIL SELECTIVELY ATTENUATES THE DISCRIMINATIVE STIMULUS EFFECTS OF BENZODIAZEPINES, AND NOT PREGNANOLONE, IN RATS DISCRIMINATING PREGNANOLONE

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Aims: Despite the clinical effectiveness of benzodiazepines, their use is limited by adverse effects; neuroactive steroids, which produce acute behavioral effects similar to those of benzodiazepines, could be useful therapeutically, although actions at receptors other than GABAA receptors might impact their clinical use. The goal of the current study was to explore the role of GABAA receptors in the discriminative stimulus effects of neuroactive steroids by studying interactions between flumazenil, a neutral modulator at benzodiazepine sites, and positive modulators acting at either the neuroactive steroid or benzodiazepine site. Receptor theory predicts that flumazenil will attenuate the behavioral effects of benzodiazepines and not alter those of neuroactive steroids. **Methods:** Eight rats discriminated the neuroactive steroid pregnanolone while responding under a fixed-ratio 10 schedule of food presentation; dose-effect curves for pregnanolone and the benzodiazepines flunitrazepam and midazolam were determined in the absence and presence of flumazenil. **Results:** Pregnanolone, flunitrazepam and midazolam produced >80% pregnanolone-lever responding. Flumazenil dose-dependently antagonized the discriminative stimulus effects of flunitrazepam and midazolam with a dose of 5.6 mg/kg shifting their dose-effect curves 10- and 30-fold to the right, respectively. In contrast, 5.6 mg/kg of flumazenil did not shift the pregnanolone dose-effect curve. **Conclusions:** Thus, these data conform to theory and are consistent with effects obtained in subjects discriminating benzodiazepines, thereby supporting a predominant role of GABAA receptors in the pregnanolone discriminative stimulus and suggesting that actions of neuroactive steroids at receptors other than GABAA receptors do not contribute extensively to their discriminative stimulus effects. These similarities between neuroactive steroids and benzodiazepines indicate that these two classes of drugs could be equally effective therapeutically. **Support:** Supported by USPHS grant DA017240.

255 PREDICTORS OF SOCIAL STABILITY AMONG DRUG USERS AND NON-DRUG USERS IN BALTIMORE CITY, MARYLAND

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Aims: Few have sought to understand the range of social challenges among urban residents and determine the extent to which this varies by drug use. This research sought to measure social stability as an index of cumulative social disadvantage and determine independent predictors of stability among drug users (DU) and non-drug users (NDU). **Methods:** Data are from comprehensive baseline interviews with low-income urban women and their social network members (n=636 females and 179 males) enrolled in an HIV prevention project in Baltimore, MD. Bivariate t-tests and regression analyses were conducted for the full sample and stratified by past six-month heroin or cocaine use (DU n=531 vs. NDU n=284) and gender. Social stability was measured as a sum score of housing, employment, income, jail and main partner relationship in the past six months, with a high score indicating greater stability (range 0-5). **Results:** The mean social stability score was significantly lower among DU compared to NDU (2.7, SD: 1.1 vs. 3.09, SD: 1.1, p<0.001). Social stability in DU and NDU was positively associated with male gender, age, education, and living with children, and negatively associated with depression. Type of drug, mode of drug administration and HIV status were not significant in multivariate models. In gender-specific models, age and living with children were only significant for women, and education was only significant among men. **Conclusions:** Although DU had lower social stability scores than NDU, similar factors predicted social stability in both groups. These findings support the need to better understand the dimensions and implications of social stability among DU and NDU and implement programs to address structural challenges among urban residents. **Support:** This research was supported by the National Institute of Mental Health, R01 MH66810 -03 and 5 F31 MH073430-03.

256 PSYCHOBIOLOGICAL CORRELATES OF CHILDHOOD NEGLECT AND PARENTAL CARE PERCEPTION IN COCAINE ADDICTS

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Aims: To investigate homovanillic (HVA) and prolactin (PRL) plasma levels, as expression of possible changes in dopamine function, ACTH and cortisol plasma levels, as measures of HPA axis function, and concomitant psychiatric symptoms profile in abstinent cocaine addicts, in relation to childhood history of neglect and poor parental care perception. **Methods:** 60 abstinent cocaine dependent patients, and 60 controls were submitted to psychiatric assessment (DSM IV criteria). All patients and controls completed a range of diagnostic instruments to evaluate psychiatric symptoms frequency and aggressiveness levels (SLC-90, BDHI, WURS) and to retrospectively investigate parent-child relationships (CECA-Q, PBI). Blood samples were collected to determine HVA, PRL, ACTH and cortisol basal plasma levels. Cocaine addicted individuals showed significantly lower HVA, and higher PRL, ACTH and cortisol basal levels respect to controls. **Results:** In particular, neuroendocrine changes characterized cocaine addicts with childhood history of neglect and low perception of parental care. Obsessive-compulsive, depression and aggressiveness symptoms have been found related to poor parenting measures, inversely associated to HVA levels and directly associated to PRL, ACTH and cortisol levels. Similarly, attention deficit hyperactivity (ADHD) measures at WURS were found directly related to neglect measures and inversely related to HVA plasma values. **Conclusions:** These findings suggest the possibility that childhood experience of neglect and poor parent-child attachment may partially contribute to a complex neurobiological derangement including HPA axis and dopamine system dysfunctions, playing a crucial role in addictive, affective and ADH disorders susceptibility. **Support:** Univ. Rome, Univ. Bologna, Public Health System -Add. Treatm. Centre, Parma

257 MINOR FIBROSIS IN PATIENTS INFECTED BY HEPATITIS C VIRUS WHILE SHARING DRUG-INJECTION MATERIAL: A MINOR PROBLEM?

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Aims: Background: Minor fibrosis in viremic hepC patients is likely to require delays for treatment. In those cases, supportive follow up often consists in only repeated biologic analysis. **Goal:** Studying the mid term evolution (3,5 years) without treatment of a group of patients with hepatitis C, infected by intravenous drug use, showing initial minor fibrosis and located in a substitution treatment program, in Champagne, France. **Methods:** 33 outpatients, viremic concerning HCV, that did not initially required treatment were included in a follow up protocol. It consisted in 2 repeated liver biopsies between 2 and 5 years of evolution. Metavir score of fibrosis, levels of polydrug & alcohol consumption and behavioural patterns including housing and feeding were analysed. **Results:** Results: A mean of 0,56 point increasement in Metavir score was registered. The major factor for severity in this group appeared as alcohol consumption rather than drug abuse. Moreover the minor was the initial level of fibrosis, the major was the increasement of it. **Conclusions:** Conclusion: Alcohol abuse among patients infected by drug consumption material appears as the major target of an early follow of hepC. Even though, upon them, 24 patients finally treated in this group, 18 (3/4) showed SVR. **Support:** general hospital of saint dizier shering plough

258 GENDER DIFFERENCES IN PROBLEM GAMBLING AND COMORBID SUBSTANCE USE BEHAVIORS IN THE CANADIAN GENERAL POPULATION

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Aims: Problem gambling is a serious public health concern in Canada that often co-occurs with drug problems. This study examines gender differences in the comorbid association between subtypes of gambling behaviors as defined by the Canadian Problem Gambling Index (CPGI) and substance use, controlling for demographics and other gambling characteristics. **Methods:** Past year gamblers (n=9555) were identified using the CPGI dataset. **Results:** Past year gamblers were categorized using the CPGI: non-problem gamblers (84.8%), low-risk (10.4%), moderate risk (3.8%) and problem gamblers (1.0%). The prevalence of reporting gambling while drunk or high in the past year was higher among past year gamblers belonging to more severe CPGI categories [non-problem gamblers (3.9%), low-risk (13.9%), moderate-risk (18.3%), problem gamblers (35.7%)]. The same trend was observed for those who admitted to having an alcohol or drug problem. Two thirds of the problem gamblers were male, in the mid 30's to mid 60's, and had some post-secondary or less education. Gamblers who reported having an alcohol or drug problem were 3 times more likely to be problem gamblers (vs. non-problem gamblers). Moreover, gambling while drunk or high was associated with an increasing odds of being in the more severe gambling groups compared to non-problem gambling group [3.4 (2.5, 4.8) moderate risk, 8.9 (5.2, 15.1) problem gambler]. Associations held true in both males and females, and women were less likely to report problem gambling (0.8% vs. 1.3% in males) but, interestingly, the magnitude of the comorbidity with substance use did not differ across genders. **Conclusions:** This study highlights the increased comorbidity between problem gambling and substance use in the Canadian general population. The magnitude of the comorbidity is similar for both genders, but further investigation is needed to examine whether gender differences exist for distinct drug and alcohol use patterns. **Support:** Supported by the Ontario Problem Gambling Research Centre (OPGRC, P.I.: Dr. Martins).

259 SCHEDULING PROCESS AT DEA - THE EXAMPLE OF CANNABIDIOL

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Aims: DEA collects and reviews scientific, medical and other data on substances to determine their abuse potential and placement into the Controlled Substances Act (CSA). **Methods:** The scientific data reviewed includes in vitro pharmacology and pre-clinical abuse liability studies. In particular, data on discriminative stimulus effects and rewarding properties is essential to determining whether a substance belongs in a class of drugs already scheduled, and to predict its abuse potential. The medical data reviewed includes laboratory-controlled clinical studies. Databases and surveys on drug abuse patterns, illicit trafficking and seizures provide DEA with valuable information on the actual abuse of a drug and its consequences on health, public health and public safety. **Results:** Cannabidiol (CBD) is one of many cannabinoids present in marijuana, and as such is in schedule I of the CSA. DEA is currently conducting a scientific review of CBD to elucidate its pharmacology and abuse liability and to identify gaps in the published literature. **Conclusions:** We will present an overview of the information used to make scheduling determinations. We will then present a summary of the available information on CBD and discuss gaps in the published literature on CBD. **Support:** Drug Enforcement Administration.

65 260 EFFECT OF AMYGDALA INACTIVATION ON CONDITIONED HYPERACTIVITY AND SENSITIZATION IN HIGH-RESPONDER AND LOW-RESPONDER RATS

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Aims: High Responder (HR) rats are more active in an inescapable novel environment and are more sensitive to the effects of amphetamine than Low Responder (LR) rats (Piazza, 1989). Inactivation of the central nucleus of the amygdala (ACe) decreases amphetamine self-administration in HR, but not LR rats (Cain, et al. 2007). The current study determined if inactivation of the ACe reduced expression of amphetamine-induced conditioned hyperactivity and sensitization in HR and LR rats. **Methods:** Male Sprague-Dawley rats were screened for their response to inescapable novelty and then implanted with bilateral cannulae in the ACe. Rats received amphetamine (1.0 mg/kg) or saline injections prior to 1-hr locomotor sessions and in their home cages on intervening days. Rats were assigned to one of three groups (n≈16 HR and n≈16 LR per group): Paired (amphetamine in both locations), Unpaired (saline prior to the locomotor session and amphetamine in the home cage), or Control (saline in both locations). Following 5 training sessions, rats received bilateral infusions of the GABAA agonist muscimol or PBS and were tested for conditioned hyperactivity with a saline injection. Following 5 additional training sessions, rats rested for 7 days and then were tested for amphetamine-induced sensitization following bilateral infusions of muscimol or PBS. **Results:** During training and testing sessions, HR-Paired rats had greater locomotor activity than LR-Paired rats. Inactivation of the ACe significantly attenuated the expression of conditioned hyperactivity and sensitization, and differentially affected HR and LR rats. During the conditioned hyperactivity test inactivation produced a marginally significant difference between HR and LR rats, while during the sensitization test inactivation produced a significant difference between HR and LR rats. **Conclusions:** These studies suggest that inactivation of the ACe reduces the expression of conditioned hyperactivity and sensitization, and that the ACe contributes to the increased sensitivity to amphetamine in HR rats. **Support:** Supported by: USPHS DA021359.

261 TREATMENT OUTCOMES OF METHAMPHETAMINE-DEPENDENT ADULTS WITH PSYCHOTIC DISORDERS

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Aims: Despite the known risk for psychosis in methamphetamine (MA) users, the prevalence and clinical course of psychotic illness in this population have not been widely studied to date. In a longitudinal follow-up study of 526 treatment-seeking MA dependent adults, this investigation examined the association of post-treatment psychotic disorder diagnoses with psychiatric, substance use, and functional outcomes. **Methods:** Participants received psychosocial treatment for MA dependence and were reassessed for psychiatric symptoms, psychosocial functioning and substance use at a mean of 3 years after treatment initiation. DSM-IV psychiatric diagnoses were assessed at follow-up using the Mini-International Neuropsychiatric Interview. **Results:** Of the 526 participants, 12.9% (N=68) met criteria for a current or past psychotic disorder at 3-year follow-up. Relative to those without psychotic illness, the presence of a psychotic disorder was associated with increased risk of hospitalization (Odds Ratio [OR]=2.4, 95% Confidence Interval, 1.2-4.3), more episodes of hospitalization ($\beta=0.33$, SE=0.11; $p<0.01$), and higher levels of psychiatric symptomatology across multiple domains over time. However, self-reported MA use frequency during the follow-up period did not differ between those with and without psychotic disorders, suggesting that concomitant psychotic illness in MA users impacts psychiatric clinical course to a greater degree than substance use outcomes. **Conclusions:** MA users with co-occurring psychotic illness may therefore benefit from early psychosocial and/or pharmacologic interventions to address psychiatric symptoms. **Support:** The research presented herein was supported by the Methamphetamine Abuse Treatment - Special Studies (MAT-SS) contract 270-01-7089 and grants numbers TI 11440-01, TI 11427-01, TI 11425-01, TI 11443-01, TI 11484-01, TI 11441-01, TI 11410-01 and TI 11411-01, provided by the Center for Substance Abuse Treatment (CSAT), Substance Abuse and Mental Health Services Administration (SAMHSA), US Department of Health and Human Services.

262 NICOTINE, BUT NOT VARENICLINE, PRETREATMENT SYNERGISTICALLY ENHANCED AMPHETAMINE-STIMULATED LOCOMOTOR ACTIVITY IN RATS

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Aims: Nicotine and other stimulants are used often in close temporal proximity to each other and have been reported to enhance each others' effects, suggesting that these drugs have acute interactions. The present study investigated the acute interactions of the nicotinic receptor agonists, nicotine and varenicline, with amphetamine on locomotor activity in rats. It was hypothesized that pretreatments with either nicotinic receptor agonist would enhance amphetamine-stimulated locomotor activity and that the partial agonist varenicline would produce less augmentation than the full agonist nicotine. **Methods:** Female Holtzman rats (N=120) were implanted with telemetry devices (MiniMitter/Respironics) to measure continuously locomotor activity in the home cage following drug treatments. **Results:** Nicotine, but not varenicline, administered as a 2 h pretreatment synergistically enhanced locomotor activity stimulated by amphetamine challenge. In addition, the nicotinic antagonist mecamylamine and varenicline attenuated nicotine-induced enhancement of amphetamine-stimulated activity. **Conclusions:** These results demonstrated that, similar to clinical studies, sequential administration of nicotine and amphetamine potentiated drug responses. Furthermore, nicotinic receptor activation by a full agonist was required to enhance the effects of amphetamine, suggesting that smoking cessation therapeutics such as varenicline may not enhance the effects of abused stimulants. Finally, varenicline antagonized the effects of nicotine consistent with its partial agonist activity. **Support:** These studies were supported by the MICHR Pilot and Collaborative Grant Program and the United States Public Health Service Grant T32 DA007268.

263 A NOVEL AFFECT-CONGRUENT GO NOGO TASK DEMONSTRATES LIMBIC PREPOTENCY IN COCAINE-DEPENDENT PATIENTS

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Aims: Fronto-limbic circuits are critical for modulating the impulse to seek rewards when doing so may have negative consequences. Addicted individuals respond to drug cues as though the cues signal only reward, despite their frequent association with severe negative consequences. To better capture this deficit, we developed a novel Affect-Congruent Go NoGo task that uses "affectively-congruent" pictures, e.g. appealing/pleasant objects (e.g. baby animals, sweets) on Go trials, and unappealing/unpleasant objects (e.g. spiders, scorpions) on NoGo trials. Good performance on the task requires that pre-potent responding to Go stimuli (sweet) be inhibited when an infrequent NoGo signal (spider) is presented. We hypothesized that cocaine patients will have strong limbic (amygdala, ventral striatum, VMPFC) and weak frontal (anterior cingulate) activation to the Go signal relative to the NoGo signal. **Methods:** BOLD fMRI (SPM2) was used to measure brain response during performance of our event-related task with 280 Go trials and 40 NoGo trials in detoxified cocaine patients (n=8; male), errors of commission (failure to inhibit on NoGo trials) were used in single regression analysis. **Results:** Random effects analysis (threshold at $p<0.01$) of Go - NoGo for the first half of the task, revealed relatively increased activation in the limbic circuitry (left amygdala, $t=4.38$; right ventral striatum, $t=5.54$; VMPFC, $t=5.1$) accompanied by relative reduction in activity in the frontal region (genual anterior cingulate; $t=8.95$). We found a significant correlation between errors of commission (mean 11.5 ± 5.5) and activation in the left amygdala ($t=7.34$, $r=0.95$), VMPFC ($t=5.52$, $r=0.91$) and left insula ($t=8.98$, $r=0.8$). **Conclusions:** Thus, subjects with the greatest limbic activation to positive stimuli had the most difficulty in response inhibition. This may reflect their real-life struggle to inhibit responding to drug reward, a critical feature of addiction/relapse vulnerability. **Support:** NIDA: T32DA0724114, RO1DA10241, RO1DA15149, P60DA05186, P5012756, VA VISN4 MIRECC, Alexander Foundation

264 CONCURRENCY OF SEXUAL AND INJECTION RISK AMONG NEW HEROIN INJECTORS

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Aims: A consequence of ongoing heroin use is decreased libido and sexual activity. However, new injectors may continue to engage in sexual activity concurrently with their engagement in high-risk injection practices. We hypothesize that new heroin injectors will demonstrate high risks for the transmission of HIV and other blood-borne pathogens through both sexual and injection practices. **Methods:** We administered a structured survey to street-recruited youth (n=146) who had initiated injection within the past three years. Respondents provided details of their most recent injection, current sexual practices, and most recent sexual intercourse. Respondents who had injected heroin and had sexual intercourse during the past two months were included (n=74). Frequencies were computed for both injection and sexual risk practices. An index of high-risk injection practices at the most recent injection event consisted of the presence/absence of injection with a used syringe, preparation of drugs in an unclean cooker, and sharing a drug solution with another injector, and ranged from 0 to 3. A similar index of sexual risk included not using a condom at the most recent sexual intercourse event, having sex with an injection partner in the past two months, and having multiple sexual partners. This index also ranged from 0 to 3. **Results:** Rates of both injection and sexual risks were high in this population. The most common injection risk was injecting with a used syringe (19.7%); the most common sexual risk was not using condoms at last intercourse (59.5%). 40.3% of respondents had at least one injection risk, while 85.9% had at least one sexual risk. 34.4% had at least one of each type of risk. **Conclusions:** New heroin injectors continue to engage in injection practices that confer risk for HIV and other blood-borne pathogens. In addition to injection risk, these injectors are also engaging in high risk sexual practices. Both harm reduction and prevention programs for new drug users must focus on sexual risk in addition to injection-mediated risk. **Support:** This research was supported by the National Institute on Drug Abuse (R01-DA-014234)

265 OUTCOMES OF SUBSTANCE ABUSE TREATMENT FROM THE CALIFORNIA OUTCOMES MEASUREMENT SYSTEM

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Aims: This analysis examines outcomes of treatment for substance abuse from a statewide perspective. Data are from the first evaluation of the new California Outcomes Measurement System (CalOMS). Analysis focused on selected outcome domains (from the National Outcome Measures), including measures of frequency of use of primary and secondary substances, family conflict, hospital use, IV drug use, arrests, and days worked. Hypotheses include: 1) positive outcomes will be observed; 2) there will be differences in outcomes by selected client and treatment characteristics (e.g. gender, age, ethnicity, primary drug, type of and time in treatment). **Methods:** Generalized regression models for repeated measures assessed change from admission to discharge across episodes of continuing care ending in fiscal year 2006-07. Analyses included nearly 150,000 episodes. **Results:** The client sample was 64% male/36% female, 44% non-Hispanic White, 14% African-American, 31% Hispanic, 11% other. Primary drug was: 37% methamphetamine, 19% alcohol, 15% marijuana, 16% opiates, 10% cocaine, and 3% other. Results showed substantial decrease in frequency of primary drug use, to about 1/2 of pre-treatment levels (from an overall average of 10 days to 5 in the past 30 days). Number of days of work increased significantly; and decreases occurred in family conflict, emergency room visits, IV drug use, and number of arrests. No significant difference between men and women was seen in change in primary substance use; slight differences were observed by age, ethnicity, primary drug, and type of service. **Conclusions:** Results indicate generally positive effects of treatment, measured by change from admission to discharge. Results may identify areas for future expansion of specialized services for subpopulations of treatment clients and will form a basis for future modification of the statewide system to improve its utility in planning and delivering substance use treatment. **Support:** Contract #06-00216 with CA Dept. of Alcohol & Drug Programs

266 SELECTIVE GABA REUPTAKE INHIBITION FOR METHADONE INDUCTION AND EARLY STABILIZATION

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Aims: The purpose of this study is to examine the extent that enhanced GABA neurotransmission with tiagabine will attenuate early opiate withdrawal symptoms during methadone induction and facilitate abstinence from illicit opioid use. **Methods:** A total of seventy eight treatment seeking opioid dependent subjects who were predominately Caucasian (77%), males (64%) and unemployed (42%) with an average age of 35 years (SD = 9) were randomly assigned to tiagabine 32 mg/day or placebo. Methadone induction had a fixed schedule phase to 60mg/day that was followed by flexible dosing and adjustment until clinically indicated. Tiagabine was slowly increased to their full dosages by week 5 and maintained through week 12, if tolerated. All subjects received weekly cognitive behavioral therapy. Baseline assessments included the SCID, and ASI. Weekly assessments included reported drug use, three fixed scheduled urine samples per week for drug testing, and opiate withdrawal scales. The primary outcome measure was thrice-weekly drug free urine samples. The main data analyses were performed using mixed-effects regression models. **Results:** Both groups did not differ on demographic variables, they had been dependent on opioids for an average of 8 years and 30% were IV drug users. Treatment retention was over 60% and not significantly different between groups ($p = 0.5$). While the safety analysis indicated that tiagabine was safe and well tolerated, there were a few cases of myoclonus. Tiagabine significantly reduced opioid withdrawal symptoms ($Z = 2.6$, $p = 0.008$) while controlling for methadone dose (tiagabine, mean = 77mg/day & placebo, mean = 84mg/day). Tiagabine significantly increased opioid abstinence rates (75%) compared to placebo (50%) over the 12 week study ($Z=1.8$, $p=0.05$). **Conclusions:** Tiagabine up to 32mg/day with methadone treatment appears to be safe and more efficacious than placebo in reducing opioid withdrawal symptoms and increasing sustain abstinence in newly admitted opioid dependent patients. **Support:** Supported by NIDA grants K23DA14331 (GG), and R01DA017782.

267 ILLICIT DRUG PREVALENCE AMONG INMATES AND JUVENILE OFFENDERS IN PUERTO RICO

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Aims: The inmates population in the Puerto Rico correction system has been increasing during the past decade. It is suspected that the illicit drug use in the aforementioned population has increased due to the fact that hepatitis C is highly prevalent (more than 50%). Hence, it may be indicative that illicit drugs are incrementing among inmates and juvenile offenders. Thus, based on this increase in risk behavior our study aimed to investigate prevalence in drug use among adult inmates and juvenile offenders between 2005 and 2007. **Methods:** Anonymous urine immunoassay data results were collected from adult inmates ($n=25,600$) and juvenile offenders ($n=13,145$). **Results:** This retrospective study has shown that THC is the preferred illicit drug used among both population whereas the use of opiates has significantly decreased among both population ($p<0.05$). Adult inmates tested more positive to cocaine and opiates than juvenile offenders ($p<0.05$). Juvenile tested more positive to THC than adult inmates ($p<0.05$). Since 2005 cocaine and THC positive samples have increased by 17% and 30% in adult inmates, respectively. For juvenile cocaine positive samples have decreased by 9% but THC positive samples have significantly increased by 8% since 2005. According to the data between 2005-2007 showed different regional illicit drug use tendencies, for instance, higher number of cocaine positive were obtained in the east, THC in the west and higher percentage of positive samples were obtained to opiates in the south region of Puerto Rico. **Conclusions:** This study suggested prevalence and regional tendencies with cocaine, THC and opiates drugs in correctional and judicial programs in Puerto Rico. Moreover, among participants urine tests were positive for more than one drug. The fact that these institutions have a more controlled environment it is important to implement innovative and aggressive interventions to reduce illicit drug trafficking. **Support:** None

268 GABAergic MODULATORS FAIL TO ATTENUATE THE DISCRIMINATIVE STIMULUS EFFECTS OF COCAINE IN BABOONS

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Aims: The current study aimed to examine the ability of GABAergic modulators to attenuate the discriminative stimulus effects (i.e., subjective effects) of cocaine. It is well-documented that a primary mechanism of action of cocaine is blocking re-uptake of dopamine. A new direction of medication development for cocaine addiction focuses on drugs that may indirectly modulate dopamine systems through actions on other neurotransmitter systems, such as gamma-aminobutyric acid (GABA). **Methods:** In the current study we trained four adult male baboons (*Papio anubis*) to discriminate cocaine (0.4 mg/kg; IM) from saline in a two-lever food-reinforced drug discrimination procedure. After the discrimination was established, GABAergic modulators were tested as pre-treatments to the cocaine training dose in order to investigate if these compounds would block the discriminative stimulus effects of cocaine. **Results:** Both cocaine (0.08-0.75 mg/kg) and d-amphetamine (0.032-0.32) produced dose-dependent increases in cocaine-appropriate responding. Alprazolam (0.032-0.56 mg/kg), a GABA-A benzodiazepine receptor agonist, failed to block the discriminative stimulus produced by cocaine. Two GABA-B agonists, CGP44532 (0.1-1.0 mg/kg) and baclofen (0.32-1.0 mg/kg), also failed to attenuate the cocaine discriminative stimulus, as did the GABA-uptake inhibitor Tiagabine (0.1-1.0 mg/kg). All compounds suppressed responding at the highest doses tested. **Conclusions:** These data indicate that GABAergic modulators did not attenuate the discriminative stimulus produced by cocaine in our procedure. This is surprising given results from previous drug discrimination reports and our own self-administration studies (Weerts et al. 2005). **Support:** Supported by R01 DA13621 (Elise M. Weerts)

269 METHADONE MAINTENANCE FOR PRISONERS: FINDINGS AT 12 MONTHS POST-RELEASE

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Aims: Because prisoners with preincarceration heroin addiction typically relapse within one month of release, and because readdiction is associated with adverse public health and public safety consequences, this study examined the benefits of an intervention found effective in community settings - methadone maintenance - applied to a new client population - prison inmates who were nearing release. **Methods:** Incarcerated males with preincarceration heroin dependence were randomly assigned to one of three treatment conditions: 1) group educational counseling [Counseling Only (CO); n=70]; 2) counseling, with opportunity to begin methadone maintenance upon release [Counseling+Transfer (C+T); n=70]; and 3) counseling and methadone maintenance in prison, with opportunity to continue methadone maintenance upon release [Counseling+Methadone (C+M); n=71]. The primary outcome measures examined during the twelve-month post-release follow-up period were: 1) admission to drug abuse treatment in the community; 2) number of days in treatment (past 365); 3) urine drug screening test results for a) opioids and b) cocaine; and 4) frequency of a) heroin use (past 365 days), b) cocaine use (past 365 days), c) other illegal activity (past 365 days) and, d) reincarceration (past 365 days). Poisson regression was used for continuous variables and logistic regression for categorical variables. **Results:** Findings involving 211 participants regarding treatment participation and community adjustment indicated that C+M participants were significantly more likely than both CO and C+T participants to be enrolled in drug abuse treatment (C+M v. CO p<.001; C+M v. C+T p<.05) and be retained in treatment for a longer period, and were more likely than both CO and C+T participants to test negative for opioids according to urine drug screening (C+M v. CO p<.001; C+M v. C+T p<.05). Furthermore, both C+M and C+T participants reported involvement in fewer days of heroin use (C+M v. CO p<.05; C+T v. CO p<.05), cocaine use (C+M v. CO p<.05; C+T v. CO p<.05) than CO participants. **Conclusions:** Findings at 12-month follow-up appear promising. **Support:** NIDA R01 DA16237

270 ASSESSMENT AND TREATMENT OF CO-OCCURRING EATING DISORDERS IN PUBLICLY FUNDED ADDICTION TREATMENT PROGRAMS

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Aims: Despite the high prevalence and increased risk of mortality of co-occurring eating disorders (ED) and substance use disorders (SUD), little is known about the availability of treatment resources for these patients who present to addiction treatment programs (ATP). This survey was conducted to increase the understanding of current treatment resources available to patients with these highly prevalent co-occurring disorders who present for SUD treatment in publicly-funded ATP. **Methods:** This survey is part of the National Treatment Center Study. Data were collected from detailed interviews with program directors of a nationally representative sample of 351 publicly-funded ATP between 2002 - 2004. Descriptive statistics, analysis of variance, chi-squares, and qualitative data analyses were used. **Results:** 50.8% of ATP screen patients for ED; 28.5% admit all ED cases and 48.1% admit cases of low severity. 17.3% of programs attempt to treat ED. Programs that admit and treat ED are more likely to emphasize a medical/psychiatric model of addiction, use psychiatric medications, assess and admit patients for other co-occurring psychiatric disorders, and have a lower caseload of African-American patients. Programs that treat ED identified differences in ED treatment from standard addiction treatment. Programs that do not provide ED treatment list reasons for not offering services. **Conclusions:** Despite the high prevalence of co-occurring SUD and ED and the noteworthy mortality risks of not treating both conditions, most publicly funded ATPs do not address ED either through assessment or treatment due to limited resources and the perception of low need. These results highlight the need for education of ATP professionals in assessment of ED and the development of integrated treatment. **Support:** NIDA K24-DA019855, R01-DA014482, U10-DA13035, U10-DA013043, U10-DA15831

271 ENABLING FACTORS FOR BUPRENORPHINE TREATMENT IN THE VETERANS HEALTH ADMINISTRATION

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Aims: Buprenorphine opioid agonist therapy (B-OAT) has been underutilized in the Veteran Health Administration (VHA) for the diagnosis of opioid dependence (DOD). Some VHA facilities have successfully implemented B-OAT, yet factors that enabled B-OAT at these sites were unknown. We sought to examine and understand patient, provider, and system level facilitators that enabled B-OAT within the VHA. **Methods:** From June '06 to October '07, we conducted semi-structured telephone interviews of key administration and clinical personnel at a national sample of VHA facilities with a high prevalence of DOD and lacked an OAT program. Sites categorized based on the number of B-OAT prescriptions: Early implementers (EI, >40 prescriptions, 5 sites), modest implementers (MI, 5-40 prescriptions MI, 3 sites), and no implementers (NI, 0-5 prescriptions, 9 sites). Interviewees were associated with administration, pharmacy, or substance use treatment programs. Interviews were taped, transcribed, coded by 3 reviewers, and evaluated using structured grounded theory framed by patient, provider, and system themes. **Results:** 101 VHA personnel were contacted to participate, of which 62 volunteered to be interviewed (67% physicians) at 17 VHA facilities. 88% of facilities had B-OAT-certified clinicians; 47% had no B-OAT prescribing. Patient, provider, and practice level facilitators varied between EI vs. MI and NI sites. Prominent B-OAT facilitators at EI sites were established need and perceived reduced stigma (patient level), having B-OAT waived physicians, integrated and coordinated care (provider level), and having administrative and pharmacy support (system level). A champion/role-model of B-OAT care and the endorsement of B-OAT in non-traditional settings greatly facilitated B-OAT at EI and MI sites. Barriers of care at NI sites did not necessarily correlate with facilitators at EI and MI sites. **Conclusions:** Factors that enable B-OAT in the VHA vary by facility. Strategies and policies to implement B-OAT in the VHA should be unique and targeted to each facility. **Support:** VHA HSR&D Service

272 ANXIETY SENSITIVITY AS A PREDICTOR OF TREATMENT DROPOUT AMONG INNER-CITY CRACK/COCAINE AND HEROIN USERS IN A RESIDENTIAL SUBSTANCE USE TREATMENT CENTER

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Aims: Previous research has shown that anxiety sensitivity (AS) is related to coping-oriented substance use as well as several other problematic aspects of drug use behavior. Therefore, it is necessary to consider this construct as a possible risk factor for poor substance use treatment outcomes. More specifically, individuals with high AS and subsequently inadequate psychological coping resources for aversive events may be more likely to prematurely dropout of substance use treatment. In such, the purpose of this research was to examine the extent to which AS at baseline was related to treatment dropout in-order to further understand the complex factors which affect a patient's decision to remain in treatment or to leave before the completion of set goals. **Methods:** 182 crack/cocaine and heroin users at an inner-city residential substance use treatment center were assessed at baseline for drug dependence using the SCID-IV as well as demographic information, frequency of past year substance use prior to treatment, anxiety sensitivity, and severity of depressive symptoms. Dropout information was closely tracked along with the administrative staff at the treatment center. **Results:** Data indicated that AS incrementally and prospectively predicted treatment dropout even after controlling for the variance accounted for by other theoretically and empirically relevant factors including demographics and other drug use variables, legal obligation to treatment (i.e. court ordered vs. self-referred), alcohol use frequency, and depressive symptoms. **Conclusions:** AS is one of the only theoretically-relevant factors which distinguishes treatment completers from treatment dropouts and therefore could potentially serve as a predictive variable for substance use treatment dropout in general. Additionally, hypersensitivity to aversive stimuli may be influential in individual susceptibility to dropout among drug users. **Support:** Grant number: R01DA019405

273 SPECIFIC JOINT HEPATOLOGY-ADDICTION MEDICINE FOLLOW-UP OF HEPATITIS C TREATMENT FOR INTRAVENOUS DRUG USERS (IDU) OR EX-IDU: IS THERE ANY BENEFIT?

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Aims: To evaluate, in terms of virological outcomes, the impact of joint hepatology-addictive medicine treatment & follow-up for IDU or ex-IDU HCV-infected patients. **Methods:** The medical files of 176 consecutive patients, who consulted for hepC in an infectious diseases unit, between 9/2006 and 3/2007, were retrospectively assessed. Baseline demographics, sources of infection, and biological, virological and histological parameters were collected. Type of treatment, outcomes, tolerance and compliance were analyzed. **Results:** Among the 176 patients, 85 were infected through drug-injecting materials (IDU) and 91 through other sources (non-IDU). The groups were comparable in terms of demographics, but IDU patients were more frequently co-infected with HIV and had more severe liver disease. Virological responses to therapy of IDU patients medically managed by joint hepatology-addiction medicine follow-up (IDU-J) were similar to those of non-IDU patients, with, respectively, 52.4% and 53.1% of them clearing HCV from their plasma. In contrast, IDU patients not benefitting from joint follow-up for their hepC (IDU-non-J) had poorer outcomes: only 35% cleared HCV from their plasma and they were more likely not to complete treatment. **Conclusions:** Despite poorer factors predictive of virological response in IDU than non-IDU patients (HIV infection and severe disease), IDU-J, but not IDU-non-J, had virological responses similar to those of non-IDU. This marked difference merits further examination and discussion in a pluridisciplinary setting. **Support:** No Support

274 DEMOGRAPHIC CHARACTERISTICS OF COCAINE-RELATED DECEDENTS IN GAINESVILLE, FL

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Aims: Over the last decade, cocaine-related deaths have increased in Florida. Accordingly, demographic information is required to enhance ongoing public health interventions. Gainesville has been described as Florida's aorta because it is centrally located and connected by highway to Miami, Tampa, Orlando, Jacksonville, and Atlanta. A growing university town, it has experienced a surge in cocaine trafficking and use. **Methods:** In this study, case files from 2006-2007 cocaine-related deaths investigated by the District Eight Medical Examiners Office (Gainesville, FL) were reviewed. Cocaine-related deaths were defined as fatalities resulting from or associated with toxicologically confirmed cocaine use. **Results:** Of 59 cocaine-related deaths, 29% were due to mixed drug toxicity, 20% to motor vehicle accidents, 17% to cocaine toxicity, 10% to suicides, and 7% to other drug toxicity and accidents, or undetermined. The remaining 17% were due to "natural causes," (e.g., aneurysm, stroke, heart attack). This relatively high percentage of natural causes of death in those with postmortem cocaine is consistent with the literature and suggests that chronic cocaine use results in cardiovascular and central nervous system pathology. Opioids, ethanol, and benzodiazepines were observed most frequently in combination with cocaine. The decedents were 75% male, ranging in age from 20 to 68 (M= 40.10 ± 11.84) and 64% were White, 34% Black, and 2% Latino. For a town with nearly 75,000 students, education was low: 39% were high school graduates, 12% obtained some college education, and only 5% attained Associate degrees - the highest educational level overall. All but one were Florida residents and 81% were residents of greater-Gainesville. There were no observed increases in deaths associated with weekends or holidays. **Conclusions:** Cocaine deaths are an impartial, useful measure of use in a locale. Given that drug use tends to decrease as perceived risk increases, education regarding the dangers of cocaine use should be improved. **Support:** Riverbranch Foundation

275 THE EFFECT OF COGNITIVE ABILITY ON HEPATITIS C INFECTION PREVALENCE AMONG INJECTION DRUG USERS IN BALTIMORE, MARYLAND

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Aims: To determine if higher cognitive ability protects individuals engaging in extremely high risk injection drug practices against becoming infected with HCV **Methods:** Data consisted of 410 injection drug users from the U.S. sample of the International Neurobehavioral HIV Study, an epidemiological examination of neuropsychological, social, and behavioral risk factors of HIV and hepatitis A, B and C. The Shipley Institute of Living Scale was used to assess cognitive functioning among participants in the study. The Shipley scores were standardized and separated into quartiles, where individuals scoring in the highest quartile were compared to all others for the analysis. Logistic regression analyses were done to determine associations between HCV prevalence and cognitive ability among 368 injection drug users providing information about lifetime history of needle sharing and/or backloading. **Results:** Preliminary analyses showed a protective effect of high scores on the Shipley Institute of Living Scale and HCV prevalence in separate analyses among both those with a history of needle sharing (OR = 0.25; 95% CI: 0.12 - 0.53) and among those with a history of backloading (OR = 0.09; 95% CI: 0.02 - 0.38). Further logistic regression analyses revealed that, adjusting for age, those who shared needles were 1.72 times more likely to be infected with HCV than those who did not share needles and that there was a statistically significant interaction between high cognitive function and backloading with an OR of 0.15 (95% CI: 0.03 - 0.70) for HCV infection in this sample. **Conclusions:** Injection drug users who share works are at extreme risk of contracting HCV. Our study findings suggest that, adjusting for age, higher cognitive functioning may be protective against HCV infection among this group at heightened HCV risk. **Support:** This research was supported by RO1 DA010777 to Dr. William W. Latimer and the Drug Dependence Epidemiology Training Program T32 DA007292 (PI: Dr. William W. Latimer)

276 SUBJECTIVE REACTIONS TO CANNABIS REMAIN ASSOCIATED WITH HEAVINESS OF USE AND CANNABIS ABUSE/DEPENDENCE IN ADOLESCENTS/YOUNG ADULTS AFTER CONTROLLING FOR COVARIATES

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Aims: Previous studies of middle-aged adults have suggested that the rewarding effects of cannabis may partly explain continued use and progression to abuse/dependence. The present analyses examine whether this association is observed in an adolescent/young adult sample. **Methods:** Cannabis-initiated offspring of twins from wave 1 of the Twins as Parents Study (n=467; 56% of those interviewed) were asked the extent to which they experienced 13 different effects (e.g., relaxed, lazy, paranoid, confused) shortly after using cannabis. Binary responses were created indicating the effect was "experienced" or "not experienced" (prevalence range for "experienced": 0.15 [overactive] to 0.92 [relaxed]). Latent class analysis (LCA) was used to classify respondents into groups based on subjective reactions, and multinomial logistic regression was used to assess associations between class assignment and heaviness of use. **Results:** LCA indicated a 4-class solution was optimal, with classes labeled as: "high responders" (HI; 39.2%), "euphoric" (EU; 28.2%), "sedated" (SED; 21.8%), and "low responders" (LOW; 10.8%). Males were more likely to be in the HI and EU classes. After controlling for covariates, class assignment remained strongly associated with frequency of use (HI and EU > LOW for 6-40 and 41+ uses; SED > LOW for use 6-40 times but not different for heavier use; HI > EU for use more than 40 times). DSM-IV cannabis abuse/dependence differed substantially and significantly across classes: HI (59.9%) > EU (32.8%) = SED (31.7%) > LOW (2.0%). **Conclusions:** The HI, EU, and LOW groups in the present analyses are similar to those found in middle-aged samples. In contrast to previous studies, our analyses did not yield a "negative" response profile, and did yield a purely "relaxed" group. The present analyses further support a robust association between subjective responses and heaviness of use, abuse, and dependence. **Support:** DA14363, AA11667, AA11998

277 EFFECTS OF WRITTEN EMOTIONAL EXPRESSION ON CRAVING DURING RECOVERY FROM COCAINE DEPENDENCE

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Aims: Exposure to emotional trauma during early development is an important risk factor for substance abuse disorders in later life. Although no published reports have described the use of WEE in patients who primarily abuse cocaine, it has been shown to have beneficial effects in other medical conditions that do not involve substance abuse. Our hypothesis was that WEE would improve retention in patients receiving treatment for cocaine dependence. **Methods:** We conducted a prospective, single-blind, parallel group, controlled trial to evaluate effects of WEE in patients receiving intensive inpatient treatment for cocaine dependence. 42 patients were randomized to participate in 4 writing sessions involving either WEE or a control procedure in which routine, non-emotional issues were described. Craving (via the Brief Substance Craving Scale), mood (Profile of Mood States and Brief Symptom Inventory), and perceived stress (by the Perceived Stress Scale) were recorded at baseline and during WEE and follow-up at 2, 4, 8, and 12 weeks. **Results:** Completion of writing exercises based on WEE did not modify perceived stress scores, but increased diastolic or systolic blood pressure at several time points during writing sessions. WEE increased scores on the BSI paranoid ideation subscale following the first and second writing sessions and decreased scores for the POMS vigor subscale after the second writing session. Although it did not modify retention of patients during follow-up, WEE decreased craving intensity measured at the first outpatient visit. **Conclusions:** In summary, changes in blood pressure and mood during writing sessions are consistent with previous reports that WEE can cause emotional distress, perhaps by stimulating active coping. Reductions in craving at an initial follow-up visit may indicate a therapeutic effect of WEE during recovery from cocaine dependence. **Support:** Office of Research and Development, Medical Research Service, Department of Veterans Affairs

278 DOES CONTINGENCY MANAGEMENT IMPROVE STUDY RETENTION AND TREATMENT OUTCOMES IN ADOLESCENT SMOKING CESSATION RESEARCH?

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Aims: There is a significant need for evidence-based treatments for adolescent nicotine dependence. Contingency management (CM) is a behavioral intervention which has shown promise in encouraging treatment retention and positive outcomes in adult substance use disorders, including nicotine dependence. This study seeks to explore associations between a CM intervention and study retention and smoking cessation outcome in adolescents. **Methods:** In an ongoing study of bupropion SR and a CM intervention (escalating reinforcement schedule) for smoking cessation in adolescents, 49 participants have been randomized to CM and 51 have been randomized to non-CM. Retention (measured by number of participant visits completed) and 14-day point prevalence nicotine abstinence at 2-week follow-up were compared between groups. **Results:** To date, CM and non-CM participants have completed an average of 8.3 and 7.9 visits, respectively, out of 15 total visits ($p = 0.74$). Among CM participants, 29% achieved 14-day point prevalence nicotine abstinence, compared with 6% of non-CM participants ($p = 0.003$). **Conclusions:** Preliminary results indicate that CM can be safely combined with medication treatment in adolescents with nicotine dependence. In addition, CM may improve nicotine abstinence among adolescent smokers. **Support:** Study supported by NIDA (R01 DA 17460 and K12 DA 000357) and USPHS (M01 RR 01070).

279 A LATENT CLASS ANALYSIS OF PRESCRIPTION OPIOID ABUSE IN THE NATIONAL ADDICTIONS VIGILANCE INTERVENTION AND PREVENTION PROGRAM

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Aims: Abuse of prescription opioids has been linked to health problems, psychiatric history, and poor access to therapy, among other things. To determine prevalence, predictors, and covariates of prescription opioid abuse typologies, we conducted a latent class analysis. We hypothesized that there would be >3 classes of prescription opioid abusers and that sex, age, and race would contribute to the definition of class. **Methods:** Data from November 2005-September 2007 were obtained from ASI-MV® Connect, a national database of self-reported data on patients admitted to substance abuse treatment. The sample had 1921 illicit (non-medical) users of prescription opioids from 82 facilities; 47% were women. Latent class analysis was conducted on 24 binary indicators of prescription opioid abuse class; covariates were sex, age >35, and race. **Results:** We detected 4 classes of prescription opioid abusers of sizable prevalence. a) Self-medicators with multimorbidity (30.9%) had psychiatric, chronic medical and pain problems, and substance abuse issues, whose conditions were largely untreated; b) prescribed misusers (21.4%) had pain and recent medical problems and received prescribed pain medication for providers; c) comorbid abusers (26.6%) had profound psychiatric problems and emotional abuse histories, but no chronic medical issues; and d) healthy abusers (21.1%) had no medical, pain, or psychiatric problems and no abuse history. The final model was interpretable, had adequate entropy (.86), and minimized measures of fit (AIC, BIC) vs. models with >4 classes. Classes a and b were significantly older than c and d; classes a and c had more females whereas class b had more men; race was not a significant covariate for any class. **Conclusions:** Distinct profiles of prescription opioid abusers suggest a range of typologies of abuse. A better understanding of abuse etiologies can help target prevention and treatment efforts. **Support:** Supported by Alpharma Pharmaceuticals LLC, Endo Pharmaceuticals, and a grant from the National Institute on Drug Abuse (NIDA).

280 CITALOPRAM AND 5HT TC102: A BAYESIAN ANALYSIS

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Aims: Investigators often use small data sets to evaluate the merit of further trials. In these situations frequentist statistics are minimally informative. Power to detect effects is diminished in small samples. Null hypothesis testing only indirectly addresses the support for the alternative hypothesis, the purpose of the study. Frequentist p-values do not index the strength of the evidence. One way to quantify the evidentiary value of data, is to use Bayesian statistical reasoning. Examination of resulting posterior distributions permits probabilistic statements of the likelihood that treatment yields a given effect. **Methods:** This project is a secondary data analysis of a small subgroup ($n = 22$) from an RCT of citalopram for cocaine dependence comprised of patients for whom genetic data were gathered. The moderating effect of the TC102 5HT-polymorphism on treatment with citalopram was evaluated. Outcome was evaluated in terms of longest, sustained abstinence from cocaine use. **Results:** Posterior distributions derived from poisson regression on treatment, TC102, and their interaction showed a 74.7% chance that patients with the polymorphism differentially benefited (i.e. Risk Ratio > 1.0) from citalopram. Simple effects of citalopram in the presence of the polymorphism indicated a 99.96 % chance of benefit (i.e. Risk Ratio > 1.0) from treatment. There was an 82.97% chance of substantial benefit (i.e. Risk Ratio > 5.0) from treatment for patients with the polymorphism. In participants without the polymorphism the probability of benefit from citalopram was 97.79%. The probability of substantial benefit was 12.63%. **Conclusions:** Investigators often make decisions regarding the merit of confirmatory trials in the face of minimal data. We used Bayesian statistical reasoning to specify the probability of response to citalopram treatment as a function of the TC102 polymorphism. Advantages of using this approach to supplement conventional statistics will be discussed. **Support:** Supported by the NIDA Grants #R01DA08425, KO2DA0403, P20 DA09262, and CRC grant M01RR002558.

281 TREATMENT ENGAGEMENT AS A MEDIATOR OF OUTCOME IN THE WOMEN'S RECOVERY GROUP STUDY

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Aims: In a Stage 1 trial, women enrolled in the Women's Recovery Group (WRG) (n=29) had reductions in mean days of substance use and drinking days at 6 months follow-up while women in mixed-gender Group Drug Counseling (GDC) (n=7) did not. We investigated ancillary treatment engagement as a mediator of outcome. Methods: We used the Treatment Services Review (TSR) and Monthly Self-Help Questionnaire (MSH) to determine services use at baseline, treatment, and 6 months follow-up. Results: At baseline, women in GDC used more day treatment days than those in WRG [5.7 (s.e.=2.17) vs 1.4 (s.e.=0.49), p=0.005]. Women in WRG had a greater number of individual sessions in treatment [2.57 (s.e.=0.19) for WRG vs 1.62 (s.e.=0.41) for GDC, p=.038] and during follow-up [2.33 (s.e.=0.17) for WRG and 1.07 (s.e.=0.36) for GDC, p=0.002] than those in GDC. Women in GDC used more sessions of self-help in treatment [5.01 (s.e.=0.85) for WRG and 8.28 (s.e.=1.81) for GDC, p=0.10] and in follow-up [5.12 (s.e.=0.81) for WRG and 8.88 (s.e.=1.72 for GDC, p=0.04] than those in WRG. Across both treatments, use of residential services during treatment was associated with fewer drinking days [mean number decreased drinking days = 5.4 (s.e.=2.43), p=.028] and fewer substance use days [mean number decreased substance use days = 7.47 (s.e.=3.47), p=0.03] during follow-up. For those in WRG, for each self-help session attended, there was a decrease of 0.41 (s.e.=0.13) drinking days from baseline to follow-up (p=0.002); participation during a self-help session was associated with a decrease of 4.94 (s.e.=2.40) drinking days from baseline to follow-up (p=0.061). Conclusions: Small sample size may have limited detection of differences between WRG and GDC. However, ancillary treatment engagement, especially residential services and self-help attendance, was overall significantly associated with decreased drinking and substance use days during follow-up. Support: NIDA R01 DA015434 and K24 DA019855

282 WITHIN-SESSION SATISFACTION AND STATE MOTIVATION AS PREDICTORS OF MARIJUANA USE AT FOLLOW-UP: AN ILLUSTRATIVE ANALYSIS

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Aims: Few intervention studies have focused on dynamic, within-session predictors of treatment response. The current research aimed to examine two such predictors; participant satisfaction and state motivation. Our goal was to determine the degree to which these variables predicted outcome among a sample of post-partum women undergoing a single-session drug use intervention. Methods: 107 low-income, primarily African-American women participated in a computerized motivational drug use intervention. The intervention consisted of three counterbalanced components: "feedback," "pros and cons" and "goal-setting." Participant state motivation was measured at baseline and immediately following each of the three intervention components; satisfaction was measured following each component. The primary outcome was marijuana use at 4-month follow-up (defined as either self-report or a positive urine screen). Results: After controlling for baseline marijuana use, participants' mean satisfaction ratings following all three components significantly predicted post-intervention marijuana use. After controlling for baseline marijuana use, only participants' mean motivation rating following the "pros and cons" component predicted post-intervention marijuana use (χ^2 [1, N=107] = 4.4; p < .05). In addition, change in motivation from baseline to the end of the first component also predicted marijuana use (χ^2 [1, N=107] = 3.9; p > .05). Conclusions: Results suggest that within-session measures of client satisfaction and motivation may serve as indicators of long-term treatment response. Though exploratory, these findings suggest that: (1) clinicians may be able to evaluate and modify their progress on a session-by session basis, and (2) researchers could efficiently evaluate and modify their interventions before proceeding to large-scale clinical trials. Satisfaction and state motivation may be promising components of such a process. Support: This study was supported by National Institute on Drug Abuse grant DA14621 (Ondersma).

282 ANTERIOR CINGULATE GLUTAMATE MEASURED WITH HIGH-FIELD, SHORT-TE, SINGLE-VOXEL 1H-MRS IS GREATER DURING LOW- VS. HIGH-DOSE METHADONE MAINTENANCE

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Aims: Mu-agonists alter GLU levels in anterior cingulate cortex (ACC), ventral striatum, thalamus and hippocampus in animals. This ongoing human study uses proton MRS to determine whether within-subject, double-blind manipulation of methadone (METH) dose in heroin-dependent Ss alters ACC and thalamic GLU levels, and whether these correlate with heroin craving and drug use. Methods: Heroin-dependent Ss (5M, 1F so far: mean age 44 yrs) are stabilized on 100 mg/day METH and scanned 2 hr post-dose after 3 inpatient days (during which craving and opioid symptoms are measured; drug use based on urinalysis before admission). Ss are discharged, the dose is tapered and stabilized [first cohort, n=5 at 25 mg/day; current cohort so far, n=1 at 10 mg/day], and the sequence is repeated. Using a 4T scanner, anatomical T1-weighted images are used to place 1H-MRS voxels in midline ACC and thalamus (2.0x1.5x1.5cm³). Spectra are collected with PRESS (TE=22ms; TR=4.0sec; data points=2,048; bandwidth=2kHz). Measures are frequency- and phase- corrected. LC Model is used to quantify GLU, NAA, myo-inositol, GPC+PC and PCr+Cr. Dose (high, low) X Voxel (ACC, thalamus) ANOVAs and simple effects tests are conducted using SPSS. Results: All 6 completers show lower GLU in ACC during high- vs. low-dose METH (p<.05) but not thalamus (p=.77). Dose X Region F(1,5)=14.24, p<.02. High-dose GLU level tends to predict less GLU change during dose reduction, r=-.78, p<.07. Other metabolites are not showing significant changes. Craving during high-dose METH is correlated with GLU change in ACC during dose reduction, r=+.85, p<.04. Conclusions: These novel preliminary data show that in vivo human ACC GLU levels relate to opioid dependence. We are assessing whether METH high-dose GLU is lower or METH low-dose GLU is higher relative to matched controls. These data suggest that GLU variations could be an endophenotype for opioid dependence and that craving during high-dose METH (poor medication response) could predict GLU change. Support: WSU Career Development Chair Award, NIH DA00254 and Joe Young, Sr. Funds (State of Michigan)

284 WHO SEEKS HELP FOR A SUBSTANCE USE DISORDER AND WHO DOES NOT IN THE NESARC?

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Aims: Only a small portion of individuals with substance use disorders actually seek or receive help, but it is not clear why some individuals seek help whereas others do not. This study examines the factors associated with help-seeking among individuals with a past-year alcohol or drug (AOD) disorder in the National Epidemiologic Survey on Alcohol and Related Conditions (NESARC). Methods: The NESARC is a national survey of a representative sample of the U.S. population. About 9% of the sample met criteria for a past-year AOD disorder (either abuse or dependence). We used multinomial logistic regression with population weights to examine the influence of predisposing, enabling, and need-related factors on a 3-level dependent variable: (1) received help in past year (8.7%); (2) perceived a need for help but did not receive it (4.5%); (3) no perceived need and no help received (86.8%). Results: African Americans and Hispanics were twice as likely as whites to perceive a need for help but not to receive it; each year of age increased the odds of both receiving and perceiving a need for help by 2 percent; and individuals without a high school degree were twice as likely as college graduates to perceive a need for help, but not to receive it. Individuals with mood disorders were twice as likely as those without both to receive and to perceive a need for help, whereas those in good health were less likely than those in poor health to either receive or perceive a need for help (OR's=0.65, 0.55). Family history of alcohol problems doubled the likelihood of perceiving a need for help. Lastly, each additional negative consequence associated with AOD use increased the likelihood of receiving or perceiving a need for help (OR's=2.1, 1.8). Conclusions: Increasing the recognition of AOD-related problems and associated health problems may facilitate help-seeking. Non-white ethnicity and lower education are barriers to receiving help, despite their perception of need, although recognition of family alcohol problems is a facilitator. Support: Funded by the National Institute on Drug Abuse (R01-DA020944).

285 APPLICATION OF PRINCIPAL STRATIFICATION TO CONTROL FOR INSTITUTIONALIZATION AT FOLLOW-UP IN STUDIES OF SUBSTANCE ABUSE TREATMENT PROGRAMS

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Aims: Participants in longitudinal studies on the effects of drug treatment and criminal justice system interventions are at high risk for institutionalization (e.g., spending time in an environment where their freedom to use drugs, commit crimes, or engage in risky behavior may be circumscribed). If unaccounted for, it can confound treatment effects and lead to incorrect inferences about the ability of treatment to produce desirable outcomes. We consider the use of principal stratification to control for institutionalization at follow-up and estimate the effect of residential substance abuse treatment versus outpatient services in a large scale study of adolescent substance abuse treatment programs. Additionally, we discuss practical issues in applying principal stratification to data. **Methods:** We extend the method of principal stratification to model institutionalization at follow-up. The method identifies principal strata within which causal effects are well defined and potentially estimable. The strata are defined based on an adolescent's level of institutionalization under both treatment modalities. **Results:** When we control for the confounding effects of institutionalization using principal stratification, residential treatment leads to significantly worse outcomes among adolescents who experience the same level of institutionalization under both treatment modalities. The effect of residential treatment is larger among adolescents who are not institutionalized under both treatment modalities. Results from our simulation study suggest that successful implementation of principal stratification requires the data meet strenuous demands. **Conclusions:** We propose the use of principal stratification to obtain policy-relevant treatment effects which appropriately control for the effects institutionalization can have on outcomes. While promising, caution must be taken when implementing principal stratification as a technique to control for institutionalization due to the computational demands of the method. **Support:** This research was supported by NIDA Grants R01 DA015697, R01 DA016722 and R01 DA017507.

286 PARENTAL SUBSTANCE ABUSE AND LONG-TERM COPING IN A SAMPLE OF ADULT DOMESTIC VIOLENCE SURVIVORS

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Aims: Research indicates that adult children of substance abusers often develop avoidant coping strategies in order to negotiate stressors in their family of origin. These strategies appear to increase the risk of victimization and are associated with negative outcomes (Griffing et al., 2006). Parental substance abuse (PSA) is associated with adverse familial experiences, such as domestic violence, incarceration, mental illness, and child abuse (Griffing et al., 2007). The present study examines the interrelationships between these variables and their effects on the development of coping skills among domestic violence (dv) survivors. **Methods:** 245 female residents of two New York City dv shelters completed a structured interview which included questions about adverse childhood experiences and coping. **Results:** 52.7% of the sample (n=129) reported a PSA history. As hypothesized, the results of a multiple regression indicated that, a PSA history was significantly associated with greater reliance on emotionally disengaged forms of coping (p<.01). However, further analysis through hierarchical regression revealed that avoidant coping was more closely associated with child emotional abuse and parental mental illness than with PSA (p<.01). These findings have important clinical and empirical implications. **Conclusions:** Substance abuse programs should provide psychoeducational parenting groups that address the effects of multiple stressors on children. Counselors should be cognizant of the relationship between adverse childhood experiences and avoidant coping in trauma-exposed populations, and should incorporate coping skills training into their interventions. **Support:** There is a clear need for closer collaboration among substance abuse, mental health, domestic violence and child welfare programs, and cross-training for staff within these agencies. Findings also underscore the need for researchers to examine the complex relationships between different types of adverse childhood experiences in order to avoid misattributing the effects of these other events solely to PSA.

287 PSILOCYBIN OCCASIONS MYSTICAL-TYPE EXPERIENCES: DOSE EFFECTS

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Aims: Psilocybin has been used for centuries for religious purposes. In a prior study, a high dose of psilocybin (30 mg/70 kg) occasioned mystical-type experiences having personal meaning and spiritual significance when administered under supportive conditions to carefully screened and well-prepared volunteers. The present study extended this work by characterizing effects of a range of psilocybin doses. **Methods:** This double-blind study evaluated the effects of orally administered psilocybin (0, 5, 10, 20, and 30 mg/70 kg) administered under supportive conditions. Participants were 18 adults (10 females; 17 hallucinogen-naïve) most of whom (14) reported at least weekly participation in religious or spiritual activities. Five day-long sessions were conducted individually at about 4 week intervals, with the sequence of conditions mixed. During sessions, volunteers were encouraged to use eyeshades and direct their attention inward. **Results:** On volunteer-completed post-session questionnaires assessing hallucinogen effects (HRS) and mystical experience (M scale, SOCQ), and on monitor ratings of overall drug effect, psilocybin effects were generally a monotonically increasing function of dose, with even 5 mg/70 kg producing significant effects. The percentage of volunteers fulfilling a priori criteria for having a "full" mystical experience were 0, 6, 11, 44, and 56 across 0, 5, 10, 20, and 30 mg/70 kg psilocybin, respectively; 72% fulfilled these criteria at either or both of the two highest doses. Despite careful screening and preparation, and interpersonal support during sessions, 39% of volunteers rated extreme fear or feeling trapped for some period during the session; 86% of such episodes occurred after the 30 mg dose with 14% after 20 mg. **Conclusions:** Under supportive conditions, 20 or 30 mg/70 kg psilocybin can occasion experiences similar to naturally-occurring mystical experiences in a high proportion of volunteers. Five mg/70 kg psilocybin is a pharmacologically active dose. **Support:** Council on Spiritual Practices and Heffter Research Institute

72 288 THE NEUROPSYCHOLOGICAL ASSESSMENT BATTERY - SCREENING MODULE UTILITY AT TREATMENT ENTRY

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Aims: Previous report of an examination of The Neuropsychological Assessment Battery - Screening Module (NAB-SM; Stern & White, 2003) indicated this battery demonstrated sensitivity to impairment in substance abusing populations (Grohman & Fals-Stewart, 2004). The current study provides early stage findings that compare the performance of patients entering treatment for alcohol dependence only (ADO) to primarily alcohol dependent patients with additional substance dependence (ADP) on the NAB-SM. **Methods:** From a sample of primarily alcohol dependent patients entering treatment (N = 56), a subset of individuals (n = 22) were identified as ADP and matched with ADO individuals (n = 22) for age and education to provide performance comparisons on the NAB-SM. Participants were excluded if they had extensive TBI histories, psychotic disorders, or neurological disorders. Psychosocial and neuropsychological assessments were made within a week of treatment entry and at least 14 days post-abstinence from any alcohol use. **Results:** The NAB-SM demonstrated sensitivity to mild to moderate impairment in at least one area of neuropsychological functioning in more than half the participants in both groups. In ADO individuals 14% were mildly impaired for attention, and mild to moderate impairment was found in 28% for language skills, 42% for memory, 21% for spatial abilities and none for executive functioning. For ADP individuals mild to moderate impairment was measured in 13% for attention, none for language skills, 40% for memory, 27% for spatial abilities, and 20% for executive functioning. MANOVA comparisons of the standardized scores between the groups did not reveal significant differences in any performance area. **Conclusions:** The NAB-SM demonstrated sensitivity to cognitive impairment in a sample of patients entering treatment for alcohol dependence regardless of additional substance use. Similar to previous findings, this measure demonstrated utility as a screening tool to identify cognitive impairment at treatment entry. **Support:** Grant support was provided by the National Institute on Alcohol Abuse and Alcoholism (K23 AA014664).

289 ESCALATING DOSE OF METHAMPHETAMINE INDUCES DEFICITS IN RESPONSE INHIBITION IN NON-HUMAN PRIMATES

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Aims: Loss of inhibitory control has been widely hypothesized to contribute to compulsive aspects of drug addiction. Response inhibition deficits, which constitute a measure of poor inhibitory control, were characterized using a reversal learning task and the dopaminergic system using positron emission tomography (PET) in vervet monkeys treated with an escalating dose regimen of MA. **Methods:** Male vervet monkeys were trained to learn and reverse a series of novel picture-reward discriminations. MicroPET was used to calculate the availability of dopamine transporters (DAT) with [C-11]WIN 35,428 and the dopamine D2/D3 receptors with [F-18]fallypride before starting the 5-wk saline or MA escalating dose regimen (0.1 mg/kg/day - 4.0 mg/kg/day, i.m.). Acquisition, retention, and reversal of a learned discrimination were assessed 48-72 h after 3 wk of dosing and 7-8 days after 5 wk of dosing. The availability of DAT and dopamine D2/D3 receptors was measured 8-9 days and 8 wks after chronic treatment. **Results:** Chronic MA and saline groups were able to acquire and retain the discrimination equally well. However, the MA group exhibited specific deficits during reversal, which were attributable to an increase in perseverative responses. Chronic MA treatment reduced the availability of DAT to 57-67% of the baseline levels at 8-9 days after chronic MA treatment. At 8 wks after MA treatment, the reduced striatal DAT partially recovered to 72-92% of the baseline levels. The effects of chronic MA treatment on the availability of striatal dopamine D2/D3 receptors are currently under examination. **Conclusions:** These findings suggest that chronic, escalating-dose administration of MA induces deficits in response inhibition and neurochemical changes in striatal dopaminergic systems. **Support:** Supported by R03DA020598 and P20DA022539 and a grant from the National Drug Control Policy.

290 TREATMENT CONSIDERATIONS OF PHYSICIANS PRESCRIBING BUPRENORPHINE

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Aims: We sought to examine the influence of patient illicit drug use on physicians providing buprenorphine opioid agonist therapy (B-OAT) and identify factors that motivate different treatment decisions. **Methods:** In 2007, we mailed an anonymous survey to B-OAT credentialed physicians of Ohio, Pennsylvania, and West Virginia. The survey inquired about practitioner, B-OAT prescribing, and practice characteristics and presented two scenarios (S): S1) a patient on B-OAT, doing well, who recently initiated cocaine (or marijuana) use and S2) a patient on B-OAT, doing well, who recently initiated heroin. We inquired whether the physician would continue B-OAT if the patient was willing/unwilling to curb use of cocaine or marijuana (S1) or heroin (S2). We examined these outcome variables by provider and practice factors by χ^2 and Fisher's exact tests. **Results:** Of 495 surveys delivered, 224 (45%) were returned. Respondents were mainly generalists (52%) or psychiatrists (36%), without fellowship training (74%), and had prescribed B-OAT (90%) mainly in outpatient settings (71%). Respondents would prescribe B-OAT to patients with hazardous alcohol drinking (30%) and initiate B-OAT for patients willing/unwilling to curb marijuana (36%/10%) or cocaine (64%/13%) use. For S1, 91%/21% would continue B-OAT if the patient was willing/unwilling to limit cocaine use (92%/43% for marijuana). Maintaining B-OAT for a patient willing to curb cocaine use was associated ($p < 0.05$) with employed practice, willingness to prescribe B-OAT to hazardous drinkers and marijuana users, and use of 12 step referrals. For S2, 85%/14% would continue B-OAT if the patient was willing/unwilling to limit occasional heroin use. Maintaining B-OAT for a patient willing to curb heroin use was associated with type of training, prescribers of B-OAT, employed and private practice, willingness to prescribe B-OAT to hazardous drinkers, use of 12 step, and history of conflict with peers regarding B-OAT. **Conclusions:** Provider and practice factors influence provider willingness to prescribe B-OAT to patients with concomitant illicit drug use. **Support:** VHA MIRECC

291 EXTENDED-RELEASE NALTREXONE INJECTABLE SUSPENSION FOR TREATMENT OF ALCOHOL DEPENDENCE IN URBAN PRIMARY CARE: A FEASIBILITY STUDY, PRELIMINARY ANALYSIS

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Aims: The feasibility of extended-release naltrexone injectable suspension (XR-NTX) for treatment of alcohol dependence in primary care settings is uncertain. We are investigating 3-month treatment retention, patient satisfaction, and alcohol use among alcohol-dependent patients treated with XR-NTX in two urban public hospital medical clinics. **Methods:** Eligible patients are alcohol-dependent adults seeking XR-NTX treatment and able to attend 3 monthly medical management (MM) sessions and one month-4 follow-up visit. MM sessions emphasize benefits of eliminating drinking, accessing Alcoholics Anonymous (AA) and outside counseling, relapse prevention, and treatment adherence. XR-NTX doses are monthly (380mg IM). Questionnaires document drinking frequency and quantity, medication side effects, alcohol cravings, and AA and counseling participation. Visits and medication are free; patients receive monetary incentive for the final follow-up visit. **Results:** Twenty-six patients have enrolled since 7/1/2007. Referral sources include inpatient detoxification and other units (2), primary care (3), alcohol outpatient programs (5), ads (12), and word-of-mouth (4). Patient characteristics are as follows: mean age 44 years old; 23% female; 15% black, 19% Hispanic, 65% white; 35% uninsured. Of 20 enrolled for ≥ 1 month and eligible for a 2nd injection, 13 (65%) received it, 2 (10%) postponed but intend to return, and 5 (20%) declined or were lost to follow-up. Nine of 13 eligible patients (69%) received a 3rd injection. Participants have consistently reported reduced cravings and diminished alcohol effects; percent of recent days abstinent has increased from 47% to 85% pre- vs. in-treatment. **Conclusions:** XR-NTX treatment appears feasible and acceptable for alcohol-dependent patients in a primary care setting. **Support:** Study has been funded by Cephalon/Alkermes, Inc.

292 POLYDRUG USE AMONG CLUB-GOING YOUNG ADULTS

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Aims: The purpose of this study is to estimate the extent of polydrug use among young adults who use "club drugs," which include ketamine, MDMA, cocaine, GHB, methamphetamine, and LSD. Although researchers have identified relations between club drug use and polydrug use, there has been little assessment of the patterns of polydrug use among club drug users. Among a myriad of negative health outcomes, polydrug combinations can increase metabolic toxicity (e.g., cocaine and alcohol metabolize as cocaethylene, a third highly-toxic substance). **Methods:** Using time-space sampling, a stratified sample of 400 18-29 year old club-drug-users were enrolled in the Club Drugs and Health Project (100 gay/bisexual men, 100 lesbian/bisexual women, 100 heterosexual men, 100 heterosexual women). Participants indicated their club drug use and experiences combining club drugs with other substances. **Results:** Polydrug use was common: 95% of cocaine users, 87% of MDMA users, 71% of ketamine users, 69% of LSD users, 66% of methamphetamine users, and 54% of GHB users used these drugs with other drug(s). Men were significantly more likely than women to have combined GHB with another drug (63% v. 38%), and heterosexuals were significantly more likely than non-heterosexuals to have combined LSD with another drug (76% v. 61%). Compared with persons of color, whites were significantly more likely to have combined GHB (62% v. 39%) and LSD (74% v. 60%) with another drug. The most frequently cited polydrug combinations included cocaine-alcohol ($n = 153$), cocaine-MDMA ($n = 125$), MDMA-alcohol ($n = 93$), MDMA-ketamine ($n = 82$), and MDMA-LSD ($n = 79$). **Conclusions:** The data indicate many club drug-using young adults are actively combining substances. They highlight the need to develop culturally-sensitive polydrug education and prevention initiatives targeted toward club-going young adults. Furthermore, they suggest that there is a need to further evaluate the pharmacological effects of polydrug combinations in addition to the social-psychological motivations driving polydrug use. **Support:** NIDA NRSA T32-DA07233

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293 TRAINING MEDICAL RESIDENTS TO RECOGNIZE AND MANAGE PRESCRIPTION OPIOID ABUSE AMONG CHRONIC PAIN PATIENTS

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Aims: The increasing epidemic of prescription opioid abuse poses a particular challenge for primary care physicians that warrants development of educational initiatives. The study aim is to evaluate a CSAT-supported curriculum developed to improve medical housestaff recognition and management of opioid use disorders among primary care patients receiving opioids for chronic noncancer pain. **Methods:** The 2-hour, case-based curriculum was delivered to small-groups of 2nd year medical residents as a required part of the ambulatory rotation. Cases were adapted from actual patients treated in primary care. A pre-post survey was administered to test the hypothesis that knowledge and preparedness to manage patients receiving prescription opioids would improve after curriculum participation. The uncoded 2-page survey asked participants to rate their agreement with self-efficacy statements using a Likert scale from 1 (strongly disagree) to 5 (strongly agree). Data were analyzed with paired t-tests. **Results:** Of 40/42 (95%) curriculum participants who completed the survey, 59% were female and the mean medical school graduation year was 2006. Self-efficacy improved across all items ($p<.001$) with data reported as mean scores (pre vs. post, respectively). Housestaff agreed that they were more prepared to manage patients on chronic opioid medication (2.8 vs. 3.7), including those with substance use disorders (3.0 vs. 3.9). They felt more prepared to identify DSM-IV opioid dependence (2.8 vs. 3.9). They reported greater familiarity with physical signs of illicit substance use (3.0 vs. 3.9), comfort using urine toxicology (3.0 vs. 3.9), greater understanding about pain contracts (2.9 vs. 4.1), the difference between opiates and opioids (2.5 vs. 4.2), pseudoaddiction (2.2 vs. 4.1), and hyperalgesia (2.7 vs. 4.1). Overall housestaff had a favorable impression of the curriculum, mean 4.2. **Conclusions:** The findings support the effectiveness of the brief curriculum, which may improve physician recognition and management of prescription opioid abuse. **Support:** Supported by SAMHSA/CSAT and DA-020000.

294 AN ORGANIZATIONAL CHANGE INTERVENTION TO ADDRESS SMOKING IN DRUG ABUSE TREATMENT

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Aims: This study investigated the effectiveness of a 6 month manual-based organizational change intervention, Addressing Tobacco through Organizational Change (ATTOC). The intervention addresses potential programmatic and organizational barriers to providing client-level nicotine dependence treatments in drug abuse treatment programs. **Methods:** Administrative and clinical staff at a residential treatment facility were surveyed at both pre (n=54) and post (n=55) intervention with 95% and 97% completion rates respectively. All eligible clients who were in treatment a minimum of 2 weeks were surveyed at pre (n=50) and post intervention (n=50). Both staff and client surveys covered nicotine-related knowledge, attitudes, services and nicotine use. Nicotine Replacement Therapy (NRT) such as nicotine gum and patches were offered to both clients and staff. **Results:** Findings showed staff smoking prevalence was reduced by 16% from pre to post-intervention, although this was not statistically significant. Staff scales for attitudes, beliefs ($p<.05$) and efficacy ($p<.05$) increased significantly post-intervention, as did in practices ($p<.05$) of nicotine-dependence treatment. Compared to clients in the pre-test sample, those in the post-test sample reported more positive attitudes ($p<.05$) towards nicotine treatment and increased access to nicotine-related services ($p<.05$) while in treatment. **Conclusions:** While the study design does not permit causal interpretation, we observed a decrease in staff smoking (pre to post) and high volume of NRT use, corresponding to changes in client and staff attitudes, efficacy and increased smoking cessation services available to clients. **Support:** This work is supported by NIDA grant R01 DA020705-03.

295 INJECTING EQUIPMENT SHARING AMONG RUSSIAN DRUG-INJECTING DYADS

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Aims: We examine in the injecting partnerships (dyads) of Russian IDUs, the correlates of sharing cookers (SC), receptive syringe sharing (RSS) and distributive syringe sharing (DSS), on three levels: individual attributes, network characteristics, and dyad characteristics. **Methods:** IDUs (N=570; 12/2004-07/2007) in St Petersburg, Russia were recruited in an ongoing network HIV prevention intervention. GEE models were used to assess associations between the dependent and independent variables within injecting partnerships (dyad N=1692). **Results:** On the individual level, female gender and speedball use were significantly associated with SC, and younger age with both RSS and DSS. On the network level, network exposure was associated with all three sharing variables (higher number of sharing partners with SC, RSS and DSS; and lower number of advice givers with RSS and DSS). On the dyad level, being a sex partner was associated with RSS and DSS; and higher levels of trust, greater personal exposure (hanging out with network member [NM], seeing NM daily, living with NM, NM's sharing injecting equipment with others), and dependence on resources (relying on each other for drugs, financially supporting each other) were associated with all three sharing variables. **Conclusions:** In the injecting dyads of Russian IDUs there is overlapping risk of unsafe injecting and unsafe sexual behaviors. Injection and sexual risk, and their combination need to be addressed in interventions that target the injecting partnerships of IDUs. Interventions should also aim at reducing the number of injecting and sharing partners, increase non-drug social support, and address the issue of trust as an impediment to risk reduction. **Support:** Funded by the National Institute on Drug Abuse (NIDA), Grant number R01 DA016142. V. Anna Gyarmathy was funded by the Ruth L. Kirschstein award, Drug Dependence Epidemiology Training Program, NIDA Grant T32 DA007292.

74 296 PRESCRIPTION FORGERY OF OXYCONTIN® TABLETS IN THE USA

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Aims: Prescription forgery is a specific type of drug fraud that contributes to diversion and abuse, and drives up third-party payor costs of prescription drugs. To combat this problem, the Centers for Medicare & Medicaid Services (CMS) announced a rule, effective 2Q08, that will mandate the use of tamper-resistant prescriptions for all written prescriptions for Medicaid beneficiaries. The purpose of this study was twofold: to describe the scope of prescription forgery involving OxyContin, and to establish a baseline prior to the implementation of the rule. **Methods:** Data specific to OxyContin were retrieved from a proprietary, national database consisting of print, radio and television media reports from BurelleLuce, Factiva, Google News Alerts and Video Monitoring Service; postings on the National Association of Drug Diversion Investigator (NADDI)'s listserv; and reports from pharmaceutical company field representatives for the period 01/01/05-11/19/07. **Results:** A total of 262 instances of prescription forgery involving OxyContin were identified (mean \approx 23 reports / quarter). Approximately 48% of reports were from media sources, 35% from field representatives, and 15% from NADDI listserv postings. Reports were received from 39 different states, with the largest number of forgeries reported from Ohio (n=30), South Carolina (n=25) and California (n=17). Approximately 14% of reports also specified the amount of OxyContin indicated on the forged prescription(s). Numbers ranged from 40 to 8,000 tablets, with 55% of reports involving 1,000 or more tablets. **Conclusions:** Instances of unauthorized, improperly altered and counterfeit prescriptions for OxyContin are widespread in the USA, involve a significant amount of drug and create unnecessary costs. Analysis of prescription fraud trends post-implementation of the new CMS requirement will be important in order to evaluate the effectiveness of tamper-resistant prescriptions in combating such fraud. To characterize the problem of prescription forgery of opioid analgesics in its entirety, similar analyses of instances involving other drugs should be undertaken. **Support:** n/a

297 THE OPIOID RECEPTOR ANTAGONIST NALTREXONE ATTENUATES REINSTATEMENT OF AMPHETAMINE SELF-ADMINISTRATION IN THE RAT

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Aims: The extinction/reinstatement self-administration model is often used in pre-clinical research to mimic relapse to drug abuse in humans. The aim of the study was to investigate the effect of the unselective opioid receptor antagonist naltrexone (NTX) on reinstatement of amphetamine self-administration. **Methods:** Animals were trained to self-administer amphetamine under a fixed ratio 1 (FR1) schedule (0.1 mg/kg/infusion, daily sessions of 2 hrs) in an operant paradigm. After receiving a stable drug intake the amphetamine was replaced with saline and the animals went through a 20 day extinction period. After reaching the extinction criteria, animals were pre-treated with NTX (0, 0.3, 1.0 and 3.0 mg/kg, s.c.) 30 minutes before giving a priming dose of amphetamine (0.5mg/kg s.c.). The effects of different doses of NTX or saline were studied using a Latin square design. To study the effects of NTX on operant behaviour, animals were trained to lever press for food pellets under a FR1 schedule of reinforcement. NTX was administered 30 minutes before the experimental session. **Results:** A single injection of amphetamine reinstated self-administration behaviour in the rat ($p < 0.05$). NTX (0.3 and 1.0 mg/kg) significantly attenuated amphetamine-induced reinstatement ($p < 0.05$) but had no effect at any dose studied on food taking behaviour. **Conclusions:** These results show that NTX attenuates reinstatement of amphetamine self-administration in rats without suppressing general behaviour, implicating a functional role for opioid receptors in modulating reinstatement of amphetamine seeking behavior. **Support:** This work was supported by the Swedish Science Council and the Swedish National Drug Policy Coordinator

298 MOBILE TELEPHONES: FEASIBILITY FOR PROSPECTIVE FOLLOW-UP OF INJECTING-HEROIN USERS IN SWEDEN

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Aims: In research on the course of heroin addiction, it is important to follow non-biased samples of current heroin users. These users may be difficult to follow in prospective research, and studying clients who seek or enter treatment may cause a selection bias. Mobile telephones are very common in Sweden, and known to be used by many heavy drug users for drug trading. This study aims to analyze whether it is feasible to use mobile telephone numbers of syringe exchange clients for prospective follow-up. **Methods:** 95 consecutive primary heroin users at the syringe exchange of Malmö, Sweden, were included between October 2006 and February 2007, after signing informed consent. A baseline interview addressed substance use, overdoses, psychiatric/somatic morbidity, wish for treatment and readiness to change. Thereafter, clients are contacted monthly on mobile telephone, for 24 months, for new assessments of overdoses, substance use and treatment seeking. Clients are paid with telephone cards (48 USD for the baseline interview, and 32 USD for every six months of follow-up). The study was approved by the Committee of Ethics, Lund university. **Results:** The mean age of the sample is 37 years. On average, they report heroin use on 27.9 of the last 30 days. 24 % are women. At present, 64 % ($n = 61$) have been reached for 243 telephone interviews (on average 4.0 telephone interviews per person). 34 clients have not been reached on telephone. Whether or not clients have been reached is not related to the number of days of heroin use. The study continues, and further results will be reported. **Conclusions:** Although prospective follow-up may be difficult during current heroin use, in this sample of current heroin injectors, recruited at a non-treatment facility, mobile telephone follow-up has been successful in a majority of the sample. Clients who can be located on telephone can also be interviewed several times. Mobile telephones, used by most heroin users in this setting, appear to be useful for prospective research in this population. **Support:** Supported by: The Swedish National Drug Policy Coordinator, The Swedish Research Council, Malmö University Hospital.

299 LONGITUDINAL CHANGES IN ATTACHMENT, SOCIAL SUPPORT, PARENTING ATTITUDES, AND PSYCHOLOGICAL FUNCTIONING AMONG WOMEN DRUG OFFENDERS

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Aims: Our study involves women drug offenders in community treatment. We hypothesized that: subjects (Ss) would show extensive disruption in their attachment, social support, and psychological functioning; Ss who attended treatment longer would show greater improvement in functioning; and Ss who attended women-focused treatment would show greater improvement in their adult relationships, social support, psychological functioning, and parenting. **Methods:** Instruments: Experiences in Close Relationships Inventory, ISAP social support scale, Brief Symptom Inventory, and Adult-Adolescent Parenting Inventory. Preliminary sample: 57 female drug offenders in mixed-gender and women-focused treatment. **Results:** Preliminary results: At baseline, Ss showed levels of attachment anxiety and avoidance of intimacy greater than women in normative samples. Ss' parenting scores were far below normative samples. Over time, Ss showed improvements in adult attachment anxiety, social support, and a trend toward improved psychological functioning. Ss' parenting attitudes showed no change over time. Social support at 12 months was associated with days in treatment, however, type of treatment did not predict 12-month scores on any scales. Results may change as data from additional Ss becomes available. **Conclusions:** Preliminary results indicated that few participants had secure attachment styles. While attachment styles changed over time, most notably a reduction in fearful attachment style, the move to a dismissing attachment style (preferring not to depend on others or have others depend on them) was not a positive sign of growth. Ss showed improvement in social support and psychological symptoms. While Ss had appropriate expectations, they lacked empathy for their children, tended to favor physical punishment, tended toward parentification of their children, and an authoritarian relationship with their children. Given the cyclical nature of abuse, the lack of improvement in parenting attitudes over time shows a high need among this population for additional parenting intervention. **Support:** NIDA R01DA016277

300 TECHNOLOGY TRANSFER IN A COMMUNITY TREATMENT PROGRAM: EVIDENCE-BASED PRACTICES FROM THE TRAINING ROOM INTO THE THERAPY ROOM

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Aims: As a dissemination project, the Mid-Atlantic ATTC wanted to design a MI technology transfer project and provide implementation support in collaboration with a community treatment program (CTP) who was willing and ready to develop an infrastructure to support the project. Based on previous Addiction Technology Transfer Center training design programs and Miller and Moyers (2006) eight stages of learning MI, an 18 month project was initiated with a community partner in a large metropolitan county in Virginia. The training moved beyond the eight stages to include NIDA's Motivational Interviewing Assessment: Supervisory Tools for Enhancing Proficiency (MIA:STEP) package to support sustainability, model implementation processes and provide ongoing clinical supervision. As a result, the CTP then developed several applications of the training material. **Methods:** Five level training design plan matched with the eight learning stages. **Results:** The ATTC staff logged a total of 144 hours of training and technical assistance. A total of 60 people were part of the project with varying degrees of training. The CTP estimates their total hours for supervisors alone ranged in 75+ hours for the 17 purveyors. This totals over 1275 hours of direct supervisory staff time devoted to the project. Both the CTP and the ATTC were amazed by the staff effort and results. At least seven infusion projects were launched by the staff of the CTP after the training, and of those projects significant is a decrease in weekend incidents in their drug dorm program, the agency's support of developing an internal trainer for sustainability purposes and the establishment of a change committee to help ensure MI implementation and integration into daily practice. **Conclusions:** There is growing evidence that the technology transfer plan when viewed as part of an educational training program has multiple impacts on an agency as well as individual practitioners. We will discuss the innovations in further detail on the poster. **Support:** ATTC Grant SAMHSA/CSAT 2UD1TI013415-06

301 OPIOID ABUSE AND PAIN: DOES DOSE MATTER?

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Aims: Opioid therapy to treat pain in addicts is controversial due to concerns about abuse, tolerance and dependence. Whether patients with this comorbidity need more opioids to address both problems is unknown. We looked at dose and behavioral correlates for 25 opioid abusers with chronic [M=9.0(8.2) yrs], poorly controlled [M=8.9/10(1.2)"worst"; M=6.7/10(1.7) "typical"] pain who completed an opioid adherence study. **Methods:** Patients were referred by pain providers. They were middle aged [M=41(9.8), male (56%), Caucasians (84%). They were converted to methadone, then dosed q6h with 3 breakthrough doses allotted. Dose adjustments were made based on therapeutic response in the absence of misuse, intoxication or positive UTOX. No dose limits were set; rather, patients received as much medication as needed to address pain. Adherence was assessed via pill counts and UTOX (GC/MS). **Results:** MANOVA revealed significant ($p<.001$) increases in methadone from baseline [M=79(36.4) mg/d; range 35-190] to discharge [M=159(93.9)mg/d; range 60-360]. Dose did not predict outcome at trial's end. Cluster analysis produced 2 dose groups ["Hi" (N=8, M=283mg/d); "Lo" (N=17; M=100mg/d)]. Group membership was unrelated to demographics, severity of medication abuse, pain, functional interference, personality style, distress or psychiatric/ substance use disorders. However, the "Hi" group was more likely to have nicotine problems (88% vs. 41%) and less likely to display aberrant medication taking behaviors (AMTBs) per MD report. **Conclusions:** Opioid abusers with similar pain/dysfunction require very different doses of opioid medication. Most patients were grossly under-treated at baseline; however, at discharge, analgesic dose proved unrelated to addiction/psychological severity. Setting an a priori dose ceiling is a hit or miss proposition that will benefit some patients, but not others. Unfortunately, continued under-treatment results in drug-seeking and relapse. Therefore, we recommend dosing that is guided by patients' subjective reports of relief in the context of verifiable functional improvement and an absence of AMTBs. **Support:** Supported by NIDA R01DA-13169

302 USE OF A HALLUCINOGENIC SACRAMENT BY AMERICAN MEMBERS OF THE SANTO DAIME CHURCH: EVIDENCE OF SAFETY

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Aims: Ayahuasca ("Aya") is a hallucinogenic tea & key sacrament of Brazilian indigenous peoples & several syncretic religions of indigenous & Catholic beliefs including the Santo Daime Church (SDC). A recent U.S. Supreme Court decision indicates religious Aya use is protected from government interference, but little is known about health consequences, if any, for Americans. We were invited to evaluate American members of one branch of the SDC to gain initial health data. **Methods:** SDC leaders in Oregon informed area members about the study & encouraged them to participate. Those interested were interviewed after informed consent on extent of participation, & Aya likes/dislikes/health consequences, good & bad, if any. **Data obtained:** demographics, physical exam, drug use timeline, SCID, HAM-A, HAM-D, SCL-90R, UHSCF, WURS, & childhood conduct disorder info **Results:** Data was evaluated from 32 adults (56 yrs; range 32-67) who usually attend services weekly (lifetime 207 ceremonies; range 20 -1300). Physical exam revealed healthy subjects. Members claimed psychological & physical benefits from Aya. Test scores indicate overall good mental health. SCID revealed 19 meeting lifetime criteria for a psychiatric disorder with all but 2 in full or partial remission & 8 reporting induction of remission through SDC participation. Drug & alcohol histories varied, but there was no evidence problems initiated or worsened since joining the SDC. In fact, 6 of 13 reporting past alcohol abuse or dependence describe SDC participation as the turning point in their recovery **Conclusions:** This is the first study to evaluate the health of American members of any Aya-using faith. **Conclusions** should not be extrapolated to hallucinogen abusers, but for those who have religious need for ingesting Aya, from a psychiatric & medical perspective, these pilot results substantiate some claims of benefit. Further research is warranted **Support:** Church of the Holy Light of the Queen, Ashland, OR

303 DOPAMINE TRANSPORTER 3'-UTR VNTR GENOTYPE IS ASSOCIATED WITH BEHAVIORAL INHIBITION—A PHARMACOGENETIC STUDY WITH ACUTE D-AMPHETAMINE ADMINISTRATION

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Aims: Stimulant drugs decrease impulsive behavior in both human and animal models. However, there is some variability in this effect across individuals. This may in part be attributable to variations in the dopamine transporter gene (DAT1). In this study we investigated the association between DAT1 3'-untranslated region (3'-UTR) variable number tandem repeats (VNTR) genotypes and behavioral response to d-amphetamine in healthy volunteers on the Stop Task - a measure of behavioral inhibition. **Methods:** The Stop Task provides two dependent measures which are independent of each other: the Go Reaction Time (GRT) which measures simple reaction time, and the Stop Signal Reaction Time (SSRT) which measures the ability to stop an ongoing response. Healthy volunteers (N=89) participated in a double-blind, crossover design study. They received placebo, 10 or 20 mg of oral d-amphetamine before performing the Stop Task. Subjects were genotyped for the DAT1 VNTR polymorphism and were divided into three groups based on genotype: homozygous for nine repeats (9/9), heterozygous (9/10) and homozygous for 10 repeats (10/10). **Results:** d-amphetamine (20 mg) decreased the mean SSRT specifically in the 9/9 genotype group, compared to both the placebo condition and the 10 mg condition (dose by genotype interaction $p<.05$). d-Amphetamine also decreased the GRT but only in 9/10 and 10/10 genotype groups. Thus d-amphetamine produced specific and differential effects on the GRT and SSRT, depending on the genotype. The 9/9 carrier group was more sensitive to the effects of d-amphetamine on inhibitory reaction time (ie SSRT), but less sensitive to the drug than the other groups on the simple GRT. **Conclusions:** These findings illustrate that, even with the same genotype, a polymorphism may affect different phenotypic measures in very different ways. Further information about the mechanisms underlying inhibitory control is essential to understand both the determinants and the consequences of drug abuse. **Support:** DA02812, T32 DA007255, DA09133.

304 STRESS AND BEHAVIORAL SENSITIZATION TO NICOTINE IN A RODENT MODEL OF IMPULSIVITY

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Aims: Impulsivity is a tendency to act immediately without consideration of future consequences. Impulsivity predicts smoking and alcohol consumption, as well as many other detrimental behaviors. Rates of drug abuse are higher in impulsive people, and are increased by psychological stress. The neurobiological mechanism of impulsivity, increased dopamine neurotransmission, is augmented by stress and administration of drugs. Increased sensitivity to drug reward could mediate the relations among stress, impulsivity, and drug use. The aims of the present experiment were to determine the effects of impulsivity and psychological stress on behavioral sensitization to the stimulant nicotine. It was hypothesized stress would increase behavioral sensitization to nicotine, but this effect would be largest in the "impulsive" strain. **Methods:** The present experiment was a 2 (stress) x 2 (strain) x 2 (drug) factorial design with repeated measures. A rodent model of impulsivity with two genetic strains was used: the "impulsive" Lewis rats, and the "non-impulsive" Fischer rats. Subjects were 64 adult male rats (32 Fischer, 32 Lewis), aged 40 days at the start of the experiment. All rats received 0.5 mg/kg doses of nicotine or saline via subcutaneous (SC) injection daily for seventeen days. Behavioral sensitization to nicotine was measured in open field chambers immediately following injections. **Results:** Data were analyzed with Repeated Measures Analysis of Variance (ANOVA). There was a main effect of drug [$F(1,31)= 344.235$, $p<0.05$], a time x strain x drug interaction [$F(1,6)=2.776$, $p<0.05$], and a main effect of stress that occurred only in the Lewis rats [$F(1,15)=5.555$, $p<0.05$]. **Conclusions:** The hypotheses were supported by the present results. Stress increased behavioral sensitization to nicotine in both strains, and the effect of stress on behavioral sensitization was largest in the Lewis strain. **Support:** USUHS R072GQ

305 THE CORRELATION BETWEEN CUE-INDUCED CRAVING FOR INTERNET VIDEO GAME PLAY AND BRAIN ACTIVATION

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Aims: We hypothesized that craving for internet video game during cue presentation would activate similar brain regions as those which have been linked with craving for drugs or pathologic gambling. **Methods:** This study involved the acquisition of diagnostic MRI and fMRI data from 18 healthy male adults following training and a standardized 10-day period of game play with a specified novel internet video game, "War Rock". Using segments of the videotape consisting of five contiguous 90-second segments of alternating resting, matched control and video game related scenes. All fMRI experiments were performed using 3 Tesla Simmens Trio MR scanner. Craving was assessed using a seven point visual analogue scale before and after presentation of videotape. **Results:** In eighteen subjects responding to internet video game stimuli, significantly greater activity was identified in left dorsolateral prefrontal cortex, right parahippocampal gyrus, left thalamus, right and left occipito-temporal lobe, right cerebellum posterior lobe and right cerebellum anterior lobe. In a correlation analysis between clusters and self reported craving for internet video game, craving was positively correlated with activation within the left middle frontal lobe and left thalamus. The right parahippocampal gyrus was also positively correlated with craving, but this finding did not reach statistical significance. **Conclusions:** The present findings suggest that the neural circuitry that mediates cue-induced craving for internet video games is similar to that observed following cue presentation to individuals with substance dependence or pathologic gambling. In particular, cues appear to commonly elicit activity in dorsolateral prefrontal cortex, hippocampus, and thalamus. Therefore, brain changes associated with excessive internet video game playing may be similar to those observed in persons with substance dependence or pathologic gambling. **Support:** 2007 NIDA Invest Fellowship

306 NALTREXONE INCREASES MARIJUANA INTOXICATION IN HUMANS

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Aims: In marijuana smokers, a clinically-utilized dose of naltrexone (50 mg p.o.) has been shown to enhance the effects of orally-administered tetrahydrocannabinol (THC: 30 mg), while a low dose of naltrexone (12 mg) blunted the effects of THC (20 mg; Haney et al., 2003; 2007). Yet cannabis is abused by the smoked route of administration, and little is known about the influence of naltrexone in combination with smoked marijuana. Characterizing this interaction across a range of naltrexone doses has important implications for the following reasons: (1) If naltrexone blunts smoked marijuana's effects then this medication could have utility as a treatment for marijuana dependence, and (2) Alcohol- and opioid-dependent patients receive high doses of naltrexone (50-150 mg), which may increase the abuse liability of marijuana. **Methods:** Marijuana smokers (15M, 8F; data collection ongoing) participated in a 10-session, within-subject, outpatient study. Volunteers were administered naltrexone (0, 12, 25, 50, 100 mg) 45 min prior to smoking 70% of a NIDA marijuana cigarette (0.0, 3.9% THC). Subjective, cognitive and physiological effects were assessed over 5h. Dose order was counter-balanced. **Results:** Preliminary data show that placebo marijuana produced a small increase in ratings of 'good drug effect' which was significantly decreased by naltrexone (12, 25 mg). Naltrexone (12-50 mg) also decreased marijuana craving under placebo marijuana conditions, while increasing ratings of tired and sleepy (50, 100 mg). By contrast, in the active marijuana condition, all doses of naltrexone significantly increased ratings of 'high' and 'good drug effect.' The highest naltrexone dose (100 mg) also increased ratings of marijuana 'liking.' **Conclusions:** These data are in the opposite direction as predicted by preclinical reports, showing that opioid receptor blockade decreases the discriminative-stimulus and reinforcing effects of cannabinoids. Rather, in marijuana smokers, opioid receptor antagonism enhances smoked marijuana intoxication. Further studies are needed to determine if the clinical use of naltrexone impacts marijuana abuse. **Support:** Supported by U.S. National Institute on Drug Abuse (DA09236)

307 SENSORIMOTOR INTEGRATION DEFICITS IN CHRONIC COCAINE USERS: AN fMRI AND DTI STUDY

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Aims: Many studies have shown that chronic cocaine users have deficits in cognitive and affective processing. Recent data, suggest that after extended use of cocaine there may be changes in sensorimotor function as well. This however, has not been directly investigated in humans. The purpose of this study was to assess alterations in sensorimotor processing in chronic cocaine users as well as changes in brain structure and function that may underscore these deficits. **Methods:** Right-handed non-treatment seeking cocaine users (n=14) and healthy controls matched for age and gender (n=14) were recruited from the community. Functional MRI data was collected from each participant as they performed a visually-guided finger-tapping task. The task required participants to mimic a dynamic visual display of finger tapping movements and was interspersed with blocks of rest. Diffusion tensor imaging data was also collected to determine the presence of any white matter pathology. **Results:** Cocaine users made significantly more errors of commission than controls despite similar reaction times (p<0.05). While controls primarily recruited their left hemisphere motor network during the task, cocaine users recruited bilateral motor networks during this task. There was a significant increase in the right primary motor cortex, right supplementary motor area, and right caudate in users relative to controls (p<0.001). This increased reliance on bilateral frontal cortical structures was accompanied by a significant decrease in corpus callosum integrity (p<0.001). **Conclusions:** These data demonstrate that chronic cocaine users have significant sensorimotor integration deficits that are associated with bilateral cortical and striatal activation patterns, as well as decreased white matter integrity. These findings are similar to those seen in patients with diffuse (multiple sclerosis) and focal (stroke) brain pathology. Further studies are needed to determine whether these abnormalities are progressive and to what extent that may impact treatment attempts. **Support:** Supported by DA021456 (CAH), DA20074, DA06634 (LJP)

308 IMPACT OF CHANGE IN INCENTIVES ON RETENTION AND OUTCOMES IN A CONTROLLED TRIAL OF A MEDICATION REGIMEN FOR TREATING METHAMPHETAMINE DEPENDENCE

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Aims: Financial incentives are commonly used in drug treatment research to improve participants' recruitment and retention. There is a dearth of research evaluating the impact of change in incentives on retention and outcomes during a study. This study examined the effect of changing incentives on retention and outcomes for participants in a randomized, double-blind, placebo-controlled trial of the treatment of methamphetamine dependence. **Methods:** Following screening and baseline assessment, 88 outpatient participants were randomized to either (1) an active treatment group receiving flumazenil 2 mg administered IV on days 1, 2, 3, 21, 22; oral gabapentin 1200 mg/day, and hydroxyzine 50 mg for pre-infusion and PRN for sleep; or (2) a control group receiving inactive formulations of the medications. Data were collected at days 4, 6, 13, 20, and 30. Craving scales measured several dimensions of craving. Drug use was assessed using timeline-followback and urine drug screens. All subjects received drug abuse counseling and nutritional support. All participants were provided a \$50 grocery voucher at the end of each completed visit. Participants who completed the last scheduled evaluation visit at day 30 received a \$120 gift certificate for dinner at a local restaurant. To improve retention at the midpoint of the trial, an additional incentive was added. Participants in the placebo group were offered the opportunity to receive the active medication upon completion of the trial. **Results:** Analyses of the data are ongoing and results are pending. This study will focus on how retention, counselor assessment of therapeutic engagement, drug cravings, and drug use were impacted by change in incentive. **Conclusions:** Incentives that have greater meaning to the participant may be more effective in improving study retention and may influence clinical outcomes. **Support:** This research was supported through an unrestricted grant from Hythiam, Inc., which licenses the Prometa treatment program to physicians.

- 309** **DIFFERENTIAL INCIDENCE OF HIV AND SYPHILIS BETWEEN MALE AND FEMALE DRUG USERS IN SOUTHWEST CHINA**
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Aims: To investigate the incidence rates of human immunodeficiency virus (HIV) and syphilis among injection drug users (IDUs) in a drug trafficking county in southwest China. Methods: A cohort of 333 HIV-seronegative IDUs was followed up for 48 months starting from November 2002 and evaluated seroconversions of HIV and syphilis every 6 months. Questionnaire interviews were conducted to collect information about risk behaviors. Results: Of 379 IDUs at baseline, HIV prevalence was 12.1%(38/313) and 7.6%(5/66) among male and female ($p=0.288$), and syphilis prevalence was 12.5% (39/313) and 28.8% (19/66) among male and female ($p=0.0008$), respectively. 59.2 % subjects completed the 48-month follow-up survey. A total of 14 HIV and 24 syphilis seroconversions were observed over the 48-month follow-up period, yielding average incidence rates of 2.19 per 100 person-years for HIV, and 4.15 for syphilis. Multivariate Poisson regression analyses showed that factors independently associated with HIV seroconversion was minority ethnicity (RR: 4.31; 95%CI: 1.56, 11.91; $p=0.0049$) and higher frequent sharing of needles or syringes in the past 3 months ≥ 1 times per week (RR: 32.51; 95%CI: 10.43, 101.35; $p<0.001$). Predictors for syphilis seroconversion included female (RR, 4.09; 95% CI, 1.79, 9.34; $P=0.0008$) and married or co-habit (RR, 2.65; 95% CI, 1.19, 5.92; $P=0.0173$). Syphilis incidence was 2.99 and 11.87 per 100 person-years among male and female IDUs, respectively. Conclusions: High infection of syphilis and overlapped unprotected sex among female IDUs along a drug-trafficking route may suggest a potential risk for rapid sexual spread of HIV, and underscore the urgency of preventive interventions to break the bridge of female IDUs for HIV/STD spread. Support: The Ministry of Science and Technology of China (2004BA719A01), the National Natural Science Foundation of China (30571612, 10501052).
- 310** **LOBELINE ATTENUATES METH-INDUCED HYPERACTIVITY BUT DOES NOT ALTER METH-MEDIATED CONTEXTUAL CONDITIONING IN MALE AND FEMALE PERIADOLESCENT RATS**
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Aims: Epidemiological research suggests that long-term drug use begins in adolescence, and that females exhibit increased vulnerability for drug abuse compared to males. Therefore, increased emphasis is being placed on developing treatment solutions targeted at adolescents who exhibit drug seeking behaviors. Lobeline (LOB) decreases METH self-administration in rats; however, this research was conducted exclusively in adult, male rats, and little is known about the behavioral effects of lobeline in females, or in periadolescent rats of either sex. The aim of the present experiment was to determine if LOB decreased METH-induced hyperactivity in male and female periadolescent rats. We also determined if repeated LOB pretreatment attenuated METH-induced contextual conditioning. Methods: Rats were randomly assigned to one of 6 treatment groups. Animals were habituated to locomotor chambers on post natal days (PND) 25-27. On PND 28, rats were injected with saline (SAL) and placed into activity chambers to determine baseline activity. Rats were injected with SAL or LOB (3 mg/kg) and 5 min later, were treated with SAL or METH (.1, .3 mg/kg; sc) and put into activity chambers 1X/day on PND 29-35. A 2nd SAL baseline session was conducted on PND 36. Results: METH dose dependently increased horizontal activity, whereas LOB produced hypoactivity. LOB attenuated METH-induced hyperactivity after rats exhibited tolerance to the LOB-induced hypoactivity. This effect was more evident in females compared to males: LOB attenuated the behavioral effects of METH in females across the entire 7-day period whereas males exhibited tolerance to LOB. Only the females exhibited METH-induced conditioned hyperactivity. LOB pretreatment did not prevent acquisition of contextual conditioning. Conclusions: LOB repeatedly decreased the behavioral effects of METH in female periadolescent rats. Further experiments should examine potential sex differences in the LOB-mediated attenuation of METH self-administration using periadolescent animals. Support: Supported by NIDA grant DA21287.
- 311** **COMPARISON OF EFFECTS PRODUCED BY METHAMPHETAMINE AND 3,4-METHYLENEDIOXYMETHAMPHETAMINE (MDMA) IN HUMANS UNDER CONTROLLED CONDITIONS**
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Aims: The amphetamine analogs methamphetamine (MA) and 3,4-methylenedioxymethamphetamine (MDMA) enhance the activity of monoamine neurotransmitters with varying selectivity, which is thought to contribute to behavioral differences produced by the drugs in laboratory animals. A comparison of these two amphetamine analogs in humans has not been conducted. Therefore, the present study directly compared the effects of MA and MDMA using a within-participant design under controlled laboratory conditions. Methods: Thus far, eight participants have completed this 13-day inpatient study, which consists of 4 three-day blocks of sessions. On the first day of each block, participants received placebo, MA (20, 40 mg) or MDMA (100 mg). Note that each participant experienced each dose condition and doses were administered in a double-blind and counterbalanced manner. On the remaining two days of each block, placebo was administered to allow for sufficient drug "washout" between dosing conditions. Throughout the study, subjective effects, physiological measures, psychomotor performance, and sleep were assessed. Results: MA (40 mg) and MDMA produced similar increases on ratings of euphoria, blood pressure, and heart rate. In contrast, MA generally produced dose-related improvements on psychomotor performance (e.g., improved response time), while MDMA worsened some performance (e.g., decreased immediate memory). Finally, MA dose-dependently disrupted sleep, whereas MDMA did not alter sleep measures. Conclusions: These data indicate that MA and MDMA produce overlapping but not identical effects, which might shed light on the differential abuse liability associated with each drug. Support: This research was supported by a grant from the National Institute on Drug Abuse (DA-03746).
- 312** **THE IMPACT OF A THREE-HOUR NEUROSCIENCE OF ADDICTION CURRICULUM ON COLLEGE STUDENTS' KNOWLEDGE AND ATTITUDES: PRELIMINARY RESULTS OF THE NIDA ENTERS COLLEGE PROJECT**
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Aims: To evaluate whether infusing a 3-hour curriculum based on the science of addiction research into existing undergraduate courses for helping professions increases knowledge and decreases stigmatizing attitudes about individuals with substance use disorders (SUD). Methods: Two sections of an introductory course in each of three pre-professional disciplines (criminal justice, nursing, social work) were selected. One section served as the curriculum infusion (implementation) group ($N = 122$); the other as the control group ($N = 178$). Pre- and post-test measures were developed based on curriculum objectives to assess the impact on knowledge and attitudes using multiple choice and 5-point Likert scale response options. Results: A total of 104 students in the implementation group and 136 students in the control group completed the pre-post measures, which represents an overall response rate of 81%. Preliminary results show a significant increase in knowledge of addiction and a corresponding decrease in stigmatizing attitudes in 1) the implementation vs. non-implementation groups; and 2) the implementation group pretest vs. post-test measures (complete item level analyses will be presented). Conclusions: Initial results lend support to the potential effectiveness of infusing a brief 3-hour research-based addiction curriculum into existing undergraduate courses, thereby increasing knowledge and reducing stigmatizing attitudes related to individuals with substance use disorders. Thus, the findings from this study could have long-term implications for preparing helping professionals to work with individuals with SUD. Support: Funded by the National Institute on Drug Abuse (NIDA) Science Education Drug and Alcohol Partnership Awards (SEDAPA) # 1 R25 DA 020472-01A1

313 DISSOLUTION OF A VA HARM REDUCTION PROGRAM FOR OPIATE AGONIST TREATMENT: IMPACT ON SUBSTANCE USE AND SERVICE UTILIZATION

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Aims: This presentation supplements a prior CPDD poster (Cotton et al., 2007) documenting mortality rates and treatment retention after dissolution of a 'Minimal Services' (MS) OAT track. Herein we describe the impact of MS dissolution on substance use and VA service utilization. **Methods:** Investigators reviewed charts of 37 MS program enrollees and matched-controls in standard OAT, abstracting data for substance use (e.g., % of +UA results) and utilization of VA inpatient services, outpatient medical, counseling, and urgent care visits for a two-year period. Chart data were demarcated into three phases: 1) months 1-14 as treatment-as-usual, 2) months 15-20 wherein MS restrictions were lifted to promote adherence and re-entry to standard OAT, and 3) months 21-24 following MS dissolution. **Results:** Large and stable group differences in substance use were found, with the MS group providing +UA more frequently ($M = 59-66\%$) than matched-controls ($M = 8-14\%$). Examination of VA service utilization indicated that during the initial phase the MS group utilized 30-40% fewer medical and counseling services than their counterparts, but 55% more urgent care and 23% more inpatient services. During the phase in which MS service restrictions were lifted, the MS group increased VA service utilization in all four domains as intended, while service utilization by matched controls remained fairly stable. Following MS program dissolution, mean service utilization approximated baseline levels amidst discharge of 17 impacted veterans and re-entry of the remainder to standard OAT. **Conclusions:** In addition to diminished treatment retention and increased mortality reported previously, MS program dissolution did not alter rates of substance use among impacted veterans or their eventual mean rate of VA service utilization as intended. **Support:** This research was supported by the UW Alcohol & Drug Abuse Institute, and VA Medical Research Service.

314 DIFFERENTIAL EFFECTS OF COCAINE ON NEUROCOGNITIVE FUNCTIONING OF THE ORBITOFRONTAL CORTEX IN ADOLESCENT VS. ADULT RATS

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Aims: Reorganization of the dopaminergic neurotransmitter system during adolescence renders adolescent and adult rats differentially sensitive to cocaine. Thus, the consequences of cocaine self-administration may be different in these age groups. Previously we demonstrated that rats with adolescent-onset cocaine exposure had intact stimulus-reward learning (a function of the amygdala memory system) whereas rats with adult-onset cocaine exposure showed deficits following an 18-day drug-free period (Kerstetter & Kantak, 2007). The current aim was to test the hypothesis that rats with adolescent-onset cocaine exposure would show more persistent deficits in an orbitofrontal cortex-dependent non-spatial working memory task than rats with adult-onset cocaine exposure. **Methods:** To assess potential differences in the effects of contingent vs. non-contingent cocaine delivery, we used a yoked triad design ($N=8$ triads for each age group) whereby one rat controlled cocaine delivery and the two other rats passively received either cocaine or saline. Rats contingently self-administering cocaine were first trained up to an FR5 schedule of 1 mg/kg cocaine delivery for a total of 18 sessions. Rats then underwent an 18-day drug-free period in their home cages prior to testing for acquisition of the odor delayed win-shift task over 15 sessions. **Results:** Results demonstrated no age differences in self-administration behavior. During the test phase of the odor delayed win-shift task, only rats with contingent cocaine exposure during adolescence showed deficits. They took significantly longer to complete daily sessions [$F(2, 8)=3.3, p \leq .05$], required significantly more sessions to reach criterion [$F(2, 8)=9.9, p \leq .01$] and made significantly more errors [$F(2, 8)=3.1, p \leq .05$] than rats passively exposed to saline or cocaine. **Conclusions:** These findings suggest that the insensitivity of adolescent rats to cocaine-induced deficits in amygdala functioning is mitigated by their increased sensitivity to cocaine-induced deficits in OFC functioning relative to adult rats. **Support:** Supported by NSF SBE0354378.

315 THE RELATIONSHIP OF SUBSTANCE ABUSE TO DEPENDENCE IN THE U.S. GENERAL POPULATION

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Aims: The concepts of DSM-IV substance abuse and dependence are commonly used in clinical work and research studies, but whether abuse and dependence represent two different syndromes is unresolved, an issue potentially affecting phenotypes in genetics studies. We investigated the relationship of substance abuse to dependence for cannabis, cocaine, stimulants and sedatives among the 9,140 lifetime users of these substances in the NESARC, a nationally representative survey conducted in 2001-2002. **Methods:** We used a special case of structural equation modeling, a multiple causes and multiple indicators (MIMIC) model with MPlus. The MIMIC model addresses three sets of relationships, those between: (1) diagnostic criteria and larger factors, (2) factors and covariates, and (3) criteria and covariates. This approach allows detecting and compensating for non-invariance of the measurement of criteria across subgroups. **Results:** Compared to a 1-factor model, model fit significantly improved with 2-factor models (factors roughly corresponding to abuse and dependence) across all substances ($RMSR$ or $RMSEA < .05$), with abuse and dependence factors highly correlated (.77-.99). The MIMIC model indicated that race/ethnicity, marital status and income showed some differential relationships to abuse and dependence factors, although many covariates related similarly to dependence and abuse factors. Non-invariance of criteria measurement by the covariates of gender, race, age, education, marital status, treatment was most pronounced for cannabis abuse and dependence criteria. **Conclusions:** The general relationship of abuse to dependence was consistent across substances. Results were equivocal on the value of retaining separate factors, and therefore, investigating the relationships of specific genetic variants to dimensional indicators of abuse, dependence and measures combining these criteria is warranted. Measurement of cannabis abuse and dependence criteria appears most affected by personal characteristics. **Support:** Supported by R01DA018652 and K05 AA014223.

316 CHARACTERIZING OPIOID ANALGESIC INJECTORS: RESULTS FROM A NATIONAL SAMPLE

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Aims: Given the increase in nonmedical use of opioid analgesics and the disease transmission risk associated with injection drug use, the aim of this study was to characterize opioid analgesic injectors (OAI) using a representative sample from the United States. **Methods:** Data from the 2002 - 2005 National Survey on Drug Use and Health (NSDUH) were utilized. Nonmedical use of prescription analgesics was defined as use of opioid drug(s) that were not prescribed for the participant or use for the feeling it caused. The dependent variable of interest was opioid analgesic injection (OAI). Independent variables included demographics, drug use, abuse and dependence and injection of other drugs. Due to the complex survey design, weighted contingency tables and multiple logistic regression (MLR) models were utilized. **Results:** 313 (0.9%) of the 35,562 analgesic misusers had ever injected opioid analgesics. Injection risk behaviors among the OAIs were as follows: 51.6% reported reusing syringes, 22.6% reported receptive syringe sharing, and 26.5% reported distributing syringe sharing. Of the OAIs, 83% also reported lifetime injection of other drugs such as heroin. MLR indicate that OAIs were significantly more likely than other prescription analgesic misusers to be over 35, white, and male and meet the DSM-IV dependence criteria for prescription analgesics (adjusted OR: 3.26, 95% CI: 1.51, 7.05), cocaine, and tranquilizers. **Conclusions:** These data have identified a subset nonmedical opioid analgesic users who may be more likely to inject opioids. Among the OAIs, a quarter engaged in either receptive or distributive syringe sharing. Therefore, ensuring OAIs are educated on safe injection practices is of the utmost importance in preventing the spread of HIV and other chronic infectious diseases. Given these are prescription drugs being injected, providing educational materials in physician offices may be one way to prevent the transition to injecting and subsequent transmission of infectious disease. **Support:** None.

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317 LIMITED ACCESS TO NARCOTIC REPLACEMENT THERAPY UNDERMINES OUTCOMES OF TREATMENT DIVERSION

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Aims: NRT is considered the standard of care for opiate addicts. We compare trends in NRT placement for opiate users in criminal justice (CJ) and non-CJ settings before and after the implementation of California's Prop. 36. We compare treatment and CJ outcomes for Prop. 36 participants who are placed in maintenance therapy with those assigned to alternative treatments. **Methods:** Our study of placement trends included all California clients reporting heroin as their primary drug who were admitted to state-licensed treatment providers between July 2001-March 2005 (N=187,611). To allow for 30-month followup, our outcomes study for Prop. 36 clients includes all Prop. 36 clients who entered treatment during Prop. 36's first year (July 2001 - June 2002), reporting heroin as their primary drug problem (N = 2,943). Treatment and CJ data were linked using the California Alcohol and Drug Data System and the Department of Justice Automated Criminal History System. Logit regression was used to model maintenance prescription (yes/no). Negative binomial regressions were used to model arrests counts, by crime type. **Results:** We found low NRT placement rates for Prop. 36 and non-Prop. 36 CJ referrals compared with self-referrals (14%, 17%, and 84%, respectively). Opiate users placed into NRT were significantly more likely to have a successful treatment discharge and therefore be in compliance with the terms of Prop. 36 probation (48% v 29%) and, also had significantly fewer arrests (14% fewer felony arrests and 10% fewer misdemeanor arrests during the 30-months following their entry into Prop. 36). **Conclusions:** Our analysis shows very low rates of NRT placement following the policy of treatment diversion in California. This under-utilization of NRT affects treatment outcomes and undermines public safety. These results speak to the importance of overcoming attitudinal and access barriers to expanded use of NRT. **Support:** This research was conducted as part of the statewide evaluation of Prop. 36. and was supported by the California Department of Alcohol and Drug Programs.

318 INCREASED EXPOSURE TO AN HIV RISK-REDUCTION PROTOCOL ASSOCIATED WITH A REDUCTION IN SUBSTANCE ABUSE

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Aims: At the 2007 CPDD meeting we reported that men in substance abuse (SA) treatment attending a five session HIV prevention intervention reduced their sexual risk more than men attending a single session. We further hypothesize that similar reductions would also be observed in SA measures. **Methods:** This analysis included subjects (n=89) who received the Real Men Are Safe (REMAs) intervention and completed the baseline and 3 month follow-up assessments, and excluded participants of low sexual risk (having a single partner for the 6 months prior to and throughout the study). SA measures were the alcohol (ALC) and drug (DRG) composite scores from the ASI-Lite. Risky sexual behavior (RSB) was defined as the number of sexual events without a condom, and the outcome for this analysis was the change in RSB at follow-up relative to baseline. **Results:** A total of 20 (22%) of the included subjects failed to attend any REMAS sessions, 35% attended all 5 sessions, and the remaining 43% attended 1 to 4 sessions. The odds for a reduction in RSB at follow-up significantly increased as the number of sessions attended increased (p=0.032). In addition, the odds for a reduction in the DRG composite score similarly increased with session attendance (p=0.049), yet this association did not mediate the effect of the number of sessions on RSB. The number of REMAS sessions was not found to be associated with a reduction in ALC composite scores (p=0.66). **Conclusions:** These data suggest that an overall reduction in RSB and DRG was associated with increased exposure to the REMAS intervention. Further research is needed to examine if reductions in RSB are linked to reductions in incident cases of HIV and other STDs. **Support:** NIDA Clinical Trials Network (CTN0018)

319 N-METHYL D-ASPARTATE RECEPTOR REGULATION OF AMPHETAMINE-INDUCED BEHAVIORAL AND MOLECULAR ACTIVATION

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Aims: Psychostimulants, e.g. amphetamine and cocaine, have potential to become drugs of abuse, changing behavior and striatal neurochemistry. Glutamatergic activation in the caudate and putamen (CPu) via extracellular regulated kinase (ERK) pathway may be one of the mechanisms through which psychostimulants may modulate dopaminergic activity and behavioral activation. Presently, we aim to examine behavioral and molecular interplay of amphetamine (AMPH) administration with the glutamatergic system through blockade of N-methyl D-aspartate (NMDA) glutamate receptors with dizolcipine (MK-801). We predict that NMDA blockade will mitigate AMPH-induced ERK activation in the striatum and hyperlocomotion. **Methods:** Subj: Male Fischer rats, 8 weeks Protein analysis: sacrifice post-drug, CPu homogenized and subjected to Western blot analysis AMPH dose resp: N=12; 0, 5, 10 mg/kg i.p. 15 min AMPH NMDA block: N=18; vehicle or 0.25 mg/kg i.p. MK-801, 15 or 45 min behavior recording, then vehicle or 10 mg/kg i.p. AMPH, 15 or 45 min post-AMPH and behavior recording. Behavior recorded in photobeam locomotor cage. **Results:** AMPH elicited p-ERK in CPu in a dose dependent manner 15 min post-treatment. AMPH-induced increase in p-ERK from 10 mg/kg AMPH was abolished with MK-801 pretreatment. Subjects displayed hyperlocomotion during 15 and 45 minute sessions post-AMPH treatment. However, MK-801 administration 15 and 45 minutes prior to AMPH administration enhances AMPH-elicited hyperlocomotion. **Conclusions:** NMDA receptor blockade with MK-801 enhances AMPH-induced locomotor activation despite mitigated p-ERK levels. Thus, enhanced AMPH -induced hyperlocomotion by MK-801 pretreatment is not due to glutamatergic antagonism and subsequent blockade of NMDA receptor mediated ERK signaling in the striatum. **Support:** DA12136, 506-GM60654, RR-03037 & PSC-CUNY

320 A META-ANALYSIS OF THE USE OF MOTIVATIONAL INTERVIEWING FOR SMOKING CESSATION

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Aims: Motivational Interviewing (MI; Miller & Rollnick, 2002) is a popular and effective intervention for substance disorders and other behavioral health problems. Prior reviews and meta-analyses of MI have included very few smoking cessation trials. The aims of the current meta-analysis are to determine the efficacy of MI for smoking cessation and identify potential outcome moderators. **Methods:** MEDLINE/PubMed and PsycInfo databases were searched. Title/abstract search terms "motivational interview" OR "motivational enhancement" AND "smoke, cigarette, tobacco, OR nicotine." Randomized controlled trials that reported the number of smokers who were abstinent at follow up were eligible. We estimated the overall MI effect using a Bayesian model. **Results:** Twenty-six published trials were identified since 1998: 8 general adults, 5 chronically ill adults, 5 adolescents, and 8 pregnant/postpartum women. Preliminary analyses of the trials with sufficient data (3134 individual participants) showed an overall treatment effect size of 1.36 [1.10-1.68]. No difference in effect was found between the populations. Based on a funnel plot and regression analysis, publication bias was not detected. **Conclusions:** This is the most comprehensive review of MI for smoking cessation conducted to-date. There was a great deal of methodological variability and lack of trial reporting detail. The intervention effect was relatively low but significant and within the range of other behavioral smoking cessation approaches. Upcoming analyses include the addition of more trials identified through other sources including the "gray" (unpublished) literature and examination of more potential outcome moderators. These findings suggest that current MI smoking cessation approaches should be tested head-to-head against other behavioral approaches and that they may need to be enhanced for greater efficacy. **Support:** This research was supported by grants 7K07CA108685-03 (Heckman) and CA006927 (Center Grant). The authors thank Sharon Manne, PhD, Chelsea Rose, Jeanne Pomenti, Sara Filseth, and Indira Friel for their assistance.

321 LATENT CLASS GROWTH TRAJECTORIES OF NEUROPSYCHOLOGICAL DYSFUNCTION IN DRUG USERS

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Aims: Growth mixture models (GMM) were used to identify latent class growth trajectories of neuropsychological performance on the TOVA over time in drug users. Specifically, age and gender adjusted standard scores of TOVA response time were used to assess processing time and TOVA omission errors were used to assess inattention. It was hypothesized that drug users would have decreased neuropsychological functioning over time. **Methods:** Participants consisted of 567 drug users who participated in the study of Neurobehavioral Models of HIV in Injection Drug Users. The study assessment battery consisted of an HIV Risk Behavior Interview, neuropsychological executive function tests, a urine sample to validate self-reports of drug use and a blood sample to ascertain HIV status. The prospective study followed injection drug users over a period of 4 years; participants had four follow-up sessions scheduled annually. Two longitudinal models of continuous TOVA response time and categorical TOVA omission errors, defined as standard omission errors (impaired or normal), were used to identify trajectories using latent GMM. **Results:** For each model, two distinct growth trajectories were identified with both models indicating good fit. The two trajectories of TOVA omission error were 1) participants who began with high scores and decreased slowly over time (46.3%) and 2) participants who began with low scores and decreased dramatically over time (53.7%). Two distinct trajectories of neuropsychological dysfunction as measured by TOVA response time were also identified; participants who began with high scores and decreased over time (79.1%) and a small percentage of participants who began with low scores and increased slowly over time (20.9%). **Conclusions:** Future analyses will focus upon assessing other TOVA outcome measures as well as assessing baseline and time-varying drug use as risk factors for latent class trajectories while controlling for potential confounders. **Support:** This study was supported by the Drug Dependence Epidemiology Training Grant, T32DA007292.

322 CHARACTERIZING METHADONE DOSE DURING LATE PREGNANCY AND POSTPARTUM

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Aims: Methadone maintenance (MM) is the standard of care for opioid dependent pregnant women, but little is known about appropriate dosing regimens. Due to increasing metabolism and clearance over the antepartum (AP) period, women may need dose increases over time to prevent withdrawal. Postpartum (PP), dosing recommendations include a return to the pre-pregnancy level or to half the 3rd trimester dose. However, these clinical recommendations lack empirical support. Here, we report preliminary results from an ongoing retrospective review of MM during and after pregnancy which aims to characterize the pattern of dose changes AP and PP. Because methadone metabolism appears to be most altered during the 3rd trimester, initial efforts focused on this trimester as well as the first 12 weeks PP. **Methods:** Participants were 9 women in MM both AP and PP. Dose changes (10mg increments) were organized according to the AP or PP week in which each change occurred to calculate the number of, direction of, and time between dose changes during the 3rd trimester and the first 12 weeks PP. **Results:** Preliminary data indicate that on average, women were 26 years old, high school educated, White (100%), and with an unintended pregnancy (89%). Three were in MM prior to pregnancy; 6 entered MM at 17±2 weeks AP. Entering the 3rd trimester, mean dose was 85mg (range 18-150). During the 3rd trimester, women needed an average of 1.6±0.4 dose increases. Dose increases occurred on average, every 6.5±1.7 weeks. Mean dose at the end of the 3rd trimester was 101mg (range 21-150), a 19% increase. In the first 12 weeks PP, the majority of women (56%) did not need any dose adjustments. One woman needed 1 dose decrease at 2 weeks PP, while the remaining 3 women each needed 1 additional dose increase. **Conclusions:** Methadone dose increased by nearly 20% during the 3rd trimester. After delivery, most women needed no change or continued to need dose increases. More scientific data further characterizing methadone dosing during and after pregnancy are needed to improve the management of this special population. **Support:** NIDA RO1DA018410

323 FACTORS ASSOCIATED WITH COGNITIVE DYSFUNCTION AMONG METHAMPHETAMINE USERS

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Aims: Neurocognitive dysfunction has been associated with poor treatment retention among stimulant abusers. The aim of this study was to identify factors associated with greater cognitive dysfunction among methamphetamine (MA) dependent participants. **Methods:** Participants in a clinical trial of bupropion versus placebo for MA dependence (N=73) underwent computerized neurocognitive testing using SuperLab, including simple reaction time (SRT), choice reaction time (CRT), and one- and two-back tests of working memory, during a medication-free baseline/lead-in period. Cross-sectional analyses compared baseline characteristics of participants with slower RTs (RT ≥ median) versus faster RTs (RT < median). **Results:** Median baseline RTs were 239 msec for SRT, 369 msec for CRT, 356 msec for one-back, and 409 msec for two-back. In bivariate analyses, participants with slower RTs on the two-back were older (38y vs. 31y, p=0.003), had a longer lifetime history of MA use (12y vs. 8y, p=0.04) and alcohol use (10y vs. 5y, p=0.03), and had lower ASI psychological severity scores (0.16 vs. 0.25, p=0.04), relative to participants with faster RTs on the two-back. Participants with slower SRTs had a shorter lifetime history of cocaine (0.7y vs. 2.3y, p=0.05) and cannabis (4.5y vs. 10.2y, p=0.02) use, while participants with slower one-back RTs had a shorter lifetime history of cocaine use (0.7y vs. 1.2y, p=0.05) and none of the variables were associated with CRT. In a multivariable logistic regression model, increasing age was significantly associated with slower two-back RT (OR=1.06 per year, p=0.05), while lifetime MA and alcohol use and ASI psychological score were no longer significant. **Conclusions:** Greater deficits in working memory, as assessed via the two-back RT, are associated with older age and longer lifetime histories of MA and alcohol use, though the association with MA and alcohol use appears to be mediated by age. Ongoing analyses of these data are assessing potential associations between deficits in neurocognitive functioning and treatment outcomes, including response to bupropion for MA abuse. **Support:** NIDA grant 1 P50 DA 18185

324 RACIAL DIFFERENCES IN PSYCHOSOCIAL FUNCTIONING AMONG YOUTH IN JUVENILE DETENTION

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Aims: Compare the offense histories, justice involvement, and psychosocial functioning of detained African American youth to youth of Latino and White, Non-Hispanic ethnicities. **Methods:** STUDY 1 Participants: 672 female adolescents. 42% African American, 33% Hispanic, 11% Haitian, 8% white, non-Hispanic, and 6% other. Participants averaged 2.78 lifetime arrests. **Measurements:** A semi-structured interview assessed: family functioning, trauma history, delinquent behavior, education, mental health and substance use. The DISC Predictive Scales identified the presence or absence of psychiatric disorders. Juvenile justice records identify number of arrests, type of arrests, and number of detainments. STUDY 2 Participants: 150 male and female detained adolescents. Participants were primarily male (82%) and African-American (56%). 56% were African American, 21% White, Non-Hispanic, and 19% Latino. On average, participants averaged 4.1 lifetime arrests. **Measurements:** We examined functioning in the following domains: (1) substance use, (2) delinquent activity, (3) internalizing and externalizing problems, (4) family functioning, (5) risky sexual behavior, and (6) educational problems. **Results:** In two studies, juvenile justice involvement is related to worse psychosocial functioning in White-Non Hispanic, but not African American youth. Moreover, despite deeper juvenile justice involvement and more severe juvenile justice histories, African American youth showed healthier psychosocial functioning than White youth. **Conclusions:** Information that reveals important competencies are usually not available to decisions makers who instead rely primarily on juvenile justice records. More comprehensive intake assessments may reveal hidden strengths among African American youth, and may help decrease racially-based disparities in the juvenile justice system. **Support:** Support provided by the National Institute on Drug Abuse, U01DA016193, Howard Liddle PI

325 THE NMDA ANTAGONISTS LY235959 AND DEXTROMETHORPHAN ENHANCE MORPHINE'S EFFECTIVENESS IN A TEST OF CAPSAICIN-INDUCED HYPERALGESIA

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Aims: The present study examined the effects of morphine alone and in combination with a competitive and an uncompetitive NMDA receptor antagonist in a capsaicin model of inflammatory pain. **Methods:** Capsaicin (3.0 µg in a 0.1 ml volume) was administered into the distal portion of the tail of male Fischer 344 rats. Fifteen min after the capsaicin injection, latency to withdraw the tail from a normal non-noxious water bath (45°C; cut off point = 15-sec) was measured to determine whether capsaicin decreased tail withdrawal latency. At a later time, morphine (1.0 - 10.0 mg/kg, s.c.) was administered 15 min prior to capsaicin and tail withdrawal latencies were reassessed. Subsequently, the NMDA antagonists LY235959 (1.0mg/kg, i.p.) or dextromethorphan (10.0 - 30.0 mg/kg, i.p.) were administered alone or in combination with morphine (1.0 - 10.0 mg/kg) and tail withdrawal latencies were again reassessed. **Results:** Capsaicin alone decreased tail withdrawal latencies from the cut off point of 15-sec to approximately 3-4 sec, suggesting that capsaicin produced a transient hypersensitivity. Administration of morphine alone reversed capsaicin-induced decreases in tail withdrawal latencies (ED₅₀= 4.1 mg/kg). An intermediate dose of morphine produced approximately a 30% antihyperalgesic effect, and in combination with LY 235959 (1.0 mg/kg) or dextromethorphan (20 mg/kg) produced approximately a 100% or 80% antihyperalgesic effect, respectively. **Conclusions:** These results suggest that the NMDA antagonists LY23595 and dextromethorphan increase morphine's effectiveness as an antihyperalgesic agent in a test of capsaicin-induced inflammatory pain. **Support:** R01-DA02749 and DA15709, T32-DA07244.

326 SEQUENTIAL AGONIST MEDICATION STRATEGIES FOR COCAINE DEPENDENCE: BAYESIAN ANALYSIS

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Aims: A growing literature indicates the safety and potential efficacy of agonist treatments for cocaine dependence. We previously demonstrated reduction of cocaine use in patients given sustained release (SR) d-amphetamine (d-amph). Concerns about prolonged stimulant treatment suggested examination of a sequential medication approach. This model features stabilization with d-amph, followed by substitution with medications with less prominent stimulant effects or other mechanisms. Bayesian statistics were used to evaluate the merit of sequential regimens. **Methods:** This 8-week study consisted of two phases. During phase 1 (wk 1-4), subjects were randomized to placebo or d-amph SR (30 mg/day). A second randomization of phase 1 d-amph subjects to levodopa/carbidopa (dopa; 100/400 mg/day), fluoxetine (40 mg/day), or continued d-amph (30mg/day) followed for phase 2 (wk 5-8); the control group continued to receive placebo. Urine testing (3/wk) and cognitive-behavioral therapy (1/wk) occurred throughout treatment. We hypothesized that the greatest reduction in cocaine use would be found in patients receiving dopaminergic medications. **Results:** 124 subjects enrolled in the study, with similar characteristics in all groups. Survival curves indicated equal retention across groups, with 48% of subjects completing treatment. Bayesian analysis of phase 1 data, using poisson regression of longest-sustained abstinence on treatment, indicated a 43% chance (risk ratio >1) that d-amph had benefit relative to placebo. Similar analyses for phase 2 indicated a 74% chance of benefit for d-amph vs. placebo, while dopa and fluoxetine produced benefit of 51%, and 3%, respectively. No severe adverse events occurred during the study and side effects were minimal. **Conclusions:** These data further demonstrate the promise of agonist therapy for cocaine dependence, and indicate the utility of Bayesian techniques in analysis of drug abuse trials. Followup studies will utilize a longer duration of d-amph administration, followed by transition to dopa. **Support:** NIDA DA 009262, DA 023548

327 SOCIAL AND MENTAL HEALTH CORRELATES OF FEMALE INMATES IN THE PUERTO RICO PRISON SYSTEM WITH LIFETIME DRUG USE DISORDER AND LIKELY POST TRAUMATIC STRESS DISORDER

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Aims: Although 1.4% of the Puerto Rico population has a lifetime diagnosis of drug abuse/dependence, the prevalence among women inmates is 40%. Patient centered drug treatment needs to address the specific social and psychological needs of women with a drug use disorder. The present study explores whether sentenced female inmates in the PR prison system with substance use disorder (SUD) with and without Post Traumatic Stress Disorder (PTSD) differ in their social needs and other co-occurring mental health conditions. Results will assist treatment planning. **Methods:** Cross sectional study in 2005 with a representative sample of the sentenced inmate population of the Puerto Rican correctional institutions. Data was gathered anonymously from 1,179 respondents (220 women and 959 men). In this study we use the sub-sample of female inmates. SUD was assessed with the UM-CIDI and PTSD symptoms were assessed with the Davidson Trauma Scale (DTS). Other emotional disorders measured were: Major Depression and Attention Deficit Hyperactive Disorder (ADHD). Social factors surveyed included: relatives with drug problems, number of dependents before prison, employment, previous incarcerations, victimization last year, blood-borne viruses and suicide attempt. **Results:** 63% of females had a lifetime diagnosis of drug abuse/dependence. Of these, 17% also have likely PTSD. Lifetime drug abuse/dependence with likely PTSD was significantly associated with attempted suicide (X²=9.18, p=0.002); Major Depression (X²=6.52, p=0.01); ADHD (X²=27.06, p=0.001) and victimization last year (X²=5.23, p=0.02). **Conclusions:** Female inmates with a lifetime diagnosis of drug abuse/dependence with likely PTSD have specific needs different from those who only have a substance use disorder. Treatment must address the social and mental health factors that can constitute barriers to their rehabilitation. **Support:** Dr. Carmen Albizu-Garcia, MD

328 A META-ANALYSIS OF MOTIVATIONAL INTERVIEWING TO ENHANCE ENGAGEMENT AND ADHERENCE TO SUBSTANCE USE TREATMENT

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Aims: Despite the availability of efficacious therapies, a majority of individuals with substance use disorders do not receive adequate or effective care, either because they never enter treatment or because, having entered, they drop out prematurely or do not consistently adhere to treatment procedures. Motivational Interviewing (MI), a client-centered, goal-oriented method for enhancing motivation for change by exploring and resolving ambivalence, may be an ideal candidate for addressing this problem. This aim of the present study was to conduct a meta-analysis on the effects of MI on substance use treatment engagement and adherence. **Methods:** Procedures: A comprehensive literature search of PsycINFO, PubMed, and the MI website was conducted to identify studies with: at least (1) one intervention that included components of MI, (2) one control or comparison condition, (3) one engagement or adherence outcome variable for a substance use treatment other than MI, and (4) a procedure to ensure the equivalence of groups. **Analyses:** Included studies were coded for methodological quality and other important variables, including characteristics of the sample and intervention. Cohen's d effect sizes were calculated for all engagement and adherence variables. **Results:** Over twenty studies were included in the meta-analysis. Substance abuse treatments for which engagement and adherence were measured included inpatient, outpatient, twelve step, and medication interventions. Outcome variables were categorized as treatment contact, entry, attendance, adherence, participation, and retention. Wide variability in effect sizes was observed across studies, but, overall, effect sizes were medium. **Conclusions:** MI is an effective intervention to increase engagement and adherence to substance use treatment. **Support:** This work was funded in part by NIDA (# 5 T32 DA007250-15)

- 329** THE EFFECTIVENESS OF AN INTEGRATED CBT INTERVENTION FOR CO-OCCURRING DEPRESSION AND SUBSTANCE MISUSE IN YOUNG PEOPLE
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Aims: This study aimed to determine the effectiveness of an integrated cognitive behaviour therapy (CBT) intervention for co-occurring depression and substance misuse in young people. Methods: Participants consisted of 59 young people aged 15 to 25, with a major depressive disorder and concurrent substance misuse. Participants were provided with 10 sessions of CBT for co-occurring depression and substance misuse and case management over a maximum of 20 weeks. Young people were followed up mid (10 weeks) and post (20-weeks) treatment and at 6 months follow up. Results: Sixty percent of young people achieved total remission of Depressive Symptoms on the Hamilton Depression scale at mid and post treatment. CBT resulted in significant improvements in depression and anxiety symptoms, coping style, depressive and substance use cognitions and functioning post treatment. No significant differences in alcohol or cannabis use were found, although there was a significant reduction in the severity of dependence. Conclusions: Preliminary evidence from recently published pilot studies have demonstrated the efficacy of integrated CBT interventions in alcohol dependent adolescents with co-existing depression. The current paper reports preliminary support for the effectiveness of integrated treatment for depression and substance misuse amongst young people. Support: Dr Murat Yucel
- 330** HIV RISK BEHAVIORS AND PTSD: SECONDARY FINDINGS FROM A NIDA CLINICAL TRIALS NETWORK RANDOMIZED CONTROLLED TRIAL OF WOMEN IN COMMUNITY-BASED SUBSTANCE ABUSE TREATMENT
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Aims: Heterosexual women with substance use disorders (SUD) are at high risk for HIV. A substantial number of women in substance abuse treatment have histories of interpersonal violence, as well as comorbid psychological disorders, such as posttraumatic stress disorder (PTSD). Aim: To examine HIV sexual risk behaviors of treatment seeking women with SUD and PTSD and the treatment effect of two interventions on sexual risk outcomes. Methods: Secondary analyses were conducted with 353 women meeting criteria for SUD and full or subthreshold PTSD enrolled in a study of the effectiveness of two group interventions: 1) an integrated treatment for SUD and PTSD, and 2) a health education attention control. Bivariate associations between baseline demographic, diagnostic characteristics and HIV sex risk behavior were examined. Zero-inflated negative binomial model regressions were run to assess differences in sexual risk behaviors between intervention groups. Results: At baseline, 54% of women were sexually active in the previous 30 days, averaging one sexual partner and 5.4 unprotected sexual occasions. Women with more substance use reported more sexual partners and unprotected sex. The integrated treatment for PTSD and SUD had a significant impact in decreasing sexual risk behaviors post treatment ($p=.05$, 95% CI 0.51-1.03). Conclusions: Women in outpatient substance abuse treatment with comorbid PTSD may reduce unprotected sexual encounters by participating in trauma integrated treatment. Increasing PTSD coping skills and understanding the role of trauma may enhance feelings of empowerment or increase efficacy to make choices that will improve sexual health. Support: This study was supported by National Institute on Drug Abuse, Clinical Trials Network, (U10DA13035) with the Long Island Node as the Lead Node and K24 DA022412 (Dr. E Nunes).
- 331** ATOMOXETINE AFFECTS RESPONSES TO PSYCHOLOGICAL AND PHYSICAL STRESS IN HUMANS
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Aims: Evidence from preclinical and clinical studies suggests that stress response involves noradrenergic system activation. Aims: To determine the effects of atomoxetine, a norepinephrine reuptake inhibitor, on a psychological stress model, the paced auditory serial addition test (PASAT), and a physical stress model, the cold pressor test (CPT), in healthy volunteers. Methods: Three male and 7 female subjects participated in an outpatient double-blind, placebo-controlled, crossover study. Subjects were randomly assigned to a sequence of atomoxetine (40 mg/day) or placebo treatments, each lasting 4 days. On Day 4 of each treatment period, subjects had an experimental session during which subjective and physiological responses to stress were measured. The main analysis was conducted with repeated measures ANOVA. Results: Atomoxetine enhanced some subjective responses to PASAT including the ratings of "stimulated," "anxious," and "nervous" ($p<0.05$). The average change in the ratings of "stimulated," "anxious," and "nervous" were 24(3.0), 24.5(3.2), 28.2(4.4) under atomoxetine and 3.9(1.8), 16.8(3.2), 9.6(2.4) under placebo treatment. For the heart rate and blood pressure responses to atomoxetine, no treatment responses were observed. Atomoxetine enhanced some subjective responses to CPT: the average change in the ratings of "energetic," "stimulated," and "lively" were 10(3.8), 5.5(3.4), and 10.4(3.2) under atomoxetine and -8.1(5.5), -0.2(2.5), -1.1(4.2) under placebo treatment ($p<0.05$). No treatment effect was observed for the blood pressure and heart rate responses to CPT. Conclusions: Our findings are consistent with studies suggesting that the noradrenergic system contributes to subjective responses to acute stress. Further investigation of adrenergic medications for the prevention of relapse to drug use associated with stress is warranted. Support: Supported by NIH grant P50-DA18197, VA New England MIRECC, and the Robert Wood Johnson Foundation.
- 332** PREDICTING CHANGES IN SMOKING: INDIVIDUAL, PARTNER AND RELATIONSHIP INFLUENCES
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Aims: A variety of individual-level factors influence changes in cigarette smoking. Among newly married couples, there is also the potential for a partner's characteristics or the relationship itself to impact changes in smoking over time. The objective of this work was to identify baseline and time varying individual, partner, and relationship factors that were associated with smoking cessation and smoking relapse during the first seven years of marriage. Methods: Couples ($N = 634$) smoking, personality, relationship satisfaction, alcohol use, and psychological variables were assessed at the time they applied for their marriage license and then again at the first, second, fourth and seventh anniversaries. Event hazard models were used to predict cessation of smoking and relapse to smoking for husbands and wives. Results: In the models predicting smoking cessation, husbands with higher conscientiousness, less frequent heavy drinking and a nonsmoking wife were more likely to quit. Among wives, greater marital satisfaction and having a nonsmoking husband were related to smoking cessation. In terms of relapse for husbands, lower marital satisfaction was related to return to smoking. Among wives, higher neuroticism, more frequent heavy drinking, and a having a partner who smokes were related to relapse. All results persisted after controlling for sociodemographic factors. Conclusions: After considering one's own substance use and psychological factors, a spouse's smoking status significantly impacted changes in one's own smoking. Support: (Supported by NIAAA grant R37-AA009922 awarded to KEL)

333 DRUG PROBLEMS, SEX TRADING, AND SEX-RELATED ATTITUDES AMONG WOMEN ENTERING SUBSTANCE ABUSE TREATMENT

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Aims: Women with alcohol and drug problems are at increased risk for a variety of negative outcomes associated with high-risk sexual behaviors. The purpose of this work is to describe sex-trading behavior and sex-related attitudes of women entering substance abuse treatment. **Methods:** Women who presented for treatment (N=110) were recruited from inpatient and outpatient facilities in Buffalo, NY. Women completed assessments regarding substance use, relationships, and sexual behavior. Women were categorized into two groups based upon their Drug Abuse Screening Test score: non-severe drug problems (0-15; n=72) and severe drug problems (16+ n=38). Chi-square and t-tests were conducted to identify group differences in sex trading and number of different types of drugs used in the last 90 days, Alcohol Dependence Scale (ADS) scores, sexual and nonsexual sensation seeking, sex-related alcohol expectancies, concerns about body image and sexual performance, and perceived ability to engage in safer sexual behaviors. **Results:** Women who reported severe drug problems had used more types of drugs (2.50 vs. 1.72; $p<.01$) and were more likely to have engaged in extensive sex trading (18.4% vs. 2.8%; $p<.01$) in the last 90 days, and had higher scores on the ADS (15.13 vs. 9.96; $p<.05$), non-sexual sensation seeking ($p<.05$), and sex-related alcohol expectancies ($p<.01$) compared to women in the non-severe group. Women in the severe problems group also tended to report having greater confidence in their ability to engage in AIDS prevention behaviors ($p=.067$). No differences existed on the women's sexual sensation seeking or attitudes related to body image and sexual performance. **Conclusions:** Women with severe drug problems were more likely to have engaged in extensive recent sex trading. The start of treatment provides a unique opportunity for health care providers to address sex-related factors that place women with severe drug problems at heightened risk for infection with HIV. **Support:** 1R01AA015288 awarded to KHD

334 GENDER DIFFERENCES IN STRESS AND CUE-RELATED ADRENERGIC RESPONSE IN COCAINE-DEPENDENT PATIENTS COMPARED WITH SOCIAL-DRINKING CONTROLS

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Aims: Cocaine alters the stress and reward pathways of the brain changing psychobiological responses to stress and enhancing drug craving. These adaptations have been associated with relapse, and may also be sex-specific. To date, however, the sympathetic response associated with stress-related craving has not been compared in CD male and females. **Methods:** 46 recently abstinent treatment-seeking CD patients (27M/19F) and 47 SD controls (22M/25F) were exposed to 3 personalized guided imagery conditions (stress, drug-cue and neutral/relaxing) presented randomly, across consecutive days, 1 imagery per session. Craving, anxiety, blood pressure (BP), Norepinephrine (NE) and Epinephrine (EPI) were measured at baseline, immediately following imagery and at various recovery time-points. **Results:** CD patients reported higher ratings of stress and cue-induced craving and anxiety compared with SDs. CD females demonstrated higher levels of basal NE compared with both CD males ($p<.04$) and SD females ($p=.005$). They also showed a significant increase in NE compared with SD females following exposure to all three imagery conditions ($p=.008$). In the CD females, basal NE levels were also positively correlated with cocaine use in the last 30 days ($p<.04$). BP at baseline was positively associated with basal NE in all groups with the exception of CD females. CD and SD males demonstrated significantly higher levels of EPI compared with CD and SD females both at baseline and following all imagery conditions. **Conclusions:** CD females showed an overall increased noradrenergic drive accompanying the stress and cue-related craving state. This may indicate possible sympathetic dysregulation as basal NE levels were correlated with cocaine consumption and showed no association with BP. Such gender-related dissociations may contribute to variation in co-occurring psychopathology and risk of relapse. These findings have implications for gender-specific pharmacological treatment development in cocaine dependence. **Support:** P50-DA16556; K02-DA17232 Yale University

335 EXECUTIVE FUNCTIONING AND THE TREATMENT OF DRUG ADDICTION: A84 COMMENTARY

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Aims: Executive functioning, as a concept, denotes active decision-making and behavioral outputs that are adaptive to external demands rather than the storage and reproduction of a number of varieties of organized information items. Executive functioning is a multifaceted neurocognitive construct that is presumed to be supported by widely distributed neural networks in the human brain. Executive functioning is not postulated to be subserved by specific localization of any particular brain area, beyond noting that the tasks do emphasize executive functions that tend to be largely, though not entirely, mediated by the frontal lobes. While there is no widely agreed upon single model of executive functioning, nonetheless, there is some agreement that the concept is a valid neuropsychological domain. **Methods:** The newly developed Reynolds-Horton model of executive functioning (Reynolds and Horton, 2006) postulate distinct factors that combine under the concept of executive functioning based on a large scale research study of over 1,700 subjects over an age range from age 8 to age 89. The developmental trajectory of executive functioning data demonstrates changes in subtypes of human executive functioning abilities. **Results:** The developmental trajectory executive functioning data demonstrate changes in subtypes of executive functioning of human executive functioning abilities. **Conclusions:** The developmental trajectory executive functioning data were first thought to support a verbal and nonverbal model of the organization of human executive functioning abilities. A re-conceptualization of the data argues for the possibility of a three factor theory including short-term memory, set-shifting and inhibition of responses. Implications for the Treatment of Drug Addiction are discussed. These include the relevance of executive functioning skills in assessing suitability for types of drug abuse treatment. **Support:** None

336 HIGH-RISK OFFENDERS IN CALIFORNIA'S PROPOSITION 36

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Aims: California's voter-initiated Proposition 36 (Prop 36) offers nonviolent drug offenders community-based treatment as an alternative to incarceration or probation without treatment. Yet, the new crimes committed by these offenders undermine the public safety the law intends to protect. This study examines the characteristics and outcomes of high-risk offenders in Proposition 36. **Methods:** Based on data collected by a multiple-site prospective Treatment System Impact study, high-risk offenders (more than 3 convictions in the 5 years prior to Prop 36 treatment admission, n=333) were compared to low-risk offender (3 or less convictions, n=1,805). **Results:** High-risk offenders were younger (34 vs. 37 years), more likely to be male (78% vs. 70%), less likely to be employed (29% vs. 37%), and had higher severity score for alcohol problems. They also showed higher rates of mental health disorders including depressive disorder (17% vs. 13%), bipolar disorder (11% vs. 7%), psychiatric disorder (10% vs. 6%), and anxiety disorder (6% vs. 2%). The number of arrests during the two year follow-up was 2.7 for the high-risk offenders, compared to 1.8 among the low-risk offenders. **Conclusions:** The study findings highlight the need for special attention and interventions to address drug-abusing high-risk offenders. **Support:** This study was supported in part by the National Institute on Drug Abuse (R01DA15431 and P30DA016383). Yih-Ing Hser is also supported by a National Institute on Drug Abuse Independent Scientist Award (K02DA00139).

337 A COMPARISON OF HIV PREVALENCE AMONG MSM AND MSMW WITHIN A SAMPLE OF DRUG USERS IN LOS ANGELES

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Aims: Stimulant use has been linked to increased sexual risk behaviors and HIV transmission. This study uses data from NIDA's Sexual Acquisition and Transmission of HIV Cooperative Agreement Program (SATH-CAP) to compare men who have sex with men (MSM) and men who have sex with men and women (MSMW) along drug use and sexual risk behaviors in a respondent driven sample. **Methods:** 843 subjects completed questionnaires about their health, drug use, sexual practices, and HIV-related risk behaviors & also were tested for HIV and drugs of abuse. The sample is mostly African American (59%) and homeless (57%). Of them, 554 male subjects who reported sexual activities with another male were analyzed independently and categorized according to sexual partnerships and stimulant drug use. We hypothesized that (1) HIV prevalence would be higher among MSM using methamphetamine (MA) than among other stimulant using MSM or non-drug using MSM and (2) that MA users would also report a greater number of sexual partners than other stimulant users or non-drug users. **Results:** Of the subset of 282 MSM & 272 MSMW 43% reported no drug use, 12% reported only using MA, 29% reported only using cocaine (COCN), and 12% reported using both MA & COCN in the last 30 days. Across MSM & MSMW higher rates of HIV were found in MA users (MSM =65%; MSMW=26%) than in users of COCN (MSM=37%; MSMW=5%), MA & COCN (MSM=39%; MSMW=3%). MA users also reported a significantly higher numbers of sexual partners ($p<0.05$) within the previous six months than non-drug users, with mean (median) of 3.4(2) and 3.2(2) for MA using MSM and MSMW, and 1.6(1) and 1.8(1) for non-drug users in MSM and MSMW. **Conclusions:** Our findings suggest positive associations between MA use and HIV transmission in a sample of highly ethnic, very poor MSM in Los Angeles. These data represent some of the first descriptions in a highly ethnic comorbid group. **Support:** This study is supported by NIDA Grant #DA017394.

338 A PILOT STUDY OF TOPIRAMATE FOR SMOKING CESSATION

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Aims: 1.To investigate the tolerability of topiramate as an adjunct for smoking cessation in smokers receiving counseling and nicotine replacement therapy. 2.To investigate preliminary efficacy of topiramate for smoking cessation. **Methods:** After obtaining informed consent, subjects were screened using the SCID and the Fagerstrom Tolerance Questionnaire(score>5). Those who met inclusion criteria and who completed a smoking diary were invited to participate. 15 subjects were screened, 8 enrolled, and 5 completed the 12-week trial. All participants received individual counseling sessions, nicotine patch, and topiramate (gradually increasing up to 300 mg per day). Subjects were monitored for weight change, medication compliance, self-reported nicotine craving and smoking habits, smoking urges (Questionnaire on Smoking Urges), and mood state (Positive and Negative Affect Scale). Cognitive functioning was assessed prior to, during, and after treatment using neuropsychological tests. Exhaled CO levels were measured at weeks 1 & 12. **Results:** Tolerability: 8 subjects reported adverse events: fatigue, vivid dreams, sleep disturbances, tingling in fingers and toes, decreased sweating, dry mouth, mild headaches, difficulty concentrating, memory problems, disorientation, and irritability. Average weight was 160.32 lbs. before and 163.9 lbs. after treatment. The difference in weight (2.2% gain) was not significant, $t(4)=-1.69, p=0.16$. Preliminary efficacy: Average CO level for 5 completers was 28.60 ppm before treatment and 4.40 ppm after treatment. Results showed a significant decrease in CO levels from before to after treatment, $t(4) = 5.25, p<0.01$. Further data analyses are on-going. **Conclusions:** Topiramate can be safely added to nicotine replacement therapy and may provide additional efficacy. Topiramate was particularly well-tolerated in younger patients. Older patients with other concurrent illnesses may be more likely to experience side effects including difficulty concentrating and memory problems. **Support:** NIDA DA00366-02 and DA015040

339 SMOKERS KNOW WHAT THEY WANT, BUT DO THEY KNOW WHAT THEY NEED?

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Aims: Evaluate whether treatment-seeking smokers are able to adequately identify the intensity of intervention they need to quit smoking. It was hypothesized that subjects choosing minimal intervention (NRT only) will be equally successful as those choosing more intense intervention (NRT plus counseling). **Methods:** The data were collected as part of a clinical trial that evaluated the effectiveness of different methods of delivering NRT. Treatment-seeking adult smokers, who smoked at least 10 cigarettes daily, self-selected NRT alone (NA model) or in combination with semi-structured counseling (NC model) for 10 weeks. Success was defined by end-of-treatment 7-day point prevalence abstinence rate. **Results:** 785 subjects enrolled in the two treatment models: average age was 44 (± 12) years, 55% male ($p=0.02$) and 66% smoked more than 20 cigarettes per day. These variables were similar in both treatment models. A significant majority self-selected the NRT only model (74%, $p<0.001$). This self-selection was not differentially influenced by past incidence of NRT use, as 65% of subjects in NA and 70% in NC model had used at least one form of NRT in a serious past quit attempt ($p=0.15$). At end of treatment, a similar quit rate was found for both treatment models (42% in NA and 49% in NC, $p=0.3$). Subjects with limited experience from past quit attempts were less successful from their self-selection of intervention. The 7-day point-prevalence rate was 37% in those with <3 past quit attempts, compared to 49% in subjects who had >3 previous quit attempts ($p=0.034$). **Conclusions:** Treatment-seeking smokers are able to adequately determine the level of intervention they need to quit smoking. The self-selection of intervention was not driven by a propensity to explore novel treatment; rather, successful self-selection of intervention appears to be informed by experience from past quit attempts. These results do not support the utility of intense intervention for all smokers, but indicate an equally relevant utility of minimal intervention, when selected by smokers who have made several quit attempts. **Support:** Supported by the Ontario Ministry of Health Promotion

85 340 ADOLESCENT NICOTINE EXPOSURE ALTERS THE AVERSIVE EFFECTS OF COCAINE IN ADULT RATS

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Aims: Nicotine, one of the most commonly used drugs in adolescence, has been shown to alter the rewarding effects of cocaine when it is administered in adulthood. A drug's abuse potential is also impacted by its aversive effects, so understanding how nicotine exposure may impact cocaine's aversive effects may provide insight into the abuse liability of cocaine in subjects with a nicotine history. In the present study, rats exposed to nicotine during adolescence were tested for the acquisition and extinction of a cocaine-induced conditioned taste aversion (CTA) in adulthood. **Methods:** Adolescent male Sprague Dawley rats were exposed to nicotine or vehicle for 10 days (PND 35-44; SC). On PND 90, subjects underwent taste aversion conditioning in which a novel saccharin solution was followed by IP injections of varying doses of cocaine (0, 10, 18 or 32 mg/kg; $n = 8-9$ per group). CTA acquisition was followed by extinction during which saccharin was presented without subsequent injections of cocaine. **Results:** Saccharin consumption during acquisition was analyzed using a 5 (Trial) x 2 (Preexposure) x 4 (Dose) repeated measures ANOVA. While there was a significant dose-dependent decrease in saccharin consumption across trials ($F(12, 236) = 35.64, p < .001$), none of the terms involving Preexposure achieved significance. Saccharin consumption during extinction was analyzed using a 6 (Trial) x 2 (Preexposure) x 4 (Dose) repeated measures ANOVA. There was a significant Trial x Preexposure x Dose interaction ($F(15, 295) = 1.95, p < .05$). One-way ANOVAs and Fisher's PLSD post-hoc tests were performed at each trial. The analysis revealed that at two doses (10 and 18 mg/kg cocaine), the nicotine preexposed groups extinguished at a slower rate than their vehicle-treated counterparts ($ps < .04$). **Conclusions:** The failure to impact the acquisition of cocaine-induced CTAs suggests that nicotine's effect on cocaine abuse liability is not likely due to a change in cocaine's aversive effects. Nicotine's effect on extinction indicates an alteration in processes, e.g., learning and memory, that may impact the response to drugs in adulthood. **Support:** A grant from the Mellon Foundation to ALR.

341 THE INFLUENCES OF DOPAMINE RECEPTOR D4 POLYMORPHISM ON THE BRAIN STRUCTURES AND ACTIVITY IN METHAMPHETAMINE-DEPENDENT SUBJECTS

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Aims: In our research, we have used multimodal neuroimaging methods to explore the influence of dopamine receptor D4 (DRD4) polymorphism on the brain structures and activity (blood flow, glucos metabolism, gray matter density and white matter integrity) in methamphetamine(METH)users. **Methods:** Two sets (2VNTR and no-2VNTR) of MA user subgroups from our METH users cohort, were defined depending on DRD4 polymorphism, funtional 2 variable number of tandem repeat (VNTR). We have analyzed the T1 magentic resonance images (MRI), diffusion tensor image (DTI), 99m-Tc-hexamethyl propyleneamine oxime single photon emission computed tomography (SPECT) and fluorodeoxyglucose positron emission tomography(FDG-PET)images of the METH users who had available genetic information, using voxel-based morphometry (VBM) approach. **Results:** 2VNTR subgroup had smaller total cumulative dose of METH than no-2VNTR subgroup. In T1 VBM analysis, there was decreased gray matter density right precentral gyrus and insular in 2VNTR subgroup. In DTI VBM analysis, 2VNTR subgroup had decreased anisotrophy (FA) values in both temporal and right cuneus lobe. In SPECT VBM analysis, 2VNTR subgroup had increased regional blood flow of right paracentral lobule and left precuneus in parietal lobe. In FDG-PET VBM analysis, 2VNTR subgroup had increased regional glucose metabolism of right paracentral lobule and left precuneus in parietal lobe. **Conclusions:** Although it was preliminary, our study suggested the possible genetic vulnerability in METH depdence. METH dependent subjects with 2VNTR might had more decreased brain activity and defected structures in parietal lobe and so forth. **Support:** Grant (M103KV010022-06K2201-02210) from Brain Research Center of the 21st Century Frontier Research Program funded by tMinistry of Science and Technology, Republic of Korea(I.K.L.), National Institute on Drug Abuse (DA09448:P.F.R.; DA09448-09S1: I.K.L and P.F.R.) and National Institute of Mental Health (MH58681: P.F.R.).

342 A STRESS-COPING PROFILE OF OPIOID-DEPENDENT INDIVIDUALS ENTERING NALTREXONE TREATMENT

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Aims: To develop a stress-coping profile of opioid dependent individuals entering naltrexone treatment. **Methods:** We compared recently detoxified opioid dependent individuals entering a naltrexone treatment program (n = 49) with healthy social drinking controls (n = 60) on measures of stress, coping, and social support. We also examined relationships between these measures within the opioid dependent group. **Analyses:** T-tests and Pearson correlations were used to analyze the data. **Results:** Findings indicated that, compared with healthy controls, opioid dependent individuals reported greater stress ($p < .0001$), less use of problem and emotion focused coping ($p < .0001$ for both scales), greater use of avoidance coping (trend $p = .09$), and less perceived social support ($p = .0005$). Within the opioid dependent group, greater use of avoidance coping was associated with greater perceived stress ($r = .42$, $p = .003$). Greater social support was associated with less perceived stress ($r = -.48$, $p = .0004$) and less use of avoidance coping ($r = -.44$, $p = .002$). **Conclusions:** These findings suggest that recently abstinent opioid dependent individuals entering a naltrexone treatment program experience greater stress than healthy controls and are less likely to use adaptive coping strategies. They also perceive less social support than others, which may have a negative impact on stress and coping ability. Overall, these findings suggest that improving coping and social support early in treatment (e.g., through coping skills treatment and/or involvement in self-help groups) may reduce stress and have a positive impact on treatment outcome. **Support:** R01-DA18219

343 BANG COSTS \$50 A BEAN: SOURCES OF DIVERTED PRESCRIPTION DRUGS IN THE MIAMI CLUB CULTURE

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Aims: To examine the differences in mechanisms of access to diverted prescription opioids and benzodiazepines among drug users in the Miami club culture. Data are drawn from an ongoing natural history study of club and prescription drug use in Miami, Florida. **Hypothesis:** Heavy users of prescription opioids and benzodiazepines will access these drugs through a greater number of sources, including criminal activities. **Methods:** Using respondent-driven sampling techniques, 478 participants were recruited into the study and completed structured baseline interviews. Based on ninety-day drug use distributions, participants reporting 10 or more opioid or benzodiazepine pills per month were categorized as heavy users. **Analyses** were conducted to examine the sources of access to diverted medications among heavy opioid and benzodiazepine users compared to their light user counterparts. **Results:** The sample has a median age of 23, is mostly male (68%), and ethnically diverse (54% Hispanic, 27% White, and 15% Black). 76% meet DSM criteria for substance dependence. 33% report heavy prescription opioid use; 49% report heavy benzodiazepine use. The most common sources of prescription sedatives are: dealers (69.6%), trading with other users (49.1%), and friends/family members (19.2%). Similar sources are described for prescription opioids: 52.7% through trading; 47.7% through dealers, and 17.0% through friends/family. Heavy opioid users are significantly more likely than light users to access opioids through script doctors ($p=.000$), doctor shopping ($p=.01$), dealers ($p=.000$), and family members ($p=.004$). Heavy sedative users are significantly more likely than light users to access sedatives through script doctors ($p=.000$), and family members ($p=.02$). **Conclusions:** With so many abusers obtaining prescription drugs from friends and dealers, diversion is in many ways a "black box." In-depth quantitative and qualitative research is warranted to determine how prescription drugs are getting into the hands of dealers, friends and associates. **Support:** This research was supported by Grant Number R01 DA019840 from the National Institute on Drug Abuse.

344 MECHANISMS OF A MOTIVATIONAL INTERVIEWING INTERVENTION THAT REDUCES DRINKING AND IMPROVED CONTRACEPTION

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Aims: What are the mechanisms of action of motivational interviewing? We will identify therapist and participant behaviors and interactions that relate to outcomes in a completed trial. **Methods:** In Project CHOICES, we reduced alcohol-exposed pregnancy risk. Using data on 400 cases, we are coding audiotaped sessions for MI therapist behaviors using the MITI 3, items from the MISC 1 & 2, and the MISTS. We are coding protocol adherence with checklists, global Client Self-Exploration and global interpersonal Warmth and Dominance, and content of sessions with the Checklist of Psychotherapy Transactions and the Psychotherapy QSort. We will describe our methods for training raters and achieving inter-rater agreement and our one-pass system to rate the motivational and interpersonal characteristics of CHOICES sessions. **Results:** Ratings data on 150 cases show that activities vary across the sessions, with role induction, agenda setting, and information occurring in session 1, with feedback, decisional balance exercises, and scaling readiness in session 2, and other activities in sessions 3 and 4. Common behaviors included providing information, open and closed questions, and reflections, with almost no confrontation. Therapist global scores were highest for Direction and Autonomy Support. Attending to change talk, addressing ambivalence, rolling with resistance, and supporting self-efficacy increased across sessions peaking at session 4. Question-answer and expert traps were observed in a minority of cases. Both therapist and client were in the Friendly-Dominant quadrant of the interpersonal circle. A rich description of sessions was generated with 17 PQS items occurring in a third of cases. **Conclusions:** A one-pass rating system yields an array of useful variables that will be examined as predictors of outcomes. **Support:** NIH R01 AA015930

345 DEVELOPMENT OF A DYNAMIC EXPOSURE SYSTEM ALLOWING FOR SELF-ADMINISTRATION OF ABUSED INHALANTS IN MICE

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Aims: Inhalant abuse, the deliberate inhalation of vapors to induce intoxication, is a common form of drug abuse. In contrast to recent trends showing that drug abuse overall has decreased in the United States, the incidence of inhalant abuse has increased in recent years. Animal studies aiming to reproduce abuse exposures have typically used static or dynamic systems and have provided evidence that abused solvents affect a number of brain systems including those involved in reinforcement. However, few studies have investigated the reinforcing properties of toluene vapor, mainly because of the technical difficulties associated with accurately delivering these vapors. **Methods:** A method using an integrated dynamic exposure system is described for exposing mice to solvent vapors while lever-pressing on an operant schedule for milk reinforcement. Concurrent monitoring of chamber concentration and schedule-controlled behavior allows for a correlation of the magnitude and time course for behavioral effects with changes in the levels of solvent exposure. Toluene is being studied for its capacity to maintain self-administration in the same way as drugs of abuse. **Results:** Data are presented showing the acute effects of toluene on behavior maintained by a fixed-ratio 10 schedule of milk presentation. **Conclusions:** These results imply that dynamic exposure systems can be modified to allow for investigation of abused inhalants such as toluene. The capacity for toluene to maintain self-administration in the same way as drugs of abuse remains to be determined. **Support:** Supported by NIH grant DA15095 to SEB.

346 DOES TOBACCO USE IDENTIFY POST-PARTUM WOMEN AT RISK FOR ALCOHOL PROBLEMS AND DEPRESSION?

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Aims: While significant efforts have been directed toward screening and intervention for alcohol and tobacco use during pregnancy, less attention has focused on post-partum use. New mothers are faced with a variety of stressors, increasing their risk for alcohol problems and depression. The pediatric clinic offers an ideal setting for screening post-partum women to identify problems. Since time and resources are often limited, it would be important to identify subgroups of women at increased risk for alcohol problems and depression. The present study examined current tobacco use as a screen for identifying postpartum women at risk for alcohol and depressive disorders. **Methods:** Study participants were 238 postpartum women whose children received pediatric care at VCU. Demographically, the women were primarily African-American (84.8%) with a mean age of 25.5 yrs. All provided informed consent to complete a brief Health Screening Survey administered by computer or via interview. Items included the CES-D and TWEAK. Over one-third (38%) of the women were current smokers (CS) (N=91); the rest were non-smokers (NS). **Results:** CS women were more likely to obtain CES-D scores above the clinical cut-off for depression (40%) than NS women (26%) ($p < .05$). CS women were also almost twice as likely to score "at risk" for alcohol problems (35%) compared to NS women (19%) ($p < .01$). **Conclusions:** Study findings support utility of training pediatric staff to survey new moms about smoking to identify those at greatest risk for problem drinking and postpartum depression. **Support:** This research was supported by a grant from the Alcohol Beverage Medical Research Foundation.

347 BRAIN ACTIVATION IN PREADOLESCENT WITH LOW VS. HIGH RISK FOR SUBSEQUENT SUBSTANCE ABUSE

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Aims: Our group has used a novel task, the Anticipation, Conflict and Reward (ACR) task, to examine differential brain activation in the nucleus accumbens (NAcc), dorsal anterior cingulate cortex (dACC) and orbito-frontal cortex (OFC) in normals and drug naïve children with ADHD at high (i.e. aggression and/or family history of substance abuse disorder (SAD) and low (i.e., no such history) risk for SAD. **Methods:** Eight children- 3 healthy children (3F, ages 10, 10, 12), 3 Low risk (LR) (2M, 1F, ages 8, 12, 12) and 2 High risk (HR) children (2M, ages 8,12) were evaluated while performing the ACR task in a Siemens 3.0 T scanner. ACR task is an event-related adaptation of the Monetary Incentive Delays (MID) task, which adds a measure of conflict resolution to existing reward anticipation and outcome conditions. **Data Analysis:** Event-related analyses were conducted with SPM2. The effects of anticipation, conflict, and reward were tested by applying linear contrasts to the parameter estimates, resulting in six contrast maps for each participant. Results are reported at an uncorrected threshold of $p < .05$ and a cluster threshold of $kappa \geq 100$ voxels. **Results:** Reward outcome activated OFC in the control and LR groups but not in the HR group. Conflict resolution activated dACC in controls but neither at risk group. Reward anticipation produced activation in NAcc in controls and HR subjects, but not LR. **Conclusions:** This is preliminary evidence that the ACR task elicits a similar pattern of activation in control children as in previous adult volunteers. The task also appears sensitive enough to detect between group differences in activation across the 3 task components. Data collection is ongoing and results from an additional 8 subjects are anticipated by the meeting. **Support:** NIDA/AACAP K23 PA-00-003

348 STANDARD VERSUS STRINGENT CO CUTOFFS: IMPLICATIONS FOR SMOKING CESSATION OUTCOMES

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Aims: Previous studies have suggested the standard carbon monoxide (CO) cutoff of 8-10 ppm is too liberal and may misclassify current smokers as abstinent (Cropsey et al, 2006; Jarvor et al, 2005; Low et al, 2004). We compared differences in cessation outcomes using a more stringent cutoff of 2 ppm versus the standard. **Methods:** CO levels were collected during a 10-week group therapy + nicotine replacement intervention with incarcerated female smokers (N = 250). Follow-up CO levels were collected at 3, 6, and 12 months. Quit rates were calculated using both cutoff values and were compared using Chi-square analyses. **Results:** The sample was primarily young (M = 33.8 + 9 years), non-white (56%), with at least a high-school education (73.0%). Using the standard CO cutoff, quit rates of 37.2%, 40.4%, 30.8%, and 24.0% were found at end-of-treatment (EOT), 3-month, 6-month, and 12-month follow-ups, respectively. Using the stringent cutoff, quit rates of 18.4%, 16.8%, 14.0%, and 11.6% were found at the same time points. Differences in quit rates at all time points were found to be significant at $p < .001$. Using the standard cutoff misclassified 25.0% of smokers as nonsmokers at EOT and 20.8% at 12-month follow-up. **Conclusions:** Using standard cutoffs in this clinical trial inflated smoking cessation outcomes and classified up to 25% of smokers as non-smokers. This has important implications for the existing smoking cessation literature, which may cause researchers to overestimate the effectiveness of current cessation interventions. We recommend using a more stringent cutoff for future trials. **Support:** K23DA15774 and product support provided by GlaxoSmithKline.

349 ACUTE MODAFINIL TREATMENT DOES NOT IMPROVE COGNITIVE FUNCTION IN METHAMPHETAMINE-DEPENDENT VOLUNTEERS

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Aims: Long-term methamphetamine (MA) abuse is associated with marked cognitive impairments, particularly in attention, episodic memory, response inhibition, working memory, and verbal fluency. Therefore, it may be advantageous to investigate treatments to improve cognitive function in MA abusers. Modafinil has been shown to improve cognitive performance in healthy control subjects and in individuals with attention-deficit disorder, sleep deprivation, schizophrenia, and sleep apnea. In addition, because of its low abuse potential, modafinil is an attractive therapeutic candidate. The aim of this study was to compare the effects of modafinil (200 mg, PO) to those of placebo in a cognitive test battery administered to MA-dependent volunteers. **Methods:** 18 MA-dependent individuals, 16 male and 2 female, who were ~35 years of age and reported using MA for ~12 years, were enrolled in this 7-day inpatient study. Participants had high school education with a pre-morbid verbal IQ of ~110. After 4 days of washout, the participants completed a battery of neurocognitive tasks, and then on the next 2 days received modafinil and placebo (counter-balanced to reduce possible order effects). **Results:** Modafinil treatment had no effect in tests of working memory ($F(1, 14) = 1.65, p = 0.22$), verbal episodic memory ($F(1, 14) = 0.47, p = 0.51$), visuospatial episodic memory ($F(1, 14) = 0.09, p = 0.77$), selective attention ($F(1, 14) = 0.24, p = 0.63$), verbal fluency ($F(1, 14) = 3.66, p < 0.08$), or response inhibition ($F(1, 14) = 0.15, p = 0.71$). **Conclusions:** These results suggest that acute administration of modafinil does not improve cognitive functioning in MA abusers. The lack of effect may be a result of the neurotoxicity associated with MA abuse. Additional work may demonstrate effects of modafinil in tests other than those used in our battery. In addition, doses other than 200 mg or extended treatment may be required to determine definitively whether modafinil is useful as a treatment for neurocognitive dysfunction associated with MA use. **Support:** DA-023759, DA-017754, DA-018185, and RR-00865

350 LONG-TERM REPEATED EXPOSURE TO MDMA IN RATS: EFFECTS ON THERMOREGULATION AND NEUROTOXICITY

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Aims: 3,4-Methylenedioxymethamphetamine (MDMA, 'ecstasy') has been shown to disrupt thermoregulation in rats and lead to life threatening hyperthermia in humans. High doses of MDMA can also lead to long term neurotoxicity in animals and possibly humans. We have now extended a previous study which demonstrated the effects of MDMA on autonomic and behavioral thermoregulation (Jaehne et al, 2007) to a repeated dosing regime which simulates weekend use of ecstasy on measures of thermoregulation and neurotoxicity. **Methods:** Four groups of rats ($n=6$ per group) were administered $40\mu\text{mol/kg}$ MDMA on three consecutive days each week for 6 weeks or 1 week. Immediately following each administration, half the rats were confined to an elevated ambient temperature (TA) ($\text{HOT } 30 \pm 1^\circ\text{C}$) while the other half were confined to an area at room temperature (ROOM $21 \pm 1^\circ\text{C}$) for 30 minutes, while core temperature (TC), heart rate (HR) and locomotor activity (LMA) were monitored via telemetry. After the final drug administration, rats were placed in a thermal gradient for four hours to allow behavioral thermoregulation. **Results:** HOT rats showed higher TC, HR and LMA than ROOM rats during confinement to a set TA ($P<0.001$). HR responses to MDMA over 6 weeks at both TA's progressively decreased with repeated dosing ($P<0.05$). TC was significantly higher in both HOT groups during the 1st 30 minutes in the runway ($P<0.05$) and also at the end of the 4 hours in both 6 week groups compared to the 1 week groups ($P<0.05$). Cortical concentrations of dopamine and 5HT after 6 weeks of MDMA were not significantly different to untreated control rats, while concentrations of DOPAC ($P<0.05$) and 5HIAA ($P<0.001$) were both significantly lower irrespective of TA. There were no significant differences in any concentrations in rats treated for only 1 week. **Conclusions:** In conclusion, long term treatment with MDMA resulted in apparent tolerance to the effects of the drug on HR over time, an apparent increase in dysregulation of TC over the same period, and depletion of cortical DOPAC and 5HIAA. **Support:** This work supported by NHMRC of Australia.

351 DOES ALCOHOL USE PRECIPITATE DEPRESSION AMONG PATIENTS WITH CO-OCCURRING BIPOLAR AND SUBSTANCE USE DISORDERS?

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Aims: Bipolar disorder (BD) and substance use disorders (SUDs) frequently co-occur. However, little is known about the near-term effects of substance use on BD. Thus the present study tests whether alcohol use precipitates depression among patients with co-occurring BD and SUD. **Methods:** This study uses data collected as part of two clinical trials of a manualized group therapy for patients with co-occurring bipolar disorder and substance dependence. One hundred fifteen participants were assessed at baseline and each month through month 8. Baseline diagnoses were made using the Structured Clinical Interview for DSM-IV (SCID), and monthly substance use and mood data were collected using the Longitudinal Interval Follow-Up Evaluation (LIFE) and the Addiction Severity Index. Generalized Estimating Equation (GEE) methodology was used to analyze these longitudinal data. **Results:** Our primary hypotheses were supported: days of alcohol use, days of heavy alcohol use (>3 drinks/day), an increase in days of alcohol use, and an increase in days of heavy alcohol use each significantly predicted the presence of a depressive episode in the subsequent month, when controlling for current depression and current drug use. **Conclusions:** These data suggest that alcohol use in patients with BD and substance dependence increases the risk of a depressive episode in the short term. **Support:** This work was supported by grants R01 DA15968 and K24 DA022288 from the National Institute on Drug Abuse.

352 EFFECTS OF CANNABIS USE ON BRAIN REWARD CIRCUITRY IN TEENAGERS: A fMRI STUDY

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Aims: Cannabis is a popular drug amongst adolescents, but little is known about the effects of frequent cannabis use on normal neurodevelopment during adolescence. THC, the active compound, binds to cannabinoid (CB1) receptors, thereby modulating the output of, for example, dopaminergic neurons in the brain. In humans, high densities of CB1-receptors are found in the reward system, especially the nucleus accumbens (NAcc). Adolescent cannabis use may interfere with normal development of the brain reward circuitry. **Methods:** 14 Cannabis using boys (age; 15 - 19, mean number of joints last year; 750) were compared with 15 cannabis-naïve peers, using fMRI. Subjects abstained from cannabis and alcohol for at least 1 week prior to testing. To activate the reward system, we used a monetary reward task, presenting either cues indicating a potential reward (1 euro) or no reward (0 euro). Following the cue, a target stimulus was presented to which subjects had to respond as fast as possible. fMRI data were analyzed using SPM2. The regression matrix contained factors modelling anticipation of reward and anticipation of no reward (i.e. response to neutral cues), the contrast of interest. Group activation maps were generated for each factor. A whole brain analysis was performed to compare groups, and subsequently, a region-of-interest (ROI) analysis restricted to the NAcc. **Results:** Performance did not differ between groups. Whole brain analyses revealed no significant group differences in reward-related brain activity. However, ROI analysis showed that users showed reduced reward activity in the NAcc compared to controls. **Conclusions:** Adolescent cannabis users displayed a blunted response in the NAcc in anticipation of a monetary reward. Since adolescence is a period already characterized by increased risk taking, a blunted reward system may be an additional risk to become engaged in the search for stronger reinforcements like drugs of abuse or other risky behavior. **Support:** NIDA 5R01DA019338-03 ZonMW 31100003

353 TRAIT IMPULSIVENESS ASSOCIATES WITH COGNITIVE DEFICITS IN NON-HUMAN PRIMATES

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Aims: In humans, high impulsivity may represent a risk factor for and/or a consequence of substance abuse. In either case, impulsive temperament is a process that may relate to the unusual persistence of drug use behavior. Nevertheless, little is known about the genetic or neural mechanisms that determine trait impulsiveness or about the relationship between impulsivity and putative cognitive endophenotypes for drug dependence (e.g. poor cognitive control). **Methods:** Adolescent male vervet monkeys were evaluated using tests of impulsive approach in response to social or non-social stimuli; subjects were selected into this study based upon their response to the social challenge task or by DRD4 genotype, resulting in three groups: low impulsivity/common DRD4 allele, high impulsivity/common DRD4 allele, or rare DRD4 allele. In humans, genetic variation in the DRD4 gene is one determinant of behavioral impulsivity and risk for substance abuse; therefore, this is a gene mechanism plausibly involved in the phenotypes of interest. After selection, a delayed response task was implemented to assess spatial working memory in the three groups. **Results:** All animals acquired the delayed response task and could perform at near ceiling levels in a no-memory-load condition, but as delays were lengthened, an inverse relationship between working memory and impulsivity was found. Notably, impulsive behavior evoked by social and non-social stimuli explained both overlapping and discrete portions of the variance in working memory. **Conclusions:** These data indicate that dimensions of impulsivity may impact working memory in qualitatively similar ways but through different mechanisms, and that the impulsive vervet monkey may exhibit a multi-dimensional phenotype relevant to addiction. The data also indicate that genetic variation in the DRD4 gene is relevant to these phenotypic associations, but that other, as of yet undiscovered, genes exert similar influences on behavior and cognition. **Support:** This research was supported by P50MH077248.

354 WOMEN ON NICOTINE REPLACEMENT THERAPY SHOW SIGNIFICANT BRAIN ACTIVITY IN RESPONSE TO SMOKING CUES

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Aims: Nicotine replacement therapy (NRT) is less effective at maintaining abstinence in women than men, suggesting that women may be more sensitive to smoking-related cues. The aim of this study in women was to use blood oxygen level dependent functional MRI (BOLD fMRI) to assess brain response patterns to smoking-related cues. We sought to determine the effectiveness of NRT on abolishing smoking cue-induced brain activation. **Methods:** Subjects were 19 nicotine-dependent women aged 47.9±7.6 years old, 9 of who participated in a second fMRI session while on NRT during smoking abstinence. Functional MRI scans, conducted on a Siemens 3T scanner, involved presentation of neutral and smoking-related cues, using a modification of the method of Due et al. (Am. J. Psychiatry 159:954, 2002). Data were analyzed with BrainVoyagerQX 1.9 and random effects region of interest analyses were run. **Results:** In active smokers, fMRI responses to smoking images were greater than those to neutral images in the prefrontal frontal cortex ($t=2.4$, $p=0.02$), a region correlated with reward expectancy. In abstinent smokers on NRT, fMRI responses to smoking vs. neutral images were greater in the left insula ($t=2.5$, $p=0.04$) anterior cingulate ($t=2.5$, $p=0.03$) and posterior cingulate ($t=2.7$, $p=0.03$), regions identified by others as being active during cue-induced craving. **Conclusions:** Our preliminary findings imply that smoking-related cues activate different brain areas depending upon a subject's smoking status. They also suggest that smoking-related cues activate brain areas correlated with cue-induced craving in women on NRT, which in part explain why women on NRT remain relatively susceptible to relapse. Additional studies are under way to determine fMRI responses to smoking-related cues in subjects administered novel smoking cessation treatments. **Support:** Supported by NIDA grants CDDG-ND U0119378-01, DA017324, DA014013, and DA022276.

355 MATERNAL METHADONE DOSING SCHEDULE AND FETAL NEUROBEHAVIOR

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Aims: Methadone maintenance, typically delivered once daily, is the standard of care for opiate dependency during pregnancy. Previous research by this group has shown that single dose maternal methadone administration significantly affects fetal neurobehaviors, and these effects are greater at peak vs trough methadone levels. Specifically, at peak, fetal heart rate was slower and less variable, fetuses displayed less motor activity, and the coupling between movement and heart rate was attenuated. The purpose of this study was to determine if split methadone dosing would have less impact on fetal neurobehavior than single dose administration. **Methods:** Forty methadone maintained women were evaluated at peak and trough methadone levels on single and split dosing schedules. Maternal doses were the same between the monitoring sessions, which occurred at 36 and 37 weeks gestation in a counterbalanced study design. Fetal measures included heart rate, variability, motor activity and fetal movement-heart rate coupling. Maternal measures included heart period, variability, skin conductance, respiration and vagal tone. Repeated measure analysis of variance was used to evaluate within-subject changes. **Results:** At peak methadone levels, fetuses on a single dose showed lower fetal heart rate (single $M=129.85$ bpm, split $M=133.24$ bpm), $F(1,38)=8.81$, $p<.01$, greater depression of heart rate variability (single $M=4.08$, split $M=4.59$, $F(1,38)=6.66$, $p<.05$, shorter movement durations (single $M=16.6$ s, split $M=26.0$ s) $F(1,37)=5.81$, $p<.05$, and less coupling (single=13%, split=18%), $F(1,37)=6.50$, $p<.05$, than fetuses on a split dose. Maternal physiologic parameters were not different between the split and single monitoring sessions. **Conclusions:** Fetuses exposed to split methadone dosing displayed significantly less depression of fetal neurobehavior as compared to single dose fetuses. Split dosing during late gestation may be beneficial for fetal development. **Support:** This research is supported by NIDA RO1DA019934 (Jansson)

89 356 NALTREXONE FOR THE TREATMENT OF AMPHETAMINE DEPENDENCE: A89 RANDOMIZED PLACEBO-CONTROLLED TRIAL

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Aims: Currently there is no approved pharmacotherapy for amphetamine dependence. Recent human laboratory studies have demonstrated that naltrexone modulates some of the reinforcing effects of amphetamine. The aim of the study is to investigate the effect of treatment with naltrexone for amphetamine dependence, in particular the efficacy of naltrexone in comparison to placebo in increasing weeks of abstinence in amphetamine dependent patients **Methods:** The study was a randomised double-blind placebo-controlled 12-week trial. Eighty patients, meeting the DSM IV criteria for amphetamine dependence were included in the study. Patients visited the clinic twice weekly to receive medication and relapse prevention therapy. Urine samples were submitted twice weekly for analysis, to detect illicit drug use. The main outcome measure of the study was Abstinence from amphetamine use. This was as measured by the total number of negative amphetamine urine samples during 12 weeks of treatment. All missing samples were defined as positive for amphetamine. **Results:** Overall, 55 patients (68.7%) completed the trial. The ITT analysis showed that the naltrexone group had a significantly higher number of amphetamine negative urine samples compared to the placebo treated group ($p<0.05$). Survival analyses showed that the treatment groups differed in rate of continuous abstinence, both in the ITT ($p<0.05$) and completer analysis ($p<0.05$), in favor of NTX treatment. There was a significant reduction in craving levels ($p<0.05$) and self reported weekly consumption of amphetamine in the NTX group compared to placebo. Treatment with NTX was well tolerated in this population. **Conclusions:** The results suggest that NTX is efficacious in reducing relapse to amphetamine use in amphetamine dependent individuals. The potential of naltrexone as an adjunct pharmacotherapy in amphetamine dependence is promising. **Support:** This study was supported by the Swedish Science Council (grant 2005-6721), the Swedish National Drug Policy Coordinator and the Stockholm County Council.

357 TREATMENT OUTCOMES FOR WOMEN AND MEN OFFENDERS WITH COMORBID MENTAL DISORDERS

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Aims: This study examines gender differences among substance-abusing offenders comorbid with mental disorders in order to identify gender-specific needs, treatment outcomes, and factors predicting recidivism. **Methods:** Data are based on 438 women and 565 men participating in the multi-site prospective Treatment System Impact (TSI) study. TSI investigates the impact on the California treatment system due to Proposition 36 (i.e., a law mandates nonviolent drug offenders community-based treatment in lieu of incarceration or probation without treatment). Gender difference was tested using chi-square analyses and t-test. Logistic regression analyses were conducted separately for men and women to identify gender-specific factors associated with recidivism. **Results:** Female offenders were significantly more likely than men to have co-occurring mood disorders including depressive disorder (48% vs. 40%), and anxiety disorder (22% vs. 11%), but less likely to have psychotic disorders (12% vs. 20%). Female offenders demonstrated higher severity in family/social relationships (0.22 vs. 0.15), legal status (0.26 vs. 0.22), medical status (0.33 vs. 0.25), and psychiatric status (0.25 vs. 0.23), measured by the Addiction Severity Index. The regression analysis showed that primary methamphetamine use was positively related to recidivism for women while older age and greater drug severity predicted recidivism among men. **Conclusions:** Substance abuse treatment programs need to pay special attention to the unique needs of women and men offenders with mental health problems, and that gender differences found in the present study should be considered for development of gender-appropriate treatment strategies. **Support:** NIDA grants No. R01 DA15431

358 LINGUISTIC ANALYSIS OF PSILOCYBIN SESSION NARRATIVES

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Aims: To analyze narratives written by 36 participants in a previously published study comparing the effects of psilocybin (30 mg/70 kg) and methylphenidate (40 mg/70 kg). **Methods:** Under double-blind and psychologically supported conditions, participants were individually exposed to each of the two drug conditions. Participants were asked to provide a written narrative about their experience on the day after each session. Narratives were analyzed with Linguistic Inquiry Word Count software developed by Pennebaker and colleagues (2007), which provided word counts and frequencies for a wide range of empirically validated word categories. **Results:** Psilocybin narratives were significantly longer (by 62%) than methylphenidate narratives. Psilocybin narratives, compared to methylphenidate narratives, had a significantly greater proportion of words from the following categories: function words, total pronouns, impersonal pronouns, common verbs, auxiliary verbs, present tense verbs, and words related to family, certainty, sight, sexual issues, death, and metaphysical issues. Psilocybin narratives also included a significantly greater proportion of question marks and apostrophes compared to methylphenidate narratives. Methylphenidate narratives, compared to psilocybin narratives, had a significantly greater proportion of words from the following categories: articles, and words related to ingestion, relativity, motion, work, and leisure. **Conclusions:** The greater proportion of words related to family, sexual issues, death, and metaphysical issues in psilocybin narratives suggests that psilocybin resulted in experiences with a greater emphasis on highly personal, core life issues. These results are consistent with follow up data from the original study collected 2 months after each session, in which participants attributed to psilocybin sessions considerable personal meaning and spiritual significance. **Support:** Council on Spiritual Practices, Heffter Research Institute

359 IMPLOSION OF THE CRIMINAL JUSTICE SYSTEM AND REFORMULATION OF ILLEGAL DRUG MARKETS IN NEW ORLEANS FOLLOWING HURRICANE KATRINA

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Aims: In August 2005, Hurricane Katrina swept past New Orleans and devastated the Gulf Coast of Mississippi and Alabama. Several levees broke and 90% of New Orleans was flooded. Over 100,000 of the poorest, disproportionately African-Americans, citizens were evacuated by Sept. 3, 2005. The entire New Orleans criminal justice system was literally flooded out; the system imploded and did not begin to function for nearly a year. The New Orleans Police Department was ineffective and possibly irresponsible during that week. Virtually no police or military efforts were directed at drug enforcement during Katrina Week; and civil disorders were widespread. Two years later, the police, Courts, and justice system operate from rented space and remain understaffed. This disaster provides an important instance of what might happen when drug laws could not be effectively enforced. **Methods:** An ethnographic study conducted intensive interviews with over 100 New Orleans Evacuees in 2006-07, and conducted 16 focus groups involving over 60 drug sellers and users. The authors analyze whether and how drug users and sellers consumed their illegal drugs, were able to purchase or exchange goods for drugs, the prices paid, and their relative lack of concern about police and courts. **Results:** Illegal drug sellers quickly returned to and reformulated drug markets in New Orleans. Police could devote only limited enforcement toward drug sellers and courts were less able to prosecute and impose sanctions effectively. Homicide rates in the city have increased, and most decedents appear to involve those active in illegal drug markets. Drug sellers routinely report avoiding police (although not always), and when arrested cases often cannot be prosecuted. Sellers report that their main concern is competition from other sellers who seek to undercut their prices or claim their territory. **Conclusions:** Important conclusions will be provided about what might happen if police and criminal justice system can not actively and routinely enforce drug laws. **Support:** NIDA R01DA021783-02

360 ONDANSETRON WITH OLANZAPINE FOR THE TREATMENT OF ALCOHOL DEPENDENCE: PRELIMINARY CLINICAL TRIAL

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Aims: Corticomesolimbic dopamine (DA) pathways mediate alcohol's rewarding effects associated with its abuse liability, and DA modulation is an important neurochemical target for medications that are being developed to treat alcohol dependence. Direct DA receptor blockade, as well as decreased DA release by pretreatment with 5-HT3 receptor antagonists, suppresses ethanol self-administration and place preference across a range of animal species. Of the serotonergic agents suggested as pharmacotherapies for alcoholism treatment, the 5-HT3 antagonist ondansetron has been shown to be particularly promising in early-onset alcoholics. Recently, there also has been interest in the use of atypical antipsychotics, such as olanzapine, for treating alcohol dependence. Olanzapine blocks 5-HT2 and DA-1-4 receptors and has activity at other monoamine systems including 5-HT3 receptors. **Results:** of human laboratory and preliminary clinical studies show that olanzapine can effect reductions in alcohol craving and consumption. We hypothesized that ondansetron, by down-regulating DA synthesis, would augment the DA-2 antagonist efficacy of olanzapine, making the combination useful for the chronic control of alcohol craving, and the combined effect of the medications would achieve sustained reduction in DA turnover in corticomesolimbic neurons. **Methods:** This study examined the safety and efficacy of ondansetron (4 µg/kg BID) and olanzapine (9, 18, and 36 µg/kg BID) vs. placebo in treating early-onset male and female alcoholics (10 subjects/cell×4 cells; total N=40) in a randomized, 9-week, double-blind, placebo-controlled, outpatient clinical trial. All subjects received manual-driven, standardized Brief Behavioral Compliance Enhancement Treatment. **Results:** The retention rate in the study was 75%. Adverse events were mostly mild, with no serious adverse events. Additional results will be available soon and presented. **Conclusions:** The combination of ondansetron and olanzapine is a promising medication for the treatment of early-onset alcoholism. **Support:** Supported by TransOral Pharmaceuticals (San Francisco, CA).

361 SMOKING IN PREGNANT PATIENTS SCREENED FOR AN AGONIST MEDICATION STUDY: COMPARISONS TO OTHER PREGNANT AND/OR DRUG-DEPENDENT FEMALE PATIENTS

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Aims: Compare the prevalence and severity of smoking in pregnant patients screened for an agonist medication study to other samples differing by pregnancy and/or drug-dependent status. Methods: Pregnant women (N=702) were screened for the MOTHER study. A smoking subsample (n=317) was compared to samples of (1) non-drug-addicted pregnant women (N=1,516; Goodwin et al., 2007), (2) agonist-treated non-pregnant women (N=75; Clemmey et al., 1997), and (3) drug-dependent pregnant women (N=240; Kissin et al., 2001) on smoking status and severity variables, using X2 goodness-of-fit and t tests. Results: The total sample (N=702) was 72% white, 76% single, and 90% unemployed; 80% had abused opioids and 43% had abused cocaine in the past month. In the smoking subsample, mean age at first use of nicotine was 14.6 (SD=3.5), and the mean number of months of nicotine use was 64.7 (SD=92.1). They smoked at a significantly higher rate than a non-drug-addicted pregnant sample (94% v. 22%, respectively; $p < .0001$), and smoked more cigarettes per day, on average, than agonist-treated non-pregnant women and less than drug-dependent pregnant women (15 v. 14 and 26, respectively, both $ps < .002$). The mean Fagerstrom Tolerance Questionnaire score was significantly lower in our smoking subsample than in a sample of agonist-treated non-pregnant women (4.2 v. 8.0, $p < .001$). Conclusions: Smoking in pregnant women screened for an agonist medication study is pervasive and although less severe than in a sample of agonist-treated non-pregnant women, aggressive efforts are needed to drastically reduce or eliminate smoking in this population. Support: NIDA RO1DA 045778 015832 015764 015738 017513 018410 018417 015741

362 RELATIVE ABUSE POTENTIAL OF ALO-01, EXTENDED-RELEASE MORPHINE SULFATE PLUS SEQUESTERED NALTREXONE

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Aims: ALO-01 capsules, an investigational product for chronic moderate to severe pain, contain extended-release pellets of morphine sulfate around a core of sequestered naltrexone intended for release upon tampering (chewing/crushing/dissolving) to abate morphine-induced abuse potential. Study aim was to compare effects of ALO-01 taken orally whole or crushed. Methods: This randomized, placebo-controlled, triple-dummy, single-dose, 4-way crossover study included recreational opioid users aged 18-55y. The 4 oral treatments separated by 14-21d washout were: placebo; two 60mg ALO-01 capsules whole (ALO-01W); two 60mg ALO-01 capsules opened and contents crushed (ALO-01C); 120mg morphine sulfate solution (MS). Outcomes included VAS scores for drug-liking, "feeling high," good effects (0=strong disliking/definitely not; 100=strong liking/definitely so), Cole/ARCI stimulation-euphoria/abuse potential scales, 1 subjective drug value (SDV, perceived dollar value), and pupillometry. Results: Subjects (n=32) taking ALO-01C vs ALO-01W had similar scores on outcome measures at maximum effect; these were significantly lower vs MS: drug-liking (68.1, 67.6 vs 89.5 $p<0.001$); high (55.0, 60.6 vs 90.4, $p<0.001$); good effects (52.1, 59.4 vs 89.7, $p<0.001$); mean maximum Cole/ARCI stimulation-euphoria (11.9, 10.8 vs 18.4, $p<0.001$); abuse-potential (6.3, 5.9 vs 8.7, $p<0.002$); and SDV (\$13.72, \$14.22 vs \$28.85, $p<0.001$). Apparent postdose pupil diameter (3.4mm, 3.2mm vs 2.7mm, $p<0.001$) was also significantly different. Mean morphine Cmax and median Tmax for ALO-01C (80.6 ng/mL, 1.1h) and MS (92.5ng/mL, 1.2h) were similar but differed from ALO-01W (19.3ng/mL, 8.1h). Conclusions: Naltrexone released on crushing ALO-01 successfully abated morphine-induced abuse potential. Plasma morphine rate and extent of exposure were similar after ALO-01C and MS, but crushed product was no more desirable to recreational opioid abusers than intact product; both were significantly less desirable than morphine solution. 1.Cole, J Clin Psych.1982. Support: Supported by Alpharma Pharmaceuticals LLC

363 MDMA (ECSTASY) PRODUCES WITHDRAWAL-LIKE AFTEREFFECTS IN NON-DEPENDENT USERS

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Aims: Users of MDMA (3,4-methylenedioxymethamphetamine) frequently report adverse aftereffects including depressed mood and fatigue. It is unclear whether these aftereffects are part of a withdrawal syndrome. As drug withdrawal is one criterion for diagnosing dependence, it is necessary to characterize these aftereffects in dependent and non-dependent users. Here we report on effects occurring up to two days following laboratory exposure to MDMA in non-dependent users. Methods: Twenty-two healthy individuals, MDMA-experienced but not dependent, were administered 1.5 mg/kg MDMA under double-blind, placebo-controlled conditions in two studies (outpatient n = 15, inpatient n = 6, both n = 1). One day and two days after dosing, symptoms were assessed using the Subjective Drug Effects Questionnaire (SDEQ; n = 22) and verbal memory was assessed using the Rey Auditory Verbal Learning Test (RAVLT; n = 7). One day after dosing, impulsivity was measured using go/no-go and delay discounting tasks (n = 16). Results: One day after dosing, but not two days after dosing, MDMA significantly increased self-reported SQED measures of dysphoric mood ($p = .001$) impaired cognitive functioning ($p = .002$), and somatic symptoms ($p = .007$), compared to placebo. MDMA did not alter verbal memory or impulsivity one day after dosing. Conclusions: Dysphoric mood, impaired cognitive function, and somatic symptoms occur in non-dependent individuals following exposure to MDMA. This may represent a withdrawal syndrome. Alternatively, these symptoms may be due to other mechanisms such as possible disruption of sleep by MDMA. Support: Supported by NIH DA 016776 and 017716.

364 THE NICOTINIC RECEPTOR PARTIAL AGONIST CYTISINE ATTENUATED SOME, BUT NOT ALL, BEHAVIORAL EFFECTS OF NICOTINE IN RODENTS

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Aims: Nicotinic partial agonists, such as varenicline and cytisine, are used as smoking cessation treatments. The present study further characterized the partial agonist activity of cytisine in discrimination paradigms and convulsion studies following peripheral drug administration. It was hypothesized that cytisine would partially generalize to nicotine discrimination cues and that peripheral administration of cytisine would produce fewer convulsions than nicotine. Methods: For these studies, male Sprague-Dawley (N=12) rats were trained to discriminate nicotine or cytisine from saline, and convulsions were evaluated in naïve ICR mice following injections of nicotine or cytisine. Results: In rats trained to discriminate a low dose of nicotine (0.32 mg/kg salt), cytisine partially generalized to nicotine cues in some rats. However, nicotine fully generalized to cytisine discrimination cue in all rats tested. In addition, the $\alpha 4\beta 2$ nicotinic receptor antagonist, dihydro-beta-erythroidine, produced rightward shifts in the nicotine and cytisine discrimination dose effect curves, demonstrating that the $\alpha 4\beta 2$ receptor subtype mediated the discriminative effects of these compounds. Also, cytisine attenuated the discriminative effects of nicotine, consistent with partial agonist activity. In convulsion studies, peripheral administration of cytisine produced convulsions. The cytisine-induced convulsions manifested differently than nicotine-induced convulsions, in terms of observable characteristics, quantity, and time of onset. Additionally, unlike nicotine, cytisine-induced convulsions were not attenuated by the nonselective nicotinic antagonist mecamylamine, suggesting that these effects were not mediated by nicotinic acetylcholine receptors. Conclusions: These findings demonstrated that cytisine produced similar behavioral effects to nicotine and attenuated the effects of nicotine under some circumstances. Support: These studies were supported by USPHS grant T32 DA007268 and the University of Michigan Tobacco Research Network.

- 365** INITIATING ACAMPROSATE WITHIN VERSUS POST-DETOXIFICATION IN THE TREATMENT OF ALCOHOL DEPENDENCE
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Aims: Acamprosate is indicated for the maintenance of alcohol abstinence in patients with alcohol dependence. However, data from preclinical and clinical studies suggest that acamprosate may aid in alcohol detoxification and help prevent subsequent relapse. Our hypothesis is that acamprosate started at the beginning of detoxification, compared to acamprosate started at the completion of detoxification, may improve treatment outcomes in alcohol dependent patients participating in a 10-week outpatient treatment trial. Methods: This was a biphasic clinical trial, consisting of a randomized, double-blind, placebo-controlled detoxification phase (DP), followed by a 10-week open-label rehabilitative phase (RP). Patients were 40 alcohol dependent men and women ages 18-70. Patients were randomly assigned to receive either 666 mg of acamprosate three times daily (TID) or matching placebo during DP (5-14 days). After completing detoxification, all patients received open label acamprosate for 10 weeks in RP. Outcome measures included treatment retention, CIWA scores, alcohol consumption and amount of oxazepam used during DP, and treatment retention and alcohol consumption during RP. Results: Treatment retention in DP was not significantly different between acamprosate and placebo treated patients. There were no significant differences between the two groups in amount of alcohol consumed, CIWA scores or amount of oxazepam used in DP. There was no significant difference in treatment retention between the two groups in RP. Patients given acamprosate during detoxification (DP) subsequently drank more during open label acamprosate treatment (RP) than those who received placebo during detoxification. Conclusions: There was no advantage associated with starting acamprosate during alcohol detoxification compared to starting acamprosate after detoxification was completed. The data suggest that not starting acamprosate during detoxification may have been associated with better drinking outcomes in RP. Support: This trial was partially funded by a grant from Forest Pharmaceuticals, Inc
- 366** GENETIC VULNERABILITY IN ALCOHOL INTAKE RELATES TO ACCUMBENS HOMER EXPRESSION AND ALCOHOL-INDUCED NEUROCHEMICAL SENSITIZATION
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Aims: Decades of evidence reveals marked strain differences in alcohol intake and alcohol-induced motor sensitization between C57BL/6J (B6) and DBA/2J (D2) inbred mice but the underlying mechanisms for this divergence is not known. Thus, the present study assessed for strain differences in alcohol-induced changes in NAC glutamate levels and related these changes to the total protein expression of Homers and glutamate receptors. Methods: Adult, male B6 and D2 mice were injected repeatedly with alcohol (8 X 2 g/kg, every other day) and then in vivo microdialysis was employed to assay for (1) strain differences in the neurochemical responses to acute and repeated alcohol and (2) basal and alcohol-induced changes in NAC glutamate content. A second study employed immunoblotting to examine for strain differences in basal and alcohol-induced changes in Homer2 and mGluR5 expression within the NAC. Results: While B6 and D2 mice did not differ with respect to their NAC glutamate response to an acute 2 g/kg alcohol injection, repeated alcohol injections (8 X 2 g/kg) induced robust glutamate sensitization within the NAC of high alcohol-consuming B6 mice only. Alcohol-naïve B6 and D2 mice did not differ regarding NAC glutamate content nor probe recovery. However, repeated alcohol administration induced an elevation in NAC basal glutamate content only in B6 mice. Alcohol-naïve B6 mice exhibited an approximately 30-50% higher protein expression of Homer2 and mGluR5 within the NAC, however strain differences were not observed for the alcohol-induced increase in NAC protein expression. Conclusions: Collectively, these data implicate alcohol-induced neurochemical plasticity within the NAC in mediating vulnerability to alcohol-induced changes in behavior and implicate genetic variance in Homer2 and mGluR5 expression in this regard. Support: This work was supported by NIH grants AA015351 and AA016650 (INIA-West) to KKS.
- 367** CHARACTERISTICS OF A SAMPLE FEMALE INJECTION DRUG USERS IN MALAYSIA
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Aims: There is lack of information on female drug users in Malaysia. The National drug information system only provides data on the number of female drug users in the country but not much is known about their drug use characteristics. 26 female IDUs were interviewed as a part of a survey of injection drug users in three cities in Malaysia (Kuala Lumpur, Penang, and Johor Bahru). Specific Aim: A subsample of female IDUs was analyzed to explore the socio-demographic and drug use characteristics of female drug users in the country. Methods: The survey utilized a purposive sampling technique and enrolled not in treatment drug users. The target subjects were buprenorphine injectors in the community. Survey data was collected by trained interviewers using a face to face structured interview. Results: The sample (n=26) were largely from the Malay 21 (80.8%) ethnic group, followed by Chinese 3 (11.5%) and Indian 2 (7.7%). The mean (SD) age of the sample was 35 (9). Majority of them 20 (76.9%) had between 6 to years of education. Half the subjects were unemployed and 2 of them are married. HIV status is self-reported. 4 are positive, 21 negative and 1 never tested. All of them reported lifetime drug use and are also currently injecting drugs. Almost all of them 25/26 reported lifetime sharing needles while 15/26 reported current sharing needles. In terms of the type of drug used, 25/26 reported lifetime heroin abuse, 21/26 reported lifetime cannabis abuse, 19/26 reported lifetime methamphetamine abuse and 19/26 benzodiazepine abuse. The mean (SD) age of initiation of drug abuse was 20 (5) for heroin, 21 (8) for THC, 30 (11) for Methamphetamine, and 32 (10) for benzodiazepines. Conclusions: Most female IDUs in the sample were poly-drug abusers who reported high levels of drug-related HIV risk behaviors. More specialized studies looking specifically at female drug use and sexual risk behaviors among them are needed. Support: This study was supported by a short term grant provided by University Sains Malaysia.
- 368** CANNABIS ABUSE AND SEVERITY OF PSYCHOTIC AND AFFECTIVE DISORDERS IN PSYCHIATRIC INPATIENTS
G. Katz, R. Durst, E. Shufman, R. Bar-Hamburger and L. Grunhaus, Jerusalem Mental Health Center - Kfar Shaul Hospital, Jerusalem, Israel
Aims: The influence of cannabis abuse on severity of psychotic and affective symptoms was studied. Methods: Among 470 consecutively admitted psychotic or affective patients 54 active (last month) cannabis abusers were detected via urine tests (kits) and SCID-IV Questionnaire. All patients were diagnosed according to the DSM-IV criteria. The following rating scales were used: HAM-D-21 (Hamilton Depression Rating Scale), PANSS (Positive and Negative Syndrome Scale), and YMRS (Young Mania Rating Scale). Results: Cannabis abusers (n=54) were suffering from more prominent psychotic symptoms than nonusers' (n=392) - PANSS positive: 19.056+8.30 vs. 16.128+8.031 (p=0.012; t=2.510; df=466); the difference was statistically significant for hallucinatory behavior (p=0.011), excitement (p=0.004), grandiosity (p=0.006), hostility (p=0.024). General PANSS scale rate of abusers was lower: 33.012+9.317 vs. 37.3575+11.196 (p=0.007; t=2.727); especially for depression (p<0.0005), anxiety (p<0.0005), somatic concern (p=0.001), guilt feelings (p<0.0005), tension (p<0.0005), motor retardation (p=0.001) and volition disturbances (p=0.002). Rates of PANSS negative scale of abusers and nonusers were not significantly different (13.815+6.868 vs. 14.983+6.446; p=0.2; t=1.184) except for lower rates of social withdrawal (p=0.04) and stereotyped thinking (p=0.037) for abusers. No significant difference in general level of manic symptoms (YMRS) between abusers and nonusers was observed: 6.778+10.826 vs. 4.9106+7.754; p=0.115, t=1.158, but severity of thought/language disturbances (p=0.001) and poor insight (p=0.002) was found significantly higher in the abusers. Cannabis abusers are obviously less depressive (HAM-D): 5.944+10.291 vs. 12.896+13.946; p<0.0005, t=3.535 - such differences were observed in the most subscales. Conclusions: Cannabis appears to have some antidepressive and anxiolytic effect on psychotic and affective inpatients. This can explain the high level of co morbidity. The possible "price" of this effect is often an exacerbation of psychotic and some manic symptoms. Support: Grant of the Israel Anti-Drug Authority

369 NOVEL SUBSTITUTED PIPERAZINES WITH HIGH AFFINITY AND SELECTIVITY FOR SIGMA RECEPTORS ATTENUATE COCAINE-INDUCED BEHAVIORS IN MICE: ROLE FOR SIGMA-1 AND SIGMA-2 SUBTYPES

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Aims: Cocaine is highly addictive and its abuse is involved in more emergency room visits than any other illicit drug. Unfortunately, there is no effective pharmacotherapy to treat it. Cocaine interacts with both sigma-1 and sigma-2 receptors. The role of sigma-1 receptors in attenuating cocaine-induced behaviors has been established using pharmacological antagonists and antisense oligonucleotides. In contrast, the role of mixed sigma-1/2 and sigma-2 preferring compounds for the treatment of cocaine abuse is less clear. The creation of original substituted piperazines provided high affinity sigma-1/2 and sigma-2 preferring ligands to further investigate the contribution of sigma receptor subtypes in reducing the behavioral effects of cocaine. **Methods:** Prototypic sigma-1/2 (CM156) and sigma-2 preferring (SN79) ligands were tested for their ability to attenuate cocaine-induced convulsions, locomotor activity, behavioral sensitization, and conditioned place preference in mice. **Results:** Pretreatment of mice with CM156 or SN79 significantly attenuated the effects produced by a convulsive or locomotor stimulant dose of cocaine. CM156 or SN79 also significantly blocked the development and expression of the sensitized response to subchronic treatment with cocaine. Alone, CM156 had no significant effects on locomotor activity. SN79 alone produced sedative effects at acute higher doses, but the mice developed tolerance to these effects upon repeated exposure. CM156 also attenuated cocaine-induced conditioned place preference. **Conclusions:** Together with earlier studies, the results suggest that targeting sigma-1 or sigma-2 receptors alone or in combination can be used to develop an effective anti-cocaine pharmacotherapy. **Support:** National Institute on Drug Abuse (DA013978, DA023205)

370 INTERNALIZING AND EXTERNALIZING BEHAVIOR OF CHILDREN OF MOTHERS WHO MISUSE DRUGS VERSUS FATHERS WHO MISUSE DRUGS

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Aims: A growing body of empirical evidence indicates that children of substance-abusing parents often manifest problems in emotional and behavioral adjustment. Although the focus of much of this research is on 'parental' substance abuse, studies have failed to compare directly the effects of maternal versus paternal drug use on the psychosocial adjustment of children living in these homes. The purpose of the present investigation was to compare the emotional and behavioral adjustment of children living with a substance-abusing mother versus those living with a substance-abusing father. **Methods:** Participants were substance-abusing men (n = 58) and women (n = 58) entering outpatient treatment and their nonsubstance-abusing partners who lived with at least one child between 8 and 12 years old, inclusive. Families were matched on child age, parents' age, education, family income, length of parental relationship, and parental substance use severity. Parents completed the Child Behavior Checklist (Achenbach, 1991); children completed the Children's Depression Inventory (Kovacs, 1980/1981) and the Revised Children's Manifest Anxiety Scale (Reynolds & Richmond, 1978). **Results:** In general, children from homes where mothers misuse psychoactive substances had significantly more internalizing and externalizing symptoms across ratings of both parents and also reported higher levels of depression and anxiety than their counterparts from homes of substance-abusing fathers. **Conclusions:** Children who live in homes where parents misuse alcohol and other drugs are at risk for a host of emotional and behavioral problems. However, living with a mother who has a problem with substance abuse is even more deleterious to children's psychosocial adjustment than paternal substance abuse. The potential reasons for these differences, particularly differences in caretaking responsibilities of mothers versus fathers in these homes, will also be discussed. **Support:** This project was supported, in part, by R21 DA018304-01.

371 THE ADDICTION TREATMENT ROUNDTABLE

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Aims: In an effort to improve the quality of care, an addiction treatment roundtable was organized. The hope was that if representatives from the many different groups and traditions involved in the care of addicted patients could meet and dialogue with one another, that the core psychosocial mechanisms of change and helpful treatment guidelines could be identified. **Methods:** A two-day event was organized that consisted of presentations and discussions. Twenty-four addiction professionals attended who represented such perspectives as therapeutic communities, harm reduction psychotherapy, addiction treatment funding sources, methadone maintenance, contingency management, needle exchange, psychoanalysis/psychotherapy, contemporary substance abuse treatment, psychiatry, clinical trials, traditional addiction treatment, criminal justice/mandated treatment, substance abuse research, cognitive-behavioral/psychological approaches, and Moderation Management. The notes were taken to identify the themes that emerged in both the presentations and the discussions. **Results:** An analysis of the themes identified 25 potential change mechanisms or treatment guidelines that fit under eight rubrics. These included: (1) Changing the context of care; (2) Utilizing motivational techniques; (3) Social and relational approaches; (4) Intrapsychic healing; (5) Empowerment-oriented interventions; (6) Future-oriented interventions; (7) Countertransference issues; and (8) Supervisory issues. **Conclusions:** The Addiction Treatment Roundtable demonstrated that addiction treatment professionals from a wide range of backgrounds and orientations could successfully share their experiences and dialogue with each other to help identify the ways that individuals successfully overcome their addictions. This meeting brought together groups that rarely communicate with each other. We hope that this model will be replicated by others interested in improving addiction care. **Support:** We would like to thank the Professor Marisa Carrasco and the New York University Department of Psychology for their support.

93 372 RELATIONSHIP BETWEEN PATIENT SATISFACTION AND METHADONE TREATMENT OUTCOMES

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Aims: To examine the relationship between patient satisfaction and 3-month patient outcomes and 6- and 12-month treatment retention. **Methods:** 254 opioid-addicted individuals newly enrolling in MTPs in Baltimore were administered the Addiction Severity Index (ASI), the Texas Christian University Client Evaluation Form (CEF), and a urine drug test at a 3-month follow-up. The CEF consists of items rated on a 5-point Likert scale with 5 indicating the most positive rating; responses were summed to provide scores for three subscales: 1) treatment needs (5 items; $\alpha = .75$); 2) treatment satisfaction (7 items; $\alpha = .72$); and 3) counselor skills (11 items; $\alpha = .93$). Correlations between treatment satisfaction at 3 months and ASI composite scores, self-report days of drug use (past 30 days), and drug test results at 3 months, and days in treatment at 6 and 12 months were examined. **Results:** Patients who were more satisfied with their counselors and treatment programs at 3 months had significantly lower 3-month ASI drug use and legal composite scores, fewer self-reported days of heroin and cocaine use in the past 30 days, and lower rates of drug tests positive for both heroin and cocaine (all $p < .05$). Additionally, patients who remained in treatment for 90 days or more who reported being more satisfied with their counselors and programs were significantly more likely to be in treatment at 12 months. **Conclusions:** Patient satisfaction at 3 months may be an important measure to assist treatment providers in identifying individuals at risk for dropping out of treatment. Treatment programs may wish to consider administering such measures on a routine basis and attempt to increase treatment engagement for those with low satisfaction. **Support:** NIDA R01 DA 015842

373 DIFFERENTIAL EFFECT OF ESTROUS CYCLE ON COCAINE-PRIMED REINSTATEMENT TO FOOD- AND COCAINE-SEEKING

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Aims: Reproductive cycles and sex hormones have been implicated in the gender differences seen in the pattern of drug-taking among cocaine users. It has been shown that estrogen augments and progesterone attenuates the subjective and behavioral effects of cocaine in women and females in other species. Female rats during proestrus (highest levels of progesterone) show the lowest levels of cocaine-primed cocaine-seeking behavior whereas females in estrus (lowest levels of progesterone) have the highest levels of cocaine-primed cocaine seeking relative to males. The present study examined how reproductive cycle influences cocaine-primed reinstatement of food-seeking and cocaine-seeking behavior. **Methods:** Separate groups of male and female Sprague Dawley rats were trained to lever press for food (45 mg food pellet) or cocaine (0.5 mg/kg/0.1 ml infusion/4 sec) over 10 daily sessions. Reinforcement was conducted on an FR1 schedule of reinforcement and delivery of each reinforcer was paired with a tone/light stimulus for 5s. Rats then underwent extinction of operant responding training during which lever presses had no scheduled consequences during seven daily 1-h sessions. Lastly, each rat received three cocaine-primed reinstatement tests. Prior to each test vaginal smears were taken to determine cycle phase of the female rats. After which, each rat was injected with a priming dose (0, 5, or 10 mg/kg, i.p.) then placed in the operant chamber under extinction conditions. **Results:** Results indicated that non-estrus females exhibited higher cocaine-primed reinstatement to food-seeking relative to estrus females and male rats on the highest dose. In contrast, estrus females showed enhanced cocaine-primed reinstatement to cocaine-seeking relative to non-estrus females and male rats on the highest dose. **Conclusions:** The present data indicates that estrous cycle does not modulate the ability of cocaine to reinstatement operant responding but rather produces a selective elevation in the motivation for cocaine reinforcement. **Support:** Supported by NIDA grant R03-DA021161.

374 MEASUREMENT PROPERTIES OF THE WHOQOL-BREF IN ALCOHOLICS USING THE RASCH MODEL

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Aims: To assess the measurement properties of the Brazilian version of the WHOQOL-BREF using the Rasch Model (Item Response Theory - IRT) in alcoholics. **Methods:** A cross-sectional sample of 172 in- and outpatient adult substance abusers was obtained by three Brazilian research centers. The 4 overall measures (item fit residual, person fit residual, χ^2 ; P) were calculated to ensure model fit. **Results:** The mean age of the sample was 40 (87% male, 61% white, 50% inpatient). The scale showed to be one-dimensional and invariant by the absence of significant Differential Item Functioning. From the 26 items, only 9 needed to be rescored: Pain, Medication, Finances, Sleep, Sex, Support, Services, Transport and Negative Feelings. Suppressing middle category of responses for these items resulted in ordering their thresholds, except that this solution shortened response scale to 1-4 (original scoring 1-5). The overall fit statistics in the 4 domains by the chi-square test (χ^2) was 27.4 for Physical ($p=0.02$), 6.3 for Psychological ($p=0.90$), 19.2 for Environment ($p=0.25$) and 6.5 for Social domain ($p=0.36$). **Conclusions:** All domains of the WHOQOL-BREF met expectations of the Rasch Model in Brazilian in- and outpatient alcoholics. This is the first study that evaluates WHOQOL-BREF using concepts of the Item Response Theory in this population. The results point to construct validity as a measure of generic QOL in inpatient and outpatient alcoholics, evidencing the robustness of this instrument as a generic cross-cultural QOL measure. **Support:** Brazilian Antidrug Secretariat

375 ENHANCED IMMUNOGENICITY OF BIVALENT NICOTINE VACCINE

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Aims: The efficacy of nicotine vaccines for smoking cessation is dependent upon their ability to elicit high serum antibody concentrations. This study compared two nicotine immunogens representing different hapten presentations, 3'-aminomethyl nicotine conjugated to recombinant Pseudomonas exoprotein A (3'-AmNic-rEPA) and 6-carboxymethylureido nicotine conjugated to keyhole limpet hemocyanin (6-CMUNic-KLH), and assessed whether their concurrent administration would produce additive serum antibody concentrations in rats. **Methods:** Groups of 12 rats were immunized with each of the individual nicotine immunogens alone (monovalent vaccine) or both immunogens together (bivalent vaccine). One week after the final vaccine dose, rats received a single dose of i.v. nicotine to study vaccine effects on nicotine pharmacokinetics. **Results:** Vaccination of rats with these immunogens produced non cross-reacting nicotine-specific antibodies (NicAb). Serum NicAb concentrations elicited by each individual immunogen were comparable regardless of administration alone as monovalent vaccines or together as a bivalent vaccine. The total NicAb concentration in the bivalent vaccine group was additive compared to the monovalent vaccines alone. Higher serum NicAb concentrations, irrespective of which immunogen elicited the antibodies, were associated with greater binding of nicotine in serum, a lower unbound nicotine concentration in serum, and lower brain nicotine concentration. **Conclusions:** These results demonstrate that it is possible to design immunogens which provide distinct nicotine epitopes for immune presentation, and which produce additive serum antibody levels and effects on nicotine pharmacokinetics. The concurrent administration of these immunogens as a bivalent nicotine vaccine may provide a general strategy for enhancing the antibody response to small molecules such as nicotine. **Support:** Supported by grants DA10714, F31 DA021946, T32-DA07097, P50-DA013333

94 376 SUBSTANCE USE AND SEXUALLY TRANSMITTED INFECTION AMONG YOUNG ADULTS IN THE UNITED STATES

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Aims: To measure associations among substance use, high-risk sexual behaviors and biologically confirmed sexually transmitted infection (STI) among young adults in the United States. **Methods:** We used Wave I (1995: adolescence) and Wave III (2001-2002: young adulthood) of the National Longitudinal Study of Adolescent Health (N=13,123) to estimate cross-sectional associations among substance use, risk behaviors and STI among white and minority (black and Latino) young adults. **Results:** STI prevalence was higher among blacks (18.6%) and Latinos (7.8%) than among whites (3.2%). Adjusting for age, gender and Wave I self-reported STI, multiple sexual partnerships in the year prior to Wave III were associated with consumption of at least four alcoholic beverages per day in the past two weeks (white: adjusted prevalence odds ratio (aPOR): 2.8, 95% confidence interval (CI): 2.4-3.3; minority: aPOR: 2.3, 95% CI: 1.8-3.0) and use of marijuana (white: aPOR: 2.2, 95% CI: 1.9-2.6; minority: aPOR: 3.0, 95% CI: 2.4-3.8), cocaine/crack (white: aPOR: 4.1, 95% CI: 3.0-5.5; minority: aPOR: 2.3, 95% CI: 1.4-4.0) and methamphetamine (white: aPOR: 2.8, 95% CI: 1.8-4.2; minority: aPOR: 1.6, 95% CI: 0.7-3.7) in the past 30 days. Among whites and minorities, self-reported low condom use was not associated with most substance use indicators. Among whites, STI was associated with marijuana (aPOR: 2.0, 95% CI: 1.3-2.9), cocaine/crack (aPOR: 1.9, 95% CI: 0.9-4.2) and methamphetamine (aPOR: 2.2, 95% CI: 0.9-5.5) use, and was unassociated with heavy alcohol use. Among minorities, STI was not associated with recent substance use. **Conclusions:** Given the associations between substance use and STI or multiple partnerships, treatment and prevention programs for substance use and STI should be integrated. Substance use does not appear to underlie disproportionate STI among minorities. The disparity is likely due to high STI prevalence in the network of sexual partners of minorities, including those who report low levels of substance use and sexual risk behaviors. Further research into modifiable factors of STI among minority groups is needed. **Support:** NIDA 5T32 DA07233.

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377 RESOURCE UTILIZATION BY DRUG USERS PRESENTING TO AN EMERGENCY DEPARTMENT

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Aims: To assess resource utilization by drug users presenting to an emergency department (ED). **Methods:** Retrospective chart review of all ED visits by patients meeting Drug Abuse Warning Network (DAWN) criteria (age > 6 years, use of an illegal drug or non-medical use of a legal drug [excluding alcohol]) from June 1992-December 1993 at an urban, academic teaching hospital. Comparisons of characteristics among 3 groups of drug users used chi-square tests for categorical data and ANOVA for quantitative data. **Results:** Data were abstracted for 839 patients (437 [52.1%] males) with mean [SD] age 31.6 [9.7] years: 585 used illegal drugs (69.7%), 120 (14.3%) used only legal controlled drugs, 134 (16%) used uncontrolled drugs. Illegal drug users had significantly shorter length of visit (mean [SD] 5.5[4.09] hours) than controlled legal drug users (6.8 [4.8] hours) or uncontrolled drug users (7.6 [5.6] hours). More uncontrolled drug users were admitted as inpatients (53.0%) than were illegal (33.5%) or controlled legal (43.7%) drug users. Legal drug users were more likely to have a toxicology test (91%) than illegal drug users (43.9%). Uncontrolled drug users were more likely (45.1%) to have a consultation than illegal (26.6%) or controlled legal (36%) drug users. A larger proportion of uncontrolled drug users (21.4%) had gastric lavage than controlled legal (12.9%) or illegal drug users (1.1%). Controlled legal (59.2%) and uncontrolled (59.7%) drug users were more likely to arrive by ambulance. Illegal drug users (67%) were more likely to walk-in. **Conclusions:** These findings suggest that illegal drug users presenting to an ED use less resources than users of legal controlled drugs or uncontrolled drugs. **Support:** Supported by the Intramural Research Program of NIH, National Institute on Drug Abuse.

378 CONTINGENCY MANAGEMENT FOR COMMUNITY TREATMENT-SEEKING ADOLESCENTS WITH MARIJUANA USE DISORDERS

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Aims: Marijuana is one of the most widely abused drugs during adolescence, yet there is no consensus about the best approach to the treatment of adolescents with marijuana use disorders. Contingency management (CM) procedures have been shown to be efficacious in many difficult to treat substance dependent populations, although integrating CM into community treatment programs has not been well studied. The immediate and tangible positive reinforcement provided by CM may be particularly appealing to adolescents. **Aim:** To preliminarily assess the effectiveness of CM procedures in a community treatment program for adolescents with primary marijuana use disorder. **Methods:** Twenty adolescents enrolled in community treatment as usual were randomized to either the incentive intervention group or a control group. Incentive participants earn chances to draw for prizes contingent on submitting negative urine drug screens (UDS). The number of chances to draw for prizes increases for sustained abstinence. Participants in the control group earn noncontingent draws for submitting UDS. All participants submit urine drug screens twice weekly for 10 weeks. **Analyses:** Demographic characteristics, UDS results and retention were obtained using Chi Square analyses for categorical data and independent t test for continuous variables. **Results:** Participants in the incentive group had significantly fewer positive UDS than those in the control group (26% vs 42%; p<0.02). Although sustained abstinence was longer for the incentive group, there were no significant differences between groups. Retention was similar for both groups. **Conclusions:** Despite issues in implementation and integration into treatment as usual, contingency management can be used adjunctive to community treatment as usual to reduce marijuana use during treatment. **Support:** National Institute of Drug Abuse (R21-DA020798-01)

379 WILL PATIENTS INITIATE CHRONIC DISEASE MANAGEMENT CARE FOR SUBSTANCE DEPENDENCE?

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Aims: Most treatment for the chronic illness substance dependence is short-term. Chronic disease/care management (CDM) is done by multidisciplinary health professionals who provide longitudinal, patient-centered care. The objective of this study was to determine whether patients would initiate and follow-up in a CDM clinic located in a primary medical care setting. **Methods:** We prospectively studied subjects with alcohol or drug dependence who agreed to enroll in a clinical trial in which they were assigned to attend a CDM clinic. The main outcome of interest, from electronic clinical records, was CDM initiation, defined using Washington Circle criteria: >1 visit within 14 days after the intake visit. We also examined the proportion of subjects who attended >1 visit at any point after intake and the proportion that followed up with >1 visit after CDM initiation. **Results:** Of 150 subjects, 46% had drug dependence, 45% had both alcohol and drug dependence; 9% had alcohol dependence only. Comorbidities included homelessness, 53%; addiction-related medical condition, 65%; major depressive episode, 82%; and post-traumatic stress disorder, 37%. Only 17% had received any psychiatric medications in the previous 3 months. Most attended >1 visit after intake (77% 95%CI 71-84%); however, only 39% (95% CI 31-46%) met criteria for initiation using Washington Circle criteria. Of those that initiated, 90% (52/58) followed up with >1 visit after initiation. In separate logistic regression models adjusted for age, sex and race, neither prior addiction or psychiatric care, nor readiness to change was associated with CDM initiation. Clinically important, though not statistically significant, increases in initiation were observed with more social network support for abstinence and recent psychiatric medication use (OR 1.89, p=0.07 and OR 2.25, p=0.09, respectively). **Conclusions:** People with substance dependence appear to be willing to initiate and follow-up with CDM addiction care. Chronic disease management has potential for improving access and quality of care for people with addictions. **Support:** NIDA(2R01DA10019); NIAAA (2R01AA010870)

380 USING AN INTERNET-BASED PLATFORM TO DELIVER INTENSIFIED SERVICES IN TREATMENT SEEKING OPIOID-DEPENDENT PATIENTS

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Aims: Increased counseling services can be useful for patients with a partial response to routine opioid agonist treatment but the added demands on patients and programs can be difficult to overcome. The use of internet-based counseling might reduce the burden by allowing patients to participate in the enhanced service from home. The present study assesses treatment satisfaction and response to an internet-based (e-Getgoing, CRC Health) versus on-site delivery of group therapy for partial responders to routine care. **Methods:** Subjects (N=37) were opioid-dependent patients in an opioid agonist program in Baltimore. Participants were randomly assigned to treatment condition (e-Getgoing: n=20 vs. Routine: n=17) and followed for 6 weeks. Mean age of sample was 42 yrs, 57% female, 40% minority. **Results:** Participants in both groups had a good response to the intensified treatment (achieved at least 2 weeks of abstinence and 100% attendance) in an average of 4-weeks (e-Getgoing: 70% vs. Routine: 71%, ns). Overall attendance to the additional counseling was good across conditions, although a trend was observed for better attendance in the e-Getgoing condition (92% vs. 76%, p=.07). Treatment satisfaction was also good and comparable across groups (3.73 vs. 3.41, ns). However, all participants in the e-Getgoing group expressed a preference for the internet-based service should they require intensified care in the future, listing both convenience and increased confidentiality as major reasons. **Conclusions:** Internet-based group counseling was associated with both good and comparable outcomes compared to on-site delivery and both groups reported high and comparable satisfaction with treatment service. Additional research to determine optimal methods of integrating internet-based group counseling with on-site treatment services would help expand the continuum of care. **Support:** Contract between CRC-Health Group and Institute for Behavior Resources.

- 381** PREDICTORS OF TREATMENT ENROLLMENT IN SYRINGE EXCHANGE PARTICIPANTS
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- Aims: Syringe exchange participants engage in high rates of intravenous drug use and other HIV high-risk behaviors, yet relatively few enroll in substance abuse treatment. This study examined the effectiveness of a motivational intervention for improving rates of treatment enrollment, and baseline predictors of enrollment across the entire study sample. Methods: Opioid dependent study participants (n = 281) referred by the Baltimore Needle Exchange were randomly assigned to one of three interventions: 1) 8 individual motivational enhancement sessions and 16 treatment readiness group sessions designed to promote treatment enrollment (Motivated Referral Condition - MRC), 2) the MRC intervention with monetary incentives for attending sessions and entering treatment (MRC + Incentives), or 3) a standard referral condition which offered participants a list of treatment programs currently admitting patients (Standard Referral - SR). Study participants also completed the University of Rhode Island Change Assessment (URICA; McConaughy et al., 1989) and the Symptom Checklist (SCL-90; Derogatis, 1983), and were followed for 6-months. Results: Participants assigned to the MRC + Incentives condition were more likely to enroll in substance abuse treatment (54%) than those assigned to the MRC condition (35%; $p < .05$), and spent more days in treatment ($M = 44$ days) than those assigned to the MRC ($M = 28$ days) or SR conditions ($M = 23$ days) ($p < .05$). Higher self-reported distress on certain SCL-90 subscales (Obsessive-Compulsive, Depression, Global Severity Index) predicted treatment enrollment ($p < .001$). Conclusions: The results suggest that motivational interventions with behavioral incentives can encourage syringe exchange participants to enter drug abuse treatment, and that current psychiatric distress may provide further motivation for enrollment. Support: NIDA Grant R01 DA12347-04

- 382** PREDICTORS OF SUCCESSFUL TREATMENT OUTCOMES IN A 30-DAY BUPRENORPHINE DETOXIFICATION
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- Aims: This study examined predictors of successful detoxification and engagement in post-detox counseling in patients enrolled in 30-day buprenorphine detoxification. Methods: Opioid-dependent patients (n=177) entering 30-day buprenorphine detox were randomly assigned to routine treatment (RT), Intensive Role Induction (IRI; 5 individual sessions focusing on the transition from detox to ongoing treatment), or IRI with Case Management. Baseline measures of drug use and psychiatric problem severity, motivation, hopelessness, age, gender, and cocaine use were examined as predictors of counseling attendance during detox (range: 0 to 5 sessions); and successful detox (attending counseling and having a negative drug test during the last week of detox). Counseling attendance and successful detox were examined as predictors of transition (attendance at one or more post-detox counseling sessions); and engagement (number of days in treatment after detox). Results: Regression analyses revealed that IRI participants attended more sessions during detox than RT participants ($b=.4$, $p<.001$). Type of treatment was unrelated to successful detox, transition, or engagement (all $ps > .1$). Motivation was positively associated with counseling attendance during detox ($b=.3$, $p=.02$). A baseline cocaine-negative test was related to an increased likelihood of successful detox ($OR=2.4$; 95%CI=1.2-5.0). Greater counseling attendance during detox ($OR=2.0$; 95%CI=1.5-2.9) and successful detox ($OR=7.0$; 95%CI=2.5-20.1) increased the odds of transition. Greater attendance during detox ($b=4.2$, $p=.04$) and successful detox ($b=14.2$, $p < .001$) were associated with increased retention after detox. Conclusions: IRI improved counseling attendance during detox but was unrelated to other measures of success. Counseling attendance during detox and successful detox predicted engagement in long-term treatment. IRI strategies may improve long-term treatment outcomes by promoting counseling attendance during detox. Support: Supported by NIDA RO1DA11402 and Reckitt Benckiser.

- 383** CORRELATES OF AGE OF FIRST CRIMINAL ACTIVITY, CRIME SEVERITY, AND FIRST HEROIN USE OF MALE PRISONERS IN A RANDOMIZED CLINICAL TRIAL OF METHADONE MAINTENANCE
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- Aims: Despite high rates of relapse to heroin addiction following release from incarceration and evidence of effectiveness of methadone maintenance treatment in community settings, such treatment has rarely been provided to incarcerated persons with histories of heroin addiction in the United States. Research on factors associated with the age of first crime, crime severity, and first substance use have been widely studied. This paper examines correlates of onset of first criminal activity, crime severity, and first heroin use in a new subject population--male prison inmates participating in an evaluation of methadone maintenance for prisoners. Methods: Self-report data were collected (N=253) at baseline using the Addiction Severity Index (ASI) and supplemental criminal activity questionnaires at a Baltimore, Maryland prison. Data examined lifetime patterns of criminal activity, substance abuse, and justice system involvement, and respondents were classified according to the most serious level of offense. Relationships between the onset of criminal activity and first heroin use and severity of crime and respondent characteristics (demographics, substance use history, mental health, family and peer deviance) were examined. Poisson regression was used for continuous variables and logistic regression for categorical variables. Results: The 253 participants resembled populations in other criminal justice studies. Criminal activity onset occurred at a mean age of 13.6 (SD=4.4) and first heroin use at 18.7 (SD=5.2). Onset of first criminal activity was positively correlated with onset of first heroin use ($p<.01$); and onset of cocaine use ($p=.01$). Individuals with earlier onsets of criminal activity were more likely to commit more serious crimes. Conclusions: Treatment providers need to consider the ages at which clients have begun substance use and interventions should address the drug-crime nexus. Support: NIDA RO1 DA16237

- 384** IMPROVING CONJUGATE VACCINES AGAINST COCAINE AND METHAMPHETAMINE
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- Aims: High level antibody responses must be obtained in order to effectively block the central nervous system effects of cocaine (COC) and methamphetamine (MA) in vivo. Novel designs of vaccines with alternate carrier proteins and linkages or self adjuvanting constructs may provide faster, higher, and/or more durable immune responses to achieve this result. Methods: Different carrier proteins (bovine serum albumin (BSA), ovalbumin (OVA), blue carrier protein (BCP), and Neisseria meningitidis outer membrane protein (OMP)) were amide linked to COC or MA using succinyl, butyl, or hexyl compounds. Male and female mice were immunized and boosted intramuscularly at 0 and 3 weeks, with serum samples obtained at 4, 8, and 12 weeks for subsequent quantitative ELISA for specific antibody. Selected groups were tested for the biological effect of the vaccine induced antibody by evaluating whether the increased locomotor activity from COC or MA exposure was inhibited in vaccinated as compared with sham immunized animals. Results: Antibody Responses: OMP conjugates showed dramatically increased immune responses within 4 weeks as compared with other carrier protein conjugates, for both cocaine and methamphetamine, with anti-COC responses being higher than responses to MA. High levels of antibody were achieved with other carrier conjugate preparations after 8-12 weeks. Locomotor Inhibition: High level antibody responses to the drug conjugate vaccines were associated with marked inhibition of increased locomotor activity from injection of cocaine or methamphetamine, respectively. Conclusions: Improved conjugate construction and more effective carrier proteins can markedly improve the kinetics of the elicited immune response, and alternative adjuvants may quantitatively increase antibody responses. Both of these characteristics will be important in the use of anti-drug vaccines in the clinical setting. Support: Department of Veterans Affairs National Substance Use Disorders Quality Enhancement Research Initiative (QUERI)

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385 SCALING PHENOTYPE AND ENVIRONMENT FOR PREDICTION OF CANNABIS USE DISORDER

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Aims: In view of adverse health, legal, and societal consequences of cannabis use, including resources required for treatment of cannabis use disorder, it is important to accurately identify high risk youth prior to first drug exposure. This prospective investigation aimed to develop instrumentation for determination of the individuals risk for cannabis use disorder. Accordingly, this study constitutes the first stage of research translation, namely the development of instrumentation that accurately identifies youths who need prevention intervention. **Methods:** The sample consisted of boys enrolled since age 10-12 in a longitudinal research program directed at elucidating the etiology of SUD consequent to consumption of illegal drugs. Follow-up evaluations were conducted when they attained 19 and 22 years of age. From the total sample of 433 boys evaluated at baseline, 216 completed all three evaluations. Logistic regression analyses were conducted to predict cannabis use disorder diagnosis at ages 19 and 22. **Results:** Results showed that transmissible liability index (T-LI) and nontransmissible environmental index (NT-EI) are predictors of cannabis use disorder at ages 19 and 22 with 70% and accuracy. **Conclusions:** This study demonstrated that it is feasible to identify boys at high risk for cannabis use disorder using scales developed to evaluate transmissible liability and environment. The scores on two scales have 70% accuracy for detecting 10-12 year old boys who subsequently evince cannabis use disorder by ages 19 and 22. High risk youths can thus be identified so that interventions can be implemented prior to drug initiation. **Support:** Supported by grants P50 DA005605, K02 DA017822, K02 DA018701

386 DOSE EFFECTS OF TRIAZOLAM AND ALCOHOL ON COGNITIVE PERFORMANCE IN HEALTHY VOLUNTEERS

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Aims: Results of previous studies suggest that benzodiazepines and alcohol may differ in the specific patterns of cognitive effects they produce. The aim of this study was to directly compare the dose effects of the benzodiazepine hypnotic triazolam and alcohol on a wide range of cognitive tasks. **Methods:** Single doses of triazolam (0.125, 0.25 mg/70 kg) and alcohol (0.4, 0.8 g/kg) were administered to healthy volunteers (N=16) in a study using a placebo-controlled, double blind, double-dummy, within subjects design. **Results:** Paired-samples t-tests revealed that the high doses of both triazolam and alcohol significantly ($p < 0.05$) impaired performance on psychomotor (balance and circular lights) and episodic memory (free recall and recognition memory) tasks. At doses of the two drugs that produced comparable levels of psychomotor impairment, only alcohol significantly impaired semantic memory (general information task), whereas only triazolam significantly impaired working memory processing speed (Sternberg task). Both high dose alcohol and triazolam significantly impaired speed on the Digit Symbol Substitution Test (DSST; number of trials attempted); however, only high dose alcohol significantly impaired DSST accuracy (proportion correct). There was some suggestion that triazolam and alcohol produced different patterns of effects on metacognition (a person's awareness of his/her own cognitive performance). Triazolam and alcohol also differed in their subjective effects, such that triazolam produced relatively higher ratings of "sleepy" and alcohol produced relatively higher ratings of strength of drug effect and drug liking. **Conclusions:** Results provide evidence that triazolam and alcohol produce different types of cognitive impairments at doses that produce comparable psychomotor impairment. Together with results from previous studies, these findings suggest that drugs with different mechanisms of action are associated with distinct cognitive impairment profiles. **Support:** This work was supported by NIDA grant DA11936.

387 ACCURACY OF MEDIA REPORTS CONCERNING THE ABUSE AND DIVERSION OF OXYCONTIN® (OXYCODONE HCL CONTROLLED-RELEASE) TABLETS

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Aims: News media represent one source of information on the abuse and diversion of opioid analgesics at the community level. The extent to which such reports are factually correct in regard to the specific drug cited, however, has not been systematically examined. **Methods:** Reports of OxyContin®; abuse and diversion were obtained through daily review of print, radio and television media reports from BurelleLuce, Factiva, Google News Alerts and Video Monitoring Service for the period 10/1/05-10/31/07. Reports were assigned an impact score based on event type, location, age of individual, amount of drug product involved, and setting. Score values ranged from 0 to 8, with higher score values representing higher impact. Reports with a score of >5 were subjected to further follow-up to determine whether reported name of drug(s) cited in the media account were accurate. Accuracy was established via telephone interviews and search of publicly available data records. **Results:** Six hundred eighty-eight reports were received citing OxyContin® abuse, and 3,125 citing OxyContin® diversion. Of these, 118 reports from 16 states merited an impact score of >5. Seventy-four (62.7%) of these reports were found to be accurate; 19 (16.1%) were found to be inaccurately attributed to OxyContin® and 25 (21.2%) were unable to be verified. **Conclusions:** OxyContin® abuse and diversion has been the subject of extensive media attention in recent years. Approximately 16% of these instances may represent a misattribution. Our estimate is most likely conservative as we examined only a small, select subset of all media reports involving OxyContin®. **Support:** Not applicable

388 AVAILABILITY OF HIV-RELATED SERVICES IN ADOLESCENT SUBSTANCE ABUSE TREATMENT PROGRAMS

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Aims: Adolescents with substance use disorders (SUDs) are at heightened risk of contracting the human immunodeficiency virus (HIV). Adolescent SUD treatment programs are in a unique position to intervene with this at-risk population. The aim is to measure the delivery of HIV risk assessment, prevention, and testing in adolescent SUD programs. It is hypothesized that assessment, prevention, and testing represent a "technology cluster" such that programs will either adopt all three services or none. **Methods:** Telephone interviews were conducted with administrators of 152 treatment centers that offered at least one adolescent-only level of care. Administrators were asked if their adolescent program delivered health services related HIV, including risk assessment, prevention, and testing. Additional questions asked about the content of risk assessment and prevention services. **Results:** About 62% of adolescent-only SUD treatment programs reported that they offered some type of HIV-related health services. Specifically, 59% of programs assessed adolescents for HIV risk, generally through measuring severity of substance dependence, frequency of intravenous drug use, number of sexual partners, and frequency of unprotected sexual intercourse. About 57% of programs offered HIV prevention, which averaged about 4.3 hours of content. HIV prevention placed strong emphasis on how HIV is transmitted and the development of safer sex skills. Less emphasis was placed on rehearsing condom use and on communication skills to avoid unsafe sexual situations. About half of the programs either provided on-site HIV testing or referred adolescents to testing offered by other organizations. Cross-tabulations of these data supported the "technology cluster" hypothesis. **Conclusions:** HIV-related services represent a "technology cluster," such that programs generally either adopted all three services (assessment, prevention, and testing on-site or by referral) or offered none of the services. **Support:** Supported by the Robert Wood Johnson Foundation's Substance Abuse Policy Research Program 53130.

- 389** **PROLONGED DURATIONS OF PROTECTION OF THERMAL STABILIZING COCAINE ESTERASE MUTANTS AGAINST COCAINE-INDUCED TOXICITY IN MICE**
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Aims: A bacterial cocaine esterase (CocE) is the most efficient protein catalyst for the hydrolysis of cocaine characterized to date. However, CocE has a relatively short half-life of 10 minutes in vivo. The aim of this study was to investigate the protective duration of CocE mutants with improved thermostability against cocaine-induced toxicity in mice. Methods: Substitutions for thermostabilizing CocE were identified by using the molecular dynamics stimulation and modeling based on Rosetta Design program. Cocaine toxicity was quantified by measuring the occurrence of cocaine-induced lethality in mice (n=8 per dosing condition). Three different doses (0.1, 0.3, and 1 mg) of CocE mutants (T172R, L169K, and T172R-G173Q) were given intravenously at different time points before administration of cocaine (LD100: 180 mg/kg, i.p.). Results: These CocE mutants produced extended durations (between 1 and 4 hours) of protection against cocaine toxicity in a dose-dependent manner. At the largest dose 1 mg of each enzyme tested, the double mutant T172R-G173Q afforded complete protection against cocaine lethality when it was given 3 hours before cocaine, and had some protection (i.e., 25% occurrence of cocaine lethality) when given 4 hours before administration of cocaine. Conclusions: Both in vitro and in vivo studies provide evidence that the modified enzymes display a prolonged half-life and improved thermostability than the wild-type enzyme. The improved enzyme stability will have a profound impact on the therapeutic potential of CocE mutants for the treatment of cocaine overdose and addiction in humans. Support: This study was supported by US Public Health Service Grants DA-000254 and DA-021416.
- 390** **CGP7930, A POSITIVE MODULATOR OF GABA-B RECEPTORS, ENHANCES CATALEPSY INDUCED BY THE GABA-B RECEPTOR AGONIST BACLOFEN AND BY GAMMA-HYDROXYBUTYRATE (GHB)**
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Aims: GABA-B receptors can be directly activated by agonists, but their activity can also be modulated indirectly. Because GABA-B receptors are implicated in various disorders, including drug dependence, modulation offers the possibility of developing more selective treatments. CGP7930, a positive modulator of GABA-B receptors, reportedly enhances the sedative/hypnotic effects of baclofen and gamma-hydroxybutyrate (GHB) in mice, as assessed by loss of righting (Carai et al., EJP 504:213, 2004). The present study examined the generality of CGP7930's ability to enhance in vivo effects of GABA-B receptor agonists. Methods: The effects of CGP7930 on baclofen- and on GHB-induced catalepsy in C57BL/6J mice were examined using the horizontal bar test. Results: Baclofen and GHB both produced catalepsy, but differed in potency [ED50 (95% CL): 9.8 (8.5-11) mg/kg and 236 (230-242) mg/kg, respectively]. CGP7930 (178 mg/kg, i.p.) shifted the dose-response curve of baclofen to the left in a time-dependent manner: a maximal, 3.6 (2.5-5.1)-fold shift was observed when CGP7930 was given 1 h before baclofen. Significant, but smaller shifts occurred at shorter and at longer intervals [e.g., 1.6 (1.2-2.3)-fold at 15 min, and 1.5 (1.1-2.1)-fold at 4 h]. CGP7930, given at 178 mg/kg 1.5 h before, also enhanced the cataleptic effects of GHB. At 100 mg/kg, CGP7930 did not alter baclofen- or GHB-induced catalepsy. When given alone, 100 and 178 mg/kg CGP7930 did not produce any catalepsy, whereas 320 mg/kg induced loss of righting in 38% of the animals. Conclusions: Taken together, these findings show that CGP7930 enhances not only the loss of righting induced by high doses of baclofen and GHB, but also the cataleptic effects of lower doses. These results demonstrate the in vivo effectiveness of CGP7930, and confirm its utility for examining the role of GABA-B receptor modulation in behavioral effects of GABA-B receptor agonists. Support: Supported by DA15692 (WK) and DA17918 (CPF)
- 391** **SEX AND REARING CONDITION AFFECT GENERALIZATION TO DIRECT AND INDIRECT DOPAMINE AGONISTS IN ADULT RATS DISCRIMINATING COCAINE**
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Aims: Repeated separation of pups from dams during critical periods has profound effects on the dopamine (DA) system including changes in receptor density, agonist binding and antagonist sensitivity. Methods: Male and female rats (n=5-6/sex/rearing condition) were exposed to either long maternal separation (LMS), brief maternal separation (BMS) or animal facility rearing (AFR) as neonates, prior to two-lever discrimination with cocaine (10mg/kg). Generalization with direct DA D1 (SKF38393) and D2 (quinpirole) agonists and the DAT inhibitor GBR12909 were determined to assess the roles of these receptor subtypes in the subjective effects of cocaine. Results: In males, more drug-lever responding was seen following quinpirole in BMS and AFR rats (>75% at 0.061-0.18mg/kg) than LMS rats (>75% at 0.125mg/kg only). D1 agonism produced full substitution (>80% drug-lever responding) at 18 & 32mg/kg in BMS rats, while full substitution was apparent at 32mg/kg for AFR rats. Decreased response rates prevented testing BMS and AFR rats with 40mg/kg, but in the LMS rats this was the only dose producing full substitution. DAT inhibition produced more drug-lever responding in LMS (full: 10,18mg/kg; partial: 3.2 & 5.6mg/kg) and AFR rats (full: 5.6 & 10mg/kg; partial: 3.2 & 18mg/kg) compared to BMS (full: 18mg/kg; partial: 5.6 & 10mg/kg). In females, D2 agonism produced partial substitution in all groups at 0.061-0.18mg/kg except in AFR that showed full at 0.18mg/kg. D1 agonism produced partial substitution in all groups at 18-32mg/kg with AFR also showing partial at 10mg/kg. DAT inhibition produced varying effects among the females with full substitution in AFR at 5.6-18mg/kg, in BMS at 10-18 mg/kg and LMS at 18 mg/kg. Conclusions: Differential rearing history affects the substitution profile of DA agonists in animals trained to discriminate cocaine from its vehicle, suggesting changes in DA systems mediating these effects. Further, these are the first data to show sex differences in generalization of D1 and D2 agonists in animals trained to discriminate cocaine. Support: Supported by the Mellon Foundation and NIDDK
- 392** **METHYLPHENIDATE REINFORCEMENT IN ADULTS WITH AND WITHOUT ATTENTION DEFICIT HYPERACTIVITY DISORDER**
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Aims: To assess the reinforcing effects of methylphenidate (MPH) in adults diagnosed with ADHD or healthy controls using a progressive ratio (PR) task. Methods: Twenty-one adult subjects (11 Control, 10 ADHD) with no prior history of stimulant drug use were enrolled. Mean age of participants was 26.8 years and 60% of the sample were male. Subjects participated in 8 experimental sessions. Four of the sessions were forced exposure sessions in which subjects received placebo or MPH (20, 40, or 60 mg) once each in 8 identical capsules. Following each exposure session, subjects completed a self-administration session in which they were allowed to work on a PR task to earn anywhere from 0-8 capsules. The capsules contained the same amount of MPH as was administered in the corresponding forced exposure session. The values for the ratios ranged from 75 to 3755 responses. The primary dependent measure was the number of ratios completed under each dose condition. Planned mixed-model, repeated measures ANOVAs were conducted with group (ADHD vs. Control) as the between subjects variable and dose as the within subject variable. Vital signs, subjective effects, and performance measures were also collected during each session. Results: Twenty participants (10 Control, 10 ADHD) completed all experimental sessions. A trend for a main effect of Group was observed in that subjects with ADHD completed more ratios than Control subjects (F=3.15, p=0.09). There was also a significant Group x Dose interaction (F=4.02, p=0.01) with ADHD subjects completing fewer ratios under the placebo condition and more ratios under active doses of the drug. There was no effect of Dose. Conclusions: Surprisingly, control subjects did not choose to self-administer MPH more than placebo using a PR task. However, subjects with ADHD completed more ratios for active drug across all doses. These results will be interpreted from the standpoint of abuse liability as well as clinical efficacy of methylphenidate for subjects with ADHD. Support: National Institute on Drug Abuse (DA017196)

393 SEX DIFFERENCES IN NON-REINFORCED RESPONDING FOR COCAINE

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Aims: Previously, we found female rats consume more cocaine than male rats during acquisition of self-administration yet show poorer lever discrimination. Hence, female rats are said to acquire the operant of self-administration less readily than male rats. Now, we test for sex differences in cocaine self-administration after behavior is established. Specifically, we sought to determine whether there are sex differences in non-reinforced responding but not in cocaine consumption. **Methods:** Male and female rats that had acquired self-administration were tested with various doses (0.0625-1.0 mg/kg/infusion) under a fixed-ratio 3 (FR3) schedule in 3-hr sessions. Numbers of active but not reinforced lever presses (presses during infusion and time-out periods) and inactive lever presses were tabulated in Experiment 1. Persistence of responding during extinction when saline replaced cocaine was also examined. Whether response rate differences reflect sex differences in activity was tested in Experiment 2. Finally, cocaine may affect lever press rates differentially between sexes. In Experiment 3, we examined the effects of cocaine (0.3-30 mg/kg; IP) on lever pressing for food. **Results:** Females show greater non-reinforced responding during self-administration compared to males but do not differ in cocaine consumption. Females respond more during extinction sessions but there is no sex difference in activity levels. Lever pressing for food is decreased more in female vs. male rats at higher cocaine doses. **Conclusions:** That females engage in more non-reinforced responding may represent heightened "craving" and cannot be explained by increased activity or cocaine-stimulated increases in lever press responding. In contrast, lever press responding in males appears driven by drug delivery. **Support:** VA MERIT grant

394 COCAINE VACCINE: 6-MONTH FOLLOW-UP DURING DROP IN ANTIBODY LEVELS

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Aims: Our recent placebo-controlled vaccine clinical trial showed a significant reduction in cocaine use, but since antibodies to cocaine become undetectable within 6 months, we examined whether this antibody drop affected cocaine-free urines (CFU). **Methods:** 114 subjects (Ss) were given 5 vaccinations over 12 weeks and had antibodies measured every 4 weeks and urine benzoylcegonine (BE) quantified 3 times weekly to week 20. Treatment comparisons used piecewise random regression models to compare non-linear changes in CFU over the 20 weeks. **Results:** Antibody levels in vaccinated Ss peaked at week 12 and then dropped significantly from weeks 12 to 20. For placebo Ss CFU increased from weeks 0-12 and continued to rise linearly and slowly to week 20. However, for vaccinated Ss CFU decreased from weeks 12 to 20, and this was a significant reversal from the increase in CFU during weeks 0-12 ($P < 0.001$). The CFU increase during weeks 0-12 was significantly greater in vaccinated than placebo Ss, as previously reported ($P < 0.001$). Interestingly, urine BE levels were over one million in vaccinated Ss during weeks 12-20, while no BE levels exceeded 100 thousand for placebo Ss or for vaccinated Ss during weeks 8-9. No significant adverse events occurred. **Conclusions:** Despite significantly greater drops in cocaine use by vaccinated than placebo Ss during weeks 0-12, when antibodies increased, vaccinated Ss increased their cocaine use during the weeks 12-20, when antibody levels fell. Based on BE levels, it appeared that up to 10 times larger amounts of cocaine were needed to get "high" in vaccinated subjects who used these large doses without any significant adverse events. **Support:** NIH P50-DA18197, K05-DA454, R01-DA15477, and Veterans Administration.

395 A PRELIMINARY EXAMINATION OF TOLERANCE TO OXYCODONE IN HUMANS

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Aims: Studies conducted in laboratory animals suggest that the rate of tolerance development varies across different opioid-induced effects. Furthermore, clinical experience in patients receiving opioids for chronic pain suggests that tolerance does not necessarily develop to the analgesic effects of opioid agonists. The purpose of this 3-week pilot study was to evaluate the effects of repeated oral oxycodone administration on measures of analgesic, subjective, and physiological responses in normal, healthy volunteers ($N = 6$). **Methods:** The first and third weeks were testing weeks and the middle week provided a drug-free washout period. An oxycodone dose-response function was obtained on Monday and Friday of each test week, and placebo or oxycodone (15 mg) was given twice a day on Tuesday, Wednesday and Thursday; the order of testing placebo or active drug maintenance was counterbalanced. Thus, dose-response functions were determined before and after maintenance on oxycodone and placebo. The dose-response functions were determined by administering cumulative doses of 0, 10 and 20 mg/70 kg oxycodone at 45-min intervals and recording a range of dependent measures after each dose. Measures were also obtained during the 3-day repeated-dosing phase. **Results:** Analgesic effects, as measured by the McGill Pain Questionnaire during a cold pressor test, were significantly less on Wednesday and Thursday compared to Tuesday, ratings of "I feel nauseated" were significantly less on Thursday compared to Tuesday and Wednesday, and pupil size was significantly larger on Thursday compared to Tuesday during the week that participants received oxycodone repeatedly. Ratings of drug potency were significantly less on Friday during weeks when participants received oxycodone repeatedly. **Conclusions:** These preliminary data demonstrate that in normal, healthy volunteers, tolerance rapidly develops to the analgesic, subjective, and physiological effects of oxycodone. A future study will examine tolerance development in patients with chronic non-malignant pain. **Support:** DA016769

99 396 PREFERENCE-BASED UTILITY VALUES FOR DRUG USE AND DRUG DISORDERS

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Aims: Preference-based utility values (PBUV) are used to calculate quality-adjusted life-years (QALYs) in economic evaluations of health care programs but there has been little research on PBUV for drug use disorders. To address this, we measured PBUV for drug use and drug disorders in community (CC) and drug dependent (DD) samples. **Methods:** We interviewed adults > 18 years old recruited from the community and an outpatient treatment program for drug dependence. Participants completed visual analogue scale (VAS), time trade-off (TTO), and standard gamble (SG) exercises for hypothetical drug-related health state scenarios ranging from non-drug use to severe drug dependence for marijuana, cocaine, and heroin. Scenarios described the health, social and economic consequences of drug use. PBUV were scaled from 0 to 1 and anchored by death (0) and perfect health (1). **Results:** Fifty CC adults (mean age 40 years, 20% black, 50% female) and 50 DD adults (mean age 41 years, 58% black, 56% female) completed assessments. Mean PBUV for the hypothetical drug-related health states varied by PBUV assessment method, decreased as the consequences worsened, and were similar for the 2 samples. Mean VAS/TTO/SG utility ratings (CC vs. DD) for the most severe drug dependence scenarios were: marijuana (0.52/0.69/0.70 vs. 0.52/0.68/0.63); cocaine (0.42/0.46/0.51 vs. 0.42/0.48/0.65); and heroin (0.20/0.33/0.40 vs. 0.30/0.41/0.64) (p -values < 0.01 for comparisons between drugs of abuse for the VAS and TTO methods but non-significant for SG; p -values all non-significant for comparisons between the CC and DD samples within each drug of abuse group and PBUV method). **Conclusions:** CC and DD samples assigned similar PBUV to a set of hypothetical drug-related health states. The PBUV assigned to the most severe health states depended on the drug, but were very low and similar to PBUV for severe medical conditions. These results will improve QALY calculation for the economic evaluation of drug prevention and treatment programs. **Support:** NIDA

CPDD 2008 Annual Meeting, San Juan, Puerto Rico

397 IMPULSIVITY, SELF-EFFICACY AND COPING STYLES IN ADOLESCENT TOBACCO USERS
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Aims: Previous research from our group suggests that impulsivity may be related with reduced ability to maintain abstinence among adolescents participating in a smoking cessation program (Krishnan-Sarin et al, 2007). However, we know little about the mechanisms mediating this relationship. Methods: The current project examined impulsivity (Barratt Impulsiveness Scale-11; Barratt et al., 1995), self efficacy to abstain from using tobacco in a variety of potentially risky contexts (Lawrance, 1989) and general coping styles (Wills et al., 2001) in 1093 high school adolescents completing an anonymous survey of tobacco and marijuana use behaviors. Results: Among tobacco users (n= 182), adolescents who were more impulsive had lower self-efficacy to abstain from smoking when with friends ($r=-.21$, $p<.05$), when experiencing negative emotions ($r=-.3$, $p<.000$), and when presented with opportunities to smoke ($r=-.32$, $p<.000$). Greater impulsivity was also associated with lower use of behavioral ($r=-.55$, $p<.000$) and cognitive ($r=-.18$, $p<.05$) coping strategies and greater use of anger ($r=.33$, $p<.000$), helpless ($r=.339$, $p<.000$), and substance use ($r=.31$, $p<.000$) coping responses. Self efficacy to abstain from tobacco use in all three of these domains (with friends, negative emotion, and opportunity) was positively related to behavioral coping, and negatively related to helpless coping, anger based coping, and substance use coping. Further analyses found that impulsive adolescents self efficacy to abstain from smoking was entirely mediated by negative coping strategies. Conclusions: These results suggest that impulsivity may be a risk factor for poorer smoking cessation treatment outcomes in part due to the low use of positive coping skills and greater use of skills which are associated with lower self-efficacy to abstain. Implications of these results for developing interventions will be discussed Support: Supported by P50DA09421

398 MODIFIED DIRECTLY OBSERVED THERAPY FOR HIV IN SUBSTANCE-ABUSING MINORITIES
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Aims: African Americans and Hispanics with HIV disease have a less favorable course and outcome profile as compared to other racial and ethnic groups. This population also experiences disparities in access to healthcare. The Addiction Research and Treatment Corporation (ARTC) is the largest non-hospital based Opioid Treatment Program in New York State, serving more than 3,000 patients annually. ARTC provides a wide range of healthcare and social services, including primary medical care, vocational/ educational assessments, HIV/AIDS care and substance abuse treatment to patients throughout Brooklyn and Manhattan. ARTC's patient population is 42% African American and 48% Hispanic, including women, formerly incarcerated individuals, and people with mental illness. Therefore, the ARTC population base is appropriate to evaluate interventions for HIV disease that are designed to address outcomes and disparities in care for disenfranchised populations. Methods: African American and Hispanic patients diagnosed with HIV disease receiving care from ARTC medical staff will be eligible to participate in this study. Patients will be randomized to modified directly observed therapy vs. usual care. Pre, during and post-intervention measures of adherence, CD4 counts, viral load, substance abuse, and quality-of-life will be compared for the intervention cohort and between the intervention cohort and usual care cohort. Conclusions: Should the proposed intervention show improved disease outcome, it will be made a permanent modality of care at ARTC. Support: Funding support will be sought from NIDA through R-21 funding mechanism or CSAT Targeted Capacity Expansion.

399 HCV TREATMENT IN PATIENTS ON OPIOID THERAPY FOR NARCOTIC ADDICTION
LOOKING AT COMPLIANCE, SAFETY, VIROLOGICAL RESPONSE AND EFFECT ON DRUG USAGE
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Aims: HCV treatment in patients on pharmacotherapy for IVUDU is not commonly used due to anxieties about compliance, outcome of therapy and risks of worsening illicit drug useage. This study aimed to evaluate HCV treatment in patients receiving opioid pharmacotherapy Methods: Fifty-three patients at four sites received standard treatment with PEG 2a and ribavirin. HCV RNA was regularly assessed. Depression was assessed using the Beck Depression Index (BDI II). Adherence was defined as taking 80% of drugs for 80% of the time. Results: 79% were male, mean age of 37.9 yrs, 75% were on methadone and 25% buprenorphine. In the previous 24 weeks 36% had used IV drugs. Fifty one percent of patients had high viral load ($>400,000$ IU/ml) and 27% had advanced fibrosis (F3/4). Sixty-eight percent of G1 patients achieved EVR. SVR by ITT analysis was 36% for G1 and 71% for G non1 patients respectively. Illicit drug was decreased during treatment and followup period with 25% using IV drugs. Treatment outcomes were similar in injectors and non-injectors, with SVR of 63% among injectors and 53% among non-injectors. Two patients relapsed, one was an active injector. Sixteen patients (12 G1 and 4 G non1) withdrew prematurely from treatment. Treatment adherence was was 59% for G1, vs 84% for G non1 patients. BDI scores were stable during treatment Conclusions: HCV treatment of patients undergoing opioid pharmacotherapy obtained similar results to other hcv populations. There was good treatment adherence, no change in depression and similar levels of adverse events. Adherence was better in patients receiving 24-week therapy. Post-treatment reinfection rates were low. HCV treatment should be considered suitable for patients on opioid pharmacotherapy including selected active injectors. Support: Investigator initiated study funded by Roche

400 A DOUBLE-BLIND, PLACEBO-CONTROLLED TRIAL OF LONG-ACTING IMPLANTABLE FORMULATION OF NALTREXONE FOR HEROIN DEPENDENCE: RESULTS OF INTERIM ANALYSIS
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Aims: To test the efficacy of long acting surgically implantable formulation of naltrexone (Prodetoxone) vs. oral naltrexone and placebo for relapse prevention to heroin addiction. Methods: 191 heroin addicts who recently completed detoxification at addiction treatment units in St. Petersburg, Russia and gave informed consent were randomized to a 6 month course of biweekly drug counseling and one of three medication groups: Naltrexone implant (every other month) + Oral placebo daily (NI+OP) (66 subjects), Placebo implant (every other month) + Oral naltrexone (PI+ON) (50 mg/day) (63 subjects), and double placebo (implant and oral) (PI+OP) (62 subjects). Medications were administered under double-dummy/double-blind conditions. Urine drug testing and brief psychiatric evaluations (depression, anxiety, anhedonia, and craving for heroin) were done at each biweekly visit with more extensive evaluations at 3 and 6 months. Oral medication compliance was evaluated using a urine riboflavin marker. Results: 237 patients were asked if they would be interested in participating, 207 met the study entrance criteria, 195 gave informed consent and 191 were randomized. Survival analysis revealed a significantly greater retention in NI+OP group compared to two other groups ($p<.01$). At the end of six months 77.3% of patients of NI+OP group had not relapsed compared to 36.4% in PI+ON group and 18.8% in PI+OP group ($p<.001$). No differences in the number of heroin positive urines or either one of psychometrics between groups were found. The number of side effects was limited with no difference between groups. Conclusions: Long acting sustained release naltrexone implant is safe and more effective than oral naltrexone and placebo for treatment retention and relapse prevention to heroin dependence. Support: R01DA017317; DA017009; U10013043

CPDD 2008 Annual Meeting, San Juan, Puerto Rico

- 401** **PATIENT AND STAFF SATISFACTION IN OUTPATIENT SUBSTANCE ABUSE TREATMENT PROGRAMS**
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Aims: Patient and staff turnover are significant therapeutic and management concerns in substance abuse treatment programs. Some literature suggests a positive correlation between patient satisfaction and successful outcome, while other studies are inconclusive. The treatment environment (location, physical space, and cultural milieu) is also associated with successful outcomes. Although providers often represent that they are satisfied with their jobs this seems to be contradicted by high staff turnover. Initiated in 2006, the Patient Feedback study is a randomized, effectiveness trial, implementing a quality improvement (QI) system at 20 outpatient, substance abuse treatment programs. Methods: Patients' baseline assessments were self-reported on survey instruments capturing ratings of treatment satisfaction. Clinic demographic forms and four self-report surveys assessing job satisfaction captured baseline data from providers along the following domains: 1) quality of director-employee relationships, 2) organizational characteristics, and 3) intrinsic/extrinsic satisfaction. Results: Preliminary analysis from surveys of 679 patients reveals very high treatment satisfaction (mean = 4.27, SD = 0.79, with 5 indicating highest rating of satisfaction) across patients of various treatment durations, including 227 patients in treatment for 1 month or less. Job satisfaction amongst 76 clinicians will be presented based on scores from the LMX-7 (evaluates interactions between directors and employees), the ORC (18 domains assessing organizational characteristics), and the MSQ (scale rating job satisfaction). Additional findings will be presented on gender, ethnicity and length-of-treatment on patient and staff satisfaction. Conclusions: These findings have implications for the development and implementation of QI systems to enhance treatment outcomes and the work environment in substance abuse programs. Support: The present randomized controlled trial is supported by NIDA grants R01 DA020809-01 (NYU) and R01 DA020799 (U of P)
- 402** **RECENT MARIJUANA, ECSTASY AND METHAMPHETAMINE USE NOT ASSOCIATED WITH DEPRESSIVE SYMPTOMS IN A COMMUNITY-BASED URBAN POPULATION**
I. Kuo¹, M. Magnus¹, A.L. Rawls¹, J.A. Peterson¹, K.D. Shelley¹, T. West-Ojo², S. Hader², F. Hamilton³ and A.E. Greenberg¹, ¹Epidemiology and Biostatistics, George Washington University School of Public Health, ²HIV/AIDS Administration, District of Columbia Department of Health, and ³Family and Aims: To characterize drug use correlates of depressive symptoms in a community-recruited, low-income population of heterosexuals at high risk for HIV infection. Methods: Between January and October 2007, 782 sexually-active individuals aged 18 -50 were recruited from high-risk urban neighborhoods for the CDC-sponsored National HIV Behavioral Surveillance system using respondent driven sampling (RDS). Individuals completed a survey regarding demographics, sex/drug use behaviors and depressive symptoms (as measured by CESD \geq 16). Preliminary data were analyzed using chi-square test and multivariate logistic regression and were not adjusted for RDS methodology. Results: Mean age was 35.4 (SD:10.7); 95.5% were black; 59.4% were female and 14.1% were current injection drug users; 44.6% met criteria for depressive symptoms. The prevalence of drug use in past 12 months was high: 45.3% used marijuana, 28.9% crack, 21.5% heroin, 10.0% ecstasy, 9.2% painkillers (such as oxycontin); 1.5% methamphetamines. Adjusting for demographic characteristics, marijuana, ecstasy, and methamphetamine use were not independently associated with depressive symptoms, while crack (aOR: 1.8; 95% CI: 1.2, 2.8), oxycontin use (aOR: 3.1; 95% CI: 1.5, 6.1), and heroin use (aOR: 1.8; 95% CI: 1.1, 2.8) were positively associated with depressive symptoms. Conclusions: In a population of urban and low-income community-recruited individuals, prevalence of drug use and depressive symptoms was high. Recent marijuana and ecstasy use were relatively high but were not associated with depressive symptoms, while crack and opioids (heroin and painkillers) were positively associated. Support: Support for this study was provided by the Centers for Disease Control and Prevention and the District of Columbia Department of Health Contract Number POHC-2006-C-0030.
- 403** **HEAVY OPIOID AND BENZODIAZEPINE ABUSERS IN MIAMI'S CLUB SCENE:10** **404** **PERIADOLESCENT MALE, BUT NOT FEMALE RATS, ACQUIRE METH-INDUCED CTA¹⁰**
OVERLAPPING GROUPS WITH DRUG-SPECIFIC HEALTH MARKERS
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Aims: To examine baseline characteristics of heavy users of prescription drugs. Data are drawn from a natural history study of drug use and health consequences. Hypothesis: Heavy users of prescription opioids and benzodiazepines will represent largely separate groups, but both groups will report heightened levels of health problems. Methods: 478 persons 18 and older have been recruited through respondent-driven sampling procedures. Current (90 day) use data indicate that participants who ingest 10 or more opioid or benzodiazepine pills per month are appropriately described as heavy users. Multivariate models were developed to predict heavy use of opioids and benzodiazepines. Results: Median age was 23; 32% female; 54% Hispanic, 27% Anglo, 15% Black; 76% met DSM dependence criteria. 157 (33%) reported heavy opioid and 234 (49%) heavy benzodiazepine abuse. The two subgroups overlapped significantly, with 114 reporting heavy abuse of both types of medication. In multivariate logistic regression models with heavy use of each drug class as the dependent variables ($p < .05$), older age was a risk factor for both drug classes; education was protective for heavy benzodiazepine use. No other demographic differences were observed. Both heavy opioid and benzodiazepine abusers reported more frequent use of MDMA than their less-involved counterparts. Only heavy opioid users reported histories of serious psychiatric problems, as well as chronic pain. Conclusions: Participants in the club scene exhibit high levels of opioid and benzodiazepine abuse; the large number of abusers of both drug classes suggests high rates of substitution and experimentation. Heavy use is associated with greater use of illicit stimulants, presumably to moderate the stimulant effects. Heavy opioid users demonstrate prior and ongoing physical and mental health problems that are unusual given the young age of the sample. Ongoing longitudinal research will shed further light on these concerns. Support: This research was supported by Grant Number R01DA019048 from the National Institute on Drug Abuse.
- 404** **PERIADOLESCENT MALE, BUT NOT FEMALE RATS, ACQUIRE METH-INDUCED CTA¹⁰**
WHEN THE CS-US TRACE INTERVAL IS EXTENDED BEYOND TWO HOURS
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Aims: Epidemiological research indicates that adolescents are more vulnerable to drug addiction than adults. Increased vulnerability to drug abuse may be mediated, in part, by a reduced ability to experience the negative effects of drugs, such as withdrawal or malaise. The aim of the present experiment was to determine if male and female periadolescent rats acquire methamphetamine (METH)-induced conditioned taste avoidance (CTA) with extended trace intervals between the conditional stimulus (CS; saccharin) and the unconditional stimulus (US; METH). We also determined if METH CTA was exhibited in young adulthood. Methods: Rats were randomly assigned to saline (SAL), immediate (IMM), 2 hour (2 h) or 4 hour (4 h) METH groups. Rats were allowed access to saccharin for 15 min on post natal day (PND) 38, 39 and 40 following 2 days of water restriction. SAL or METH (3 mg/kg) injection was administered either immediately, 2 or 4 h after consumption (sc; $n \approx 14$ /group). Two-bottle tests, which measured saccharin preference, were administered on PND 41 and 62 (i.e., measured within-subjects). Results: Males and females acquired CTA when METH was injected immediately and 2 h after saccharin consumption; however, only the males acquired METH CTA when the trace interval was extended to 4 h. The 2-bottle test conducted on PND 41 revealed that males in the IMM, 2, and 4 h groups showed CTA, whereas only the females in the IMM group expressed CTA. The 2-bottle test conducted on PND 61 showed that the males in the IMM and 2 h groups, and females in the IMM group, exhibited CTA. Conclusions: Trace intervals of 2 or 4 hours revealed sex differences in the expression of METH-induced CTA. These data suggest that females may experience fewer negative effects from METH compared to males. Moreover, expression of CTA was observed during young adulthood. These findings indicate that Pavlovian conditioned responses acquired during periadolescence, which are known to play a role in drug seeking behavior, persist into adulthood. Support: Supported by NIDA grant DA21287.

405 DUAL SUBSTANCE-ABUSING PARENTS VS. MOTHER-ONLY SUBSTANCE-ABUSING PARENTS IN TREATMENT: BEHAVIORAL FUNCTIONING OF CHILDREN

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Aims: Couples-based treatment studies have targeted females with nonsubstance-abusing male partners. However, many female substance abusers entering treatment are involved with male partners who also abuse substances, which may increase risks in the family. Regardless of their partners' substance use status, most women entering treatment retain caregiving responsibilities for children in their homes. At present, we know little about how children's functioning may be associated with whether only mothers abuse substances, or whether parents are dual substance abusers. This study compares emotional and behavioral functioning of children living with two substance-abusing parents versus a substance-abusing mother and nonsubstance-abusing father. **Methods:** Participants were 8- to 12-year-old children living with a substance-abusing mother entering couples-based treatment and either a substance-abusing father (n=76) or a nonsubstance-abusing father (n=76). Families were matched on child age, parents' age, education, family income, length of relationship, and severity of parental substance use. Parents rated children's externalizing and internalizing behaviors; children completed self-report measures of depression and anxiety. **Results:** Across raters, children from homes of dual-substance abusing parents had significantly fewer internalizing and externalizing symptoms than children from homes with only a substance-abusing mother. **Conclusions:** Children who live in 2-parent homes in which both parents abuse substances exhibit lower internalizing and externalizing problems than children of mother-only substance-abusing parents. These seemingly paradoxical findings may reflect lower inter-parental conflict found in dual-substance abusing couples relative to female-only substance-abusing couples. Findings underscore the need to understand interrelationships among parental substance abuse, relationship conflict, and child outcomes as both risk and protective factors for children of substance abusers. **Support:** This study was supported in part by NIDA grant R01 DA015849.

406 METHODOLOGY FOR ASSESSING COCAINE'S EFFECT ON INDIVIDUAL AND COMBINED ACTIONS OF ENDOGENOUS PRESSOR AGENTS

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Aims: The pressor effect of cocaine may be related to its interaction with certain endogenous vasoconstrictors. Toward that end our aim is to investigate the effect of cocaine pretreatment on the interactions between endogenous compounds, including urotensin II (UroII), angiotensin II (AngII), and norepinephrine (NE). This approach has begun with the characterization of the individual and combined actions of UroII and AngII in the rat aorta, described here. **Methods:** Quantitation of the vasoconstrictor actions (measuring isometric tension) of the individual agents and their combined effect in isolated rat aorta. Adult male Sprague-Dawley rats (250-400 g) were used following a minimum acclimation period of 3 days. Animals were euthanized via CO₂ asphyxiation, and the aorta excised in a manner aimed at preserving the integrity of both the endothelium and adventitia. Endothelium viability was confirmed with carbachol-induced relaxation following precontraction with norepinephrine. Preliminary observations confirmed previously published reports demonstrating tachyphylaxis with the individual agents, therefore, each tissue specimen received only a single dose (or dose combination) in these studies. The effects were normalized to the contractile response to 120 mM KCl. **Results:** Results show, for Uro II, the maximal effect was 71.3 % KCl and its half-maximal concentration was 5.81 +/- 1.53 nM. The corresponding values for Ang II were 45.2 % KCl and 30.2 +/- 4.04 nM. The combination analysis used several different fixed-ratio proportions of the constituents. In one such set, 6 % U-II and 94 % Ang II, and for this ratio of constituents we conclude that the combination is synergistic. Further studies are ongoing. **Conclusions:** The mathematical methodology and experimental protocol have yielded an effective approach to assess cocaine's possible synergistic or other enhancing actions on pressor effects on the individual or combined actions of endogenous compounds. **Support:** NIH/NIDA grant T32-DA07237

407 ACUTE EFFECTS OF TOPIRAMATE ON AGGRESSIVE RESPONDING IN INDIVIDUALS ON PAROLE/PROBATION WITH A HISTORY OF SUBSTANCE USE DISORDERS

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Aims: This ongoing study examined the acute effects of the GABA-A enhancing drug Topiramate on aggression, using a laboratory model of human aggressive behavior (PSAP). **Methods:** To date, six males and three females on parole or probation received doses of 100, 200, 300, and 400 mg Topiramate in an ascending sequence, with intervening placebo doses. Subjects completed five sessions per day over 4-6 weeks. Due to side effects at 300 mg, two subjects only completed through the 200 mg dose. Aggressive responding was analyzed by examining area under the dose-response curve, expressed as percent of placebo. Data were analyzed via non-parametric ANOVA. **Results:** Unexpectedly, the majority of subjects showed increases in aggressive behavior at 100, 200, and 300 mg. The two subjects who experienced side effects at 300 mg showed the largest increases in aggressive responding. All subjects showed a relative decrease at 400 mg. Statistical analysis revealed a trend toward a main effect of drug (p = .08). **Conclusions:** Previous work suggests that GABA-A modulators can reduce aggressive behavior in clinical populations. However, our data suggest that Topiramate might increase aggression in acute doses of 100-300 mg. Analysis of dose response curves suggests that Topiramate may produce an inverted U-shaped function in aggressive responding. However, side effects may preclude giving doses in the range (> 400 mg) that would be expected to produce decreases in aggression. **Support:** Supported by National Institute on Drug Abuse Grant R01 DA 03166

408 REGULATION OF SEROTONIN 5-HT_{2C} RECEPTOR (5-HT_{2CR}) IN MODELS OF ADDICTION: MEASUREMENT OF 5-HT_{2CR} PROTEIN EXPRESSION AT CORTICAL SYNAPTIC MEMBRANES

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Aims: Acute systemic administration of 5-HT_{2CR} agonists and antagonists reduce and enhance, respectively, cocaine-evoked hyperactivity in rats, an effect that is lost during withdrawal from repeated cocaine exposure. Because cortex is an important site of action for 5-HT_{2CR} control of cocaine-induced behaviors, we hypothesized that a molecular mechanism underlying this regulation is translocation of 5-HT_{2CR} from cortical synapses. However, study of 5-HT_{2CR} by Western blot analysis is complicated by posttranslational modifications and alternative splicing of the protein that affect its electrophoretic migration. We are assessing 5-HT_{2CR} expression in postsynaptic density (PSD), an electron-dense specialized structure of the submembrane cytoskeleton involved in receiving and transducing synaptic signals. **Methods:** Motor cortex (MC) from three naive Sprague Dawley rats was pooled and fractionated into synaptosomal, synaptic junction and PSD compartments by sucrose gradient and serial centrifugations. Purity of each fraction was validated with appropriate antibodies (ABs). Three anti-5-HT_{2CR} ABs against different regions of the receptor were employed to determine the best conditions to measure this protein in the PSD-enriched fraction: mouse monoclonal [C-terminus; Pharmingen (PH)], goat polyclonal [N-terminus; Santa Cruz (SC)] and rabbit polyclonal [N-terminus; Chemicon (CH)] ABs. **Results:** All anti-5-HT_{2CR} ABs detected three bands of apparent MW 40, 50, and 55 KDa in the PSD fraction. SC and CH ABs also detected a band of ~20 KDa which may represent a C-terminal splice variant, undetectable by the PH C-terminus AB. Future studies involve enzymes that remove posttranslational modifications to determine identity of the observed multiple bands. **Conclusions:** We have demonstrated expression of 5-HT_{2CR} in cortical PSD fraction; this observation paves the way for quantitative analyses of the regulation of 5-HT_{2CR} protein at the synapse following cocaine exposure. **Support:** NIDA DA006511, DA020087, Peter F. McManus Charitable Trust

- 409** **ASSESSMENT OF THE LEVEL OF PHYSICAL DEPENDENCE AND BLOCKADE EFFICACY PRODUCED BY TRAMADOL**
R.K. Lanier, M.Z. Mintzer, M.R. Lofwall, G.E. Bigelow and E.C. Strain, Psychiatry and Behavioral Sciences, Johns Hopkins School of Medicine, Baltimore, MD
Aims: Tramadol is a DEA-unscheduled mixed-mechanism analgesic that may have potential as a treatment for opioid dependence. The current study assessed the level of physical dependence and blockade efficacy produced by daily maintenance on tramadol. Methods: Nine residential opioid-dependent adults were initially maintained on morphine (15 mg s.c., qid) and received randomized, double-blind placebo or 0.5 mg i.m. naloxone challenges to test for precipitated withdrawal. Subjects were next maintained on two doses of daily oral tramadol [200 mg (50 mg, qid) and 800 mg (200 mg, qid)] for approximately 4-week intervals in a randomized, double-blind, crossover design. The acute effects of i.m. placebo, naloxone (0.25 and 0.5, and 1.0 mg), and hydromorphone (1.5, 3.0, and 6.0 mg) were tested under double-blind, randomized conditions. Outcomes included observer- and subject-rated measures, and physiologic indices. Results: During morphine maintenance, mean peak VAS ratings of Bad Effects (BE) and Sick were significantly ($p < 0.05$) elevated following naloxone vs. placebo administration, indicating sensitivity to precipitated withdrawal. Within each tramadol dose, withdrawal intensity was related to naloxone challenge dose, with higher mean peak scores of BE and Sick occurring at higher naloxone doses (i.e., 0.5 and 1.0 mg). Withdrawal intensity was related to tramadol maintenance dose, such that higher mean peak scores of BE and Sick were observed during 800 mg tramadol (e.g., following 0.5 mg naloxone, BE means = 72.6 and 30.2, and Sick means = 43.2 and 13.8, during 800 and 200 mg tramadol, respectively). Mean peak ratings of Good Effects and Liking were elevated at higher hydromorphone challenge doses during both 200 and 800 mg tramadol, but did not differ significantly between the two tramadol doses. Conclusions: Tramadol maintenance results in dose-related opioid physical dependence, but with no evidence of any tramadol dose-related attenuation of agonist (hydromorphone) challenge effects. Support: Grants R01 DA018125, K24 DA023186 and T32 DA07209
- 410** **RISK BEHAVIORS AND RISK TRAJECTORIES AMONG YOUNG INJECTION DRUG USERS**
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Aims: Injection initiation is a significant event since it places a person on a trajectory towards increased risks for exposure to HIV/HCV, drug overdose, and drug dependence. Identifying the drug injected at initiation is important for understanding injection risk since different drug types may be associated with distinct injection practices and risk trajectories. This analysis compares four different drugs injected at initiation among a sample of young injection drug users (IDUs) to describe specific risk behaviors and trajectories. Methods: Data is based upon 223 young IDUs recruited in Los Angeles, New Orleans, and New York during 2004 and 2005. Ethnographers recruited young IDUs aged 16 to 29 using a combination of targeted and chain referral sampling. In depth interview questions focused on the injection initiation event, including injection group, mode of administration, syringe acquisition, and risk behaviors, and lifetime histories of injection drug use and HIV/HCV status. Results: Drug injected at initiation was as follows: heroin (49%); methamphetamine (20%); ketamine (17%); and cocaine (14%). Nearly one-tenth of methamphetamine (meth) initiates engaged in receptive syringe sharing compared to less than 4% of all initiates. The lowest rates of self-injection at initiation (20%) was among meth initiates. Following injection initiation, 58% of meth initiates injected six or more drugs in their lifetime compared to all initiates (44%). Meth initiates had the highest rates of HCV positive self-reports (29%). Conclusions: Different drug types have particular risk practices associated with use at injection initiation. Methamphetamine initiates, who reported the highest rates of syringe sharing and greatest number of drug injected, also reported the highest rates of HCV. Interventions should be developed recognizing that young IDUs initiating with different drug types may require particular strategies for reducing risk behaviors. Support: This research was supported by a grant from the National Institute on Drug Abuse (R01 DA015631).
- 411** **PRENATAL COCAINE EXPOSURE, CHILDHOOD MALTREATMENT, AND ADOLESCENT MARIJUANA USE**
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Aims: Aims were to assess the relation of prenatal cocaine exposure (PCE) to childhood maltreatment (CM) and determine the contribution of PCE and CM to substance use and age of onsets among 172 adolescents in a longitudinal study. Methods: Cocaine, alcohol, marijuana, and tobacco exposures were assessed prenatally; CM and substance use were reported at age 15. First trimester PCE was used dichotomously (none/any), as was adolescent substance use. The Childhood Trauma Questionnaire (CTQ) assessed CM. CTQ subscales were dichotomized (no/yes CM); a variable was created for number of maltreatment exposures (0-4). The relation of PCE to CM was examined with multiple regression. Covariates were demographics, prenatal substance exposures, current maternal psychosocial and substance use. Predictors of onset ages were evaluated using proportional hazards; predictors of adolescent substance use were defined by logistic regression. Covariates for the hazards and logistic models were demographics, home, child depression, and prenatal exposures. Results: The average age was 15.6 years (14.7-18.4); 51% were African-American; 50% were female; mean monthly family income was \$2362(0-\$9000); 35% used alcohol, 20% used tobacco, and 21% used marijuana; 45% were exposed to cocaine in the 1st trimester; 23% were classified as maltreated. PCE ($p < .05$) and current life events significantly predicted CM. PCE (hazards ratio 1.96, 95% CI 1.01, 3.78), CM (hazards ratio 1.42; 95% CI 1.2, 1.9) and home environment predicted earlier age at marijuana use. PCE (OR 2.54; 95% CI 1.04, 6.25), CM (OR 1.81; 95% CI 1.11, 2.96), child depression, and home environment significantly predicted marijuana use. PCE was not related to alcohol or tobacco use. Conclusions: Marijuana is the most common illicit drug used by youth. Adolescents exposed to cocaine prenatally are at higher risk of child maltreatment and marijuana use. Pathways for these relations include a sub-optimal home environment. Support: NIDA DA008916; NIDA DA008916 -05A2s1; NIDA DA019482
- 412** **N-ACETYL-CYSTEINE FOR SMOKING REDUCTION: A PILOT STUDY**
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Aims: Preclinical and preliminary clinical studies suggest that N-Acetylcysteine (NAC) may be a potential treatment for cocaine as well as heroin dependence, suggesting that NAC may be a useful treatment in treating substance use disorders in general. The present study investigated NAC as a treatment for smoking reduction. Methods: Regular daily smokers (> 10 cig./day) interested in reducing their cigarette smoking were recruited. Thirty-one participants were randomized to receive either placebo or 1200mg of NAC twice daily for 4 weeks. Patients completed weekly visits. At each visit, craving, withdrawal, and carbon-monoxide (CO) levels were measured. In addition, participants completed smoking diaries in which they recorded daily tobacco cigarette use. Of the 31 who were randomized, 27 (13 female) completed at least one week of treatment and were included in the present analyses. Results: Craving, withdrawal ratings, and measured CO levels did not differ significantly over the course of the 4-week trial. Results for self-reported daily smoking tended to favor NAC, but were non-significant ($p = .14$). However, a number of participants drank alcohol throughout the course of the trial. When alcohol-use days were removed from the analysis, the Time x Group interaction was significant ($p = .001$), suggesting that those in the NAC group smoked less over time. Conclusions: These results suggest that NAC may reduce tobacco smoking, but that alcohol use may diminish this effect. Support: DA-015369

CPDD 2008 Annual Meeting, San Juan, Puerto Rico

- 413 CLINICIAN KNOWLEDGE OF COGNITIVE BEHAVIORAL THERAPY STRATEGIES: ROOM FOR IMPROVEMENT**
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Aims: To describe community-based clinician performance on a CBT knowledge questionnaire and factors associated with knowledge. Methods: Data are from a national study of 60 clinical teams at community-based agencies enrolled in a randomized trial of CBT training. Participants include 141 counselors and 61 supervisors who completed a web-administered questionnaire. Male respondents were 31.2%; 71.3% white; 82.0% of supervisors and 59.6% of counselors had masters degrees or higher ($p = 0.002$). An evidence-based practice (EBP) attitude scale score was the average of six responses. Clinicians answered 18 multiple-choice (MC) questions and 5 questions on case vignettes (CV) to assess knowledge. MC and CV were analyzed using ANOVA with supervisor/counselor, gender, race/ethnicity, education, and EBP attitude as predictors. Results: Supervisors had an average of 8.3 years and counselors 6.8 years of experience. Supervisors reported more favorable EBP attitudes: 4.03, counselors 3.81 ($p = 0.003$). Supervisors answered more MC questions correctly (11.23), counselors (9.55) ($p = 0.001$). EBP attitude was significantly associated with MC; a one point attitude increase resulted in a 1.51 increase in MC score ($p < 0.0001$). Supervisors answered more CV questions correctly (3.25), counselors (2.48) ($p = 0.016$), as did those with a masters degree or higher (3.01) vs those without a masters (2.10) ($p = 0.004$). A one point attitude increase resulted in 0.46 more correct CV questions ($p = 0.015$). The MC and CV variables were correlated ($\rho = 0.4$). Conclusions: In this sample of community-based clinicians seeking additional training on CBT there was substantial room for knowledge improvement. EBP attitude was a predictor of knowledge scores, and supervisors had both more favorable attitude and greater knowledge scores than counselors. Accessible, cost-effective methods to expose clinicians to additional CBT materials are warranted. Support: NIDA R01 DA016929
- 414 A COMPARISON OF SOCIAL NETWORKS AND INJECTION RISK BEHAVIORS AMONG INJECTION DRUG USERS IN ST. PETERSBURG, RUSSIA AND THE UKRAINE**
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Aims: HIV and HCV among injection drug users (IDUs) may be spread through contaminated injection equipment within drug using social network members. High rates of HIV and HCV have been reported in the former Soviet Union. Rates of HIV among IDUs have been reported at 30% in St. Petersburg and 34% in Ukraine. Few studies have examined patterns of injection risk behaviors in different geographic regions in the former Soviet Union. The goal of this study was to compare the relationship between social network factors and injection risk behaviors among these two groups of injectors. Methods: Street outreach and snowball sampling were used in both settings to recruit participants. Between December 2004 and January 2007 IDUs ($N=446$) were recruited in a network intervention study in St. Petersburg, Russia. Between March and July, 2006, 201 IDUs were recruited in Simferopol and Nikolayev, Ukraine for a pilot HIV prevention intervention. Results: In Ukraine 19% of the sample was female with a mean age of 32 years of age. Most (56%) were unemployed. Most (80%) of the participants reported frontloading or backloading, 50% reported use of a common container, and 14% needle sharing. In St. Petersburg, Russia, 33% of the participants were female and 54% were under 30. A similar majority 59% were unemployed. There were high levels of reported HIV risk behaviors. Sharing a cooker was reported by 76% of the participants and receptive needle sharing was reported by 17%, and 86% reported any sharing (needle, cookers, filters, backloading). Conclusions: These data suggests that in both geographic locations, injection drug users are at high risk for acquiring and transmitting HIV and HCV. Interventions are needed to target these risk behaviors. Support: This project was supported by NIDA: 1R01DA016142
- 415 DECONSTRUCTING 12-STEP INVOLVEMENT AS PREDICTOR OF SUSTAINED ABSTINENCE FROM POLYDRUG USE**
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Aims: Predictors of long-term abstinence remain underinvestigated. We documented the role of continuous 12step meeting attendance in sustaining abstinence from polydrug use for 3+ years. Involvement in 12-step activities (e.g., reading literature, helping others, peer contact) may be more predictive than is meeting attendance alone; further, because many substance users chose not to attend 12step meetings, there is a need to specify the elements of 12step involvement (INV) that underlie its benefits and may be helpful independently of meeting attendance or even of the 12-step context. We examine (1) the role of overall 12step involvement in predicting sustained abstinence independently of meeting attendance; (2) the individual role of each of 9 INV behaviors (3) gender differences in these processes. Methods: Former polydrug users ($N=285$, 44% women) drug abstinent from one month to >10 years at intake (BL) reinterviewed yearly for 3 years (F3 -83% retention). BL levels of overall INV and individual behaviors were entered as predictor in logistic regressions with abstinence sustained from BL to F3 (biologically corroborated) as outcome, controlling for BL abstinence length and number of 12step meetings past year. Results: 51.9% sustained continuous abstinence at F3. INV level predicted outcome (trend), and several individual activities increased the odds of abstinence by a factor >2 ($p<0.05$). Though not different from men in clinical history or INV at BL, women were more likely to sustain abstinence; INV and most individual behaviors significantly enhanced the odds of continuous abstinence among women but not among men; helping others, contacting and socializing with recovering peers increased odds of abstinence by >2.5. Conclusions: 12-step involvement promotes sustained abstinence independently of meeting attendance, especially for women. Key predictor activities (helping, socializing with peers) may translate outside of the 12-step context; their usefulness in promoting sustained abstinence for persons who do not attend meetings or embrace 12step tenets needs further investigation. Support: R01DA14409
- 416 HEALTH-RELATED QUALITY OF LIFE AFTER 12 MONTHS IN TREATMENT WITH METHADONE OR BUPRENORPHINE: OUTCOME AND PREDICTIVE FACTORS OF IMPROVEMENT**
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Aims: To study Quality of Life (QoL) outcome after 12-month and predictors of QoL improvement among opiate dependent subjects in methadone or buprenorphine treatment. Methods: Subjects were recruited prospectively from Addiction Treatment Clinics in Aquitaine, France. All opiate dependent patients admitted consecutively were offered to participate. Baseline and 12-month follow-up assessments included the Addition Severity Index (ASI) and Nottingham Health Profile (NHP) a measure of QoL. Baseline assessment also included HIV and HCV serostatus, Beck depression inventory (BDI), Beck anxiety inventory (BAI), Zuckerman Sensation Seeking Scale (SSS) and Eysenck Personality Inventory (EPI). Results: 115 subjects completed the study (50 buprenorphine, 65 methadone), 79% males, mean age 31.6 years, 25% HIV positive, 66% HCV positive. At 12-month follow-up, QoL improved from 39.8 ± 19.9 to 22.6 ± 19.1 ($p<10^{-4}$). All ASI scores decreased from baseline to 12-month follow-up ($p<0.05$). Among initial characteristics, only lower score in employment-support area (ASI), and less psychopathology (low BAI and low EPI) predicted a greater improvement in QoL. Improvement in QoL was related to a positive change in several ASI areas: physical health ($r=0.32$; $p<0.05$), family-relationships ($r=0.38$; $p<10^{-3}$) and psychological symptoms ($r=0.42$; $p<10^{-4}$). Treatment and reduced drug use were not predictors. A multiple stepwise regression model was performed with changes of ASI scores, initial psychological symptoms (BAI and BDI scores) and initial personality traits (EPI and SSS scores). Improvement in QoL was primarily predicted by improvement in physical health, family-relationships status, and in psychological symptoms, assessed by ASI. Conclusions: In this study of QoL change, treatment (methadone or buprenorphine) and reduced drug use were not predictors of QoL improvement. Support: MESR 1994, PHRC 2000, 2006. MILDT/INSERM 2004

CPDD 2008 Annual Meeting, San Juan, Puerto Rico

- 417** **PSYCHOSOCIAL CORRELATES OF SEX TRADE AMONG DRUG-ABUSING WOMEN BY RACE/ETHNICITY**
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Aims: Substance using women are at increased risk for sex trade, a known risk factor for HIV/AIDS. A variety of psychosocial influences are likely contributing to sex trade entry and these factors likely vary across race/ethnicity. The current study sought to examine SES factors (education, homelessness) and drug use (crack, speedball) as correlates of sex trade involvement among African American and white drug using women. Methods: Participants consisted of 266 women aged 15-50 enrolled in the International Neurobehavioral HIV Study. Approximately, 62% were African American and 36% of the women reported selling sex for drugs or money. Separate binary logistic regression models were run to obtain adjusted odds ratio estimates for the associations between sex trade involvement, drug use, education and homelessness for African American and white women, controlling for age of sexual debut. Results: Among AA women, those who used crack or speedball were approximately 3 times more likely to trade sex for drugs or money (OR = 3.12; 95% CI = 1.20; 8.11 and OR = 3.46; 95% CI = 1.57; 7.63), respectively. Homelessness was also related to sex trade among AA women (OR = 3.32; 95% CI = 1.19; 9.27). In contrast, neither lifetime crack or speedball use nor homelessness was a significant predictor of sex trade for white women. However, white women who did not graduate high school or obtain a GED were approximately 3 times more likely to be involved in sex trade than those who received a high school or equivalency diploma (OR = 2.99; 95% CI = 1.01; 8.87). Conclusions: Given that the majority of HIV cases among women are contributed to sex with an infected male, it is important to study the factors involved in sex trade. Current findings indicate the role of SES factors and drug use varies differently for African American and white women with regard to sex trade. It is important to account for these differences in the development of prevention and outreach programs with particular focus on school achievement and job skills training. Support: Research support provided by NIDA R01 DA14498
- 418** **ASSESSING PARANOIA IN METHAMPHETAMINE USERS: THE METHAMPHETAMINE EXPERIENCE QUESTIONNAIRE**
M.H. Leamon¹, K. Flower², R.E. Salo¹, T.E. Nordahl¹, H.R. Kranzler³ and G.P. Galloway², ¹University of California, Davis, and ²California Pacific Medical Center, San Francisco, CA, and ³University of Connecticut, Farmington, CT
Aims: The prevalence of paranoia in methamphetamine (MA) users is unknown. To investigate, we adapted the Cocaine Experience Questionnaire to create the Methamphetamine Experience Questionnaire (MEQ). We hypothesized that the MEQ would be a reliable and valid method of assessing MA-induced paranoia. Methods: We administered the MEQ to 228 MA-dependent subjects who were enrolled in a large ongoing study of MA use. Test-retest reliability was assessed in 26 subjects and inter-rater reliability was assessed in 30 subjects. Convergent and discriminant validity were assessed with the paranoid ideation and depression subscales, respectively, of the Brief Symptom Inventory (BSI), which was administered to 193 of the subjects. Results: 131 (57%) of the subjects reported at least one paranoid experience while under the influence of MA and, of those, most had multiple episodes of paranoia, concomitant hallucinations, and found the episodes to be more than moderately distressing. 51 (39%) of the 131 subjects who reported paranoia also reported acquiring a weapon during a paranoid episode and 17 (13%) reported using a weapon while paranoid. MA-induced paranoia was reported by a greater proportion of men (90/146, 62%) than women (41/82, 50%), but this difference did not reach statistical significance ($\chi^2 = 2.91$, $p = 0.09$). Test-retest and inter-rater reliability for MA-induced paranoia showed substantial agreement (kappa 0.77, $p < 0.05$ and kappa 0.80, $p < 0.05$, respectively). There was a moderate correlation between paranoia on the MEQ and the BSI paranoid ideation scale ($\rho = 0.27$, $p < 0.05$). As expected, there was a poor correlation between paranoia on the MEQ and the BSI depression scale ($\rho = 0.12$, $p = 0.11$). Conclusions: The MEQ provides important data on paranoia associated with MA use. The MEQ showed good test-retest and inter-rater reliability and moderate evidence of convergent and discriminant validity. Support: DA10641, DA24359
- 419** **MARIJUANA ABUSE IN INCARCERATED ADOLESCENTS**
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Aims: The current study was designed to extend basic knowledge of reasons for marijuana(mj)use, establish factors related to use, and examine if relaxation therapy is effective in reducing mj use. It is hypothesized that, upon entrance to a juvenile training facility, teens who abuse mj will report a related set of background variables (e.g.,family history) that differs from teens who do not have a mj abuse diagnosis and will find relaxation therapy more effective than motivation intervention for reducing mj use 3 months after release. Additionally, teens with negative affect (NA; high expectancies mj to help one relax and reduce tension, and a low confidence score for not smoking in situations where negative feelings will be alleviated) will have elevated mj use compared to those with positive affect (high expectancy for mj to make parties more fun and make one more social, and a low confidence for not smoking in celebratory situations). Methods: Participants were 189 incarcerated teens age 14-19 (M=17 years). Participants adjudicated between January 2001 and September 2005 were included if they reported mj use prior to their incarceration. Of the 189 participants, 86% were boys, 32.8% White, 29.1% Hispanic/Latino, 28% African American, and 10.1% other. Analyses included computing a variable from items from the Brief Situational Confidence Questionnaire-M (BSCQ-M) to form a negative affect (NA) and a positive affect (PA) variable. Results: Results indicated that incarcerated teens who were in the NA group report higher averages of weekly mj use and a higher number of days using mj at 3-month follow-up than did those who were not in the NA group. While those in the PA group reported no difference in the average amount smoked per week in the past 3 months. Additionally, gender differences were found with females reporting a more significant family history of drug use and were more likely to report that they perceive that mj has bad effects on a person. Conclusions: Further research is needed to examine reasons for mj use among incarcerated teens to inform and streamline treatment needs. Support: NIDA grant #13375
- 420** **THE VALIDITY OF MEASURES FOR MONITORING COCAINE USE IN OUTPATIENT CLINICAL TRIALS**
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Aims: The gold standard for monitoring cocaine use in outpatient clinical trials is urinalysis of benzoylecgonine levels. Many limitations of this biological marker exist including short half-life which requires frequent sampling often resulting in missing data. Therefore, retrospective self-reports are commonly used to supplement urinalysis results. However, under-reporting limits the validity of self-report. Therefore, a validity study was conducted on 129 participant urinalysis and self-reported cocaine use as part of two outpatient treatment studies for cocaine dependence. Methods: A benzoylecgonine level of 300ng/ml or higher constituted a positive urinalysis result and a self-report of cocaine use within 72 hours of the urinalysis qualified as positive self-report. Statistical tests of validity included the computation of sensitivity and specificity using urinalysis as the standard. Further, demographic characteristics were compared for participants who self-reported use versus participants who self-reported no-use for the subset of participants (n=97) with positive urinalysis. Results: Validity results indicated both high sensitivity (83.51%) and specificity (90.63%). Given that previous studies have found sensitivity ranging from 28% to 78%, our treatment studies indicate high validity of self-report when compared to urinalysis. Furthermore, comparisons of urinalysis positive participants who self-reported use versus those who self-reported no-use demonstrated no differences in age, race, or gender. However, participants with a self-report of no-use reported fewer days of past month cocaine intake than those who self-reported use, ($p = .0255$). Conclusions: Future analysis will focus on further differentiating self-reports of participants with positive urinalysis in order to identify subgroups of participants who may inaccurately self-report their cocaine use. Support: This research is supported by NIDA 1 R01 DA016368-01A1 and NIDA 1 R01 DA019903-01.

421 PRIZE REINFORCEMENT FOR SMOKING CESSATION IN METHADONE PATIENTS: PRELIMINARY ANALYSIS

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Aims: Smoking-related illnesses are among the leading causes of preventable death in the U.S. Substance abusers smoke at high rates compared to the general population, so they are at very high risk for disease burden. This ongoing study examines the use of prize-based contingency management (CM) for smoking cessation in methadone-maintained, opioid-dependent patients who smoke cigarettes daily. Methods: Thus far, five participants (two men and three women) motivated to quit smoking have completed this A-B-A design, consisting of a one-week initial baseline phase, four-week CM treatment, and a two-week return to baseline. Participants earn the opportunity to win prizes by pulling slips of paper from a prize urn if they are able to quit smoking cigarettes, based on carbon monoxide levels < 8 ppm and lowered cotinine levels. Results: Average carbon monoxide levels were 19.6 (+1.5), 15.9 (+4.3), 11.2 (+4.9) and 11.2 (+3.4) ppm at intake, initial baseline, treatment phase and return to baseline, respectively, $F(3,12) = 10.5$, $p < .001$. Average self-reported number of cigarettes smoked daily also decreased, from 11.2 (+3.5) in the month prior to participation, to 6.7 (+3.0) during baseline, 2.6 (+1.4) during the CM phase and 3.4 (+1.4) during the second baseline, $F(3,12) = 24.5$, $p < .01$. Urinary cotinine levels also decreased during the CM phase. Conclusions: These preliminary data suggests that prize-CM may reduce cigarette smoking in methadone-maintained, opioid-dependent patients who want to quit. Support: Supported by Joe Young Sr. funds from the State of Michigan and NIDA grant 1R21DA021839-01A1.

422 THE ACUTE SUBJECTIVE EFFECTS OF BENZYLPIPERAZINE IN HEALTHY FEMALES

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Aims: BZP is a stimulant drug that causes amphetamine-like subjective and physiological effects in humans. The acute effects of BZP in humans have not been well characterised in the clinical setting. This double-blind, placebo-controlled study reports the acute subjective effects of BZP in healthy females. Methods: Participants (age: 22 ± 3 years, $n=27$) were given either placebo or a single oral dose of BZP (3.3mg/kg) and tested before and 2.5hr after drug administration. Subjective and mood effects were evaluated using the Profile of Mood States (POMS), Visual Analog Scales (VAS) and the Addiction Research Centre Inventory (ARCI). Blood pressure, body temperature and resting heart rate were measured at both time points. Data was analysed using repeated measures analysis of variance (ANOVA) to evaluate changes. Results were considered significant if $P < 0.05$. Results: BZP significantly increased systolic (Pre: 118 ± 12 , Post: 130 ± 11 mmHg) and diastolic (Pre: 72 ± 7 , Post: 80 ± 8 mmHg) blood pressure and heart rate (Pre: 71 ± 12 , Post: 86 ± 18 beats/min) but decreased the body temperature (Pre: 37 ± 0.3 , Post: $36.6 \pm 0.5^\circ\text{C}$) relative to placebo. VAS demonstrated that BZP significantly increased ratings of Stimulated, High, Self-Confident, and Anxiety scales. Significant effects were also observed in the categories of Drug effect i.e. Good Drug Effect, Drug Liking, Hungry and Talkative. BZP significantly increased scores of euphoria (Morphine-Benzedrine Group) and dysphoria (Lysergic Acid Diethylamide) in the ARCI scales. Furthermore the POMS also demonstrated that BZP significantly decreased Fatigue and increased Vigor. Conclusions: The present study examined the subjective effects of BZP on humans utilizing VAS, POMS and ARCI. Our results suggest that BZP displays many characteristics typical of other psychostimulants such as MDMA and related amphetamines because it produced easily measurable cardiovascular effects in addition to well characterised subjective effects and demonstrating its potential for abuse. Support: Trecia Wouldes

423 METHYLPHENIDATE SELF-ADMINISTRATION IN HIGH- AND LOW-IMPULSIVE SENSATION SEEKERS USING A PROGRESSIVE-RATIO PROCEDURE

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Aims: Previous studies have demonstrated that methylphenidate is self-administered in both human and non-human models. This ongoing study examines methylphenidate self-administration among high- and low-impulsive sensation-seekers using a modified progressive-ratio procedure. It is hypothesized that the reinforcing effects of methylphenidate will be greater in high- than in low-impulsive sensation seekers, as evidenced by higher break points on a progressive ratio task. Methods: Ten of twenty healthy, non-stimulant abusing volunteers scoring in the top and bottom quartiles of gender-adjusted population norms on the impulsive-sensation seeking scale of the Zuckerman-Kuhlman Personality Questionnaire (5 high- and 5 low-impulsive sensation seekers) have completed the 8-session study consisting of four 2-session test blocks. During the first session of each test block, subjects receive 8 capsules, each containing 1/8th of a test dose. During the second session, subjects are permitted to earn up to 8 test capsules by completing progressively increasing response requirements. Verbal reports of drug effect, task performance and cardiovascular measures are assessed before and at 1-hour intervals for 3 hours after capsule administration. Test doses (0, 16, 32 mg) are presented under randomized, double-blind conditions. Results: Preliminary analyses indicate that breakpoints on the progressive ratio task increase as a function of dose. Significant stimulant-like effects are apparent on cardiovascular measures of heart rate and diastolic blood pressure and VAS measures including "stimulated" and "feel drug." Conclusions: The progressive ratio task data suggest that methylphenidate functions as a reinforcer. The effects of sensation-seeking status on methylphenidate self-administration, and other behavioral effects of the drug, as determined using mixed-model repeated-measure ANOVA, will be presented. Support: Supported by DA-05312 and RR-15592.

424 RANDOMIZED PLACEBO-CONTROLLED TRIAL OF MODAFINIL FOR METHAMPHETAMINE WITHDRAWAL: RESULTS OF AN AUSTRALIAN PILOT STUDY

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Aims: A recent review by Lee & Rawson (in press) has identified non-pharmacological treatments that are effective in treating methamphetamine users but pharmacotherapy is limited, with no identified medication for withdrawal or maintenance. Modafinil has shown promise for methamphetamine dependence. Modafinil is thought to address some of the typical methamphetamine withdrawal symptoms such as low mood, decreased energy, poor concentration. It may also assist to reduce craving. It appears to be well tolerated with few side effects and, unlike some other potential medications such as dexamphetamine, seems to have low abuse potential. A double-blinded placebo controlled pilot was undertaken to examine the effects of modafinil on withdrawal from methamphetamine. Methods: Participants were admitted to an inpatient withdrawal unit for 10 days and randomly assigned to receive either modafinil or placebo for 7 days (200mg mane tapering to 100mg on day 6). Withdrawal, psychological and physiological measures were taken. Results: Those receiving modafinil stayed in treatment longer, but there were no differences between modafinil and placebo on subjective withdrawal, psychological or physiological measures. There were however neurocognitive improvements in the modafinil group. There were improvements in the modafinil group at 1 month follow-up. The modafinil group was older, less frequent users and less dependent, and had less psychological symptomatology at baseline. Conclusions: This small pilot trial indicated no benefit of modafinil in reducing symptoms of withdrawal from methamphetamine. However, the medication was well tolerated with no adverse events. It is unclear whether a full trial is warranted but future directions should include a maintenance trial to examine benefit for relapse prevention post-withdrawal. There may also be differences in response between heavy and moderate users which should be investigated further. Support: Australian Government Department of Health and Ageing

425 VOLUMETRIC ANALYSIS OF THE STRIATUM IN METHAMPHETAMINE ABUSERS IN EARLY ABSTINENCE

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Aims: Methamphetamine (MA) abuse has been associated with abnormalities in the striatum. This has treatment implications, as the striatum helps mediate psychomotor and motivational effects of MA. We have shown that ventral striatum exhibits abnormally high glucose metabolism in early abstinence from MA (4-7 days), a crucial time for treatment retention. To extend this work, we compared volumes of striatal regions in early-abstinent MA abusers and control subjects. **Methods:** Thirty MA abusers (33.4±9.6 yr; 17 men) and 37 control subjects (32.5±8.4 yr; 21 men) took part. The MA abusers were inpatients while maintaining abstinence from MA and other illicit drugs. Whole brain MRI was acquired at 1.5T. Volumes of striatal subregions were measured using FIRST, a model-based subcortical segmentation tool. Subregion volumes were normalized to whole brain volume. Group comparisons of gray-matter volumes were performed using the voxel-based morphometric toolbox (VBM5) for SPM5. **Results:** Multivariate analyses of relative volumes of striatal subregions (MANOVA) showed a significant group difference ($p=0.016$), and subsequent analyses of individual regions indicated that the right caudate of MA abusers was smaller than that of control subjects ($p<0.001$). Moreover, VBM analysis indicated significantly smaller gray-matter volume in the caudate, especially in the caudate head. **Conclusions:** The results suggest that MA abusers in early abstinence have reduced caudate volumes, and VBM suggests that this effect reflects decreased gray matter in the caudate head. Taken together with previous reports of enlarged caudate in MA abusers abstinent for >30 days, the findings suggest that compensatory mechanisms lead to an apparent hypertrophy of the caudate after the first week of abstinence. **Support:** DA15179, DA022539, DA020726, and RR00865

426 PRIMARY CARE BUPRENORPHINE TREATMENT AMONG PERSONS RELEASED FROM JAIL

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Aims: The effectiveness of buprenorphine (bup) maintenance in primary care among persons released from jail is unknown. **Objective:** To compare rates of treatment retention and opioid use between patients (a) either induced to bup in-jail or immediately post-release vs. (b) those referred from the community. **Methods:** Patients were opioid dependent adults seeking buprenorphine/naloxone (Suboxone) treatment. All patients received bup treatment in a public hospital medical clinic from 8/2006-10/2007. Follow-up visits with urine toxicology occurred at 7 days following a first visit and thereafter at varying intervals. One, 12, and 24 week treatment retention was defined as a visit or active prescription at or after these intervals. **Results:** N=102 patients were new to primary care bup: n=32 post-release (n=22 in-jail-induced, n=10 post-release-induced); n=70 induced from community with no recent incarceration. N=102 patients were eligible for week 1 retention (initial visit >1 wk prior to analysis); N=76, week 12; N=44, week 24. Mean age 42yo; 86% male; 23% black; 46% Hispanic; 40% white; 24% uninsured. Post-release patients were more likely male, black, Hispanic, and uninsured. Treatment retention rates for post-release vs. community patients were not different at week 1 (N=102; 84% v 76%, $p=0.4$, Fisher's exact), week 12 (71% v 63%, $p=0.6$), and week 24 (67% v 46%, $p=0.3$). Rates of opioid positive urines at week 1 (46% v 53%, $p=0.2$), week 12 (43% v 39%, $p=0.2$), week 24 (46% v 43%, $p=0.2$) were similar. **Conclusions:** There were no differences in bup treatment retention and opioid abstinence rates between post-release vs. community-recruited bup patients. Both pre- and post-release bup induction appear feasible approaches to bup expansion at reentry. **Support:** NYCDOHMH, NIDA R21DA020583

427 COLLECTING DAILY SELF-REPORTS OF INJECTION DRUG USE VIA AUTOMATED TELEPHONE INTERVIEWING

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Aims: Measurement of drug use in injection drug users (IDUs) is crucial but difficult to address with retrospective interviews. One promising measurement strategy is the use of daily reports, which are assumed to be more accurate than retrospective interviews covering longer time periods. In this project, IDUs complete daily interviews about their drug use and injection risk behavior using automated telephone interviewing (Interactive Voice Response [IVR]). **Aims** are to assess the feasibility of collecting daily reports from IDUs using IVR; compare measures of injection drug use constructed from daily reports to retrospective interviews; describe IDUs' patterns of injection over time; and examine episode-level correlates of drug use and injection risk behavior. **Methods:** Out-of-treatment IDUs are recruited from among participants in an earlier cohort study of incident hepatitis C virus infection, supplemented with personal referrals of other IDUs by study participants. Participants are provided with cellular phones and trained in the use of the IVR system. For two weeks, they make a daily telephone call to complete an interview about their drug use and other behaviors, and then complete a retrospective interview about their activities during the reporting period. **Results:** To date 23 participants have been enrolled, all of whom completed the procedures and returned the phones. The number of completed daily interviews (out of 14 possible) ranged from 10 to 14, with a mean of 13; 36% of participants completed all interviews. Of 283 person-days with a completed interview, drug injection occurred on 53% of days (66% heroin, 25% methamphetamine, 7% cocaine). Participants expressed very positive attitudes about the study. **Conclusions:** Although daily reports do not yield perfect measures of behavior, they are not subject to some of the errors inherent in retrospective reports. If the use of daily IVR is feasible with this population, future studies can use a cost-effective means of measuring injection drug use and risk in IDUs. **Support:** Supported by R21DA021092 (NIDA)

428 PHYSICIAN CONTINUITY AND TREATMENT OUTCOME IN AN ADOLESCENT SMOKING CESSATION STUDY

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Aims: In general, health care provider continuity, i.e., the consistency of providers throughout treatment, is associated with greater patient trust and adherence to medical recommendations. We investigated physician continuity as a predictor of both abstinence and retention in an ongoing, placebo controlled, double blind, randomized clinical trial of bupropion SR, with and without contingency management for adolescent smoking cessation. **Methods:** To date, 64 adolescents (average age 18.8 years; 55% male) have completed the 15 visit study (9 of these 15 visits were physician led). Physician continuity was defined as having been seen by the treatment initiating physician for at least 75% of all remaining physician-led follow-up visits. There were no substantive differences in age, gender, or receipt of contingency management between those who met criteria for continuity (n=31) vs. those who did not (n=33). Continuity as a function of bupropion SR was not assessed at this time because the study is not unblinded. **Results:** Our results show that those who received continuity of care completed more follow-up visits (median=14) than did those who did not (median=10; $p=0.04$). Thirty-five percent of those who received continuity of care completed all 15 follow-up visits, vs. only 15% of those who did not ($p=0.09$, Fisher's exact test). Of those who received continuity of care, 45% were abstinent (14 day point prevalence abstinence at 2 week follow-up with 2 slips), compared to 33 % of those who did not ($p=0.54$). **Conclusions:** These preliminary results indicate that continuity of physician provider within smoking cessation clinical trials is associated with retention, with a trend toward improvements in abstinence. These results have implications for substance abuse research methodology. Clinical trials should not ignore the importance of continuity of clinical care. **Support:** Study sponsored by NIDA (R01 DA 17460) and the GCRC (M01 RR 01070) at MUSC.

CPDD 2008 Annual Meeting, San Juan, Puerto Rico

429 A WEB-BASED CONTINGENCY MANAGEMENT PROGRAM WITH ADOLESCENT SMOKERS

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Aims: Adolescence represents a uniquely challenging but important life period for smoking cessation efforts. A new web-based contingency management program (CM) for abstinence from cigarette smoking (Dallery et al., 2007) may be particularly useful as a behavioral treatment for adolescent smokers. The program can be completed from home utilizing an Internet server and video recordings of breath carbon monoxide (CO) analyses, providing objective evidence of smoking status. **Methods:** Participants provide breath CO samples three times a day and can earn money for criterion reductions in breath CO during an initial shaping condition and for continued abstinence (CO < 5 ppm) throughout the program. Breath CO must be verified frequently due to its short elimination half life (approximately 3-6 hours). The CM program also includes a reset condition for missed or non-criterion CO samples. Using a reversal design, four adolescent daily smokers between the ages of 14 and 17 (2 females) completed a 30 day version of the CM program. **Results:** Participants were highly compliant with the treatment plan (submitting 97.2 % of samples), and all four participants achieved prolonged periods of abstinence during treatment. As a second step to this research, we also collected data from two additional participants (2 males ages 14 and 16) on a longer CM program (42 days) because of evidence that longer programs may be more effective than shorter programs for abstinence from drug use (Petry, 2000). Compliance for this 42 day program was similar to that of the 30 day program. One of the two participants achieved and maintained abstinence from smoking throughout the majority of the program, while the other reduced cigarette smoking but did not completely abstain from smoking. **Conclusions:** These findings indicate this Internet-based CM program should be feasible for use with adolescent smokers. As an Internet-based program this approach may circumvent many of the logistical barriers in applying CM treatments to younger smokers. **Support:** None

430 COMORBIDITY BETWEEN MOOD AND SUBSTANCE DEPENDENCE DISORDERS; BEHAVIORAL PHENOTYPING IN LABORATORY RATS

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Aims: These experiments were designed to test the "self-medication" hypothesis of substance dependence, which predicts a shared vulnerability to the development of anhedonia and to drug seeking behavior. **Methods:** Sprague-Dawley male rats (n=96 cocaine study; n=82 oxycodone study) were initially tested on the forced-swim test, a validated model of behavioral despair. Then, rats underwent tests of locomotion activity following vehicle and cocaine (15 mg/kg IP) or oxycodone (0.25 mg/kg SC) injections. The hot-plate test was used to assess analgesic threshold. Finally, rats were implanted with intravenous catheters and tested for operant responding to: 1) a novel audio-visual cue; 2) the same cue after its association to intravenous infusions of cocaine (150 infusions, 0.05 mg/kg/inf) or oxycodone (500 infusions, 0.1 mg/kg/infusion); and 3) the same cue after priming injections of cocaine (15 mg/kg IP) or oxycodone (0.25 mg/kg SC), and foot-shock stress. Low and high drug seekers were identified by median splits on responses emitted on the first test of operant behavior 7 days after drug-cue conditioning. **Results:** High drug seekers displayed lower levels of active escape behaviors in the forced-swim test (i.e., despair-like behavior; p<0.001), as well as higher levels of responding precipitated by drug primes and by stress (p<0.001), and higher level of responding for novel stimulation (p<0.001). Levels of drug seeking were not predictive of: exploratory behavior, sensitivity to the stimulatory action of cocaine or oxycodone, or analgesic threshold. **Conclusions:** These results suggest that particular subgroups of out-bred laboratory rats are predisposed to both drug-seeking behavior and behavioral despair. Characterization of specific neurobiological profiles of these animals will help identify pharmacological targets to manage substance abuse and relapse in individuals suffering from comorbid mood disorders. **Support:** Candian Institutes of Health Research

431 EFFECTS OF A DIFFERENTIAL-REINFORCEMENT-OF-ALTERNATIVE-BEHAVIOR SCHEDULE OF ALTERNATIVE NONDRUG REINFORCEMENT ON COCAINE SELF-ADMINISTRATION IN RATS

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Aims: We previously demonstrated that nicotine self-administration (NSA) in rats can be significantly attenuated by a differential-reinforcement-of-alternative-behavior (DRA) schedule of alternative nondrug reinforcement, suggesting that DRA schedules could serve as a useful model of the abstinence contingencies in contingency management (CM) interventions for drug abuse. The current study examined the efficacy of this schedule in decreasing cocaine self-administration (CSA). **Methods:** Rats were trained to self-administer cocaine (0.3 mg/kg/inf) under a fixed-ratio (FR) 3 schedule of drug delivery. After stable CSA was obtained, a conjoint DRA schedule of sucrose delivery was implemented. Under this schedule, cocaine continued to be available under the FR schedule while a sucrose pellet was made available contingent upon every pause in self-administration responding (DRA interval) of 10, 20, or 40 sec. Pellet availability was signaled by a tone, at which point a pellet was delivered if the sucrose lever was pressed. **Results:** The DRA schedule had little or no effect on the overall number of cocaine infusions earned per session. However, the latency to the first infusion was increased by the DRA 10 and 20 sec schedules. Within-session analysis indicated that sucrose-maintained responding dominated early in the session, followed by a distinct shift to CSA for the remainder of the session. Once CSA began, little or no sucrose-maintained behavior occurred, even if sucrose became available when abstinence criteria were met. **Conclusions:** Despite the relatively low unit cocaine dose used in the present study, these findings suggest that CSA is much more resistant to a DRA schedule of alternative nondrug reinforcement compared to NSA. DRA schedules of alternative reinforcement may be useful for examining factors that may mediate the relative efficacy of CM interventions on abuse of different drugs. **Support:** Supported by NIDA Grant R01-DA020136 (M.G. LeSage, PI)

432 DRUG USE, SEX, AND WOMEN'S RISKY RELATIONSHIPS

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Aims: HIV risk is a public health concern, particularly for drug abusing women. Although gender-specific HIV interventions target risky drug use and sex, they do not focus on partner relationships. The Restructuring Risky Relationships for HIV intervention was developed to reduce risky drug use and sex among women re-entering their community from prison. The intervention is grounded in the women's relational model and targets changing Thinking Myths about behaviors in relationships. The intervention is being evaluated in a multi-site trial across 4 participating NIDA supported CJ-DATS research centers. **Methods:** Sexual relationships were examined using the Sexual Relationship Power Scale (SRPS) (Pulerwitz et al., 2000). Baseline data were compared for high and low sexual relationship power groups on risky drug use and sexual behaviors. **Results:** When the initial 222 women were examined, the median age was 35; 69% had a high school degree or GED; and 46% were never married. Self-reported drug use before incarceration was 90% for marijuana; 78% for cocaine; 78% for crack; 54% for Librium and 43% for methamphetamine. Findings indicate that participants with high sexual relationship power measured by the SRPS were 53% less likely than women with low relationship power in the 30 days before incarceration to engage in daily opiate use (95% CI: 0.22, 0.99); 61% less likely to engage in anal sex without a condom (95% CI: 0.15, 0.95); and 53% less likely to engage in sex without a condom with someone using methamphetamine (95% CI: 0.24, 0.91). Women who indicated that they did not make healthy choices about HIV when using drugs were also significantly more likely to have unprotected sex with a stimulant user. **Conclusions:** Findings suggest there is a strong association of power in relationships with risky drug use and sex. In addition, women with greater power in relationships were less likely to engage in risky drug use and sex. Future research should focus on understanding women's risky relationships and empowerment. **Support:** NIDA 5U01DA016205

433 SUBLIMINAL PROCESSING OF SMOKING AND AFFECTIVE STIMULI IN TOBACCO DEPENDENCE

A.M. Leventhal¹, A.J. Waters², B.G. Breitmeyer³, E.K. Miller⁴, E. Tapia³ and Y. Li⁴, ¹Center for Alcohol and Addiction Studies, Brown U., Providence, RI, ²Medical and Clinical Psychology, Uniformed Services U. of the Health Sciences, Bethesda, MD, ³Psychology, U. of Houston, and ⁴The University of Aims: Cognitive processing biases toward smoking and affective cues may play a role in tobacco dependence. Because processing biases may occur outside conscious awareness, the current study examined processing of smoking and affective stimuli presented at subliminal conditions. Methods: A pictorial subliminal repetition priming task was administered to three groups: (1) Nonsmokers (n=56); (2) Smokers (> 9 cig/day) who had been deprived from smoking for 12-hr (n=66); and (3) Non-deprived smokers (n=47). Prime stimuli were presented briefly (17 msec) and were followed by a mask (to render them unavailable to conscious awareness) and then a target. Participants were required to make a speeded classification to the target. A post-task awareness check was administered to ensure that participants could not consciously perceive the briefly-presented primes (i.e., smoking paraphernalia, neutral office supplies, and happy, angry, and neutral facial expressions). Results: The groups differed in the degree to which they exhibited a processing bias for smoking stimuli, $F(2, 166) = 4.99$, $p = .008$. Deprived smokers exhibited a bias toward processing smoking (vs. neutral) stimuli, $F(1, 46) = 5.67$, $p = .02$, whereas non-deprived smokers and nonsmokers did not ($ps > .22$). The three groups did not differ in the degree to which they exhibited a subliminal processing bias for affective stimuli. Conclusions: Nicotine deprivation appears to increase smokers' subliminal processing of smoking (vs. neutral) stimuli but did not influence subliminal processing of affective stimuli. Future research should investigate whether pre-conscious biases towards smoking-related information influence relapse. Support: This project was funded by a National Cancer Institute pre-doctoral fellowship awarded to Adam M. Leventhal (R25 CA 57730-11; PI-Robert Chamberlain).

434 GENETIC VARIATIONS AFFECTING SUSCEPTIBILITY TO DEVELOP HEROIN ADDICTION

O. Levran¹, D. Londono², K. O'Hara¹, D.A. Nielsen¹, E. Peles³, J. Rotrosen^{4,5}, P. Casadonte^{4,5}, S. Linzy⁶, M. Randesi¹, J. Ott², M. Adelson^{6,3}, M. Kreek¹, ¹Biol. of Addictive Dis., and ²Stat. Gen. Labs, Rockefeller U., ⁴VA NY Harbor Healthcare System, and ⁵Sch. Med., NYU, NY, NY, ^{3,6}Adelson Clinic, Sourasky Aims: This study was designed to identify genetic variants that are associated with susceptibility to develop heroin addiction. Methods: One thousands three hundred and fifty two variants, from 130 candidate genes, were genotyped in 412 cases and 184 controls. All subjects were Caucasians. The cases were former severe heroin addicts treated at a methadone maintenance treatment program. The controls had no history of alcohol or illicit drug use. Genotyping was performed on a 1,536-plex GoldenGate Custom Panel (GS0007064-OPA, Illumina). One hundred eighty four ancestry informative markers (AIMs) were employed to test for population stratification. Results: Ten variants in seven genes showed strong association with heroin addiction ($p < 0.009$; p values were not significant after correction for multiple testing). These variants were in non-coding regions of the genes encoding; the opioid receptors mu, delta and kappa, galanin, the serotonin receptor 3B, cytochrome P450 2E1 and the casein kinase 1 epsilon. Several haplotypes and multi locus genotype patterns, constructed from these SNPs, showed significant association with heroin addiction (permuted $p < 0.05$). An OPRM1 risk haplotype, that is independent of the variant 118A>G, was identified. A combined effect was found with variants from OPRM1 and OPRD1 (permuted $p = 0.0005$). Conclusions: This study adds to the list of susceptibility genes and variants for heroin addiction and yet again identifies the involvement of the endogenous opioid system. It may provide therapeutic targets and predictors for prevention. Support: This work was supported in part by NIDA-P60-05130 (MJK), NIDA-K05-00049 (MJK), CSTA UL1-RR024143 (BC), and NIMH-R01-44292 (JO).

435 ARE COCAINE-DEPENDENT PATIENTS LESS ABLE TO PREDICT ERRORS—AN fMRI STUDY OF THE STOP SIGNAL TASK?

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Aims: We demonstrated previously that greater activation of the "default" brain regions precede errors in a stop signal task (SST, Li et al., 2007, NeuroImage). Here in an fMRI study we investigated whether this error-predicting ability is altered in abstinent patients with cocaine dependence (PCD). Specifically, since this error predicting ability reflects moment-to-moment fluctuation in brain activity, we addressed whether regional blood oxygen level dependent (BOLD) activation is altered in PCD, when minimal mental effort is involved. Methods: We employed a tracking procedure in the SST to elicit errors approximately half of the time despite constant behavioral adjustment of the observers (23 PCD and 27 healthy control or HC subjects). BOLD signals of the events of interest were extracted with generalized linear models using Statistical Parametric Mapping. PCD and HC were compared both with whole brain and region of interest (ROI) analyses. Results: By comparing go trials preceding a stop error (SE) and those preceding a stop success (SS), we showed in HC that the activation of bilateral precuneus and posterior cingulate cortices and perigenual anterior cingulate cortex precedes errors during the SST. Receiver operating characteristic (ROC) analysis based on the signal detection theory showed that these activities predict errors with an accuracy between 0.75 and 0.80 (area under the ROC curve). In contrast, PCD did not show activation in these or other brain regions when SE- and SS- preceding go trials were compared, even at a lower statistical threshold. Conclusions: Broadly supporting the hypothesis that "deactivation" of the default mode circuitry is associated with mental effort in a cognitive task, the current results further indicated that greater activity of these brain regions can precede performance errors. Importantly, the failure of PCD patients in engaging these structures in differentiating SS and SE indicates a fundamental impairment in brain function that extends beyond the control of "will." Support: 1R03DA022395-01A1

436 INTERACTIONS BETWEEN DIRECT- AND INDIRECT-ACTING 5-HT₂ RECEPTOR AGONISTS AND THE DISCRIMINATIVE STIMULUS EFFECTS OF MORPHINE IN RHESUS MONKEYS: PERCEPTUAL MASKING?

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Aims: Although perceptual masking in drug discrimination has been reported, the extent to which it occurs across drug classes and procedures is not known. Methods: In this study, several 5-HT receptor ligands were compared for their effects in rhesus monkeys discriminating morphine (1.78 mg/kg) from saline while responding under a fixed ratio 5 schedule of stimulus shock termination. Daily sessions comprised 2-8 15-min cycles in which a cumulative dosing procedure was used to determine morphine dose-effect curves after an acute injection of 2, 5-dimethoxy-4-methylamphetamine (DOM; 0.1-0.32 mg/kg), quipazine (1.0-3.2 mg/kg), fenfluramine (1.0-3.2 mg/kg), fluoxetine (1.0-10 mg/kg), or the opioid receptor antagonist naltrexone (0.001-0.01 mg/kg). Results: All of the test drugs occasioned saline-lever responding when administered alone; however, all of the drugs also shifted the morphine discrimination dose-response curve significantly to the right. While for naltrexone the antagonism was dose-related and highly consistent across monkeys, for other compounds the antagonism of morphine was less dose related and was more variable among monkeys. Conclusions: There is no evidence that DOM, quipazine, fenfluramine, or fluoxetine have antagonist effects at μ ; opioid receptors, suggesting that each of these 5-HT drugs alters the discriminative stimulus of morphine by a mechanism other than pharmacodynamic antagonism. One possible interpretation for these drug-drug interactions is perceptual masking whereby the stimulus effects of 5-HT drugs interfere with detection of the morphine stimulus. Support: Supported by DA05018 and a Senior Scientist Award (DA 17918) to CPF.

437 DETECTION OF SIGNIFICANT ASSOCIATION OF ANKK1 AND OF A FUNCTIONAL POLYMORPHISM WITH NICOTINE DEPENDENCE IN AFRICAN AMERICAN POPULATION

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Aims: The dopaminergic system in the brain plays a critical role in nicotine addiction. Genetic variants in the dopaminergic system including dopamine receptors represent plausible candidates for genetic study on nicotine dependence (ND). In this study, we investigated various polymorphisms in dopamine D2 receptor gene (DRD2) and its neighboring ankyrin repeats and kinase domain containing 1 gene (ANKK1) to determine whether they were associated with ND. **Methods:** We examined 16 single-nucleotide polymorphisms (SNPs) at DRD2 and seven SNPs at ANKK1 in our Mid-South Tobacco Family cohort, which consisted of 2037 participants representing two distinct American populations. **Results:** Several SNPs (rs7131056, rs4274224, rs4648318, and rs6278) in DRD2, along with the Taq IA polymorphism (rs1800497) in ANKK1, revealed initial, significant associations with ND in European-Americans, but not after correction for multiple testing, indicating a weak association of DRD2 with ND. In contrast, we revealed significant associations for ANKK1 with ND in the African-American and pooled samples, specifically for SNP rs2734849, which remained after correction. With a non-synonymous G to A transition, rs2734849 produces an amino-acid change (arginine to histidine) in C-terminal ankyrin repeats domain of ANKK1. Using the luciferase reporter assay, we further demonstrated that the variant could change expression level of NF- κ B-regulated genes. Since DRD2 expression is regulated by transcription factor NF- κ B, we suspect that rs2734849 may indirectly affect dopamine D2 receptor density. **Conclusions:** We conclude that ANKK1 is associated with ND and SNP rs2734849 in ANKK1 represents a functional causative variant for ND in African American smokers. **Support:** Supported by NIH Grants DA-12844 and DA-13783.

438 GENDER DIFFERENCES IN MORTALITY AMONG HEROIN, COCAINE AND METHAMPHETAMINE USERS

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Aims: Studies examining gender differences in mortality among drug users over a long period of observation have been limited. This study examines gender differences in mortality among primary heroin, cocaine, and methamphetamine users based on five long-term follow-up studies conducted in California. **Methods:** Data from subjects (N=1906) in five long-term follow-up studies were used to study the mortality of these subjects who had reported their primary drug problem as heroin, cocaine or methamphetamine. In this combined study, there were 474 (24.9%) methamphetamine users, 738 (38.7%) heroin users, and 694 (36.4%) cocaine users. The average age at onset of primary drug use was 21 years. Fisher's exact tests and logistics regression mixed effects models were used to analyze the death rates among the three types of drug users over years since the first primary drug use. **Results:** Overall, heroin users had the highest mortality rate regardless of gender. Over 12% of heroin users were dead within the first 20 years of heroin use, compared to only 4% of cocaine users and less than 1.5% of methamphetamine users. More males than females died among primary heroin users (12.4% vs. 9%) and among primary cocaine users (5.1% vs. 1.5%), whereas the number of deaths between male and female using methamphetamine were similar. Continuing to the first 30 years of primary drug use, mortality increases to about 25% for the heroin users and 6.5% for the cocaine users, whereas there was no change for the methamphetamine users. **Conclusions:** Data from five long-term follow-up studies of individuals with a history of heroin, cocaine and methamphetamine use showed different patterns of mortality between males and females across drugs. **Support:** This study is funded by the National Institute on Drug Abuse (P30DA016383).

439 BARRIERS FOR BUPRENORPHINE TREATMENT IN THE VETERANS HEALTH ADMINISTRATION 440 THE EFFECTS OF DAILY TREATMENT WITH CITICOLINE ON POLYDRUG ABUSE IN COCAINE-DEPENDENT VOLUNTEERS

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Aims: Veteran Health Administration (VHA) utilization of buprenorphine for opioid agonist therapy (B-OAT) for veterans diagnosed with opioid dependence (DOD) has been poor. Implementation has been non-uniform for unknown reasons. In 2005, only 739 veterans were prescribed B-OAT, despite 26,859 veterans with DODs. We sought to examine and understand patient, provider, and system level barriers of B-OAT implementation within the VHA. **Methods:** We conducted semi-structured, telephone interviews of administration and clinical personnel associated with administration, pharmacy, and substance use treatment programs at VHA facilities with a high prevalence of DOD and without an OAT program from June '06 to October '07. Sites were selected and categorized based on number of buprenorphine prescriptions: Early implementers (EI, >40 prescriptions, 5 sites), modest implementers (MI, 5-40 prescriptions, 3 sites), and no implementers (NI, 0-5 prescriptions, 9 sites). Interviews were coded by three independent reviewers and evaluated through structured grounded theory framed by patient, provider, and system themes. **Results:** 62 VHA staff (67% physicians) volunteered to be interviewed at 17 VHA facilities. 88% of facilities had E-OAT-certified clinicians, 47% had no buprenorphine prescribing. 53% of facilities had access to non-VA OAT programs. For NI sites, patient level barriers cited most were perceived lack of need and public perception of DOD patients. EI and MI sites were more concerned with diversion of buprenorphine. Staff attitudes toward veterans with DID were similar across sites. Provider barriers at NI-sites included lack of staff interest, no leader for B-OAT, little B-OAT knowledge/education, and "abstinence-based" philosophies. System barriers, common across all sites, included lack of support, time, staff and coverage and continuity of care/integration issues. All sites noted "resistance to change." **Conclusions:** Factors that impede B-OAT prescribing in the VHA vary by facility. Strategies and policies to enable implementation of B-OAT in the VHA are discussed. **Support:** VA HSR&D

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Aims: Many pharmacotherapies for treating drug dependence are aimed at reducing drug effects, alleviating craving, and/or preventing relapse. Medication development efforts are challenged by polydrug abuse, as drug-dependent individuals rarely restrict their drug abuse to a single substance. One possible approach to addressing the frequent use of multiple drugs in combination would be to employ a medication that would reduce excessive overall drug-taking behavior in general. In that regard, we report on the ability of a nutritional supplement of the natural brain chemical cytidine-5'-diphosphate choline (citicoline) to reduce the consumption of marijuana, alcohol, and tobacco in cocaine-dependent volunteers. Several previous reports have demonstrated citicoline's safety as well as its efficacy in repairing neuronal injury. Moreover, citicoline already has been shown to reduce cocaine craving and marijuana use. **Methods:** As part of a larger study, 18 healthy non treatment-seeking cocaine-dependent male and female volunteers took citicoline (500 mg b.i.d) or matched placebo each day over the course of 16 weeks. Participants recorded measures of drug use using daily diaries and a wrist actigraphy device, made weekly visits to the laboratory for urine screens and evaluations, and attended weekly group therapy sessions. **Results:** Although citicoline had little effect on cocaine use or craving in these individuals, citicoline treatment led to a 50% reduction in marijuana use ($p < 0.05$) and a 20-30% reduction in the use of alcohol and tobacco ($p < 0.05$); these reductions persisted into the washout period. **Conclusions:** These data suggest that citicoline may be a useful adjunct therapy aimed at treating polydrug abuse. **Support:** NIDA grants: DA011098, T32 DA015036, K24 DA15116, K05 DA 00343.

441 MULTIDIMENSIONAL FAMILY THERAPY FOR SEVERELY IMPAIRED, DUALY DIAGNOSED YOUTH: A RANDOMIZED CONTROLLED TRIAL COMPARING OUTPATIENT AND RESIDENTIAL TREATMENT

H.A. Liddle¹, C.E. Henderson^{2,1}, G.A. Dakof¹, C.L. Rowe¹ and P.E. Greenbaum³, ¹Center for Treatment Research on Adolescent Drug Abuse, Miller School of Medicine at the University of Miami, Miami, FL, ²Psychology, Sam Houston State University, Huntsville, TX and ³Florida Mental Health Institute, Aims: Examine the effectiveness of an intensive outpatient version of MDFT in comparison to residential treatment for dually-diagnosed adolescents meeting ASAM criteria for inpatient substance abuse treatment. Methods: Design: A 2 (treatment condition) x 5 (time) repeated measures intent-to-treat randomized design. Data were gathered at baseline and 2, 4, 12, and 18 months after entry into treatment. Participants: 113 youth—primarily male (75%) and Latino (69%), with an average age of 15.9 years. 100% met DSM-IV criteria for a marijuana use disorder, 71% for an alcohol use disorder, and 33% for at least one additional substance use disorder. 78% had a previous substance abuse treatment failure. All participants met DSM-IV criteria for at least one comorbid psychiatric disorder, with 67% meeting criteria for conduct disorder, 34% a mood disorder, and 26% an anxiety disorder. Participants averaged 4.1 lifetime arrests, and 81% were involved in the juvenile justice system at entry into treatment. Measurements: Five outcomes were measured: (1) drug use problem severity, (2) 30 day frequency of any drug use, (3) aggression, (4) delinquency, and (5) internalizing symptoms. Results: Analysis of comparative treatment effects indicated that MDFT was significantly more effective than residential treatment in reducing frequency of drug use, drug use problem severity, aggression, delinquency, and internalizing symptoms. Effect sizes were in the medium range. Conclusions: An outpatient version of MDFT is a viable alternative to inpatient treatment for youth meeting ASAM criteria for residential treatment. The findings also extend the impressive evidence base supporting MDFT to adolescent substance users with comorbid psychiatric disorders. Support: Support provided by the National Institute of Drug Abuse, P50DA011328 (Howard Liddle, PI)

442 BEHAVIORAL AND CARDIOVASCULAR EFFECTS OF INTRANASAL D-AMPHETAMINE IN HUMANS

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Aims: d-Amphetamine is a useful tool in human laboratory models because it can be safely administered to healthy subjects. However, the slow onset of oral d-amphetamine limits its application. Intranasal d-amphetamine was characterized in the present study because this route of administration results in more rapid entry to the brain. To date, there do not appear to be any controlled studies on the effects of intranasal d-amphetamine in humans, although there are reports that diverted prescriptions are used via this route. Methods: The behavioral and physiological effects of intranasal d-amphetamine were assessed in nine (n=9; 4 females, 5 males) healthy humans with a history of non-therapeutic stimulant use. Intranasal d-amphetamine (0 and 16 mg/70 kg; total volume of 0.29 mL) was delivered using a syringe capped with a mucosal atomization device. An active placebo consisted of 100 mg/mL magnesium sulfate. Subject rated and cardiovascular effects were assessed prior to drug administration and then 15, 30, 45, 60, 90, 120, and 180 minutes afterwards. For comparison, subject-rated and cardiovascular data from a previous study in which 15 mg/70 kg oral d-amphetamine was administered to eleven (n=11) healthy women were included. Data were analyzed using ANOVA with group, dose and time as factors. Results: Intranasal and oral d-amphetamine produced prototypical stimulant effects such as increased subject ratings of Stimulated and elevated cardiovascular activity. Intranasal d-amphetamine effects became apparent from 15-120 min (median = 60), whereas oral d-amphetamine effects emerged from 60-150 min (median = 90). Significant group X time interactions indicated that route of administration significantly impacted the time course of d-amphetamine. Conclusions: In conclusion, the local (i.e., nasal) and central effects of intranasal d-amphetamine were well tolerated in healthy volunteers. This route of administration could be useful in future studies requiring more rapid entry of a stimulant to the CNS, such as fMRI brain imaging experiments. Support: Supported by RR 015592 and DA018772.

443 SURVEY ANALYSIS FOR IMPLEMENTING AN ELECTRONIC INFORMATION SYSTEM TO ENHANCE PRACTICE AT AN OPIATE TREATMENT PROGRAM

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Aims: ARTC, an outpatient opioid treatment program providing onsite primary medical care and HIV-related care for approximately 3,000 predominantly minority adults in Brooklyn and Manhattan in New York City, is in the process of selecting and implementing an electronic health information system that integrates counseling and social services, medical services, case management, HIV counseling and testing, dispensing information, and administrative and fiscal data. Through a NIDA grant, an assessment of system performance will be studied. Buy-in by stakeholders (patients, clinicians and managers) was the initial focus of this process. Five specific aims (quality, productivity, satisfaction, financial performance and risk management) with nine related hypotheses were chosen for study based on needs assessment meetings with stakeholders and literature review of prior published investigations. The final selection of specific health information hardware and software is informed by a number of specific criteria, including the ability to provide relevant data regarding the aims mentioned above, information obtained from stakeholders and literature review, and determination as to whether the system will be developed totally in-house, by an outside vendor or as a hybrid. Presentations by various vendors were evaluated using specific criteria Methods: A detailed survey of 105 clinician stakeholders was done to determine (1) ability to use the current paper-electronic system; (2) challenges encountered with the current system; and, (3) training needs. Conclusions: The results of this detailed program description have the potential to inform continuing discussions about the selection and impact of integrated electronic systems in enhancing healthcare outcomes and agency cost-effectiveness in substance abuse treatment settings for this unique patient population. Support: NIDA (RFA-DA-06-001)

444 EXAMINATION OF WITHDRAWAL SYMPTOMS IN METHADONE- OR BUPRENORPHINE- EXPOSED NEONATES

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Aims: This study examines item-level withdrawal symptoms in neonates exposed to opioids in utero. Prenatal opioid exposure can lead to neonatal abstinence syndrome (NAS), with ≥ 50% of neonates requiring pharmacological treatment. NAS tools (e.g., Finnegan Scale; Finnegan & Kaltenbach, 1992) assess central and autonomic nervous systems (CNS, ANS), gastrointestinal tract, and respiratory system symptom presence and severity. Present symptoms sum to a total score. Few studies have examined neonatal withdrawal at the level of individual symptoms. Data from a randomized controlled trial (RCT) was examined to further our understanding of the symptoms comprising NAS. Methods: Twenty-one pregnant heroin-dependent women were randomized to receive either methadone (n=11; 5 requiring treatment for NAS) or buprenorphine (n=10; 2 requiring treatment for NAS) in double-blind, double-dummy RCT design. From birth, neonates were assessed every 3-4 hours using a 19-item modified Finnegan Scale. Pharmacological treatment was initiated when 2 consecutive scores ≥ 9 were recorded. The individual symptoms were examined for each baby and summed across the treated and untreated neonates. Results: In treated opioid-exposed neonates, 75% of the symptoms observed at time of treatment and 12 hours prior to treatment were CNS symptoms. Individual symptoms in untreated babies were more widely distributed across the different classes of symptoms compared to treated babies. However, nasal stuffiness, irritability, and vomiting were rarely observed in the untreated babies. In all neonates, 21% of symptoms (seizures, yawning, sweating, failure to thrive) occurred infrequently. Conclusions: The current RCT study confirmed the previously reported observation that CNS classified symptoms are the most prominent symptoms observed in opioid-exposed infants. Additionally, these data suggest continued refinement of the assessment of neonatal withdrawal will enhance accurate identification of NAS as well as improve the utility of the scoring tool. Support: NIDA R01R2220, 018410, and M01RR-02719

CPDD 2008 Annual Meeting, San Juan, Puerto Rico

445 MONITORING DAILY SELF-REPORTED COCAINE USE USING INTERACTIVE VOICE RESPONSE TECHNOLOGY: COMPLIANCE AND VALIDATION

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Aims: Studies utilizing innovative technology to assess key clinical information between face-to-face visits are becoming more common in clinical trial protocols. Interactive voice response (IVR) systems offer a simple, convenient, low-cost, method of collecting real-time data by having subjects use their telephone's touch-tone keypad to respond to confidential, computerized assessment interviews. The three specific aims for this study were: (1) to evaluate compliance, (2) to assess concurrent validity of the data gathered by the IVR system, and (3) to compare IVR utility under different Contingency Management (CM) conditions. **Methods:** Participants enrolled in a 12-week cocaine treatment study were asked to call into the IVR system daily and complete a brief (4 minute) computerized interview assessing use of cocaine in the past 24 hours, withdrawal symptoms, mood, and general functioning. At thrice-weekly clinic visits subjects provided urine samples tested for the presence of benzoylecgonine (BE) and completed self-report measures of cocaine use (SURS). Participants received one of two different CM procedures to reward completion of IVR calls: the 'fish bowl' prize reinforcement (n=18) or a fixed \$1 per call method (n=11). **Results:** On average, participants completed 41% of the possible calls (7 calls per week over a 12-week period), suggesting adequate compliance with the IVR. Convergent validity, based on agreement between IVR reports and urine toxicology data was lower than expected ($\kappa = .38$). Prize-based CM produced a higher number of calls per week ($M=.47$) than the fixed \$1 per call CM ($M=.27$), and at a relatively higher cost per call ($M=\$6$ versus $M=\$1$ per call). **Conclusions:** IVR technology may be useful as a real-time data collection method in cocaine pharmacotherapy trials. Compliance, defined as percentage of calls completed, was good, especially when rewarded with fish bowl prize drawings. The accuracy of IVR data relative to biological markers of drug use remains to be established. **Support:** Funding: NIDA P50 DA 09262

446 CROSS-CULTURAL SEX DIFFERENCES IN ADOLESCENT SUBSTANCE USE: GERMANY AND THE UNITED STATES

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Aims: Past research on adolescent substance use has consistently confirmed sex differences. Even though more recent studies suggest that the 'gender gap' seems to be closing, significant sex differences remain at least in some areas. The present study addresses this issue by examining cross-cultural sex differences in Germany and the U.S. with regards to (a) substance use patterns and (b) correlates of substance using behaviors. **Methods:** Self-report data on adolescent substance use in the U.S. and Germany are provided by the 2003 waves of the Monitoring the Future (MTF) and the European School Survey Project on Alcohol and Other Drugs (ESPAD). A series of NBRM models was used to estimate cross-cultural sex differences in alcohol, tobacco, and marijuana use among these adolescents. **Results:** Results show several interesting patterns. First, sex differences exist on measured levels of drinking, indicating that females in both countries are more likely to be abstainers or drink alcohol only occasionally. German females had higher rates of drinking compared to American female respondents. However, in a full explanatory model, sex differences disappeared for both countries. Second, females had higher rates of cigarette smoking in both countries. German males and females had higher rates of smoking than their American peers. Again, sex differences vanished when peer influence and attitudes were added. Finally, the use of marijuana was more common among males in both countries, and sex differences persisted when other factors were controlled for. **Conclusions:** Despite significant differences in legal and cultural environment, both male and female substance use patterns showed surprising cross-cultural similarities, especially regarding the influence of peers and attitudinal measures. Findings thus suggest that attempts to prevent or curb adolescent substance use could benefit from lessons learned by other countries. **Support:** n/a

447 RISK FACTORS FOR OXYGEN DESATURATION AFTER INJECTION OF HEROIN OR METHADONE: A LABORATORY MODEL OF OVERDOSE SUSCEPTIBILITY

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Aims: Although opioid overdose is a leading cause of death among illicit drug users, the risk factors that make some individuals more susceptible are poorly understood. This study investigated risk factors for oxygen desaturation following injection of pharmaceutical heroin or methadone using a laboratory model of overdose susceptibility. **Methods:** Peripheral oxygen saturation (SpO2) was measured for 60 minutes following self-injection of heroin or methadone in 35 patients receiving injectable opioid treatment. All subjects completed two testing sessions. Secondary outcome measures were end-tidal carbon dioxide and respiratory rate. The effects of drug (heroin vs. methadone), route of administration (intravenous vs. intramuscular), dose, poly drug use (benzodiazepines, alcohol), and age were assessed using linear mixed models. **Results:** Hypoxic SpO2 levels (below 90%) were observed in 51% of all testing sessions. An acute decline in SpO2 occurred within the first 10 minutes post-injection, with the magnitude of this reduction ranging from 1.6 to 24 percentage points. Five risk factors were shown to predict significantly lower SpO2 in the 60 minutes after injection: (i) injecting heroin instead of methadone, (ii) injecting intravenously instead of intramuscularly, (iii) having a positive urine test for benzodiazepines, (iv) having a positive breath test for alcohol, and (v) older age. Dose was not a significant risk factor. **Conclusions:** Susceptibility to oxygen desaturation varies widely between individuals and is significantly related to the drug, route of administration, use of other CNS depressants (alcohol, benzodiazepines) and age of the individual. Quantification of these risks factors in a laboratory model of overdose susceptibility provides an evidence base for the development of overdose prevention initiatives. **Support:** This work was funded by grants from the UK Department of Health and the South London and Maudsley NHS Trust Research and Development programme

448 AUTOMATED CLINICAL HISTORY DATABASE FOR OFFICE MANAGEMENT OF THE INDIVIDUAL BUPRENORPHINE

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Aims: The aim of this project is the development of a rapid, convenient graphical presentation of both "short term" and "long term" features of the addictions treatment history for clinician's use during session with a patient on buprenorphine. This abstract seeks to build on the strong electronic charting system supported within the VA system. **Methods:** Using Office Automation (Microsoft, Redmond WA), an automated package was developed for the formation of a local database containing an individual patient's clinical history. Software components of the project include Microsoft Access, Excel, and locally developed Visual Basic modules. Currently, the database includes psychiatry clinic appointments ("show" and "no-show"), ER visits, inpatient stays, IOP attendance, primary care appointments, the entire prescription history, and urine drug screen results. These events are displayed on a graphical interface against a time line with "zoom" features that allow the clinician to "pan back" to appreciate broad features of the individual patient's pattern of relapsing and remitting, or narrow in on specific periods of transition or instability. Additional interactive features are under development. **Results:** The total speed of processing varies, depending on the complexity of case history, and the length of time over which the local database is being built, but for a moderately complex clinical case, the entire acquisition and display of one to two year clinical history runs in under 3-4 minutes with the current prototype. At this speed, the utility can be feasibly used during a routine office visit. **Conclusions:** Convenient graphical representation of clinical history is feasible within the context of a clinic visit. It may be of particular use in monitoring the long-term progress of a patient being considered for treatment with buprenorphine. **Support:** CESATE - VISN 6 - Veterans Administration

- 449** **SUCCESSFUL IMPLEMENTATION OF AN OFFICE-BASED OPIATE TREATMENT PILOT PROGRAM USING BUPRENORPHINE IN A MARGINALIZED POPULATION**
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Aims: Background: Heroin use is responsible for tremendous morbidity, mortality, and psychosocial problems in San Francisco (SF). Unlike treatment with methadone, buprenorphine can be provided by general physicians in office-based settings. It has proven effective in some Primary Care environments. Program Description: To encourage buprenorphine treatment, SF Dept. of Public Health (SFDPH) has utilized volunteer physicians/clinics, trainings, support, and the first buprenorphine induction clinic in the U.S.-the OBOT Buprenorphine Induction Clinic (OBIC). In 2003, buprenorphine treatment became available through the SFDPH OBOT Pilot Program, which provides integrated addiction and medical care. Unlike most research studies involving buprenorphine, the SFDPH program does not exclude individuals with co-existing drug-use disorders, or those with psychosocial hardships such as homelessness. Currently there is very little research supporting its efficacy with these marginalized populations. In 2005 buprenorphine treatment was expanded to additional primary care and mental health sites through the SFDPH Integrated Buprenorphine Intervention Service (IBIS). Conclusions: Discussion: As of August 2007, over 200 patients had received buprenorphine through OBOT or IBIS. Discussion on program development will encompass barriers and successful strategies to overcome them. The results section will review findings to date, including retention in treatment, impact on drug use, buprenorphine prescribing practices, and the effects of demographic, psychosocial, and drug-craving variables on outcomes. Support: Fully funded by SFDPH.
- 450** **NALTREXONE ATTENUATES CUE-INDUCED REINSTATEMENT OF NICOTINE-SEEKING BUT DOES NOT CHANGE NICOTINE SELF-ADMINISTRATION IN RATS**
X. Liu, A.R. Caggiula, M.I. Palmatier, E.C. Donny and A.F. Sved, University of Pittsburgh, Pittsburgh, PA
Aims: Opioid neurotransmission has been implicated in the mediation of reward and its associated learning/memory processes. However, it remains unclear whether activation of opioid receptors plays a role in mediating the motivational/reinforcing effects of nicotine and its associated environmental cues. This study investigated the effect of an opioid antagonist naltrexone on the cue-induced reinstatement of nicotine-seeking behavior and on nicotine self-administration during the maintenance phase. Methods: Male Sprague-Dawley rats were trained in daily 1h sessions to self-administer nicotine (0.03 mg/kg/infusion, i.v., free base) on an FR5 schedule and associate a conditioned stimulus (CS) with each nicotine delivery. Once responding was extinguished by saline substitution of nicotine and omission of the CS, reinstatement tests were conducted following administration of naltrexone (0, 0.25, 1, 2 mg/kg, s.c.) in which active lever responses resulted in re-presentation of the CS (and saline infusion). In separate sets of rats receiving similar self-administration training, naltrexone was administered prior to self-administration test sessions. Results: The CS significantly reinstated responding at the previously nicotine-reinforced lever in the saline pretreated rats. Pretreatment with naltrexone dose-dependently attenuated the cue-induced reinstatement. In contrast, neither acute nor chronic naltrexone altered nicotine self-administration. Conclusions: These results indicate that opioid neurotransmission may be involved in mediating the conditioned incentive value of nicotine cues but not nicotine reinforcement during the maintenance phase of self-administration. This finding lends support for continued clinical assessment of the effectiveness of naltrexone as an adjunctive pharmacotherapy for smoking cessation but suggests that the focus should shift from attenuation of nicotine reinforcement/cigarette consumption to the prevention of smoking relapse associated with exposure to smoking cues. Support: Supported by DA17288 (X. Liu) and DA10464 (A.R. Caggiula)
- 451** **COMPOUND RANTES AND CCR2 GENETIC POLYMORPHISMS AFFECT RISK OF HCV INFECTION AMONG INJECTING DRUG USERS IN CHINA**
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Aims: Hepatitis C virus (HCV) infection has been a major cause of chronic hepatitis, liver cirrhosis and hepatocellular carcinoma, and about 3% of the world populations are infected with HCV. Injecting drug users (IDUs) are the most vulnerable population for HCV infection. Chemokine and chemokine receptor system mediates cell migration, activation, co-stimulation and differentiation during innate and adaptive immune responses and may play a significant role in HCV clearance during acute infection. Previous studies in non-Chinese cohorts revealed that genetic polymorphisms in regulated on activation normal T-cell expressed and secreted (RANTES) and C-C chemokine receptor 2 (CCR2) affect HCV diseases. We hypothesized these genetic polymorphisms may influence HCV susceptibility among IDUs in China. Methods: We analyzed RANTES -403A/G, -28C/G, and CCR2-64V/I genotypes in 163 HCV negative and 212 HCV infected IDUs in drug abuse treatment in Shanghai, China. Results: The allele frequencies we found in this IDU cohort are similar to those previously reported by us and others. No significant difference between HCV negative and infected IDUs in all the allele frequencies (RANTES-403A: 39.3% vs. 38.3%, RANTES-28G: 12.6% vs. 10.0%, and CCR2-64I: 23.9% vs. 19.8%), and genotypes was found. However, individuals homozygous for the RANTES-403A allele, which has been shown to up-regulate RANTES gene transcriptional activity in vitro, were highly resistant to HCV infection if they were heterozygous for CCR2-64V/I, compared to RANTES-403A homozygous subjects with a CCR2-64V/V genotype (48.0% vs. 15.2%, $p = 0.009$, OR = 5.2). Conclusions: These data implicate the compound genotype of RANTES-403A/A and CCR2-64V/I as protective host genetic factors for HCV transmission among IDUs in China, and underscore the importance of genetic association studies in different ethnic groups. Support: Supported by NIH Fogarty R01 TW007279 (MZ) and Shanghai Health Bureau Fund 054129 (MZ). (H. Liu and S. Yu contributed equally to this study).
- 452** **EFFECT OF MATRIX METALLOPROTEINASE 9 GENE EXPRESSION ON METHAMPHETAMINE NEUROTOXICITY**
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Aims: Matrix metalloproteinase (MMP) 9 is up regulated following various types of insults to the brain, and has been suggested as a marker of neurodegeneration. However, recent studies also implicate MMP9 in neural remodeling, making it unclear whether increased expression of MMP9 contributes to damage or recovery from damage in the central nervous system. Methamphetamine up regulates MMP9, and recent studies suggest that this contributes to neural remodeling. However, the involvement of MMP9 in methamphetamine-induced neurotoxicity remains unclear and was thus evaluated. Methods: Mice were treated with methamphetamine and its effects on MMP gene expression, striatal dopamine levels, and behavior were evaluated. Results: Exposure of mice to stimulant or toxic doses of methamphetamine up regulated MMP9 gene expression in the brain within 5 min. By 24 h, MMP9 gene expression returned to control levels in the stimulant-treated mice, but remained elevated in animals exposed to toxic doses of methamphetamine. In mice treated with toxic doses of methamphetamine, reductions in striatal dopamine levels, a marker of methamphetamine neurotoxicity, was evident 1-7 days following the drug treatments. However, the depletions in striatal dopamine levels were not correlated with concomitant changes in MMP9 gene expression. In MMP9 knock out mice, methamphetamine retained its ability to elicit hyperthermia and neurotoxicity. Although the absence of MMP9 did not affect methamphetamine neurotoxicity, the knock out mice exhibited the expected decrease in behavioral sensitization following repeated administration of stimulant doses of methamphetamine. Conclusions: Together, the data suggest that changes in MMP9 expression do not affect methamphetamine-induced neurotoxicity, and may instead contribute to remodeling of the nervous system. Support: National Institute on Drug Abuse (R01 DA11979) and National Center for Research Resources (P20 RR016476)

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453 PAST, PRESENT AND PREDICTIONS IN THE HISTORY OF COCAINE DEPENDENCE TREATMENTS

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Aims: Cocaine (contained in coca leaves) by oral route was an ancient practice in Andean regions long before the arrival of the Spaniard (1492). Its first medicinal and stimulant effects report was in 1565 (Monardes). The first pulse/physiological study was in 1859 (Mantegazza). After the extraction of cocaine (Niemann, 1860), many medicinal products were sold over the counter (cocaine sulfates, citrates, hydro chlorates). The first evidences of cocaine addiction (nasal/intramuscular) appeared in Europe in the 1880's. Treatments (1890s) were mainly symptomatic: detoxification, purges, bromides, scopolamine, counsel, veronal (1903), seconal. From 1900 to the 1970s the only modality used for addictive purposes was cocaine hydrochloride (CH), by nasal and intravenous routes. In 1970-80s, new addictive (smokable) modalities appeared: coca paste, freebase, crack. In the 1970s NIDA/USA tested desipramine, lithium, bromocriptine, amantadine, propranolol, antipsychotics, metylphenidate and carbamazepine. Between 1981-84, Llosa/Perú performed psychosurgery (cingulotomy) in 33 coca paste addicted-patients. In 1988, Llosa began using oral cocaine/alkaloid (contained in coca tea) as agonist therapy (cocalization). Since 1980's NIDA tested new antidepressants, anticonvulsants, vanoxerine, GV-196771 buprenorphine, disulphiran, oral CH (Rush, 1999; Walsh, 2000), vaccines (Bagastra, 1992; Kosten, 2002), enadoline, synucleous. In 2004, Llosa introduced coca powder as agonist therapy. In 2007 Chilean scientists studied the brain insula cortex as addiction target. Until now the FDA is yet to approve any treatment for cocaine dependence. Conclusions: The facts show that the use of oral cocaine will continue in the Andean regions for medicinal purposes. Up to today, only some agonist/antagonist dopamine substances, vaccines, insula cortex focus and oral cocaine agonist schedules, appear to be the most promising therapies. In the last 25 years, no new cocaine products or derivatives for recreational use have appeared in the market. Could this be the beginning of the decline of cocaine for addictive purposes? Support: The author have no financial relationship that relates to the topic of presentation

454 RELATIONSHIP BETWEEN HIV RISK BEHAVIORS AND SUICIDE RISK AMONG YOUTH IN SUBSTANCE ABUSE TREATMENT

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Aims: To examine the relationship between clusters of HIV risk behaviors and suicide risk among youth in substance abuse treatment. Methods: The sample is drawn from the 2006 CSAT Adolescent Treatment dataset of youth ages 9-24 who participated in outpatient or residential substance abuse treatment in 86 grantee sites. The data are self-reported and based on a subset of 10,558 adolescents ages 11-18 for which there are valid data collected at baseline using the GAIN. Suicide risk is defined as endorsing any of the following in the past 12 months: suicide thoughts, plan, attempt, or taking steps to carry out a suicide plan. The study sample includes 72% male, and 16% African American, 43% Caucasian, 20% Hispanic, 21% Other/Mixed race groups and 1,269 (12%) reporting suicide risk. Ward's minimum distance, cluster analysis identified four empirically homogenous groups of HIV risk behaviors: low risk (no needle use and low sex risk, victimization and worry), low to moderate risk (low needle use, moderate sex risk, and low victimization and worry), moderate to high risk (moderate needle use and sex risk and high victimization and worry), and high risk (high needle use and sex risk and moderate to high victimization and worry). Results: Suicide risk was reported by 4% in the low HIV risk group, 12% in the low to moderate HIV risk group, 26% in the moderate to high HIV risk group, and 18% in the high HIV risk group. In the multiple logistic regression analysis controlling for age, sex, race, weekly alcohol use and internal/external mental health comorbidity, the low to moderate HIV risk group was over one and a half times more likely report suicide risk (O.R.=1.53; p<0.001) and the moderate to high HIV risk group was over two times more likely to report suicide risk (O.R.=2.34; p<0.001) compared with youth in the low HIV risk group. Conclusions: These findings have important implications for suicide prevention screening among youth in substance abuse treatment and engaged in HIV risk behaviors. Support: Center for Substance Abuse Treatment, SAMHSA.

455 ADOLESCENTS SEEKING CESSATION TREATMENT: LEVEL OF TOBACCO DEPENDENCE AND REPORTED MORBIDITY

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Aims: Research has well documented the effects of smoking on medical and mental health but findings are limited among adolescents. This analysis explored the relationship between adolescent smoking and self-reported medical and psychological problems among dependent adolescent smokers. Methods: Adolescents recruited via television, radio, and newspaper advertisements and outreach station in a local shopping mall for an adolescent tobacco cessation clinical trial were asked to complete a phone screen to assess eligibility. Included in the phone screen was the Fagerström Test of Nicotine Dependence (FTND) and questions asking about medical history. We present data from 1,001 adolescents (mean Age =16.3 years ± 1.2; 56.8 % female; 48.3% African American). Results: Results of a Pearson correlation analysis showed that participants scoring higher on the FTND self-reported more medical (p<0.05) and/or psychological (p<0.05) problems compared to less dependent smokers. Conclusions: These findings suggest that highly dependent adolescent smokers have a higher morbidity compared to less dependent smokers underscoring the need for early interventions for smoking among youths. Support: Supported by the NIDA Intramural Program funds

456 NICOTINE EFFECTS ON THE BEHAVIORAL MECHANISMS OF IMPULSIVE CHOICE IN RATS

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Aims: Nicotine has been found to produce dose-dependent increases in impulsive choice (i.e., preference for smaller, sooner reinforcers relative to larger, later reinforcers) in rats. This increased impulsive choice could be due to an increase in delay discounting (i.e., exacerbating the apparent difference in reinforcer delays) or a decrease in amount sensitivity (i.e., diminishing the apparent difference in reinforcer amounts). A concurrent-chains procedure was used to isolate which of these two behavioral mechanisms was likely responsible for nicotine's effect on impulsive choice. Methods: Concurrent chains schedules have been effectively used to compare preference between two reinforcers. With equal-interval concurrent variable-interval (VI) schedules in the initial links of the chains, relative rates of responding on each lever during the initial links provide a measure of relative preference for each of the two terminal links. Long-Evans rats were randomly assigned to either the amount (n=6) or delay (n=6) group. In the amount group, lever presses produced 1 pellet (lever A) or 3 pellets (lever B). In the delay group, lever presses produced 2 pellets after 1 s (lever A) or 9 s (lever B). After response rates were stable during daily sessions, rats were given bi-weekly subcutaneous injections of nicotine (0.03 mg/kg, 0.1 mg/kg, 0.3 mg/kg, 0.56 mg/kg, and 0.74 mg/kg) 10 minutes prior to sessions. Results: Nicotine produced dose-dependent increases in relative preference (relative rate of responding in the initial links) for the smaller reinforcer in the amount group but had no effect on preference for the shorter delay in the delay group. Conclusions: The increased relative preference for the smaller reinforcer amount compared to the larger reinforcer amount suggests that nicotine decreases reinforcer amount sensitivity. The lack of effect in the delay group suggests that nicotine does not alter delay discounting. Alternative explanations for the effect in the amount group (e.g., a decrease in stimulus control or a simple, rate-dependent effect) seem unlikely given the lack of effect in the delay group. Support: USPHS Grant: F31DA021442

457 EFFECTS OF COLD PRESSOR PAIN ON CORTISOL STRESS RESPONSE AND ABUSE LIABILITY OF INTRANASAL OXYCONTIN® IN NON-DEPENDENT PRESCRIPTION OPIOID ABUSERS

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Aims: The therapeutic use of prescription opioids for pain and the abuse of these medications have increased over the last decade. The purpose was to evaluate how pain and the stress response to pain may influence the abuse liability of intranasal Oxycontin® (OC). **Methods:** Healthy volunteers (18-55 yrs) misusing prescription opioids (2-3 times/week on average) enrolled in this within-subject, placebo-controlled double-blind, randomized, inpatient study. Subjects participated in six sessions during which a single dose condition (0, 15 mg/70 kg or 30 mg/70 kg crushed intranasal OC) was tested. Each dose was tested twice; one session tested the cold pressor pain (P) condition (hand in 5°; C water for 2 min 5 trials/session) and one tested the no pain (NP) control condition (hand in 37° water for 2 min 5 trials/session). An array of physiological, subjective and observer-rated measures was repeatedly collected before and after drug administration during the 6-hr sessions. **Results:** The P condition produced significantly higher subjective pain scores compared to the NP condition ($p < 0.05$) as expected, but dose did not significantly alter pain scores. There were dose-dependent opioid agonist effects on miosis ($p < 0.05$) and increased subjective ratings of drug liking, good effects, and high ($p < 0.01$), but there were no significant pain x dose interactions for these measures. During the placebo sessions, P produced higher maximum cortisol levels (mean: 0.524 µg/dL) compared to NP (mean: 0.357 µg/dL). In the NP condition, OC suppressed cortisol levels compared to placebo. In the P condition, OC suppressed pain-induced increases in cortisol. **Conclusions:** These pharmacodynamic findings indicate that intranasal OC produced significant opioid agonist effects in sporadic opioid abusers. While OC reduced the cortisol stress response induced by pain, there was no evidence that acute intermittent pain significantly altered the abuse liability profile of OC. **Support:** NIDA R01 DA016718, K12 DA14040, and UK GCRC M01-RR02602

458 REPEATED METHAMPHETAMINE PRODUCES TIME-DEPENDENT CHANGES IN ACCUMBENS DOPAMINE AND GLUTAMATE

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Aims: Considerable clinical and preclinical evidence implicates abnormalities in mesocorticolimbic dopamine and glutamate transmission in the pathophysiology of drug addiction. Despite its relatively well-characterized monoaminergic profile, very few studies have reported on the effects of repeated, moderate doses of methamphetamine (METH) upon mesocorticolimbic glutamate transmission. As METH is highly addictive and poses serious negative health and social concerns, we have begun to characterize the effects of repeated low-dose METH exposure upon METH-induced changes in nucleus accumbens glutamate levels. **Methods:** Male C57BL/6J mice were treated repeatedly with either saline or 2 mg/kg METH for 10 days and conventional in vivo microdialysis was conducted in the accumbens at 24 hrs and 3 weeks withdrawal from repeated treatment. **Results:** Repeated METH did not alter basal dopamine or glutamate content at either withdrawal time-point. Acute METH elevated accumbens dopamine levels and this effect showed sensitization in animals treated repeatedly with the drug. The magnitude of METH-induced dopamine sensitization was greater at the 3 week withdrawal time-point, compared to the 24-hr time-point. In contrast to dopamine, acute METH produced a moderate and latent rise in accumbens glutamate levels and this effect showed tolerance in repeated METH-treated animals at the 24-hr time-point. Interestingly, when assessed at 3 weeks withdrawal, METH-treated animals exhibited a robust sensitized glutamate response to the drug. **Conclusions:** Repeated treatment with non-neurotoxic doses of METH produces time-dependent dopamine and glutamate sensitization in the nucleus accumbens. If relevant to humans, these data support enduring neuroadaptations in mesocorticolimbic dopamine and glutamate transmission in mediating the addictive, and perhaps also, psychotogenic, properties of METH. **Support:** This work was supported by a NARSAD Young Investigator Award to KKS.

459 NEURAL CORRELATES OF NEGATIVE EMOTION RESPONSE AND REGULATION IN METHAMPHETAMINE-DEPENDENT AND COMPARISON SUBJECTS

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Aims: Methamphetamine (MA) dependence is associated with mood disturbances, antisocial behavior, cognitive deficits, and brain abnormalities that suggest emotion dysregulation. This study aims to determine whether MA dependence is associated with abnormalities in negative emotional responses and their regulation with cognitive reappraisal. **Methods:** 18 MA-dependent subjects participated, on a residential basis, after 4-10 days of abstinence from illicit drugs. 20 comparison subjects came to the laboratory only on test days. Using fMRI, brain activity was measured while the participants viewed aversive and neutral pictures under two conditions. For the LOOK condition, subjects were instructed to experience the emotions naturally elicited by the pictures. For the DECREASE condition, they were instructed to decrease the intensity of negative emotion using the technique of cognitive reappraisal. Participants rated their emotions under both conditions, and galvanic skin responses (GSR) were simultaneously recorded from a subset of the participants (8 controls, 9 MA). **Results:** Participants with MA-dependence showed greater brain activation in the nucleus accumbens, orbitofrontal cortex (OFC), and insula during negative emotion response than the control subjects. During cognitive reappraisal to decrease negative emotion, MA-dependent participants showed a deficit in activation of the left inferior frontal cortex, compared to the control subjects. **Conclusions:** Individuals that are MA-dependent demonstrate an exaggerated response of neural systems involved in the generation and processing of emotion (accumbens, insula, OFC) and a deficit in neural systems implicated in the cognitive regulation of emotion (left lateral inferior frontal cortex). These abnormalities likely contribute to mood disturbances and antisocial behavior and may influence relapse or vulnerability to addiction. **Support:** Training grants GM08042 (UCLA MSTP) and DA021961 (KB); DA15179 and DA020726 (EDL), DA021754 (JM), and RR00865 (UCLA GCRC)

460 GENDER MODERATES STEREOTYPE THREAT IN CANNABIS USERS

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Aims: Research reveals mixed results for the effects of cannabis on cognitive functioning. These divergent results might stem from stereotype threat (ST), which occurs when individuals believe that a group to which they belong is inferior, resulting in poor test performance. Widespread media coverage of purported cannabis-related deficits in cognitive functioning may elicit ST among cannabis users. **Methods:** To investigate this hypothesis, cannabis users (27 male, 20 female) read a summary of research indicating either that cannabis produced deficits (ST condition), or that cannabis actually created no changes in cognitive functions. Participants then completed cognitive tests. **Results:** No main effects were found between conditions. However, separate analyses of gender revealed that male ST participants ($n = 13$) scored lower on the tests than male controls, while female ST participants ($n = 10$) scored higher than controls. Men exposed to ST generated significantly fewer words ($t(25) = 2.87, p = .008$) and switched between word clusters less often ($t(25) = 2.38, p = .025$) on the Controlled Oral Word Association Test, demonstrating decreased verbal fluency. Women exposed to ST scored significantly higher on the California Verbal Learning Test-II immediate recall ($t(18) = -2.57, p = .019$), Forward Digit Span ($t(18) = -2.12, p = .048$), and the Digit Symbol Substitution Task (DSST) ($t(15.15) = -2.14, p = .046$), demonstrating superior working memory and psychomotor speed. Differences remained significant after controlling for age, amount of cannabis consumed, belief that cannabis diminishes cognitive functioning, and state anxiety for all tests except the DSST. **Conclusions:** These results suggest that cognitive deficits observed in male cannabis users may be attributed to ST rather than decreased functioning. Surprisingly, women in the ST condition scored higher than controls. Perhaps female users do not identify with the typical cannabis stereotype, as cannabis use is observed most frequently among males. This study highlights the importance of disconfirming relevant stereotypes prior to examination of the cognitive abilities of cannabis users. **Support:** Funded by Marijuana Policy Project.

CPDD 2008 Annual Meeting, San Juan, Puerto Rico

- 461** **PERCEIVED HARMFULNESS OF DRUGS AND ITS ASSOCIATION WITH DRUG USE: YOUNG MEN AND WOMEN IN BOGOTÁ, COLOMBIA SEE AND DO THINGS DIFFERENTLY**
C. Lopez and Y. Neumark, School of Public Health, Hebrew University of Jerusalem, Jerusalem, Israel
Aims: Risk-perception is a key component of most behavioral theories, predicting adoption of protective or risky behaviors. Accordingly, many studies have suggested the importance of perceived drug harm in predicting adolescent use of illegal drugs. This study explores gender differences in the perceived harm of drugs and in the association between perceived harm and drug use, among a representative sample of adolescents in Bogotá, Colombia. Methods: Data was collected via a standardized questionnaire administered to 1169 female, and 1192 male students in Bogotá, Colombia, selected in a stratified multistage probability cluster sample. Results: Average age of participants was 14.8 years (SD=1.3), 65.3% studied in public schools and 56.3% belonged to the lowest social strata. Rates of any perceived physical, psychological or other harm were: 77.3% for marijuana, 85.1% for inhalants, 86.8% for cocaine, and 84.3% for ecstasy. Females were significantly more likely to report any perceived harm for marijuana (Odds Ratio=1.4, 95%CI=1.2,1.8), inhalants (OR=1.6, 1.2-2.0), cocaine (OR=1.4, 1.1-1.8) and ecstasy (OR=1.3, 1.0-1.6). Students who did not perceive any harm were more likely to ever have used marijuana (OR=3.7, 2.9-4.6), inhalants (OR=2.1, 1.5-2.9), cocaine (OR=3.9, 2.4-6.2) and ecstasy (OR=2.9, 1.9-4.4). Gender-specific analyses indicate that among females lack of perceived harm was associated with a greater likelihood to use marijuana (OR=6.5, 4.1-10.2) and ecstasy (OR=5.3, 2.8-10.1), while among males no association between perceived harm of ecstasy and ecstasy use was evident (OR=1.7, 0.9-3.2). Conclusions: In this sample of Colombian adolescents, the nature of the association between perceived drug harm with drug use differs between young men and women. Identifying and understanding gender differences in the protective effect of perceived harm of drugs is essential in the development of gender-specific prevention activities. Support: This study was supported by a Milstein Doctoral Fellowship to C. Lopez
- 462** **SUBSTANCE USE DISORDER TREATMENT IN AN ERA OF INTEGRATED BEHAVIORAL HEALTH CARE**
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Aims: In 2006, more than half of the States in the United States of America report the adoption of an integrated and/or merged mental health and substance use service delivery system. More States and local health delivery systems will be moving toward an integrated model of care for individuals with a mental and/or substance use disorder. Moreover, several State mental health and substance abuse systems have been integrated into a the larger general health care system in an effort to improve and increase quality, access, and coordination of mental and substance use disorder care. Not only does the integrated system proposed to care for the co-occurring client, but is also proposed in some jurisdictions as a "one stop shop" holistic approach to health and well being of individuals. The current presentation will explore the state of State mental health and substance abuse systems integration across the United States and explore the potential policy and practice impact on the specialty delivery service systems substance use disorder treatment. The potential role of the historical siloed approach to classically defined "single issue" clients e.g., pure mental disorder or pure substance use disorder will be discussed. Conclusions: Beginning with key policy driving documents, including the Report to Congress on the Prevention and Treatment of Co-Occurring Substance Abuse Disorders and Mental Disorders, The New Freedom Commission on Mental Health, Achieving the Promise: Transforming Mental Health Care in America, and the Institute on Medicine's report, Improving the Quality of Health care for Mental and Substance Use Conditions, this presentation will provide an overview of the theoretical foundation for integrated care models, survey the stages and strategies of implementation and explore challenges and benefits to the broad integrated approach within behavioral health, especially for new developments in substance use disorder research and treatment. Support: SAMHSA - Substance Abuse and Mental Health Services Administration
- 463** **PUERTO RICAN INJECTION DRUG USERS IN MASSACHUSETTS AND PUERTO RICO: HIV, HCV, AND OTHER STDs**
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Aims: To compare HIV/AIDS status, Hepatitis C virus (HCV) and other Sexually Transmitted Diseases (STDs) among Puerto Rican injection drug users (IDUs) in Massachusetts (MA) and Puerto Rico (PR). HIV/AIDS continues to threaten IDUs, their sexual partners and children worldwide (Amil, Gómez, Fernández, Bangdiwala, Rios, & Hunter, 2004). HIV+ infected persons in the U.S. and Puerto Rico are also infected with HCV (CDC, 2006). Few studies compare Puerto Rican IDUs' rates of HIV and other STDs by geographic location. Methods: Through a cross-sectional study design, questionnaires were administered and in-person interviews were conducted with 400 Puerto Rican IDUs, 261 in MA and 149 in PR. The questionnaire was language appropriate and culturally adapted. Bivariate and logistic regression analyses were used to explore the association between HIV, HCV, STDs and location of Puerto Rican IDUs, controlling for demographic characteristics, age of first injection, frequency of drug use, incarceration, and psychiatric symptoms. Results: Puerto Rican IDUs in PR started injecting drugs at an earlier age (20.8 years old) than the MA sample (22.2 years old) ($p < .01$), they also reported higher rates of incarceration (84%) than IDUs in MA (74%) ($p < .01$). Residing in PR was significantly associated with being HIV+, having an STD, and a higher likelihood of attempted suicide ($p < .001$). IDUs in MA were 57% less likely to be STD+ than those in PR ($p < .003$). Conclusions: Findings of different rates of HIV, HVC, and other STDs by geographic location indicate the need for HIV and other STDs prevention programs tailored to Puerto Ricans in PR whose circumstances are different from those in MA. Programs should target youth, before they become hard core drug addicts. Additional research is needed to explore the relationship between health services utilization, HIV and STDs for Puerto Ricans in both locales. Support: Center for Substance Abuse Treatment, Substance Abuse, Mental Health Services Administration Grant # T114430 and Boston University School of Social Work
- 464** **EFFICACY OF AN ONLINE SUBSTANCE USE PREVENTION PROGRAM FOR EARLY ADOLESCENTS**
S.E. Lord¹, D. D'Amante¹, K. Clements² and K. Trudeau¹, ¹Inflexxion, Newton, MA and ²Department of Public Health, Boston, MA
Aims: This study tested the efficacy of an online substance use prevention program to affect drug-related knowledge, intentions, and refusal self-efficacy among early adolescents. Methods: Subjects were two hundred ninety five adolescents aged 12-14 recruited from 8 middle and junior high schools. Sample was 50% female, 52% minority, and represented urban, suburban, and rural regions. Consented participants were randomized into one of three conditions: Online intervention, Video control, and No treatment. The intervention included animation features, video peer stories, self-assessments with tailored feedback, and activities to foster knowledge about tobacco, alcohol and other drugs, build media awareness, reduce substance use risk factors, and support resistance skills and motivation to not smoke, drink or use other drugs. Intervention participants used the online program six times over a three-week period; the Video control group viewed time- and content-comparable videos during this same period. Participants completed online assessment batteries at baseline, post-intervention, and 3-and 6-month follow up (85% retention.) Primary outcome measures were drug-related knowledge and attitudes, future intentions to use and resistance self-efficacy. Results: Analyses were conducted using SAS. At 6 months, the Intervention group demonstrated significantly higher drug-related knowledge compared to the controls. Compared to controls, future intentions to avoid smoking and drinking were higher among Intervention participants. These participants also demonstrated higher alcohol resistance self-efficacy at 6 months relative to controls. Ratings of program satisfaction were high. Conclusions: Results demonstrate that online interventions can significantly affect factors associated with adolescent substance use. Relative to static, universal approaches, interactive Web-based programs are more engaging and have stronger potential for broad dissemination of tailored prevention. Support: This study was supported by a grant from the National Institute on Drug Abuse (2R44DA014795-02).

465 BRIEF, UNIVERSAL INTERVENTION FOR CHILD MALTREATMENT PREVENTION AMONG HIGH-RISK PARENTS: EFFECTS ON SUBSTANCE USE, MENTAL HEALTH, AND INTIMATE PARTNER VIOLENCE

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Aims: Primary care-based brief interventions typically focus on a single behavior, and are dependent upon patient disclosure. In contrast, prevention of child maltreatment requires attention to a constellation of risk factors and awareness of the likelihood of under-reporting. This exploratory study was designed to evaluate the potential efficacy of a universal maltreatment prevention intervention for pregnant women. **Methods:** 100 low-income pregnant women were recruited; without pre-screening for risk factors; from urban prenatal care clinics, and randomly assigned to single-session brief intervention vs. assessment-only. The 30-minute intervention was based on Motivational Interviewing principles, and was designed to address risk factors for child maltreatment, including substance abuse, intimate partner violence, and depression. Before addressing risk factors reported by the participant (if any), interventionists briefly presented normative information about each factor and elicited the participant's thoughts. Follow-up evaluation took place an average of 3 weeks after delivery, and briefly assessed evidence of drug use in the birth medical record, receipt of intimate partner violence, and depression. **Results:** Using change scores where appropriate, there were no overall group differences on any outcome, although effect sizes consistently favored the intervention group (average d = approximately .40). Analyses within subgroups showing a particular risk factor at baseline revealed similar results, with stronger effects evident only with respect to intimate partner violence (d = .91, ns). **Conclusions:** These results suggest that, despite the challenges of evaluating a universal intervention in an unselected sample, there may be utility in such an approach. A more adequately powered trial appears to be merited. **Support:** This study was supported by NIDA DA000516 (Ondersma).

466 PRELIMINARY STUDY OF VARENICLINE FOR ADOLESCENT SMOKING

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Aims: Varenicline has been shown to reduce smoking in adults, but there are no published studies in adolescents. This observational study examines preliminary data to test the hypothesis that varenicline will reduce smoking in adolescents and to assess other effects of the medication during treatment. **Methods:** Participants are three nicotine-dependent adolescents (ages 13-16) in outpatient treatment for substance use disorders and other co-occurring psychiatric conditions. Treatment included varenicline and other medication, 12-step facilitation, cognitive behavioral therapy, and motivational interviewing. Data were collected retrospectively from unstructured clinical sessions during treatment, with 2-10 weeks of follow-up. The primary outcome was change in self-reported daily cigarette use from baseline to the last time point available during varenicline treatment. Secondary outcomes included self-reports of medication effects, substance use, cravings, and other psychiatric symptoms. Cigarette use rates were compared with a paired t-test, and other outcomes were assessed descriptively. **Results:** Mean total daily dose of varenicline was 1.7 mg divided into twice daily doses. Daily cigarette use decreased from a mean pre-treatment level of 18 cigarettes to 3 cigarettes during varenicline treatment ($p < 0.01$). All patients reported a substantial decrease in cigarette craving. For two patients using cannabis shortly before starting varenicline, cannabis use declined from daily use to less than weekly use during varenicline treatment. One patient experienced dose-limiting nausea. One patient reported worsening depression, but the cause was unclear due to concurrent self-discontinuation of antidepressant medication. **Conclusions:** These data support the feasibility of using varenicline for adolescent nicotine dependence. Larger studies are needed to assess varenicline's impact in teens with nicotine dependence and co-occurring psychiatric/substance use disorders. **Support:** NIDA (DA 000357-06A1K12)

467 ALCOHOL ALTERS STANCE STABILITY LONGER THAN SUBJECTIVE EFFECTS IN HEALTHY VOLUNTEERS

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Aims: The goal of this study was to validate the effects of ethanol using a new custom-designed device that measures body sway and to correlate changes in sway with subjective reports of intoxication and plasma ethanol levels. Subjective reports of intoxication after consuming alcohol do not always parallel changes in psychomotor performance. The present study carefully tracked changes in levels of intoxication with alterations in body sway using a custom-built load cell detector. **Methods:** A fixed platform device recorded the amount of force exerted in all planes at a rate of 15 Hz. Seven (7) adults consumed a standard alcoholic drink (0.7 g/kg: 80 proof vodka mixed with orange juice) over a 15 minute period. Once before and at 5 times following the consumption of the drink, participants stood for 30 second episodes in 4 standardized poses (eyes open/closed, arms by side/extended). Participants completed a 13-item visual analog scale for measurement of the alcohol's subjective effects. Blood samples were collected for measurements of plasma alcohol levels. **Results:** The alcohol drink produced peak plasma ethanol levels of 0.088% at 40 minutes after ingestion. Analyses of 3 unique measures of stance showed that stability was significantly degraded at 30 minutes following ingestion (stability degradations of 51 to 89% change from baseline) and remained slightly degraded for 180 minutes. In contrast, significant increases in subjective reports of intoxication (e.g., 'drunk', 'feeling effects of alcohol') were observed for only 30 to 75 minutes and returned to baseline by 180 minutes post drinking. **Conclusions:** The longer duration of impaired stance stability may be due to an interaction with fatigue secondary to the consumption of the alcohol as self-reported ratings of 'sleepiness' increased in the second half of the session. **Support:** NIAAA Grant AA10536 and NIDA Grant DA00343 (SEL)

468 GENDER DIFFERENCES IN SUBJECTIVE AND PHYSIOLOGICAL RESPONSE TO ORAL THC IN CANNABIS-DEPENDENT HUMANS

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Aims: Recent research has shown that oral THC alleviates some marijuana withdrawal symptoms and attenuates marijuana craving subsequent to marijuana cue exposure. These findings suggest that oral THC warrants further investigation as a potential pharmacotherapy for cannabis abuse. Few studies have examined gender differences in subjective and physiological responses to oral THC challenge. The current (ongoing) study is investigating whether males and females differ in subjective drug effects, blood pressure (BP), and heart rate following administration of three doses of oral THC (0 mg, 10 mg, 20 mg; counterbalanced and randomized). **Methods:** Subjects completed to date include 14 (7 male) healthy, young adults (M age = 28.7 yrs) who met DSM-IV criteria for Cannabis Dependence but no other substance use disorder. They participated in 3 sessions separated by one week. Subjective drug effects and physiological data were collected for 4 hrs following oral THC challenge. **Results:** Repeated measures ANOVA on peak subjective drug effects revealed significant drug X gender interactions on the VAS items "Feel Effects," "Like Effects," and "Want More." Females had higher scores than males on all three VAS items at the 10 mg dose. Females also reported higher scores on "Want More" at the 10 mg relative both to 0 mg and 20 mg oral THC. Repeated measures ANOVA also revealed a significant drug X gender interaction on diastolic BP. In females only, diastolic BP was lower following 10 mg and 20 mg oral THC relative to placebo. **Conclusions:** These findings indicate that females report feeling and liking the effects of 10 mg oral THC more than males, although this difference is not evident at the 20 mg dose. Females also may be more physiologically reactive to oral THC than males. These results illustrate the importance of considering gender in dosing with oral THC, should this medication be approved for use as treatment for cannabis abuse. **Support:** Supported by NIDA Grant DA19236 and Joe Young, Sr. funds from the State of Michigan.

469 ZERO-INFLATION IN ASI COMPOSITE SCORES: COMPARISONS WITH CONCURRENT VALIDATION MEASURES

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Aims: The Addiction Severity Index is the most widely used multidimensional assessment in substance abusing samples. The most commonly used set of summary scores are the composite scores (CS). Each of these scores usually exhibits a semi-continuous distribution, with a proportion of the sample reporting a score of zero (or of one for the Employment domain). The present research will quantify the proportion of zeros in a treatment seeking sample, and will use other measures to assess the problem-severity of patients scoring zero on a CS. **Methods:** In a recent study of the ASI-5 we obtained concurrent validity data for each of the 7 ASI domains on 586 recent admissions to substance abuse treatment. For six domains, excluding the employment domain, we examined the rates of zero inflation, and compared validator score(s) corresponding to each ASI domain for patients with zeros on a given ASI CS to patients with non-zero scores. **Results:** The extent of zero inflation ranged from 10% for the drug CS to 60% for the legal CS. Scores on validators indicated significantly greater severity for patients with non-zero CSs than for those with zeros, for all domains excepting employment (Kruskal-Wallis, all $p=0.005$). There was, however, considerable variation in the validator scores for patients with zeros on a given domain. For the drug domain, none of the zero-CS group exceeded the median corresponding validator score (DAST) for the non-zero CS group. For the alcohol domain, 7% exceeded the median of the DRINC total, and 20% the median of the MAST. For psychiatric, legal, social and medical domains, corresponding rates of between 10% and 20% were observed for most validator measures. **Conclusions:** The ASI drug CS agreed very well with its corresponding validator, with poorer agreement in other domains. Analyses using zero-inflation regression models will examine this pattern of results in greater detail. Zero inflation will likely be more pronounced in treated or follow-up samples where ASI scores are typically less severe; the meaning of zeros in such samples warrants attention. **Support:** R21-AA-017117

470 ACQUISITION AND MAINTENANCE OF NICOTINE SELF-ADMINISTRATION IN ADOLESCENT MALE AND FEMALE RATS

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Aims: Despite the fact that initiation of nicotine use generally begins during adolescence, and that rates of nicotine use are comparable between males and females at this time, most animal studies have focused on adult males. Thus, in this study, we examined rates of acquisition of nicotine self-administration and subsequent progressive-ratio responding for nicotine in male and female rats beginning during early adolescence (i.e., on postnatal day 30). **Methods:** Six male and nine female Sprague Dawley rats were trained to self-administer nicotine (0.01 mg/kg/infusion) under a fixed ratio 1 schedule (i.e., each response was reinforced by an infusion of nicotine). Following acquisition (defined as two consecutive sessions during which a rat obtained all 20 infusions available), responding was assessed under a progressive-ratio schedule until postnatal day 45. **Results:** Under these conditions, both males and females rapidly acquired nicotine self-administration (typically in the first 2 sessions) with all of the animals meeting the acquisition criterion by postnatal day 39. Males and females also responded at similar levels under the progressive-ratio schedule suggesting that they were equally motivated to obtain nicotine infusions. **Conclusions:** These data demonstrate rapid and maximal rates of acquisition of nicotine self-administration during early adolescence in male and female rats. The lack of a sex difference is in contrast to results in adult rats suggesting that sex differences may vary at different developmental time-points. It is also possible that sex differences are relevant during adolescence but that the use of a high dose of nicotine obscured differences. Studies are underway to examine this possibility and to determine the relationship between gonadal hormones (i.e., estradiol, progesterone, and testosterone) and motivation for nicotine during this important hormone transition period. **Support:** Virginia Youth Tobacco Project Small Grants Program for Research and The University of Virginia

471 CONTRASTING MODELS OF GENETIC COMORBIDITY FOR CHILDHOOD CONDUCT DISORDER AND CANNABIS INVOLVEMENT

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Aims: Conduct disorder (CD) has been consistently associated with increased risks for cannabis use & abuse/dependence. Several hypotheses may explain these observed associations, including the possibility that CD may directly cause cannabis use and abuse/dependence or that CD and cannabis involvement reflect correlated liabilities (including genetic vulnerabilities). **Methods:** We investigate the source of the comorbidity between CD and cannabis use and abuse/dependence symptomatology using 13 distinct genetic models proposed by Neale and Kendler. These models were fit to data from 4152 same-sex male and female Australian twins on CD and early onset (before age 18) cannabis use and lifetime symptoms of cannabis/dependence. **Results:** DSM criteria of CD were reported by 18.9% of males and 7.6% of females and was associated with dramatically elevated risks of early onset cannabis use (OR = 7.0, 95% CI = 5.1-9.6 (females); OR = 4.5, 95% CI = 3.5-5.8 (males)) and lifetime abuse/dependence symptomatology (OR = 5.6, 95% CI = 4.1-7.8 (females); OR = 3.9, 95% CI = 3.1-5.1 (males)). Results from the best fitting model indicated moderate heritable components to CD ($h^2 = 27\%$ in females; 41% in males) and to both early onset cannabis use ($h^2 = 51\%$ in females; 49% in males) and symptoms of cannabis abuse/dependence ($h^2 = 34\%$ in females; 60% in males). Importantly, both the genetic correlations ($r_g = .52-.81$) and shared environmental correlations ($r_c = .58-1.0$) were substantial, indicating that much of the observed comorbidity between CD and cannabis involvement could be explained by correlated genetic and environmental liabilities. **Conclusions:** The comorbidity between CD and cannabis involvement can largely be attributed to a common predisposition to these behaviors. **Support:** DA18267; DA18660; DA23668; AA07728; AA11998

472 INVOLVEMENT OF IFENPRODIL IN THE ADDICTION MEMORY VS. THE SPATIAL LEARNING AND MEMORY IN RATS

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Aims: Previous research demonstrated that drug addiction and learning and memory shared the common mechanisms in the levels of neurocircuits, neuronal activities, synapse, and intracellular signaling cascades. In the present study, the role of NMDA receptor, especially the receptor containing NR2B subunit, in morphine conditioned place preference (CPP) and spatial learning and memory was investigated. **Methods:** CPP was used as a paradigm to assess the rewarding effect of morphine, and Morris water maze (MWM) to measure the ability and capacity of spatial learning and memory. 339 male SD rats were used in the present study. **Results:** Ifenprodil (1, 3, 10 mg/kg, i.p.), an antagonist highly selective for NR2B containing N-methyl-D-aspartate (NMDA) receptor, blocked the development, consolidation as well as the reinstatement of morphine CPP ($P < 0.05$ at least, two-way ANOVA, followed by Bonferroni post-test), with no impairment on the acquisition and retrieval of spatial memory in MWM tests, although the consolidation of spatial memory was disrupted at the highest dose. **Conclusions:** Conclusion and implications: (1) Blockade of NR2B by ifenprodil prevented or abolished the morphine-induced CPP; (2) Ifenprodil did not affect the acquisition and retrieval of spatial learning and memory; (3) It was only at high dose that ifenprodil may affect the consolidation of spatial memory; and (4) The NR2B containing NMDA receptor may be considered as a target for the treatment of opiate addiction. **Support:** This study is supported by a grant (30570583) from the National Natural Science Foundation, and the National Basic Research Programme (2003-CB515407) of China.

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473 OUTCOMES OF A NATIVE AMERICAN CULTURAL EDUCATIONAL PROGRAM FOR NON-NATIVE COUNSELORS

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Aims: The Native American Cultural Educational Program for Non-Native Counselors consists of a twenty-two hour Native American-based curriculum that is designed for non-Native counselors who work with Native Americans in substance abuse treatment settings. The goal of this curriculum is to increase the knowledge base and understanding of non-Native American counselors about a range of relevant aspects of Native American culture. The aim of this study was to determine the effectiveness of the curriculum in this regard. **Results:** On average participants' scores increased from 54% on the pre-test to 79% on the post-test. Participants who completed the follow-up survey (n=33), 56% felt the curriculum increased their confidence in working with Native American clients, 61% agreed & 16.7% strongly agreed the curriculum helped assist them in developing culturally specific discharge plans, 44% agreed & 33% strongly agreed the curriculum helped them integrate Native American cultural & spiritual issues into the screening & assessment process, 44.4% agreed & 11.2 % strongly agreed that the curriculum helped them to develop culturally-specific substance abuse treatment plans, 55.5% agreed & 33.3% strongly agreed that overall the curriculum helped them improve their counseling/therapeutic relationships with Native Americans. **Conclusions:** The curriculum enables counselors to: increase their knowledge about Native American cultural and spiritual ways; apply newly learned counseling strategies with Native American clients; and provide programs that allow Native American clients to experience their traditional ways. **Support:** Pre- and post-tests were administered to all 115 participants between October 2005 and November 2007 to measure change in participants' cultural competence. A follow-up survey designed to measure the application of the curriculum to clinical practice was also distributed to participants who completed the curriculum. Survey completion was voluntary and the response rate was 28%.

474 RELIABILITY AND VALIDITY OF THE BASIS-24 IN DRUG-DEPENDENT PATIENTS

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Aims: The successful implementation of a national benchmarking process for treatment programs requires an assessment instrument with strong evidence of reliability, validity, and ease of implementation. The Behavior and Symptom Identification Scale (BASIS-24) Copyright; Eisen et al, 2004, 2006) is a brief self-report questionnaire that measures six common presenting symptoms. The psychometric properties of this instrument are acceptable in inpatient and outpatient mental health settings, and the BASIS scales are approved for accreditation purposes for psychiatric treatment programs. However, there are no published studies examining its reliability and validity specifically for primary drug abuse patients treated in different modalities. **Methods:** We administered the BASIS-24 to 968 patients upon entry to intensive outpatient (n=152), methadone maintenance (n=576), and residential therapeutic community (n=240) programs of The APT Foundation. Electronic medical record information will be extracted for an analysis of concurrent and predictive validity. **Results:** Preliminary analyses indicate that scales measuring substance abuse, emotional lability, relationships, and depression/functioning are significantly higher than the psychosis and self-harm scales at baseline, but show significant reductions at one-month re-assessment. Patients seeking methadone treatment report significantly higher scores for most scales in comparison to the other two modalities. Further analyses will include reliability (internal consistency, test-retest) and factor analysis, and analysis of variance and correlations for concurrent and predictive validity. **Conclusions:** Treatment/program planning, quality improvement, and patient monitoring implications will be discussed. The benchmarking of patient symptoms and outcomes with national comparison groups that are specific to treatment modality and sensitive to facility characteristics has important implications for the dissemination of evidence-based practices and the interpretation of the common site effects in multi-site trials. **Support:** The APT Foundation

475 DEVELOPMENT OF A NOVEL BEHAVIORAL ACTIVATION INTERVENTION FOR DEPRESSED, HIV POSITIVE, AFRICAN AMERICAN SUBSTANCE USERS-ACT HEALTHY

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Aims: Substance use is an important predictor of HIV health outcomes, as it has been shown to be associated with risky sex and poor antiretroviral medication adherence. 37-50% of HIV positive substance users also suffer from major depression, which further exacerbates poor substance use and health outcomes. Few interventions have been developed to meet the specific needs of depressed, HIV-infected substance users, especially for disadvantaged minorities. Thus, the objective of this study was to develop a novel, behavioral treatment for depression and HIV medication adherence among African American substance users. **Methods:** Therapist and patient manuals for the ACT HEALTHY treatment were piloted with 10 African American HIV positive substance users in a residential treatment facility in Washington, DC. ACT HEALTHY uses behavioral activation techniques for depression and substance use in combination with Life-Steps, an HIV-medication adherence skills training. Treatment consisted of 8 bi-weekly inpatient sessions and 8 weekly outpatient sessions. Assessments were given at baseline, residential discharge, and each outpatient session, evaluating participants' substance use, depressive symptoms, health-related outcomes (e.g. viral load, CD4 count), medication adherence, HIV risk behaviors (e.g. injection drug use, risky sex), and activity levels. **Results:** Changes between the baseline and post residential assessments included a 100% remittance in DSM-IV MDD, a decrease in depressive symptoms (BDI), improvement in physical and emotional health (SF-36), and improved medication adherence (ACTG adherence questionnaire). 0 participants dropped out of the residential treatment program as compared to 45% of patients in the facility receiving treatment as usual. **Conclusions:** Preliminary findings suggest that a treatment targeting depression and HIV medication adherence can be successfully integrated into a residential substance use treatment program. Further, promising outcomes suggest further evaluation of this intervention in future randomized control trials. **Support:** NIDA R01 DA18730

476 TRANSITIONING FROM BUPRENORPHINE MAINTENANCE IN JAIL TO THE COMMUNITY

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Aims: Buprenorphine (bup) has never been systematically administered as an opioid agonist maintenance therapy in a correctional setting. This study determines the feasibility of transitioning from bup maintenance in jail to the community. **Methods:** Heroin-dependent men not enrolled in methadone treatment at incarceration and sentenced to 10-90 days in the Rikers Island jail (NYC) were voluntarily assigned to bup or methadone maintenance at Rikers, methadone being the standard of care for heroin dependence at Rikers. **Results:** Age (mean), 40 yrs; Hispanic, 63%; Black, 25%; White, 12%; lifetime arrests (mean), 21; drug injection (past 30 days), 40%. 59 and 55 inmates have been assigned to bup or methadone, been medicated and released, respectively. Daily maintenance doses in jail (medians): bup (Suboxone)-12 mg; methadone-30 mg. Days of treatment at Rikers (median), 22. At study induction, 93% of bup vs. 45% of methadone patients indicated intentions of continuing the same treatment after release (p<.01). 40% of patients intending to continue vs. 12% not intending to continue, reported to their assigned treatment after release (p<.01). 49% of bup vs. 15% of methadone patients reported for the same maintenance treatment in the community (p<.001). Among the 10 released bup patients referred to intensive outpatient clinics for bup, 4 reported but none returned after the initial visit; among the 45 released bup patients referred to primary care for bup, 24 reported and 14 returned after their initial visit (difference in rate of return, p=.05). **Conclusions:** Among heroin users not in methadone treatment when incarcerated, bup may be more acceptable than methadone as maintenance treatment in the community, and bup treatment in primary care may be more acceptable than bup offered in outpatient treatment clinics. The necessity of receiving medication in regulated methadone clinics may also help explain the low rate of reporting for the methadone group. **Support:** NIDA grant R21DA020583

- 477** A SAFETY REVIEW OF DERMATOLOGIC CONDITIONS IN TWO DOUBLE-BLIND PLACEBO-CONTROLLED TRIALS:
A COMPARISON OF MODAFINIL AND N-ACETYLCYSTEINE FOR COCAINE DEPENDENCE
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Aims: Modafinil is the subject of much active research in NIDA-funded studies. In October 2007 the Food and Drug Association (FDA) and Cephalon notified health care professionals of updates to the warning section of prescribing information of modafinil. These advisories include warnings regarding Stephens-Johnson syndrome (SJS), epidermal necrolysis, and drug rash with eosinophilia and angioedema. Although quite rare, these conditions can be fatal if not recognized early. Methods: We evaluated the adverse events (AE) database of subjects participating in a Phase II/III clinical treatment trial of modafinil and compared them to subjects participating in a Phase II cocaine-treatment trial of N-acetylcysteine (NAC). A total of N=84 subjects were reviewed for modafinil and N=81 for NAC. Results: Adverse skin reactions were 4.76% for modafinil subjects and 8.64% for NAC (p=0.31). Dermatologic AEs for modafinil included maculopapular rash, pruritus, and acne; those reported for NAC included rash, pruritus, contact dermatitis, and blisters. One NAC subject had an intense, pruritic, advancing rash which continued to worsen after discontinuation of study medicine. This subject was treated with a five-day course of high-dose tapering prednisone, and the rash resolved without sequelae. No mucus membrane structures were involved. Conclusions: Rare but potentially fatal conditions of the skin and mucus membranes have been reported with numerous classes of medicines. Anaphylaxis has been reported with NAC. Our most serious allergic reaction was with NAC. This study is limited by a small n. Modafinil addiction studies should centralize reporting of allergic AEs. Support: This research is supported by NIDA 1 R01 DA016368-01A1 and NIDA 1 R01 DA019903-01.

- 478** SEX TRADE BEHAVIOR AMONG INJECTION AND NON-INJECTION DRUG USERS IN BALTIMORE, MD

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Aims: Blood borne diseases and sexually transmitted infections, including HIV, HBV, HCV, are increasingly prevalent among injection drug users and sex trade workers in many parts of the world. However, less is known about whether regular use of particular drugs increases risk of engaging in sex trade behavior and if injection drug use modifies those associations. Methods: Participants were 610 adult drug users recruited from Baltimore city for an epidemiological study of neurobehavioral risk factors for drug use and infectious disease. Separate logistic regression analyses were conducted to examine if ever having regularly used alcohol, marijuana, cocaine, crack, heroin, or speedball was associated with having ever traded sex for money or drugs. Interactions between regular drug use and having ever injected drugs were also tested. Results: In this sample, 204 (33%) had engaged in sex trade behavior, 453 (74%) had used heroin regularly, 393 (64%) had injected drugs, 344 (56%) were male, 312 (51%) were African-American, and 308 (50%) were 31 to 40 years of age. After adjustment for gender, race, and age, the odds ratio (OR, confidence interval [CI]) for sex trading was 2.0 (1.4-2.9) for alcohol, 1.9 (1.3-2.8) for marijuana, 2.4 (1.7-3.6) for cocaine, 3.2 (2.2-4.7) for crack, 0.9 (0.6-1.5) for heroin, and 1.5 (1.0-2.2) for speedball. An interaction was found between regular heroin use and having ever injected drugs. For injectors, regular heroin use decreased risk of engaging in sex trade behavior (OR=0.5, CI=0.2-0.9) and for non-injectors, regular heroin use was not associated with the risk of engaging in sex trade behavior (OR=1.0, CI=0.5-1.9). Conclusions: In a population of drug abusers, regular use of alcohol, marijuana, cocaine, or crack increased risk of engaging in sex trade behavior. However, regular use of heroin or speedball, did not increase risk of sex trading. Understanding the association between regular drug use, injection drug use, and sex trade behavior will inform programs and policies that seek to reduce the spread of infectious diseases. Support: NIDA grants DA010777 and DA007292

- 479** GENDER DIFFERENCES IN RESPONSE TO DISULFIRAM TREATMENT FOR COCAINE DEPENDENCE IN METHADONE-STABILIZED OPIOID- AND COCAINE-DEPENDENT INDIVIDUALS

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Aims: Previously we showed that disulfiram (DSF) at 62.5 and 125 mg/day, but not 250 mg/day, increased cocaine use relative to placebo in those with low, but not high, dopamine beta-hydroxylase (DBH) activity. This present study conducted secondary analyses to examine whether response to disulfiram differs by gender. Methods: In this 14-wk, double blind, placebo-controlled clinical trial opioid- and cocaine-dependent individuals (N=152; mean age = 36.3 yrs; 59% male; 10% H/11% AA/78% Cau/2% Other) were inducted onto methadone (wks 1-2) and randomized to receive DSF (wks 3-14) at either 0, 62.5, 125, or 250 mg/day. In addition, all participants received weekly 1-hour CBT. Thrice-weekly urine samples were tested for the presence of cocaine metabolites. HLM with gender, treatment group and time as factors was performed on cocaine urine results. Results: Medication groups generally did not differ on subject characteristics or retention. Males and females generally did not differ on baseline characteristics, except that males reported significantly longer duration of opioid use (p=0.04). In males, cocaine-positive urines increased over time in the 62.5 (p=0.0006) and 125 (p<0.0001) DSF groups relative to placebo and decreased similarly over time in the 250 DSF and placebo groups (p=0.64). In females, cocaine-positive urines did not differ between the 62.5 (p=0.52) or 125 (p=0.42) DSF and placebo groups; however, cocaine-positive urines showed a trend toward decreases over time at DSF 250 relative to placebo (p=0.06). These results cannot be explained by differences in DBH activity. Conclusions: These results suggest that DSF, at doses of up to 250 mg/day, is ineffective treatment for cocaine dependence in cocaine- and opioid-dependent men and may escalate cocaine use at doses lower than 250 mg/day. DSF at 250 mg/day may be effective treatment for cocaine dependence in cocaine- and opioid-dependent women. Support: Supported by grant DA13441 and Arkansas Biosciences Institute.

- 480** SIGNIFICANT ASSOCIATION OF BITTER TASTE RECEPTOR GENES WITH NICOTINE DEPENDENCE IN AFRICAN AMERICANS

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Aims: Psychophysical studies suggest that bitter sensitivity is a factor in cigarette smoking. However, genetic involvement is not well understood. The current investigation sought to determine whether single nucleotide polymorphisms (SNPs) in the bitter receptor gene TAS2R38 are associated with nicotine dependence (ND) and if effects vary by gender and ethnicity. Methods: Samples used included 2037 individuals from 602 nuclear families of either African American (AA) or European American (EA) origin, recruited from the Mid-South States from 1999-2004. Proband smokers were at least 21 years old, smoked for at least five years, and smoked at least 20 cigarettes per day for the past 12 months. Siblings and parents were recruited whenever possible. ND was assessed with three measures: indexed Smoking Quantity (SQ), Heaviness of Smoking Index (HSI), and the Fagerström Test for Nicotine Dependence (FTND). Peripheral blood DNA was genotyped for three SNPs of each gene using a TaqMan assay. Results: Association analysis indicated that the TAS2R38 taster haplotype, PAV, was negatively associated (P = 0.0165) and the nontaster haplotype, AVI, was positively associated (P = 0.0120) with SQ in AAs. Our results further revealed that the nontaster haplotype was positively associated with all three ND measures in AA female smokers (SQ, HSI, and FTND; P = 0.003, 0.008, and 0.010). These associations remained significant after correction for multiple testing of major haplotypes. No significant associations were detected for the gene in EAs. Conclusions: Genetic variants in bitter taste receptor genes may play a more important role in the etiology of ND in AAs compared to EAs. Our results further imply that increased sensitivity to bitter substances (i.e., being a taster) confers protection against the development of ND. Conversely, decreased sensitivity (i.e., being a nontaster) represents a risk factor for ND, especially in AA female smokers. Support: This study was supported by NIH grant R01-DA12844.

CPDD 2008 Annual Meeting, San Juan, Puerto Rico

- 481 RECOVERY-ORIENTED SYSTEMS OF CARE: AN EXAMINATION OF RECOVERY SUPPORT SERVICE TYPES AND CLIENT OUTCOMES**
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Aims: The study examines the relation between recovery support service types and client outcomes in two Texas projects that include a voucher system for provision of services within a recovery oriented systems of care (ROSC) model. The Access to Recovery (ATR) project provides voucher monies for addiction treatment and/or recovery support services to individuals involved in the criminal justice system, whereas the Co-Occurring State Incentive Grant (COSIG) project supplies voucher funding to addiction treatment clients with co-occurring psychiatric disorders. Methods: Two sets of analyses were conducted exploring types of services received, one comparing successful completers and non-completers of the ATR program (n=825) and the other contrasting addiction treatment completers and non-completers in the COSIG program (n=424). Results: For ATR clients, results indicated that, among the specific types of recovery support services, those services that are most closely related to the process of recovery, such as individual recovery coaching, recovery support, and relapse prevention group, were more strongly associated with successful completion of the ATR program. By contrast, recovery support services that provide social supports, such as transitional housing, transportation, and employment coaching were more highly associated with negative outcomes, particularly in the absence of addiction treatment. Among COSIG clients, results revealed that peer mentoring had the strongest association with completion of treatment and that provision of social supports only, without peer mentoring, was associated with treatment non-completion. Conclusions: The similar trends found in both of these analyses of ROSC projects targeting different client populations suggest that direct recovery support services in combination with addiction treatment may play a stronger role in enhancing client outcomes relative to provision of social support services alone. These results highlight the need for future studies examining the effectiveness of various recovery support service combinations in enhancing client outcomes within ROSC models. Support: SAMHSA
- 482 A DESCRIPTIVE PROFILE OF OPIOID-DEPENDENT PATIENTS WITH CHRONIC PAIN ATTENDING THE COLUMBIA UNIVERSITY BUPRENORPHINE PROGRAM**
J.M. Manubay^{1,2}, S.K. Vosburg^{1,2}, E. Gunderson^{1,2}, E. Yango¹ and H.D. Kleber^{1,2}, ¹Psychiatry, Columbia University, and ²NYSPI, New York, NY
Buprenorphine has been available clinically for over 25 years for pain management. In October 2002, buprenorphine was approved by the FDA for office-based treatment of opioid dependence. Since 2003, the Buprenorphine Program of Columbia University has treated over 200 patients with opioid dependence. Approximately 20% of patients in the program have chronic pain greater than 6 months. Patients with opioid dependence and chronic pain are maintained on doses of Suboxone that provide adequate pain relief with minimal side effects. Most of these patients take divided daily doses of Suboxone to maximize the analgesic effect of buprenorphine. Twenty out of one hundred of our current patients report having chronic pain. The types of chronic pain are 80% musculoskeletal pain, 10% low back pain, 10% other (i.e. fibromyalgia). Characteristics of these patients include 75% Male/25% Female, 80% Caucasian/10 % Hispanic/10% African-American, and average age is 38.3 years. The average dose of Suboxone for these patients is 4 mg four times daily, which rarely had to be increased, indicating lack of tolerance to the analgesic effect. All but one of our patients achieved adequate pain control on Suboxone. Five patients stopped Suboxone temporarily due to major surgery (i.e. appendicitis, back surgery) or other reasons where they required greater pain management than the highest dose of Suboxone could provide, but all returned to Suboxone treatment afterward at similar doses to prior to stopping. Fifteen percent have used additional treatment (i.e. epidural injections) to supplement current buprenorphine treatment. The average duration of buprenorphine treatment of these chronic pain patients is 1.5 years. Patients report significant improvement of their pain, minimal side effects compared to other opiates, and better quality of life. The most common side effects of Suboxone are constipation and insomnia. These findings suggest that patients with opioid-dependence with mild to moderate pain can be maintained on Suboxone for long-term management of pain at stable doses, with minimal side effects. Support: None
- 483 TREATMENT-SEEKING CHARACTERISTICS OF POTENTIAL PARTICIPANTS FOR SUBSTANCE USE DISORDER CLINICAL TRIALS**
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Aims: Our aim was to compare cannabis-dependent potential clinical trial participants to those with cocaine or opioid dependence with regards to exposure to treatment services, consideration of initiating treatment, and treatment-initiation as a result of clinical trial recruitment advertising. Methods: Fifty-seven consecutive potential clinical trial participants screened at Columbia University's Substance Treatment and Research Service completed surveys evaluating their past treatment exposure, intent to pursue treatment prior to advertising exposure, and the influence of advertising on their decision to attend an initial evaluation. Results: Cannabis-dependent individuals (n=15) were less likely to be considering treatment at the time of exposure to recruitment advertising as compared to a combined group of cocaine and opioid-dependent participants (n=42)[53% vs. 83%, $\chi^2=5.4$, $df=1$, $p=0.02$]. There were no statistically significant differences in either exposure to prior treatment [33% vs. 57%, $\chi^2=2.5$, $df=1$, $p=0.11$] or the influence of advertising in their decision to seek treatment [38% vs. 20%, $\chi^2=1.9$, $df=1$, $p=0.16$]. A minority of participants from both groups cited the free cost of clinical trial treatment as the most important influence (among 9 options) on attending the initial screening appointment [11% vs. 27%, $\chi^2=1.0$, $df=1$, $p=0.31$] and both groups most frequently cited reimbursement for travel expenses [50% vs. 33%, $\chi^2=1.1$, $df=1$, $p=0.30$] as the least important influence. Conclusions: Cannabis-dependent individuals are less likely to be considering treatment at the time of exposure to advertising for clinical trial recruitment. The free cost of treatment and reimbursement for travel expenses are not among the most important influences on attending initial screening appointments for clinical trial participation. These findings should be taken into consideration when designing clinical trial recruitment strategies. Support: K23 DA021209, K02 DA00465
- 484 BRIEF MOTIVATIONAL INTERVENTION FOR ECSTASY USERS: A PILOT RANDOMIZED TRIAL**
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Aims: To examine the efficacy of a brief motivational intervention in reducing ecstasy use and related harm among non-treatment seeking ecstasy users. Methods: A pilot randomized controlled trial of a brief (single session) motivational enhancement intervention. Participants (n=50) were randomly assigned to the Ecstasy Check-up (ECU) intervention or a delayed treatment control condition. It was hypothesized that participation in the ECU intervention would be associated with greater reductions in ecstasy use and related problems at 3-month follow-up. Results: At three month follow-up, continuous 90-day abstinence was reported by 16% of the ECU group and 4% of the control group ($\chi^2=2.0$, $p=.078$). Significant between group differences (in favor of the ECU intervention group) were found on the number of DSM-IV dependence symptoms reported (1.95 vs 0.96, $U=160.5$, $p=.014$) and total Severity of Dependence Scale (SDS) score (3.0 vs 1.6, $U=180.5$, $p=.046$). Other group differences observed; days of use in the past 90 (8.3 vs 5.2, $p=.105$) and total pills consumed (20.95 vs 11.11, $p=.088$) approached but did not achieve significance. Conclusions: The study demonstrates the feasibility of conducting a brief intervention with this population and provides preliminary evidence of effectiveness in significantly reducing ecstasy related problems. Replication with a larger sample to improve statistical power is warranted. Support: Supported by the Australian Government Department of Health and Ageing

485 APPROPRIATELY IDENTIFYING MENTAL HEALTH SERVICES NEEDS AMONG MINORITY SUBSTANCE ABUSE CLIENTS

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Aims: Minorities often encounter a variety of barriers in the process of accessing appropriate mental health services. Some of these barriers include perceived stigma and misdiagnosis. Using datasets from the Philadelphia CASPAR Study, we examined (1) whether minority clients in Substance Abuse treatment denied psychiatric problems based upon their counselor's race/ethnicity and (2) whether minority clients identified as not needing mental health services (based on standardized assessment information) were perceived by their counselors as needing further mental health treatment. **Methods:** A total of 102 minority (African American, Hispanic, and Native American) clients were assessed by 32 counselors (56% of the counselors were minorities) using the Addiction Severity Index (ASI), a comprehensive intake protocol assessing seven problem areas including psychiatric-related symptoms and history. Based upon clients' answers to objective questions on the ASI, they were classified using objective criteria as having no problems, some problems, or significant psychiatric problems. Clients' and counselors' perception of clients' problems were determined by subjective patient and interviewer rating scales in the ASI. Chi-square analyses were used to examine whether client and counselor severity ratings differed based on counselor minority status. **Results:** Rates of under-reporting of clients being troubled by psychiatric symptoms or needing treatment for their psychiatric symptoms ranged from 13%-18% but did not vary by counselor minority status. Clients with no or some psychiatric problems were more likely to be rated by their non-minority counselor as needing further treatment (20% vs. 5%) but this did not reach statistical significance ($p = 0.15$). **Conclusions:** In this study we did not find evidence to support our hypotheses that minority clients' rating of their mental problems and their counselors' rating of their need for treatment varied based on counselor minority status. However, in future work we hope to explore similar questions with a larger sample. **Support:** NIDA grants R01 DA-13134 and R01 DA-015125. NIAAA R01 AA-015327.

486 LUNG CANCER IN THE FAMILY: A TEACHABLE MOMENT

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Aims: This study seeks to determine if having a family member with lung cancer will be a Teachable Moment for a family-based smoking program. **Methods:** Lung cancer patients nominated family members (15 smokers and 34 non-smokers) for a smoking intervention and made a videotaped statement of why it is important that family members not smoke. Family members were asked to recall their sense of personal risk, emotionality, and social norm (role and responsibility in addressing smoking behaviors in themselves and others) before they learned of lung cancer in the family and now that they knew about lung cancer in the family. Two weeks later family members attended a session and viewed the lung cancer patient's video. Family members were seen in a 3 month follow-up session to measure CO and attitudes. **Results:** Paired t-tests indicate that there are significant increases in personal risk ($p < .01$), emotionality ($p < .001$), and social norms ($p < .001$) when examining how family members felt before lung cancer was diagnosed as compared to how they felt after lung cancer was diagnosed in the family. When comparing smokers to non-smokers, smokers recalled greater emotionality before learning of lung cancer in the family and lower social norms before and immediately after learning about lung cancer in the family. Changes in personal risk, emotionality, and social norms had returned to baseline by the 3 month follow-up in both the smokers and non-smokers. There was no significant decrease in the smokers' CO after viewing the video and meeting with family members. **Conclusions:** A lung cancer diagnosis serves as part of a Teachable Moment for a family-based smoking program with increases in personal risk, emotionality and social norms. An intervention must take into account that smokers' wish to change smoking behavior in themselves and others is not as great as seen in non-smokers, even in the face of having lung cancer in the family. **Support:** Kentucky Lung Cancer Research Fund NIDA P50 DA05312-16

487 HOSPITALIZATION FOR SUBSTANCE USE DISORDER IN A PSYCHIATRIC EMERGENCY SERVICE

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Aims: This study aimed to determine factors associated with hospitalization for patients with substance use disorder seeking care at psychiatric emergency units. **Methods:** A total of 11,578 consecutive visits were reviewed over a four-year period at a psychiatric emergency service in a tertiary hospital in Spain. Some patients were repeat visitors. Data collected included sociodemographic, clinical, social, and therapeutic information and the Severity of Psychiatric Illness (SPI) score. **Results:** The preliminary results showed substance use disorder was the diagnosis in 1,007 of the visits (8.4%) to the emergency department, which corresponded to 802 individuals. Of these visits, 6.2% required hospitalization (opioid 17.7%, cocaine 8.1%, alcohol 51.6%, benzodiazepines 9.7%, other drugs 12.9%). SPI scale and other data will be study with multivariate statistical logistic regression. **Conclusions:** Patients with substance use disorder had greater clinical severity, but the percentage of hospitalizations was lower than for patients without the disorder. The most frequent hospitalizations is for the alcohol consumption. The SPI was a good tool to assess the severity of illness of these patients. **Support:** This study was supported by grants from the Fondo de Investigación Sanitaria (Ministry of Health, Spain), from REM-TAP.

488 TRENDS IN RECENT-ONSET EXTRAMEDICAL OPIOID ANALGESIC USE IN THE US FROM 1990 TO 2005

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Aims: This study examines trends in recent-onset extramedical opioid analgesic use over a 15-year period testing for changes in demographics, opioid analgesic abuse/dependence, and associations with other extramedical prescription drugs (stimulants, sedatives and tranquilizers). **Methods:** Secondary analysis from the National Survey of Drug Use and Health (NSDUH) years 1990 ($n=8,841$) to 2005 ($n=50,022$). Data was analyzed through basic contingency tables and weighted logistic regression models. **Results:** Recent-onset extramedical opioid analgesic use (defined as respondents who initiated use within 24 months of assessment) in the general US civilian population aged 12 years of age and older increased from 0.9 % in 1990 to 2.6% in 2005 ($OR=2.9$ [2.2-3.9]), increases were more pronounced from 1999 onwards. Recent-onset analgesic use increased among both males (2005 vs. 1990: $OR=3.5$ [2.2-5.5]) and females (2005 vs. 1990: $OR=2.6$ [1.8-3.6]); among non-Hispanic Whites (2005 vs. 1990: $OR=3.2$ [2.3-4.4]) and Hispanics (2005 vs. 1990: $OR=6.6$ [3.5-12.4]), suggesting greater proportional increase among Hispanics than among Whites over time; among those with less than college education; among adolescents and adults younger than 35 years of age; and among those with an annual family income of less than US\$75,000. Analgesic abuse/dependence among recent-onset analgesic users did not change across time (measured from 1999 to 2005). Lifetime extramedical use of other prescription drugs among recent-onset analgesic users was stable across time, with the exception of sedative use, that decreased from 27.2% in 1990 to 5.5% in 2005 ($OR=0.2$ [0.07-0.3]). **Conclusions:** Recent-onset analgesic use has increased in the US general population particularly among Hispanics and younger age groups, however, this did not translate to an increase in analgesic abuse/dependence nor were there increases in other prescription drug use among this subpopulation. **Support:** NIDA grant DA020667-01A2 (P.I. Martins).

489 EFFECTS OF CHRONIC COCAINE IN THE PRESENCE OF AN OPERANT CONTINGENCY IN LONG-EVANS RATS: TOLERANCE TO LEVER PRESSING AND LOCOMOTION AND NO SENSITIZATION

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Aims: Locomotor sensitization to cocaine has been found in the absence of an operant contingency in rats and pigeons. In a previous study with pigeons, however, chronic cocaine administration produced locomotor sensitization only after an operant contingency was terminated. Given that drug use often occurs in the context of goal-directed behavior, we examined further whether systemic injections of cocaine would produce locomotor sensitization in the presence and absence of an operant contingency in rats. **Methods:** In Experiment 1, Long Evans rats (n=4) lever pressed on an FR schedule of food reinforcement. Locomotor activity (MED Associates, Inc. Activity Monitor 5) was measured continuously. Cocaine was administered acutely (intraperitoneally; saline, 0.3, 1, 3, 10, 17, 30 mg/kg cocaine; twice weekly). Chronic dosing commenced (3.0 or 10.0 mg/kg for 30 consecutive sessions), and then the FR schedule was terminated. Dose response curves were re-determined in the presence and absence of the FR schedule. In Experiment 2, rats (n=6) were exposed to an identical dosing schedule as in Experiment 1, but there was no operant contingency. Only locomotor activity was measured. **Results:** In Experiment 1, tolerance developed to decreases in lever pressing [$F(2, 40) = 7.64, p < .05$]. Following chronic dosing, there were no significant differences in the dose response curves relative to the acute curve either when the operant contingency was present or terminated. Experiment 2 found that tolerance developed to the locomotor-increasing effects of cocaine [$F(2, 40) = 5.07, p < .05$]. **Conclusions:** Chronic cocaine produced tolerance to decreases in lever-pressing and increases in locomotion. Locomotor sensitization did not develop when an operant contingency was in place, previously in place, or never in place. Unlike previous findings with pigeons, sensitization did not develop in the absence of an operant contingency. **Support:** USPHS Grants DA004074, F31DA021452

490 DIFFERENTIAL SENSITIVITY OF THE ROSTRAL AND CAUDAL BASOLATERAL AMYGDALA TO MODULATION OF COCAINE-SEEKING BEHAVIOR BY THE D1 RECEPTOR ANTAGONIST SCH 23390

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Aims: We recently reported that the caudal BLA was more sensitive than the rostral BLA to the effects of a D1 agonist for increasing cocaine-seeking behavior during cocaine maintenance testing (Mashhoon et al, 2006). The aim of the current investigation was to explore the effects of intra-BLA infusion of SCH 23390 on cocaine-seeking responses to test the hypothesis that the caudal BLA is also more sensitive than the rostral BLA to the effects of a D1 antagonist during cocaine maintenance testing. **Methods:** Rats were initially trained to self-administer 1 mg/kg cocaine under a second-order schedule of drug delivery, and then underwent 10 days of training with unique cocaine-paired (S+) and saline-paired (S-) sound and light cues. SCH 23390 (0.5, 1.0 and 2.0 µg/side) was bilaterally infused into the caudal (n=7) or rostral (n=8) BLA 5-min before 1-hr test sessions with cocaine and cocaine-paired (S+) cues. **Results:** Analyses revealed that SCH 23390 infused into either the caudal or rostral BLA dose-dependently decreased cocaine-seeking behavior, with the caudal BLA more sensitive than the rostral BLA to its disruptive effects. Decreases were evident with both the 1.0 and 2.0 µg/side doses of SCH 23390 after infusion into the caudal BLA relative to vehicle ($p < .05$). Only the 2.0 µg/side dose of SCH 23390 was effective in decreasing cocaine-seeking behavior after infusion into the rostral BLA ($p < .05$), which was consistent with our hypothesis. **Conclusions:** These findings support the view that the caudal BLA is more engaged in regulating cocaine-seeking behavior under cocaine maintenance testing conditions. Given that the rostral BLA is more sensitive than the caudal BLA to the effects of a D1 agonist for increasing cue-induced reinstatement of cocaine-seeking behavior (Mashhoon et al, 2006), we speculate that the rostral BLA will also be more sensitive to a D1 antagonist during cue-induced reinstatement testing conditions. Such research is relevant for revealing the brain circuits engaged during different phases of the addiction process. **Support:** Supported by DA 11716

491 ACAMPROSATE EFFICACY IN ALCOHOL-DEPENDENT PATIENTS: EFFECT OF NICOTINE AND ILLICIT SUBSTANCE USE ON TREATMENT RESPONSE

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Aims: Nicotine dependence and illicit substance use highly co-occur with alcohol dependence. The purpose of the present analysis was to determine the extent to which current smoking status and illicit drug use history predicts alcoholism treatment response and influences acamprosate efficacy. **Methods:** This is a post hoc analysis of a 6-month trial of alcohol-dependent patients randomized to receive placebo (n=260) or acamprosate (2g/day, n=258; or 3g/day, n=83). Baseline severities of nicotine and drug use were determined using the Fagerström Test of Nicotine Dependence (FTND) and the Illicit Drug Use Inventory (IDUI), respectively. The primary analysis endpoint for treatment response was percent days abstinent for $\geq 90\%$ of trial duration (PDA $\geq 90\%$). Predictors of treatment response were analyzed by logistic regression. **Results:** Of the ITT population (N=592), 45% of patients were current smokers and 51% reported illicit drug use within the prior year. Smoking and illicit drug use were significant negative predictors of treatment response. Further analyses of FTND and IDUI items detected specific determinant factors, including: current cocaine or heroin use; smoking >1 pack of cigarettes per day; difficulty refraining from smoking in public; and smoking during illness. Acamprosate was a significant predictor of improved alcoholism outcome (OR=1.56 [95% CI, 1.02-2.39], $P < .04$). There were no significant first-order interactions between smoking or drug use and acamprosate treatment. **Conclusions:** Current smoking and history of illicit drug use have a negative impact on alcohol dependence treatment outcome, but do not affect the efficacy of acamprosate. Due to its positive effects on PDA $\geq 90\%$, acamprosate may benefit this population of alcohol-dependent patients. **Support:** Funding for this project was provided by Forest Pharmaceuticals, Inc.

492 ACCESS TO HIV AND HEPATITIS SCREENING AND TREATMENT AMONG ETHNIC MINORITY DRUG USERS

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Aims: Ethnic minorities are disproportionately affected by both HIV/AIDS and hepatitis C (HCV) as a consequence of involvement in drug use and other risky behaviors. Although effective treatments are available for both HIV and HCV, many infected drug users (DUs) do not know their status, many who are infected are not engaged in HIV and or HCV care, and the passive referral systems commonly used do not consistently result in DUs becoming engaged in longitudinal medical care. Thus, it is important to identify strategies to overcome barriers to becoming engaged in HIV and HCV screening, clinical assessments, and treatment. The primary goal of this study is to identify individual, organizational, and societal factors related to access to HIV and HCV screening and treatment among ethnic minority DUs. This cross-sectional study is being conducted in prevention and treatment settings in two cities, San Francisco and New York. **Methods:** A mixed qualitative and quantitative methods research design is being used to gather information about ethnic minority drug users' attitudes, beliefs, and experiences in accessing HIV and hepatitis services. Structured surveys and focus groups will be conducted with a total of 300 DUs. African American, Hispanic, and Caucasian DUs will be recruited from three settings: methadone maintenance, HIV primary care, and syringe exchange programs. **Conclusions:** Findings from this study have the potential to inform the development of interventions to improve access to HIV and HCV prevention and treatment services for drug using sub-populations. **Support:** Supported by: California-Arizona Node of the NIDA Clinical Trials Network (U10 DA015815-06S1), National Center on Minority Health and Health Disparities, R01 DA020781, R01DA020841, and P30 DA011041.

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493 ATTENUATION OF METHAMPHETAMINE-INDUCED EFFECTS THROUGH ANTAGONISM OF SIGMA RECEPTORS: EVIDENCE FROM IN VIVO AND IN VITRO STUDIES

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Aims: Methamphetamine (METH) and many other psychostimulants, including cocaine and MDMA, interact with sigma receptors. Sigma receptors have been reported on dopaminergic neurons, and earlier studies have shown that antagonists or antisense oligos that target these proteins mitigate the actions of cocaine and MDMA in mice. Sigma receptors thus represent viable medication development targets for the treatment of psychostimulant abuse that is distinct from classical dopaminergic targets. In the present study, we evaluated AC927 and CM156, two putative sigma receptor antagonists, for their ability to attenuate the actions of METH. **Methods:** AC927 and CM156 were evaluated in vitro and in vivo. **Results:** Radioligand binding studies showed that AC927 and CM156 have significant and preferential affinity for both sigma-1 and sigma-2 receptors. Pretreatment of male, Swiss Webster mice with AC927 or CM156 significantly attenuated the following METH-induced effects: locomotor stimulation, depletion of striatal dopamine levels, reduction in striatal dopamine transporter (DAT) immunoreactivity, hyperthermia. When AC927 or CM156 were administered with saline instead of METH, they had no significant effects on basal locomotor activity, striatal dopamine levels, DAT immunoreactivity, or core body temperature in vivo. In preliminary in vitro studies, AC927 also significantly attenuated the neurotoxic effects of METH in NG108-15 cells. **Conclusions:** Together, the results confirm that AC927 and CM156 protect against METH-induced effects. Given earlier findings that antagonism of sigma receptors can mitigate the actions of cocaine and MDMA, the data suggests that sigma receptors are promising medication development targets for the treatment of psychostimulant abuse. **Support:** National Institute on Drug Abuse (DA011979, DA013978, DA019634, DA023205)

494 KATRINA AND RITA: TWO YEARS LATER

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Aims: To compare the changes in Katrina and Rita clients at admission immediately after the hurricanes with their condition at their final treatment episode. **Methods:** Data were compared on the status of 116 Katrina and 87 Rita clients who had multiple treatment admissions after the disasters. The data were extracted from the Texas administrative data set. T-tests were used for continuous variables and x2 for categorical data. **Results:** Over half of Katrina clients had a primary problem with heroin, but at their last admission, they were less likely to be on methadone and more likely to be in outpatient drug-free or in programs for persons with co-occurring disorders. They did not stay in treatment as long in their last episode, were more likely to be discharged for non-compliance, and to have a mental illness. The levels of scores on the ASI, number of days they used drugs prior to admission, homelessness, criminal justice problems, and unemployment did not change between first and last treatments. Rita clients had primary problems with alcohol and crack cocaine. At their last treatment admission, they were less likely to be in residential and more likely to be in outpatient or in programs for persons with co-occurring disorders. They were less likely to complete treatment but stayed in treatment longer than at their first episode. At their last admission, the number of days they used drugs prior to that admission and the number of days of problems on the ASI were significantly lower except for days of health problems. The levels of homelessness, criminal justice problems, and unemployment did not change. **Conclusions:** Other than being less likely to enter methadone, there was little difference in the status of Katrina clients at first and last admission. Rita clients reported fewer ASI problems at their last admission. While the condition of Rita clients improved with multiple treatment episodes, the lack of change with Katrina clients points to a population that is more difficult to treat. Lack of improvement in homelessness and unemployment and increases in admissions to programs for co-occurring disorders are problems for both populations. **Support:** Robert Wood Johnson Foundation.

495 PROFILE OF BUPRENORPHINE-NALOXONE INJECTORS IN MALAYSIA: A COMMUNITY SURVEY

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Aims: This study evaluated the characteristics of individuals in three cities in Malaysia reporting buprenorphine-naloxone (Suboxone) injection drug use (IDU) after the withdrawal of buprenorphine mono tablets (Subutex) and introduction of Suboxone. **Methods:** We conducted an anonymous, face-to-face survey, using a structured questionnaire administered by trained research assistants, of buprenorphine IDUs (N=204) using formal or informal needle exchange programs in Kuala Lumpur (n=169), Penang (n= 25) and Johor Bahru (n=10) after the withdrawal of BUP and introduction of BNT. **Results:** 200/204 (98%) of the participants were male; 183 (90%) Malay ethnicity; 47 (24%) less than 6 years of education; 104 (51%) employed full time; 148 (73%) single. All reported Suboxone IDU; 185 (91%) Suboxone IDU within the past month; 177 (87%) history of Subutex IDU, 197 (97%) heroin IDU, 130 (64%) heroin IDU within the past month. 153 (75%) received Suboxone from a private clinic; 139 (68%) from middle men selling only Suboxone; 95 (47%) from drug dealers; 119 (58%) from drug users. 69 (34%) injected Suboxone at least daily; 99 (49%) injected it with benzodiazepine. 157 (77%) reported lifetime ATS use, 57 (28%) use in the past month, 52 (26%) injection ATS. 156 (77%) reported lifetime benzodiazepine IDU. 48 (23.5%) were HIV+; 145 (71%) shared injection equipment within the past month, 74 (36%) shared with more than one person. Reasons for Suboxone IDU included treat addiction 166 (81.4%), alleviate withdrawal 142 (70%), get pleasure 73 (36%) and less expensive than heroin 116 (57%). **Conclusions:** Suboxone IDUs had prior heroin IDU, prior Subutex IDU, and high rates of polydrug use (benzodiazepines, ATS, heroin) and high risk drug use behaviors (needle sharing, sharing with multiple partners). The findings support the need for more effective drug abuse and HIV risk reduction interventions with this high-risk population. **Support:** Supported by University Sains Malaysia, Substance Abuse Center Muar, K24 DA000445(RS)

496 NONMEDICAL USE OF PRESCRIPTION OPIOIDS AND OTHER DRUG USE: WHAT COMES FIRST?

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Aims: The high prevalence and incidence rates of nonmedical use of prescription opioids (NMUPO) among adolescents and young adults in the U.S. warrants a more detailed examination of the initiation patterns of NMUPO within this age group. **Methods:** Data were collected from structured diagnostic interviews as part of the 2001-2002 National Epidemiologic Survey on Alcohol and Related Conditions (NESARC; n = 43,093). The present study used a sub-sample of U.S. young adults 18 to 29 years of age (n = 8,666), of which 50% were women, 61% White, 18% Hispanic, 13% African American, 6% Asian, and 2% Native American or of other racial background. **Results:** Among young adults 18 to 29 years of age, the lifetime prevalence rate of NMUPO was 7.4% and males reported higher rates of NMUPO than females (9.2% vs. 5.5%, p < 0.01). The mean age of onset for NMUPO (18.4 years, SE = 0.2) was higher than for alcohol, tobacco, marijuana and many other drugs. Among those who reported lifetime NMUPO (n = 547), approximately 86.1% initiated NMUPO after using alcohol, tobacco and/or marijuana (ATM), 12.6% initiated NMUPO at or before using ATM, and only 1.3% never used ATM. Further, 41.3% initiated NMUPO after using at least one other prescription or illicit drug (e.g., cocaine, hallucinogen, inhalant, heroin, sedative, stimulant, tranquilizer), 34.9% initiated NMUPO at or before using at least one other prescription or illicit drug, and 23.8% never used other prescription or illicit drugs. Early NMUPO initiation (15 years or younger) was significantly associated with the development of prescription opioid abuse and dependence, especially among those who initiated NMUPO after using other drugs. **Conclusions:** The results indicate that NMUPO is prevalent and is associated with other forms of substance abuse. Age of initiation of NMUPO appears associated with abuse and dependence and this relationship has implications for both the identification of high risk youth and early prevention efforts. **Support:** This study was supported by a NIDA research grant DA020899.

497 IMPLEMENTATION OF A TECHNOLOGY-BASED, QUALITY IMPROVEMENT SYSTEM AT OUTPATIENT SUBSTANCE ABUSE TREATMENT PROGRAMS: A QUALITATIVE ANALYSIS

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Aims: Modifiable variables such as length of treatment, therapeutic relationship, and treatment environment are associated with successful outcomes for substance and alcohol dependent individuals, and permit and support incorporation of quality improvement (QI) systems in treatment settings to enhance consumer satisfaction. Initiated in 2006, the Patient Feedback (PF) study is a randomized effectiveness trial implementing a QI system at 20 outpatient, substance abuse treatment programs in Pennsylvania and New York. **Methods:** Patients in group therapy sessions complete anonymous surveys on a weekly basis evaluating treatment satisfaction and therapeutic alliance with their group counselors. Surveys are processed and two types of feedback reports are generated for clinicians to download via a password-protected website. Caseload reports display aggregated feedback from group clients for individual clinicians. Clinic reports display aggregated feedback from all group clients for all participating clinicians. During monthly staff meetings, clinic reports are discussed and strategies are developed to address specific areas where there is opportunity for improvement. **Results:** Key findings from staff interviews supporting the acceptability of the PF system include: 1) endorsement of PF and its usefulness in providing constructive feedback, 2) clinic reports are valued as an effective tool to identify areas for improvement, and 3) team meetings are useful in cultivating open discussions regarding significant therapeutic issues. Additional findings reflecting differences in clinic funding, technology utilization, and clinician caseloads will be presented. **Conclusions:** Differences in clinic structure, organization, and available treatment services present unique opportunities for PF study implementation. These differences impact staff involvement, interest, and motivation of the PF system. **Support:** Supported by NIDA grants R01 DA020809-01(NYU) and R01 DA020799(U of P)

498 A COMPARISON OF TWO INTERVENTION MODALITIES TO REDUCE HIV RISK BEHAVIOR AMONG CHRONIC DRUG USERS

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Aims: The purpose of this study was to compare the efficacy of two interventions to reduce high risk behavior among chronic drug users (CDUs). The interventions selected for study were the NIDA Standard Intervention, developed early in the epidemic for drug users, and the RESPECT intervention, a more recently developed intervention which targeted sex risk behaviors. **Methods:** In 2003-2004, 600 HIV negative CDUs were enrolled in a study to test the efficacy of two brief interventions--NIDA Standard and RESPECT. Eligibility criteria included regular use of cocaine and/or heroin, not being in drug treatment, and age of at least 18 years. Individuals were recruited through snowball sampling techniques. A baseline questionnaire was administered which included demographics, drug use history, and sexual risk history. Participants were randomized to one of two intervention groups--the NIDA Standard or RESPECT. Participants were followed six months after the baseline interview with an 82% follow-up rate. **Results:** Overall, there was change in behavior for all risk variables in both intervention groups. Only two variables, the percent change in the mean number of sex partners - (NIDA, -17.0%; RESPECT, -65.7%) and percent change in the number of times having vaginal sex (NIDA, -17.7%; RESPECT, -53.2%) showed a significant difference between the interventions. Change in the percent of the time a condom was used (NIDA, 15.4%; RESPECT, 3.8%) was not significant but a trend could be seen favoring the NIDA intervention. Number of days used crack and number of days injected decreased to a comparable extent among both intervention groups. **Conclusions:** While the RESPECT intervention was somewhat more effective, the differences were restricted to a few risky behaviors. In regard to condom use, which may be the most important sex behavior, a trend was seen favoring the NIDA intervention. It appears that among CDUs, the NIDA Standard is an appropriate, succinct and quick intervention to reduce high risk behaviors. **Support:** NIDA grant RO1-DA-14231

499 EVALUATING A RESEARCH-BASED HIV PREVENTION PROGRAM ADAPTED FOR USE WITH INCARCERATED JUVENILE OFFENDERS

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Aims: Introduction: This project tested the feasibility and acceptability of an evidence-based HIV Prevention (HIP) program adapted for use with youth in two all-male Los Angeles County Probation Camps. **Methods:** Knowledge of HIV prevention behaviors, attitudes/ beliefs about HIV, substance use, and HIV risk-taking behaviors were assessed through Teen Health Survey and GPRA data, and compared between intervention and control groups at baseline and 6-month follow-up. **Results:** Participants were 85 predominately African American (33%) and Latino (60%) at-risk male youth, ages 14 to 19 years (mean 16.9, SD= 1.10). The follow-up rate was 75% for this highly mobile youth population. No differences were found on any baseline measures. Results showed significant difference between groups at follow-up in reported rates of condom use (X² (5) = 14.74 p < .01). In addition, the HIP intervention group reported a significant decrease in sexual contact while under the influence of drugs or alcohol (paired t = -1.99, df = 35, p < .05) from baseline to follow-up, and a significant increase in the percentage of time condoms were used in the past two months (paired t = -2.24, df = 35, p < .03). No such differences were found in the control group. **Conclusions:** Conclusion: The HIP program appears to have contributed sizeable influences on key HIV risk behaviors for this higher-risk population of male juvenile offenders. **Support:** This research was supported by The California UniversityWide AIDS Research Program (UARP)Innovative Developmental Exploratory Award (IDEA) ID04-FII-073.

500 DISCOVERY OF A SELECTIVE SIGMA-2 RECEPTOR LIGAND AND THE POTENTIAL INVOLVEMENT OF SIGMA-2 RECEPTORS IN COCAINE TOXICITY

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Aims: To synthesize a selective sigma-2 receptor ligand and investigate the involvement of sigma-2 receptors in cocaine toxicity **Methods:** We synthesized through a rational approach, a highly selective sigma-2 receptor ligand. This was accomplished through a straight-forward synthetic approach that produced over 60 novel ligands for sigma receptors. These molecules were designed from a highly selective sigma-1 receptor antagonist and a selective sigma-2 receptor agonist recently reported in the literature. The combination of certain features from each ligand has produced highly selective sigma receptor ligands. **Results:** We have synthesized over 60 ligands to investigate structure-activity requirements for sigma-2 selectivity. We have discovered a highly selective sigma-2 ligand, SN79, that has 6 nM affinity for sigma-2 receptors and >100,000 nM affinity for sigma-1 receptors. Furthermore, this compound has little to no affinity for other receptors usually problematic for sigma receptor ligands. This molecule significantly attenuates cocaine induced convulsions (p < 0.001) in mice and is a potential novel ligand for the treatment of cocaine toxicity. **Conclusions:** We have discovered the first highly selective ligand for the sigma-2 receptor. Furthermore, we have the first proof of the involvement of sigma-2 receptors in the toxic effects of cocaine. Further studies on this series of ligands may lead to novel treatments for cocaine toxicities and cocaine abuse. **Support:** Rae Matsumoto

CPDD 2008 Annual Meeting, San Juan, Puerto Rico

501 DRUG CRAVINGS FOLLOWING TRAUMA CUE EXPOSURE AMONG CRACK/COCAINE-DEPENDENT PATIENTS WITH AND WITHOUT PTSD

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Aims: Studies have suggested that 20-60% of treatment seeking substance-dependent individuals exhibit a diagnosis of posttraumatic stress disorder (PTSD; Jacobson et al., 2001). The high co-occurrence of PTSD with substance use disorders (SUD) suggests the two may be functionally related. In particular, it has been suggested that substance use may function to self-medicate PTSD symptoms (Stewart & Conrod, 2003). Evidence supporting the self-medicating function of substance use in PTSD largely comes from self-report data. Therefore, this study examined the relationship between a PTSD diagnosis and craving for crack/cocaine following exposure to personalized trauma cues. **Methods:** To date, we have recruited 12 crack/cocaine dependent patients in residential substance use treatment, all reporting exposure to a traumatic event (100% African/American, 67% male, mean age = 47). Three participants met criteria for PTSD (per the Clinician Administered PTSD Scale). Patients listened to a personalized audio script recounting their traumatic experience. Pre- and post- script cravings for crack/cocaine were assessed through self-report. **Results:** A 2 (pre-assessment, post-assessment) X 2 (PTSD, no PTSD) repeated measures ANOVA was performed. A significant time by PTSD diagnosis interaction was found, $F(1, 10) = 14.56, p < .01, \eta^2 = .59$. PTSD and no PTSD participants did not differ on cravings at baseline; however, PTSD participants did evidence significantly higher cravings following exposure to a personalized trauma script, $t(10) = -2.46, p < .05$. Further, reactivity to the trauma script (in the form of PTSD symptom severity) was found to predict severity of post-script cravings above and beyond baseline craving, $\beta = .34, \text{Adj. } R^2 = .87, \Delta R^2 = .07, p < .05$. **Conclusions:** Although further data collection is currently underway, these preliminary findings have implications for understanding the functional relationship between SUD and PTSD, as well as the development of novel treatments for this co-occurring condition. **Support:** R03 DA023001

502 OPEN LABEL MODAFINIL FOR METHAMPHETAMINE DEPENDENCE: SAFETY AND TOLERABILITY

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Aims: Methamphetamine has become a major public health issue in both the US and globally. Despite this, no effective pharmacotherapy for methamphetamine abuse has been developed to date. This 6 week, open-label pilot clinical trial examined the safety and tolerability of modafinil up to 400mg/day in up to eight methamphetamine dependent individuals. **Methods:** During week 1, subjects attended clinic for 5 days and were inducted onto modafinil at 400 mg/day over three days. They then received weekly blister packs and attended clinic thrice weekly for urine drug screens and for administration of the modafinil side effect check list. Self-reported drug use and mood ratings were completed weekly. All subjects underwent weekly individual cognitive behavioral therapy. Adjunctive contingency management procedures were used to enhance retention. Recruitment is ongoing. **Results:** Thus far, 3 subjects (2 female, 1 male, age range of 48 -51) have been enrolled, one of whom completed the 6-wk study, one who is completing the final week, and one who remained in the study 4 weeks. Very preliminary results revealed that self reported methamphetamine use decreased significantly over time ($p < .001$) from 571.4 mg during wk prior to study entry to 214.8 during wk 3. The meth withdrawal score decreased significantly as well ($p = .468$). There was no difference over time for side effects ($p = .2659$), amphetamine positive urine ($p = .1738$), systolic blood pressure ($p = .5540$), diastolic blood pressure ($p = .4427$) or heart rate ($p = .8322$). **Conclusions:** Our very preliminary results suggest that modafinil is safe and tolerable for methamphetamine dependent individuals. We plan to proceed with a double blind clinical trial to assess modafinil's ability to attenuate craving for methamphetamine and delay time to relapse. **Support:** Supported by P50-DA12762, UAMS Dept of Psychiatry and UAMS College of Medicine.

503 GENDER DIFFERENCES IN COPING MOTIVES AND SUBSTANCE USE DISORDER SEVERITY

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Motives for substance use may serve as a particularly important variable in the etiology and treatment of substance use disorders. As substance use disorders are associated with high levels of negative affect, coping motives may be of particular relevance to treatment. Further, studies suggest that there may be important gender differences in motives, with higher rates of coping motives among women. The purpose of this study was to investigate the relationship between coping motives and substance use disorder severity in men and women with current opioid dependence. We hypothesized that coping motives would be associated with greater drug use disorder severity and that this would relationship would be moderated by gender. Baseline data from a treatment outcome study for treatment-resistant substance dependence was utilized for this analysis; 51 participants (26 female), who were currently receiving methadone maintenance therapy were administered the Addiction Severity Index (ASI) and the COPE questionnaire, a self-report measure of coping strategies. A linear regression was conducted examining the relationship between coping motives and substance use disorder severity as measured by the ASI drug and alcohol use composite score. The main effect for coping motives reached significance ($p < .05$), and with the addition of the moderator the regression gained small improvement in the variance predicted ($R^2 \text{ change} = 0.04; p = 0.16$). The interaction term reflected a small to medium effect size ($d = 0.40$), but did not reach statistical significance. The full model predicted 20% of the variance in substance use disorder severity. For women, the regression was significant ($p < .05$) and predicted 23% of the variance in drug use disorder severity. This analysis suggests that gender may have some role in moderating the relationship between the use of substances to cope and substance use disorder severity. Among women relative to men, coping motives predict significant variance in substance use disorder severity. Affect regulation may be a particularly important treatment target for women with opioid dependence. Supported by NIDA grant R01 DA17904-03SI awarded to Michael W. Otto.

504 CONTINGENCY MANAGEMENT AND CBT IN INTENSIVE OUTPATIENT TREATMENT FOR COCAINE DEPENDENCE

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Aims: There is considerable evidence for the efficacy of contingency management (CM) for cocaine dependence. However, there is little data on the extent to which CM is an effective adjunctive intervention for patients who are participating in intensive outpatient programs (IOP) in publicly funded clinics. It is also not clear whether CM will be more effective than other treatment enhancements, such as cognitive-behavioral therapy (CBT), or will have additive effects with such enhancements. **Methods:** Cocaine dependent patients ($N = 100$) who had achieved initial engagement in IOP, as indicated by attending for at least two weeks, were randomly assigned to one of four conditions: IOP treatment as usual (TAU), TAU plus a 12-week escalating voucher reinforcement schedule contingent on cocaine free urines samples (CM), TAU plus individual CBT sessions for up to 20 weeks (CBT), or TAU plus vouchers and CBT (CM+CBT). Research follow-ups which included the collection of urine samples and TLFB reports of cocaine use were conducted at 1, 2, 3, 6, 9, 12, 15, and 18 months post randomization. In the two voucher conditions, up to 3 urines samples per week were obtained for 12 weeks as part of the CM procedures. **Results:** Longitudinal analyses with the research urine samples indicated that there were no main effects for either CBT or CM. However, the CM+CBT condition produced higher rates of cocaine free urines than the other three conditions. Follow-up analyses indicated that this overall main effect was significant at 6 months ($p = .01$), 9 months ($p = .008$), and 12 months ($p = .05$). The same pattern of results was found with self-reports of cocaine use, although these analyses did not yield significant effects. **Conclusions:** These results indicate that patients who achieved initial stabilization in IOP benefited from the combination of individual CBT sessions and a 12-week CM protocol. Moreover, these results were sustained for at least 6 months past the period in which both enhancements were provided. **Support:** NIDA grants K02-DA00361, R01-DA14059

CPDD 2008 Annual Meeting, San Juan, Puerto Rico

505 RELATIONSHIP BETWEEN CANNABINOID AGONIST EFFICACY, TOLERANCE, AND CROSS-TOLERANCE IN Δ^9 -TETRAHYDROCANNABINOL-TREATED MONKEYS

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Aims: Cannabinoid agonists act at inhibitory G protein-coupled receptors and chronic treatment can produce receptor down-regulation, desensitization, and tolerance. For other classes of G protein-coupled receptor (i.e. opioids), tolerance can be accompanied by decreased sensitivity to other opioid agonists (i.e. cross-tolerance) and the magnitude of cross-tolerance can vary as a function of agonist efficacy. That is, cross-tolerance to low efficacy agonists can be greater than cross-tolerance to high efficacy agonists. **Methods:** This study examined changes in sensitivity to the discriminative stimulus effects of a low efficacy cannabinoid agonist (Δ^9 -tetrahydrocannabinol; Δ^9 -THC) and high efficacy cannabinoid agonists (WIN 55212-2 and CP 55940) before and immediately after treatment with Δ^9 -THC (1 mg/kg s.c. once daily for three days) in rhesus monkeys discriminating Δ^9 -THC (0.1 mg/kg i.v.). **Results:** Δ^9 -THC, WIN 55212-2, and CP 55940 dose-dependently increased responding on the Δ^9 -THC lever; CP 55940 was 10 times more potent than WIN 55212-2, which was equipotent with Δ^9 -THC. Daily Δ^9 -THC treatment produced tolerance as evidenced by a significant 4-fold increase in the ED50 value of Δ^9 -THC. In contrast, sensitivity to WIN 55212-2 and CP 55940 was unchanged following Δ^9 -THC treatment. **Conclusions:** Tolerance to Δ^9 -THC in the absence of cross-tolerance to WIN 55212-2 and CP 55940 is consistent with Δ^9 -THC having lower agonist efficacy at cannabinoid receptors than WIN 55212-2 and CP 55940. These results suggest that changes in sensitivity to the behavioral effects of cannabinoids can vary quantitatively as a function of agonist efficacy, a relationship that could be important for the various effects of both endogenous and exogenous cannabinoid agonists in cannabinoid tolerant individuals. **Support:** Supported by DA19222.

506 AN EXPLORATORY PROFILE OF ILICIT PRESCRIPTION OPIATE USERS BY ROUTE OF ADMINISTRATION

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Aims: Illicit use of prescription opiates is on the rise in the U.S. Research suggests that the route of administration of opiates is related to various risk factors. However, studies focused on self-reported problems among illicit prescription opiate users by the route of administration have received limited attention. The purpose of this presentation is to profile illicit prescription opiate users by route of administration (oral, nasal, or IV) in the areas of chronic pain, other drug use, and criminal charges. **Methods:** This presentation includes participants who received substance abuse treatment in Kentucky's prisons and jails, and completed a baseline interview at treatment intake administered using a PDA. For this analysis, 103 participants who reported prescription opiate use as their primary drug of abuse were categorized into three groups based on usual route of administration: 1) oral users (n=45), 2) nasal users (n=29), or 3) IV users (n=29). **Results:** IV users were younger (29.9) than oral (34.4) and nasal users (31.1, $P<.05$), and less educated (41.2% GED or higher) compared to the other groups (oral users, 69%; nasal users, 79%, $p<.01$). Fewer IV users (31%) reported having chronic pain than oral users (33%) and nasal users (45%, $p<.05$). More IV users also reported heroin use in the past year (31%) compared to oral (4%) and nasal users (21%, $p<.01$). However, more nasal users reported non-prescription methadone use (66%) when compared to the other groups (oral users, 33%; IV users, 52%, $p<.05$). There were no significant differences among the groups on lifetime criminal charges and criminal history. **Conclusions:** Findings from this exploratory study suggest that there may be clinical implications for correctional treatment staff working with opiate users, particularly for those who inject the drug. Understanding the demographic, drug use, and health profiles of offenders who report different routes of administration may be important for tailoring interventions that support opiate users' recovery - both in prison and during community re-entry. **Support:** KY Dept. of Corrections

507 PLASMA, SERUM, AND WHOLE-BLOOD ETHANOL CONCENTRATIONS: EFFECTS OF STORAGE CONDITIONS AND COLLECTION TUBES

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Aims: How blood samples are processed and stored before being analyzed for ethanol levels is of concern in the forensic and toxicological fields, and is important in the standardization of research methods. The purpose of this experiment was to study if there are any systematic differences in ethanol levels among several methods of processing and storing blood samples. **Methods:** Five (5) adults consumed a standard alcoholic drink (0.7 g/kg) over a 15 minute period. Blood samples were taken 5 times during a 3-hour period following the consumption of the drink. Samples for plasma and whole blood were drawn into vacutainers containing either one of two anticoagulants or an anticoagulant with preservative. Samples for serum were drawn into vacutainers containing no anticoagulants either with or without a preservative. Separate sets of samples were analyzed on the day of the study, after storage at room temperature for 24 hours, after storage at room temperature for 10 days, or after 10 days of refrigerated storage. **Results:** Consistent with the literature, plasma and serum samples overall had significantly higher levels of ethanol than whole blood. Peak ethanol levels in plasma and serum samples averaged 0.087% and were on the average 11% higher than whole blood samples (average 0.078%) across all time points, collection tubes, and processing condition. The length of time samples were stored before analysis did not significantly affect ethanol levels. However, there was a statistical trend for samples stored for 10 days to have slightly lower values than those analyzed immediately or within 24 hours ($p=.064$). Neither type of additive nor storage duration significantly affected ethanol levels. **Conclusions:** This study shows that alcohol in the blood at levels near legal limits for intoxication are not significantly altered by the type of collection tube used or storage condition during a 10-day period. **Support:** NIDA Grant DA00343 (SEL), NCCAM Grant P01AT002038 (DY-WLee)

508 A PLACEBO-CONTROLLED TRIAL OF BUSPIRONE IN MARIJUANA-DEPENDENT INDIVIDUALS

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Aims: Marijuana is the most commonly abused illicit drug in the United States. An open-label study suggested buspirone may have some utility in reducing marijuana use in marijuana-dependent individuals. This double-blind, placebo-controlled study was conducted to further explore the potential efficacy of buspirone in this population. **Methods:** Subjects received buspirone (maximum 60 mg/day) (n=25) or matching placebo (n=27) for 12 weeks. Subjects were between 18 and 65 years of age and met DSM-IV criteria for marijuana dependence. Exclusion criteria included other substance dependence (except caffeine or nicotine), and major medical or psychiatric illnesses. Marijuana use for the 90 days prior to study entry was estimated using the Time-Line Follow-Back (TLFB), and TLFB data was collected weekly throughout the study. The Marijuana Craving Questionnaire (MCQ) was administered at baseline and weekly. Urine drug screens (UDSs) were performed at baseline and weekly. Subjects also participated in motivational enhancement therapy sessions during the trial. **Results:** In the intent to treat (ITT) analysis, 73% of subjects reported decreased use of marijuana based on TLFB during the study, resulting in a 35% percentage point change in the percent of days using on study relative to baseline ($p<0.001$). No difference between treatment groups on reported use was observed ($p=0.377$). 89% of UDS results were positive for the placebo-treated group, and 74% were positive for the buspirone-treated group ($p=0.337$). Subjects in both groups had significant reductions in the four domains of the MCQ ($p<0.001$) with no observed differential treatment effect. **Conclusions:** In the ITT analysis, no medication effect on marijuana use was observed. Subjects in both treatment groups significantly reduced use based on self-report measures and had decreases in reported marijuana craving. Further analyses are ongoing to explore if factors such as withdrawal symptoms, anxiety or amount of use predict response or treatment retention. **Support:** Supported by NIDA grant K23DA15440.

509 CHARACTERISTICS OF PSYCHOPATHY AND DELAY DISCOUNTING IN ADOLESCENT SMOKERS AND NONSMOKERS

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Aims: Delay Discounting (DD) is an index of impulsive choice, and numerous studies have shown that addicted participants discount more (i.e., perform more impulsively) than never-addicted control participants (Reynolds, 2006). However, little research has explored the relationship between characteristics of psychopathy and DD. **Methods:** The current study examined DD and psychopathy (Youth Psychopathy Inventory, YPI) in adolescent smokers (n = 30) and nonsmokers (n = 15). **Results:** Smokers and nonsmokers did not differ significantly on the YPI, but there was a trend towards the smokers rating themselves as higher in characteristics of psychopathy (M = 54.2, M = 46.4, respectively). On the measure of DD, smokers and nonsmokers did significantly differ, with smokers discounting more than the nonsmokers [U(44) = 133.0, p = 0.027, two-tailed test]. To explore these data further, the smokers were divided into high and low psychopathy groups by a median split. The high psychopathy smokers did not differ from the nonsmokers on the measure of DD [U(29) = 91.5, p = 0.384, two-tailed test]. However, the low psychopathy smokers did discount more by delay than the nonsmokers [U(29) = 41.5, p = .003, two-tailed test] and the high psychopathy smokers [U(29) = 61.5, p = .034, two-tailed test]. Also, there was a negative relationship between the measures of DD and psychopathy [rs(44) = -.299, p = .046, two-tailed test], indicating that participants with higher psychopathy ratings on average discounted less than participants with lower ratings. **Conclusions:** These findings indicate that being high in characteristics of psychopathy (e.g., grandiosity or callousness) reduces, or offsets, the relationship between DD and smoking status among adolescents. That is, adolescent smokers who are high in characteristics of psychopathy are similar to nonsmokers in terms of DD. These findings may shed light on specific behavioral characteristics (i.e., psychopathy) that influence the relationship between delay discounting and cigarette smoking status. **Support:** None

510 INTEREST OF FIBROSCAN IN THE COHORT OF ALCOHOL CONSUMERS WITH CIRRHOSIS

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Aims: Background : Fibroscan showed its place in cirrhoses' diagnosis. It seems important to study fibrosis' evolution by measuring patients with alcoholic cirrhosis with the fibroscan **Methods:** Method : 60 patients with alcoholic cirrhosis (fibroscan > 13Kpa) were measured with the fibroscan in 2004. In 2007, all the patients were called up again in order to analyse their liver and the evolution of alcoholic disease : - 42 patients were measured twice (2/3 patients). - 16 patients were lost, - 2 died. On 41 patients (1 patient obese not measurable), 24 are abstinent (58.5%) and 17 are still consumers. **Results:** Results : For abstinent patients, all of them (except one) have a score decreasing about 20.8 Kpa. For patients still alcoholic consumers, their score increased about 14Kpa **Conclusions:** Our study confirms : 1/ For patients with cirrhosis, fibrosis decreases in case of abstinence 2/ In case of persistence of alcoholic consumption even restrained, fibrosis increases. 3/ Our study shows that fibrosis improvement is correlated with sex, age and fibrosis severity **Support:** general hospital saint dizier

511 ACUTE EFFECTS OF PROGESTERONE ON NICOTINE SELF-ADMINISTRATION BY FEMALE NONHUMAN PRIMATES

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Aims: There is increasing evidence that the neuroactive steroid progesterone attenuates cocaine's abuse-related effects in women and in rats, but little is known about the effects of the neuroactive steroids on another psychostimulant, nicotine. We examined the effects of acute administration of progesterone on nicotine self-administration by female nonhuman primates to determine if its effects were similar to its effects on cocaine. **Methods:** We studied the effects of single doses of progesterone (0.1, 0.2 and 0.3 mg/kg, i.m.) on nicotine self-administration dose-effect curves (0.001-0.10 mg/kg/inj). Nicotine self-administration (0.10 mg/kg/inj) was maintained on a progressive ratio schedule of reinforcement, and monkeys had unlimited access to nicotine during one daily session. Nicotine doses were administered in an irregular order during each dose-effect curve determination, and the same dose order was used in an individual monkey in all treatment conditions. Progesterone was administered 30 min before each test session, twice each week on Tuesday and Friday. Blood samples for hormone analysis were collected at the end of each test session. **Results:** Progesterone (0.2 and 0.3 mg/kg, i.m.) produced a dose-dependent downward and rightward shift in the nicotine self-administration dose-effect curve. There was no evidence of sedation following progesterone treatment. These preliminary results are consistent with clinical reports that progesterone administration may decrease ratings of positive subjective effects of cocaine in women. **Conclusions:** The neuroactive steroid progesterone produces a dose-dependent decrease in nicotine as well as cocaine self-administration by female rhesus monkeys. These results could not be accounted for by sedation. Progesterone and its metabolite allopregnanolone are positive modulators of GABAA receptors. The extent to which these data reflect interactions with GABAA systems remains to be determined. **Support:** This research was supported in part by R01-DA14670, P01-DA14528 and K05-DA00101 from the National Institute on Drug Abuse, NIH.

512 THE RELIABILITY OF SELF-REPORT CANNABIS ABUSE AND DEPENDENCE CRITERIA: A MULTISITE STUDY OF DIFFERENCES BETWEEN GENERAL POPULATION AND TREATMENT GROUPS

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Aims: To examine the reliability of DSM-IV cannabis abuse and dependence criteria and determine if the reliability varied by treatment status. **Methods:** In recent NIDA funded studies of the reliability of DSM-IV substance use disorders, 944 respondents were interviewed in St. Louis, Miami, and Sydney. Of the respondents, 78% (n=739) used marijuana 5+ times lifetime and completed both test and re-test interviews. They were dichotomized into general population (GEN POP; n=416) and treatment (TX; n=278) samples by an item assessing whether respondents had ever "talked to a doctor or other health professional about any problems from using drugs." The reliability of DSM-IV cannabis abuse and dependence criteria was examined using Cohen's kappa and a z-statistic was used to determine if reliability differed by group. **Results:** The GEN POP and TX groups were demographically similar. The TX group started using cannabis at a younger age and for a longer duration (13.86 vs. 15.46 yrs. old, p<.0001; 7.99 vs. 6.94 yrs., p<.0001). The GEN POP sample had good to excellent reliability for cannabis abuse criteria with kappas ranging from .56 to .86; the TX group was similarly reliable (κ = .58 to .82). The most reliable abuse criterion among both groups was experiencing legal problems and the least reliable was failure to fulfill major role obligations. The TX group reported each abuse criterion at higher rates. The reliability of DSM-IV dependence criteria revealed similar patterns, with the GEN POP (κ = .49 to .74) and the TX (κ = .44 to .73) groups. Criteria were equally reliable for each group. The most reliable dependence criterion for both groups was tolerance; the least reliable was continued use despite knowledge of harm. The TX group endorsed all the dependence criteria at higher rates with the exception of continued use, which was similar for both. **Conclusions:** These analyses are important to verify the harms of cannabis, including withdrawal, as well as confirming the reliability of the criteria in light of DSM-V. **Support:** DA05585; DA14854 -01; DA07313

CPDD 2008 Annual Meeting, San Juan, Puerto Rico

513 DISCONTINUATION OF CHRONIC OPIOIDS FOR PAIN: ADDICTION CONCERNS

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Aims: Chronic opioid therapy for pain has increased markedly in the past decade, raising concerns about use among those with co-occurring addiction. Opioid discontinuation is understudied and may inform this debate. Our aims were to 1) determine the proportion of long-term prescription opioid users who discontinued use after one year, 2) identify patient-reported reasons for discontinuation, and 3) explore the hypothesis that those who discontinue opioids after chronic use have higher rates of addiction problems. **Methods:** Retrospective phone survey of 778 patients in a large HMO one year after meeting criteria for long-term opioid use (57% response rate). DSM IV opioid abuse and dependence were diagnosed with the CIDI. We assessed medication misuse using the Prescription Drug Use Questionnaire (PDUQp) and used validated screening tools to assess selected mental health problems. For those not using opioids, we assessed reasons for discontinuation. We used logistic regression to explore whether those who discontinued opioids had higher rates of addiction problems and medication misuse. **Results:** 74 patients (9.5%) discontinued long-term opioid use. Reasons for discontinuation (very or extremely important) were: pain improvement (50%); addiction concerns of the patient, provider, family or friends (41%); difficulty controlling opioid medications (18%); and reduced opioid effectiveness (18%). Few reported discontinuation against their will (9.5%) and few (8.1%) wanted to restart opioids. Logistic regression found that lower pain ratings (OR 2.04 95% CI 1.19, 3.52), lower opioid doses (OR 4.26 95% CI 2.2, 8.2), and a substance abuse diagnosis (OR 2.7 95% CI 1.36, 5.4) were associated with discontinuation, but not other measures of addiction, misuse or mental health problems. **Conclusions:** Addiction is a significant concern among HMO patients who discontinue chronic opioid therapy for pain. Both adequate pain control and addiction require clinical assessment in patients on chronic opioid therapy. **Support:** Supported by NIDA R21 DA018695-01A2.

514 TRAUMA, HEALTH PROBLEMS AND DEPRESSION IN DRUG-DEPENDENT WOMEN

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Aims: This study examined rates of trauma, physical health problems and depression in a sample of drug dependent women assessed on admission to residential treatment. It further examined whether trauma symptom severity was associated with more significant physical health problems and depressive symptoms. **Methods:** The current sample includes N=60 women (final sample N=120 by June) who provided informed consent as part of a larger randomized clinical trial. The sample was predominantly African-American (66.1%) with a mean age of 37.8 years and a mean of 10.9 years of education. Baseline measures included the Posttraumatic Stress Diagnostic Scale (PDS), Pennebaker's Inventory of Limbic Languidness (PILL), and the CES-Depression Scale (CES-D). The PDS assists with PTSD diagnosis and quantifies PTSD symptom severity, while the PILL assesses frequency of physical health symptoms. **Results:** Over 90% of the women (91.5%) reported at least one lifetime trauma, with a mean of 4.0 (SD=2.5) different types of trauma (e.g. sexual assault, non-sexual assault, serious accident). Over half (55.9%) of the women met diagnostic criteria for current (past month) PTSD. A Pearson correlation showed that women with greater trauma symptom severity (re-experiencing, avoidance, and arousal symptoms) also reported more severe physical health problems ($p<.001$). A t-test revealed that those with PTSD reported more severe health problems ($M=37.0$) compared to those without PTSD ($M=24.8$) ($p<.001$). Further, women with clinically elevated CES-D depression levels ($CES-D>16$) reported greater trauma symptom severity compared to those without depressive symptoms. **Conclusions:** Results suggest that female SUD patients are an appropriate target population for trauma-focused interventions, as the majority has experienced at least one traumatic event of sufficient intensity to elicit PTSD-level symptoms. Female SUD patients with PTSD and trauma also experience more severe physical health problems and levels of depression, and such women also should be referred for psychiatric and/or medical evaluation. **Support:** Grant from the VCU Institute for Women's Health

515 DRUG-ENDANGERED CHILDREN: PARENTAL METHAMPHETAMINE USE AND MANUFACTURE 12 516 SEXUAL MATURATION, PEER DELINQUENCY, AND DRUG USE IN DAUGHTERS OF SUBSTANCE USE DISORDER FATHERS FROM CHILDHOOD TO ADOLESCENCE

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Aims: 1. To describe the epidemiology of children removed from home-based MA labs in Los Angeles County; 2. To describe the child welfare services and placement outcomes of children removed from home-based MA labs in Los Angeles County. **Methods:** UCLA ISAP analyzed existing data collected on 100 drug-endangered children (DEC) in Los Angeles County. We also analyzed data on pre-existing contact with child protective services (e.g., prenatal drug/alcohol exposure) and the final case dispositions (or placement outcomes) of these children. The study is the first attempt to comprehensively identify the epidemiology of this population of neglected and abused children. **Results:** The distribution of females and males are approximately equal with 45.5% female and 54.5% male children removed from labs. There are significantly more Latino and Caucasian children compared to other ethnic groups; 68.7% Latino, 29.3% Caucasian, 3% Native American, and 1% Asian. 3%. This finding is not surprising when MA use patterns in Los Angeles and California are considered. The mean age of the children was 6.9 years ($SD = 4.5$) with a range from less than 12 months old to 17 years old. Overall, 59.2% of the children were at grade level, 6.5% were below grade level, and 5.5% had severe deficits. More detailed results will be available at the time of the presentation. **Conclusions:** There is currently no comprehensive information about the needs of this special population of drug-endangered children or the implications of California legislation and the federal ASFA regulations on their cases in juvenile dependency court settings. Data collection documenting seizures of methamphetamine labs in California as it relates to child endangerment has been minimal, and the lack of statistical data to validate the extent of the drug-endangered children problem has masked its significance from policy makers. **Support:** The study is a collaborative effort between UCLA ISAP and the Los Angeles County DEC Response Team funded by the National Institute on Drug Abuse.

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Aims: The aim of the study was to determine the association of sexual maturation and peer delinquency with drug use from ages 10-12 (T1) and 12-14 (T2) to 16 (T3) in daughters of substance use disorder (SUD)(n=92) and non SUD (n=100) fathers controlling for parental SUD. **Methods:** At T1 socioeconomic status differentiated between groups but not age, educational level or ethnic composition. At T1, T2 and T3, sexual maturation and peer delinquency were assessed using the Tanner Staging Scale and Peer Delinquency Scale, respectively. Drug use (number of drugs ever used) was measured using the Drug and Alcohol Checklist at T3. Parental SUD was evaluated using the SCID at T1. T-test and Chi-Square were used to compare the groups regarding demographic characteristics. Path analyses were used to test the model in the total sample. **Results:** The results of the direct path analysis showed that maternal SUD predicted peer delinquency which together with early sexual maturation and paternal SUD predicted peer delinquency from T1 to T2 which in turn predicted peer delinquency and substance use at T3. The results of the indirect path analysis demonstrated that peer delinquency at T2 mediated the association between peer delinquency at T1 and drug use at T3. **Conclusions:** In conclusion, this study underscores the impact of affiliation with delinquent peers on the development of drug use by mid adolescence in girls. Influenced by parental SUD and early sexual maturation, affiliation with delinquent peers continues from late childhood to mid adolescence and contributes substantially to the development of drug use by mid adolescence. Prevention efforts should focus on helping young girls to adjust to an early sexual maturation and teach them to enhance their skills to select non delinquent peers to offset the risk for drug use. **Support:** This study was supported by NIDA grants DA 05605 and DA 05952

517 EVALUATING ASPECTS OF DISCOUNTING BEHAVIOR IN ADOLESCENT SUBSTANCE USERS AND CONTROLS

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Aims: Research on discounting behavior frequently utilizes hypothetical rewards and a two-stage procedure where subject-specific discounting rate parameters are first estimated. To account for their nonnormality, those estimates are then typically compared using visual inspection, transformation, and/or nonparametric procedures. Results using these procedures suggest that (1) adults discount smaller rewards more rapidly than larger rewards (2) adults discount real and hypothetical rewards similarly and (3) substance using (SU) adults discount delayed rewards more rapidly than controls. Aspects of discounting have not been systematically examined in adolescents. We hypothesize that adolescent controls will discount smaller rewards at a higher rate and real and hypothetical rewards at a similar rate, but these aspects might differ for SU adolescents. **Methods:** Forty SU and 40 control adolescents completed a 50 minute discounting task assessing delay (1-260 weeks) for \$40 real, and \$40 and \$500 hypothetical rewards. Nonlinear mixed models (NMM) incorporating random rate parameters and multivariate responses evaluated reward type (real, hypothetical) and magnitude within-subjects and between groups. **Results:** Multivariate hyperbolic random effect models indicated that discounting rates in controls were similar for real and hypothetical rewards, but hypothetical rewards were discounted at a significantly higher rate in SU adolescents ($p < .005$). Both SU patients and controls appear to discount smaller rewards more rapidly than larger rewards ($p < .05$). Using NMMs, other nonlinear functions will be evaluated and within-subject and between group comparisons will be made. **Conclusions:** SU and control adolescents are similar in exhibiting a "magnitude effect" of discounting smaller rewards more rapidly, but whereas control adolescents and adults discount hypothetical and real rewards similarly, SU adolescents do not. These findings might impact design considerations in determining appropriate magnitude and type of reward for evaluating discounting behavior in substance users. **Support:** NIDA DA011015 & DA009842

518 IMPACT OF DSM-IV DIAGNOSES ON ABSTINENCE OUTCOMES FOR HOMELESS CLIENTS UNDERGOING CONTINGENCY-MANAGED TREATMENT

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Aims: In a homeless cocaine-dependent sample, our recent randomized trial yielded a delayed treatment benefit on sustained abstinence at 12 and 18 months when comparing abstinent contingent-managed housing and work training (CM) versus CM with intensive behavioral day treatment (CM+). While our prior work has suggested similar outcomes for persons with and without co-morbid psychiatric diagnoses, no studies have included rigorous assessments of abstinence and co-morbid DSM-IV psychiatric diagnoses out to 12 months among cocaine-dependent homeless. We hypothesized that (a) persons with additional DSM-IV diagnoses would have fewer consecutive weeks abstinent than persons without such diagnoses, and (b) the benefit of CM+ vs CM, would be greater for persons with co-morbid DSM-IV diagnoses than for those without such diagnoses. **Methods:** Homeless participants (N=203) were divided between those with ≥ 1 co-morbid Axis I disorder (N=116) and those with none (N=87) using DSM-IV SCID. Longest Consecutive Weeks abstinent measured by urine toxicology months 0-12 (LCW12) were modeled in relation to predictors: Trial Arm (CM+ vs CM), Axis I disorders (≥ 1 vs none) and Interaction (Trial Arm*Axis I disorder). **Results:** Overall, CM+ was consistently associated with longest sustained abstinence across months 0-12, 19.4 (SE=1.4) vs 14.4 (1.5) weeks, for CM ($p=.017$). There was no significant difference between persons with and without co-morbid DSM-IV disorders, 18.0 (1.5) vs 15.8 (1.3) weeks, $p=.028$. The interaction between trial arm and co-morbid DSM-IV diagnosis was not significant ($p=.096$). **Conclusions:** Contrary to hypotheses, results suggest that a treatment-enhanced abstinent-contingent housing and work training intervention confers similar advantage regardless of co-morbid DSM-IV diagnoses in this homeless treatment population represented by this trial. **Support:** NIDA RO1 DA11789-04

519 DIMENSIONS OF CHANGE INSTRUMENT AND RETENTION IN THERAPEUTIC COMMUNITIES: THE MODERATING EFFECT OF TIME

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Aims: The Dimensions of Change Instrument (DCI; Orlando, et al. 2006) assesses 8 dimensions of the therapeutic community treatment process: Scores from the first week of treatment on two of the scales, Clarity and Safety CS, and Resident Support, Sharing and Enthusiasm (RSSE) have been found to predict retention at 3, 6 & 9 months. This study explores whether these DCI subscales also predict retention when assessed later in the therapeutic process. **Methods:** The sample comprised 519 individuals, aged 18 to 62, undergoing therapeutic community treatment. Participants completed the DCI at baseline, 1, 3 6 and 9 months. We employed a discrete time survival model to examine how the selected DCI subscales at each time point predicted retention in the next period of treatment. Using a logistic model, change in the parameters over time was tested to determine if the scales were differentially predictive at different time. **Results:** The DCI scores were found to predict dropout in the subsequent period. Initially the effects were negative - higher DCI scores led to a higher probability of retention in the subsequent period. In the later stages, the effect was reversed, and lower DCI scores were associated with lower probability of retention. The change in parameter was statistically significant for both scales (CS, $p < 0.001$; RSSE, $p = 0.004$). **Conclusions:** DCI predictions about retention were found to be treatment phase dependent. We hypothesize that the change in the direction of prediction is related to level of acceptance of TC processes. Early on, lower DCI scores indicate that the client is not accepting TC processes and is more likely to quit therapy. After six months of treatment, clients who have more positive feelings about TC are likely to feel that they are doing well and are therefore ready to leave, while peers who feel less positively about TC processes are likely to feel that they are not doing well in treatment and so remain. **Support:** National Institute on Drug Abuse, "Quality of Care in the Therapeutic Community" (R01 DA014969)

520 CHRONIC UNPREDICTABLE STRESS ALTERS COCAINE CONDITIONED PLACE PREFERENCE IN CB1 KNOCKOUT MICE BUT NOT THEIR WILDTYPE LITTERMATES

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Aims: The present study examined the effects of chronic unpredictable stress (CUS) in CB1 cannabinoid receptor knockout mice (CB1 KO) and their wild-type littermates (CB1 WT) on the development of conditioned place preference (CPP) for cocaine. **Methods:** CB1 KO and CB1 WT mice were housed singly and exposed to a protocol of CUS or standard care for two weeks in their home cages. CUS consisted of random exposure to 2-3 stressors per day over a 2 week period. Following this period, cocaine CPP was assessed in a three-compartment apparatus. First, mice were habituated to the apparatus and the time spent in each compartment was recorded. Over the next six days mice were injected with saline or cocaine (3.2 or 10.0 mg/kg) and were placed in one of the conditioning compartments on alternating days. Finally, mice were allowed access to all compartments. The change in percentage of time spent in the cocaine-paired compartment after conditioning (\pm SEM) was determined. **Results:** Analysis by ANOVA indicates that neither genotype acquired a CPP when conditioned with 3.2 mg/kg cocaine, regardless of stress condition. However, a CPP was present in CB1 WT mice with 10.0 mg/kg cocaine ($49 \pm 11\%$ increase in time in the cocaine-paired compartment). Interestingly, CB1 KO mice that were not exposed to CUS did not acquire a CPP with 10 mg/kg cocaine ($3.8 \pm 7\%$ increase). However, CB1 KO mice that were exposed to CUS and subsequently conditioned with 10 mg/kg cocaine displayed a preference for the cocaine paired compartment ($52.4 \pm 19\%$ increase). **Conclusions:** Exposure to stress had no effect on the acquisition of conditioned place preference in CB1 WT mice. However, a dose of cocaine (10 mg/kg) that did not produce a CPP in nonstressed CB1 KO mice, did produce CPP in CB1 KO mice exposed to CUS. The present results suggest that CB1 deletion alters the development of cocaine CPP in mice, and that these mice are differentially affected by exposure to stress. **Support:** R01-DA02749, T32-DA07244, F32-DA019312, and P20-MD00175.

521 INHIBITION OF GSK3 β ATTENUATES COCAINE-INDUCED LOCOMOTION AND REWARD IN MICE

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Aims: Glycogen synthase kinase (GSK3 β) is a critical mediator for a host of intracellular signaling systems. GSK3 β is widely expressed in all tissues with abundant levels in the brain. The activity of GSK3 β is regulated by a number of kinases, with activation occurring via tyrosine phosphorylation and subsequent inactivation via serine phosphorylation. Aside from kinase inhibition, compounds such as sodium valproate (VPA) and/or the selective GSK3 β inhibitor SB216763 inactivate GSK3 β . Here, we investigated whether inhibition of GSK3 β by VPA and/or SB216763 would attenuate cocaine-induced behaviors in mice. **Methods:** Adult male CD-1 mice were pretreated with vehicle, VPA (50-300 mg/kg, i.p.), or SB216763 (0.25-7.5 mg/kg, i.p.). Following pretreatment, mice were injected with either vehicle or cocaine (20 mg/kg, i.p.) and activity was recorded. For behavioral sensitization, mice were pretreated with SB216763 (2.5 mg/kg, i.p.) prior to daily cocaine (20 mg/kg, i.p.) for 5 days. On day 13, animals were challenged with cocaine (20 mg/kg, i.p.) and activity was recorded. Conditioned place preference was used to determine the effects of SB216763 (2.5 mg/kg, i.p.) on the development of cocaine (10 mg/kg, i.p.) induced place preference. **Results:** Pretreatment with VPA (300 mg/kg) or SB216763 (1.0-7.5 mg/kg) prior to cocaine significantly attenuated ambulatory and stereotypic activity as compared to cocaine alone. Further, pretreatment with SB216763 (2.5 mg/kg, i.p.) prior to daily cocaine (20 mg/kg, i.p.) significantly attenuated the development of cocaine-induced locomotor sensitization. In addition, mice pretreated with SB216763 (2.5 mg/kg, i.p.) followed by cocaine (10 mg/kg, i.p.) showed a reduction in the development of cocaine-induced reward. **Conclusions:** These results indicate that pharmacological inhibition of GSK3 β reduced the behavioral responses to cocaine in mice, therefore suggesting a role for GSK3 β in the regulation of dopaminergic neurotransmission. **Support:** Supported by NIH R01 DA09580

522 A RANDOMIZED CONTROLLED TRIAL OF AN INTEGRATED TREATMENT FOR SUBSTANCE USE AND PTSD INCORPORATING EXPOSURE THERAPY: PRELIMINARY FINDINGS

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Aims: To present preliminary findings of the efficacy of an integrated treatment for substance use disorder and PTSD: Concurrent Treatment with Prolonged Exposure (COPE). Outcomes were compared for the first 10 participants who received the intervention with the first 10 participants allocated to receive standard care for their substance use. **Methods:** Participants were recruited from agencies treating substance use and community referrals. Participants were randomly assigned to receive either i) COPE; or ii) standard care for their substance use. COPE is an adaptation of Concurrent Treatment for PTSD and Substance Dependence (Back et al, 2001). The program consists of 13 individual 90-minute sessions delivered by a clinical psychologist. COPE combines prolonged exposure for the treatment of PTSD and CBT for drug dependence. Participants completed interviews at baseline, 6 weeks and 3 months follow-up. **Results:** Preliminary analysis found that the treatment group demonstrated substantial reductions in the prevalence and severity of dependence across all drug classes, and a reduction in the number of drug classes used. While the control group evidenced some reductions in these domains, they were considerably smaller, and they were less likely to be maintained. The treatment group also showed substantial reductions in the frequency and severity of PTSD symptoms, whereas the control group did not demonstrate any change in PTSD symptomology. Similar trends were observed with regard to anxiety, depression, and general mental health. **Conclusions:** These findings provide promising support for the efficacy of the concurrent treatment of PTSD and Substance Use Disorders using COPE. **Support:** This study is funded by the National Health and Medical Research Council, Australia

523 CANNABIS USE DISORDERS AFFECT THE PSYCHOLOGICAL CONSEQUENCES OF MDMA

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Aims: The majority of MDMA users also use other substances, and rates of cannabis use are especially high. Heavy cannabis use in MDMA users may explain the association between MDMA use and depression found in some studies. This study examined differences in demographic variables, age of substance use onset, and mood symptoms among three groups of healthy young adults: MDMA users with a cannabis use disorder (CUD: Cannabis Abuse or Dependence) (n=96); MDMA users without a CUD (n=130) and non-MDMA users with a CUD (n=83). **Methods:** Data were collected using semi-structured interviews of 309 individuals (62.8% male) who responded to advertisements for MDMA or cannabis-related studies. Sample mean age was 24.49 \pm 5.03 yrs, with the non-MDMA/CUD group being older than the other groups (28.25 yrs). **Results:** Results of ANCOVA (age as covariate) indicated the MDMA/non-CUD group had a later age of cannabis use onset than the other groups, and fewer past depressive symptoms than the non-MDMA/CUD group. The MDMA/CUD group had an earlier age of alcohol use onset relative to the other two groups. The non-MDMA/CUD group had an older age of onset of cocaine use as well as more current depressive symptoms than the MDMA/non-CUD group, and an earlier age of onset of cocaine use than the MDMA/CUD group. Chi-square analyses revealed significant group differences in rates of Major Depressive Disorder (MDD: current and lifetime), Alcohol Abuse and Dependence (lifetime only), and lifetime Posttraumatic Stress Disorder. Notably, the non-MDMA/CUD group was almost four times more likely to meet criteria for lifetime MDD (OR = 3.93) and Alcohol Dependence (OR = 3.57) than the MDMA/non-CUD group. **Conclusions:** Results suggest individuals with a CUD, irrespective of MDMA use, report more depressive symptoms and may be more likely to meet Axis I Disorder criteria than MDMA users without a CUD. Thus, mood symptoms observed in MDMA users may be attributable to heavy cannabis rather than MDMA use. **Support:** NIDA Grants DA19236, DA14874 and State of Michigan.

524 INCREASED SCHIZOTYPAL TRAITS AND ALTERED AFFECT IN YOUNG CANNABIS USERS

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Aims: Cannabis use is implicated in increased risk for schizophrenia but it is unclear whether a pre-existing liability for psychosis may be a major factor. In addition, while many studies have documented acute effects of cannabis on cognition and mood, it is unclear whether there are long-term residual effects. **Methods:** We assessed psychosis-proneness (schizotypal personality) mood, perceived stress and neurocognitive functions in healthy young cannabis users and age- and education-matched nonusers. All subjects were screened for polydrug use, psychiatric and neurological disorders. **Results:** In the current cannabis user group, frequency of cannabis use over the past thirty days was correlated with scores on the Schizotypal Personality Questionnaire (SPQ; Raine, 1992). SPQ consists of three syndromal factors that correspond to symptoms of schizophrenia: positive, negative and disorganized. The disorganized syndrome, consisting of odd behavior and odd speech, was correlated with the frequency of use. Users and nonusers did not differ on perceived stress, extraversion, or neuroticism, nor did they differ in estimated intelligence. **Conclusions:** These results suggest that cannabis use is associated with increased psychosis proneness and, specifically, traits relating to disorganized symptoms. We also observed an interesting residual effect of cannabis use on mood. On the SPQ, reported use over the past thirty days was positively correlated with the "Constricted Affect" subscale. Positive affect was correlated negatively with reported lifetime use. Furthermore, current users were found to have significantly lower negative affect than nonusers. This combination could indicate blunting of affect for current users. These subjects are currently being tracked for one year to observe the interaction between personality traits and cannabis use as they unfold over time. **Support:** NIDA: DA019672 -01

CPDD 2008 Annual Meeting, San Juan, Puerto Rico

525 THE EFFECTS OF PRENATAL COCAINE EXPOSURE AND LEAD ON LANGUAGE AT AGE 10

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Aims: The aim of this study was to investigate the effects of prenatal cocaine-exposure on language skills including phonological processing in 10 year-old children while controlling for multiple drug exposures, maternal psychological distress, foster/adoptive care and lead. **Methods:** 350 primarily African American, low SES children (175 cocaine positive (C+) and 175 cocaine negative (C-)) recruited at birth from a large urban teaching hospital were assessed using the Comprehensive Test of Phonological Processing (CTOPP) and the Test of Language Development-Intermediate (TOLD-I:3) at a 10 years. Linear regression, controlling for confounders, was used to evaluate the relationship of prenatal cocaine exposure to language development. A sub-analysis of those children who had blood lead data available (n=275) at 2 or 4 years was completed. **Results:** Cocaine-exposure had a negative effect on expressive language ($p<.04$) and syntax ($p<.004$) composite scores of the TOLD-I:3. An interaction between cocaine and gender was obtained, with cocaine-exposed females having poorer performance on phonological awareness than C- females. The addition of prenatal exposure to alcohol also predicted lower phonologic awareness and current caregiver tobacco use predicted rapid naming ($p<.0004$). Foster/adoptive care enhanced language development in C+ children, with higher composite scores in total language ($p<.01$), receptive language ($p<.001$), expressive language ($p<.05$), semantics ($p<.01$) and syntax ($p<.05$) compared to C- children in biologic/relative care. Caregiver psychological distress was negatively related to syntax scores ($p<.03$). Sub-analyses revealed that effects of cocaine were confounded by lead exposure. Cocaine was no longer significant for expressive language, syntax and phonological awareness after control for lead. **Conclusions:** Effects of prenatal cocaine exposure on language development should be further evaluated controlling for multiple postnatal environmental conditions, including foster care, alcohol and tobacco exposure, and exposure to lead. **Support:** National Institute on Drug Abuse R01 DA 0007957

526 PREVALENCE OF CHRONIC HEALTH CONDITIONS AMONG DRUG USERS

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Aims: Drug users, who are at higher risk for drug-related infections such as HIV, also suffer disproportionately from other health conditions. This study presents the self-reported prevalence of several health conditions among heroin and cocaine users, examined by age, gender and current drug use status. **Methods:** Participants (n=230) were recruited from 6 MMTP clinics (50% of sample) in NY and NJ, through participant referrals (28%) and outreach (22%), as part of an intervention study for Puerto Rican drug users. Criteria for MMTP patients: heroin or cocaine use in PR or knowing friend/family who used there; for others: heroin or cocaine use in PR and current use of either drug. Drug toxicology exams were performed on all participants. **Results:** Sample was mostly male (70%) and mean age was 41. Overall, 70% tested positive for heroin or cocaine. 75% were currently in MMTP. Primary medical care sources were: private doctors (33%), hospital/community clinics (31%) and ERs (27%). 49% rated their health as excellent or good; 51% as fair or poor. The most common conditions were: mental health (43%), asthma (36%), HCV (26%), heart problems (17%), HIV/AIDS (12%) and diabetes (10%). Older age was related to having diabetes (mean of 45 years vs. 40), mental health problems (43 vs. 39), heart problems (45 vs. 40) and asthma (43 vs. 39). Women, whose mean age was the same as men, were more likely to have asthma (52% vs. 30%), heart problems (24% vs. 13%) and mental health problems (57% vs. 37%). For all comparisons $p<.05$. Current drug use was not associated with any health condition. **Conclusions:** Drug users have a range of health conditions, as demonstrated in this relatively young cohort. While age was related to several conditions, the age difference was only 4-5 years, suggesting that many are at risk of developing these conditions. Women also reported higher rates of several health problems. Since these rates are based on self-reports, the true prevalence is likely substantially higher. This suggests the need for comprehensive health screening for drug users, both in and out of drug treatment settings. **Support:** NIDA, Grant No. R01 DA010425

527 EFFECTS OF REPEATED TRAMADOL AND MORPHINE ADMINISTRATION ON PSYCHOMOTOR AND COGNITIVE PERFORMANCE IN OPIOID-DEPENDENT VOLUNTEERS

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Aims: Tramadol is a marketed mild/moderate mu opioid agonist sometimes used as a treatment for opioid dependence. This study assessed the performance side-effect profile of tramadol by examining the effects of repeated tramadol administration on psychomotor and cognitive performance relative to the full mu opioid agonist morphine. **Methods:** Nine opioid-dependent volunteers completed a psychomotor/cognitive performance battery following 5-7 days each of subcutaneous morphine (15 mg, 4 times/day) and two doses of oral tramadol (50, 200 mg, 4 times/day) in a double blind within subject design. Morphine was always the first condition, and the order of the two tramadol doses was randomized. Two practice sessions were conducted prior to the first experimental session to reduce order effects. **Results:** Analyses (Analysis of Variance with Bonferroni-corrected paired comparisons) indicated that performance was significantly ($p < 0.05$) worse in the morphine condition relative to one or both tramadol doses for the following measures: number of responses on the Circular Lights task (motor speed/coordination), number of trials completed on the Digit Symbol Substitution Test (DSST; psychomotor speed/pattern recognition), completion time on Trail-Making A and B tasks (psychomotor speed/set shifting), and number of correct responses on the Digit Recall task (working memory). Performance on the Balance task (motor ability) was significantly worse for the high tramadol dose than the low tramadol dose. There were no significant differences among conditions on other measures of working memory, divided attention, reaction time, time estimation, or episodic memory. **Conclusions:** Tramadol was not associated with worse performance than morphine on any measure at either dose. The only measure on which the high tramadol dose produced worse performance than the low dose was balance. These findings support tramadol's further evaluation as an opioid dependence treatment. **Support:** Supported by NIDA grants DA018125 and DA023186.

528 PREGNANCY AND RACE/ETHNICITY AS PREDICTORS OF READINESS FOR DRUG TREATMENT

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Aims: While drug use during pregnancy represents substantial obstetrical risks to both mother and baby, little research has examined motivation for drug treatment among pregnant drug-using women. In the present study, we hypothesized that pregnancy status would be positively associated with motivation for drug treatment. We also examined this relationship with respect to race/ethnicity. **Methods:** Propensity score analysis was used to match a sample of 51 pregnant drug-using women with 103 non-pregnant drug-using women. A factor analysis using nine items describing motivation for treatment was used to create a dichotomous outcome variable representing higher and lower motivation for treatment. Finally, logistic regression analyses were used to test the association between pregnancy status and motivation for drug treatment as well as the modifying effect of race/ethnicity in this relationship. **Results:** The pregnant and non-pregnant samples of drug-using women were satisfactorily matched using propensity scores. The first logistic regression model indicated that pregnant women were more than three times as likely as non-pregnant women to express greater motivation for treatment. The second analysis indicated an interaction between pregnancy status and race/ethnicity, such that white pregnant women were more than five times as likely as African-American pregnant women to score higher on the motivation for treatment measure. **Conclusions:** These results suggest that African-American pregnant drug-using women should be targeted for interventions that increase their recognition of problems associated with their drug use and motivation for making plans for treatment enrollment. These findings also suggest that future research should examine causes for this racial/ethnic difference. **Support:** William Latimer (PI) R01's: NEURO-HIV Epidemiologic Study and ADAPT IFCBT for HIV Prevention

529 THE SPECIFIC I_h CHANNEL BLOCKER ZD7288 POTENTIATES ACQUISITION OF MORPHINE CPP AND INCREASES THE FIRING RATE OF PUTATIVE DOPAMINERGIC NEURONS IN THE VTA

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Aims: The midbrain Ventral Tegmental Area (VTA) is important for the rewarding effects of drugs of abuse. All dopaminergic, as well as some non-dopaminergic, neurons in the VTA express a hyperpolarization-activated cationic current (termed I_h). In many regions of the brain I_h contributes to neuronal pacemaker activity. However, this does not appear to be the case in the VTA. Indeed the role of I_h in VTA neurons remains to be elucidated. **Methods:** Here we use the selective I_h inhibitor, ZD7288, to examine the role of the I_h on acquisition of morphine CPP, a behavior that depends on VTA dopamine. **Results:** We find that male Sprague-Dawley rats (325-350 g) administered intra-VTA ZD7288 (30μM) concurrent with 4 pairings of systemic morphine (10 mg/kg) express significantly greater morphine CPP ($p = .048$) than animals administered intra-VTA saline. Additionally, whole cell patch clamp recordings from VTA neurons in vitro demonstrate that ZD7288 (30μM) increased the firing rate of I_h positive neurons and also produced a significant depolarization following application onto non-firing neurons. Both TH+ and TH- I_h expressing neurons were excited by ZD7288. **Conclusions:** In summary, blocking the I_h in the VTA paradoxically excites VTA neurons and additionally enhances the reinforcing properties of morphine. These data suggest a mechanism by which I_h activity could act to attenuate the rewarding effects of drugs of abuse and point to a potential site of action for pharmacological therapeutics. **Support:** This study was supported by the DOD, California State funds, and by a NIDA grant to GOH.

530 PRENATAL AND NEONATAL EXPOSURE TO BISPHENOL-A AFFECTS THE CENTRAL DOPAMINERGIC SYSTEMS IN MICE: IMPLICATIONS OF THE FUNCTIONAL CHANGES IN DOPAMINE D3 RECEPTORS

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Aims: Bisphenol-A (BPA), one of the most common environmental endocrine disrupters, has been extensively evaluated for toxicity and carcinogenicity. In the previous study, we found that prenatal and neonatal exposure to BPA markedly enhanced the rewarding effect induced by morphine. The present study was then undertaken to investigate the changes in the function of dopamine D3 receptors by prenatal and neonatal exposure to BPA in mice. **Methods:** [³⁵S]GTPγS binding assay, binding assay, RT-PCR, Intracellular Ca⁺⁺ imaging **Results:** We found that prenatal and neonatal exposure to BPA (2 mg/g of food) resulted in the attenuation of dopamine D3 receptor-mediated G-protein activation by (±)-7-hydroxy-n,n-dipropyl-aminotetralin (7-OH-DPAT, 0.001-10 μM) in the mouse limbic forebrain ($n=7-8$, $F_{1,174}=30.45$, $p<0.001$ vs. vehicle-treated group). This treatment also caused a significant decrease in the Bmax value of [³H]PD128907, a dopamine D3 receptor ligand, in this area ($n=7-9$, $p<0.05$ vs. vehicle-treated group). Under these conditions, no change in dopamine D3 receptor mRNA expression in the limbic forebrain and lower midbrain was observed by prenatal and neonatal exposure to BPA. We also demonstrated that a deletion of central dopamine D3 receptor causes the enhancement of dopamine (0.001-10 μM)-induced G-protein activation ($n=8-10$, $F_{1,174}=26.52$, $p<0.001$ vs. wild-type mice) and Ca²⁺ responses ($n=81-90$, $p<0.05$ vs. wild-type mice) using mice lacking dopamine D3 receptor. **Conclusions:** The present data provide further evidence that prenatal and neonatal exposure to BPA leads to the disfunction of the dopamine D3 receptor, resulting in the enhancement of morphine-induced rewarding effect. **Support:** Grants from the Ministry of Health, Labor and Welfare, and the Ministry of Education, Culture, Sports, Science and Technology of Japan.

531 ALCOHOL AFFECTS ANXIETY BUT NOT FEAR

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Aims: The stress reducing properties of alcohol are well known and occasionally pursued by all drinkers. However, individuals who drink primarily for stress reduction are at increased risk for developing alcohol use disorders. Moreover, stress exposure is a powerful precipitant for relapse to alcohol use among dependent users. Thus understanding the mechanisms underlying alcohol's effect on stress is critical to understand both social and problematic alcohol use. Research with both animals (Sullivan et al., 2004; Walker & Davis, 1997) and humans (Grillon et al., 2006; Hogle & Curtin, 2006) has synthesized careful laboratory manipulations of stress with precise measurement procedures to parse stress response into fear and anxiety through manipulation of threat contingencies. Specifically, research has suggested that contingent vs. non-contingent aversive stimuli elicit fear vs. anxiety, respectively. The primary aim of this study was to test if alcohol would reduce anxiety in response to non-contingent shocks but would not affect fear response to contingent shocks. **Methods:** Intoxicated (BAL=0.08%) and non-intoxicated participants viewed a series of colored squares separated by a variable inter-trial interval (ITI) in three conditions. In the first condition, electric shocks were contingently paired with square presentation such that shocks were administered during every square. In the second condition, shocks were administered non-contingently (i.e., during both squares and ITI). In the third condition, no shocks were administered. **Results:** Alcohol selectively reduced startle potentiation during the blocks of non-contingent shocks and did not attenuate startle potentiation in response to contingent shock administration. **Conclusions:** These results suggest that alcohol has selective effects on anxiety but not fear. This anxiolytic effect may be a mechanism underlying alcohol's reinforcing effects in social drinkers. Moreover, synthesis with extant data suggests that the neural substrate of this anxiety effect may be a target for neuroplastic change supporting addicted use in alcohol dependent individuals. **Support:** This research was funded by a grant to John Curtin from NIAAA (R01 AA15384).

13 532 fMRI OF RESPONSE INHIBITION IN COCAINE-DEPENDENT SUBJECTS AND CONTROLS: EFFECT OF AMPHETAMINE

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Aims: This study examined amphetamine effects on behavioral inhibition and fMRI in cocaine dependent subjects (CDs) and controls. We hypothesized that CDs would show impaired behavioral inhibition and differ in fMRI response to d-amphetamine. **Methods:** The 3 cocaine users and 4 non-drug using controls performed a Go-Nogo task during fMRI scanning. Nogo stimuli were either Easy, consisting of horizontal lines, or Hard consisting of horizontal lines and diagonal lines. Two Go-Nogo fMRI sessions occurred at least 4 days apart using 20 mg d-amphetamine orally or placebo on separate days, under double-blind with randomized order. fMRI data were analyzed using a random effects procedure comparing subject groups using the SNPM nonparametric extension to SPM2. **Results:** Performance (d') on hard trials was worse for cocaine users than controls. Amphetamine improved performance on both easy and hard trials primarily in cocaine dependent subjects. Amphetamine caused substantial changes in the pattern of BOLD fMRI activation in the ventromedial prefrontal and posterior cingulate cortex in cocaine dependent subjects, but not in controls. After amphetamine cocaine dependent subjects showed a brain activation pattern more similar to controls for the easy task. **Conclusions:** Changes in fMRI activation after amphetamine occurred in brain regions previously associated with behavioral inhibition; behavioral inhibition and fMRI activation showed greater improvement in cocaine users than controls. These results could be related to amphetamine enhancement of reduced dopamine function and blood flow secondary to chronic cocaine use. **Support:** Supported by National Institute on Drug Abuse Grants P50 DA018197 (Kosten), K02 DA00403 and P50 DA009262 (Moeller)

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533 SPATIAL ANALYSIS OF RADARS® SYSTEM DATA TO IDENTIFY GEOGRAPHIC HOT SPOTS OF PRESCRIPTION OPIOID-ABUSE

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Aims: Literature and RADARS System data have consistently identified a high concentration of PO abuse in Appalachia. However, these reports have not utilized spatial analysis to determine if Appalachia truly has a regional problem with PO abuse. Our objective is to apply the spatial scan statistic (SSS) (Kuldorff, 1995) to 3-digit ZIP code (3DZ) data from RADARS System signal detection systems (SDS; key informants [KI], drug diversion [DD], poison centers [PC] and opioid treatment programs [OTP]) and statistically identify regions of high PO abuse. **Methods:** SSS is a spatial technique identifying the three most significant geographic hot spots based on observed and expected values. Three years (2004-2006) of RADARS System 3DZ population and URDD (Unique Recipient of Dispensed Drug) rate data for 8 PO combined (buprenorphine, hydromorphone, methadone, morphine, hydrocodone, fentanyl, tramadol, oxycodone) are used in the analysis and results are mapped. **Results:** 92% of 3DZ in the US participated in the RADARS System in 2006. Portions of Appalachia (KY, TN, WV, and VA) were consistently identified as one of the top three geographic clusters of heightened PO abuse in all SDS except KI. Due to the nature of SSS, PC data best lend themselves to a robust spatial analysis. Since PC data provide the most comprehensive coverage of 3DZ, they yield the most reliable geographic estimate of PO abuse. **Conclusions:** The SSS provides statistical evidence that the Appalachian region consistently demonstrates heightened PO abuse. Understanding the distinctive characteristics of that region is essential in implementing effective prevention and intervention measures in addition to devising effective policy. **Support:** RMPDC operates the RADARS System and provides data to industry, regulatory agencies and researchers on a subscription basis.

534 INTEREST IN MARIJUANA QUIT PROGRAMS AMONG ADOLESCENTS SEEKING TOBACCO CESSATION TREATMENT: GENDER AND ETHNIC DIFFERENCES

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Aims: Adolescent marijuana (MJ) use is more common among cigarette smokers than among non-smokers and there are few treatment programs for adolescent MJ use. In a substantial proportion of youths, blunt (guttled cigars then filled with MJ) smoking precedes cigarette smoking. We hypothesized that a majority of MJ smokers among adolescents seeking tobacco cessation treatment would show high demand for a MJ treatment program. **Methods:** Of 365 adolescent participants presenting for a tobacco smoking cessation treatment trial (Mean Age = 16.7 years \pm 1.5; years of MJ use 1.7; 46.8 % female; 49.9% African American), 127 admitted to using marijuana, with the vast majority smoking blunts. Among MJ smokers, 76.4% were interested in a MJ program, with 55.1% stating they would participate. **Results:** Chi square analysis revealed that participants who smoked MJ first were 2.12 times more willing to participate in a MJ program (chisq= 3.92, p<.05). Analyses further showed a significant gender difference with girls being 2.38 times more willing to participate (chisq=5.15, p<.05). African Americans were 2 times more willing to participate (chisq= 3.21, p<.06) than European Americans. However, when gender differences were analyzed across ethnicity, African American boys were 3.28 times more willing to participate than European American boys (chisq= 4.04, p<.05) with no significant ethnic difference emerging among girls. **Conclusions:** Our findings form these screening data suggest that a substantial number of adolescent MJ users applying for smoking cessation assistance are also interested and willing to participate in a MJ quit program. Programs that conjointly address tobacco and MJ use might benefit youth. **Support:** Supported by the NIDA Intramural Program funds

535 WOMEN WHO HAVE SEX WITH WOMEN: HIV RISK BEHAVIORS AND PERCEIVED HIV RISK

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Aims: Research suggests that women who have sex with women (WSW) may not identify as homosexual or bisexual and may feel less at risk for HIV or other sexually transmitted infections since male to female penetration does not occur. The purpose of the study is two-fold. First, differences in HIV risk behaviors will be examined between WSM and women who do not have sex with women (NWSW). Second, multivariable analyses will identify the correlates of perceived risk for contracting HIV. **Methods:** Structured interviews with 222 female prisoners (N=102 WSW, N=120 NWSW) were collected as part of the Reducing Risk Relationships for HIV protocol in the Criminal Justice Drug Abuse Treatment Studies cooperative. Chi-square and t-tests were used to distinguish differences between WSW and NWSW. Multinomial logistic regression was used to examine the correlates of perceived HIV risk (no risk, some risk, high risk) among WSW and NWSW. **Results:** Participants were mostly white (67.9%) and the median age was 35 years old. WSW were significantly (p<0.05) more likely than NWSW to have a high school education, lifetime use of crack, lifetime history of injection drug use, and self-reported trichomoniasis and Chlamydia, and were less likely to report lifetime sedative use. In the 30 days prior to their incarceration, WSW were more likely to report unprotected sex with a partner, using stimulants, and sex trade. Multivariate analysis revealed that WSW were 5.7 times more likely than NWSW to perceive their HIV risk to be high (95% CI: 2.1, 15.4), even after adjustment for sex trade, age and race. **Conclusions:** Contrary to previous research on WSW substance users, women in this study perceived greater risks for HIV than NWSW although still engaged in unprotected sex and risky drug use behaviors. Further research should examine explanations for WSW who are aware of their HIV risks but still engage in risky behavior. **Support:** NIDA 5U01DA016205 to CL.

536 IMPULSIVITY AND DELAY DISCOUNTING IN DRUG-USING AND NON-DRUG USING ADOLESCENTS

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Aims: This study was designed to assess the discounting of delayed rewards and other measures of impulsivity among youth with substance use disorders, including those whose primary drug of abuse was opioids, cigarettes, or marijuana, to better understand their drug use. **Methods:** Thirty adolescents (ages 13-18 eligible), participated in this study (15 drug-using (DU) adolescents and 15 non-drug using (NDU) controls matched on measures of age, gender, IQ, and education). Participants completed several measures of impulsivity and delay discounting tasks in which they made choices between two hypothetical rewards (smaller-sooner vs. larger-later rewards delivered at various delays). DU youth completed the task for two levels (high and low magnitude) of two sets of rewards (money and drug of choice); while NDU youth completed the task for money only. ANOVA's were used to compare groups on personality measures of impulsivity. Non-linear regression was used to obtain estimated discounting rates based on a hyperbolic discounting model. **Results:** DUs had significant greater impulsivity than NDUs based on all subscales of the Barratt Impulsivity Scale and the impulsivity subscale of the Eysenck Questionnaire. No differences were found on the Future Time-Perspective. There were no group differences in discounting rates for money; however, a magnitude effect was observed in both groups, such that higher discounting rates were associated with lower magnitude rewards. Within the DU group, greater discounting was observed for their drug compared to money. Opioid-using youth showed the highest discounting rates for drugs and money compared to other groups. Weak correlations were found between impulsivity measures and delayed discounting rates indicating that the measures may be tapping into different constructs. **Conclusions:** Results provide novel empirical information about impulsivity and delay discounting in substance-using youth. **Support:** NIDA, T32DA07233 NIDA, R03DA14570 NIDA, R01DA11692-10

537 PERSONALITY DIFFERENCES AMONG COCAINE CONSUMERS VARIES BY HIV/HCV STATUS

C. Morales-Manrique¹, E. Gómez¹, V. Agulló¹, J.C. Valderrama-Zurián¹, M. Castellano², S.R. Friedman³, M. Mateu-Gelabert³, M. Sandoval³, J.C. Perez de los Cobos⁴ and G. Staying Safe Valencia², ¹U. of Valencia, and ²Dirección General de Drogodependencias, Conselleria de Sanitat, Valencia, ⁴Hosp. de la Aims: To determine how personality features differ by HIV/HCV antibody statuses among cocaine users in treatment. Methods: Sample: 45 patients in treatment for cocaine dependence/abuse in Valencian. The sample is composed of two subgroups: Group A: 20 injectors and 5 sniffers with HIV+ and HCV+; Group B: 6 injectors and 14 sniffers and smokers without HIV or HCV. Mean age was 37 years (SD=6.04; range 27 - 53); 36 (80%) were men. Measures: Revised NEO Personality Inventory. Instrument (Costa y McCrae's; 1992). Analysis: Chi square test determined differences (by the presence or not of HIV and HCV) in 5 personality domains: Extraversion, Agreeableness, Conscientiousness, Neuroticism, and Openness to Experience; and 6 subordinate dimensions of each domain. Results: Cocaine users with HIV and HCV had lower scores in Extraversion ($p=0.012$), especially in the traits of Gregariousness ($p=0.027$) and Impulsiveness ($p=0.018$), and higher scores in Tendermindedness ($p=0.010$), and Deliberation ($p=0.004$). Conclusions: Subjects with HIV and HCV, compared with those with neither, are less sociable, active and talkative; have more control over their impulses, being more reflexive and prudent; and give greater importance to human dimension of social norms, showing greater sympathy and concern for others. These results are surprising: we had originally hypothesized that gregariousness and impulsiveness would expose users to risk and deliberation would be protective. Possible explanations might include personality changes as sequelae of disease or of knowledge of infection; or differences between cocaine users who do and do not use heroin (since heroin users are more likely to be infected). Support: Plan Nacional sobre Drogas. Ministerio de Sanidad y Consumo. Project 3SI/05/15; and US National Institute on Drug Abuse grant R01 DA19383 (Staying Safe).

538 HPA AXIS RESPONDING IN COCAINE-DEPENDENT MALES AND FEMALES

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Aims: Stress likely plays an important role in vulnerability and motivation to abuse addictive substances, and examining response to stressors may have implications for relapse and treatment. Recent data indicate that repeated cocaine exposure may result in differential effects on hypothalamic pituitary adrenal (HPA) axis responding in males and females. The goal of the present study was to examine the effects of gender and cocaine dependence on HPA axis response to pharmacologic activation. Methods: Corticotropin releasing hormone (CRH) was infused in groups of cocaine dependent males ($n=28$), cocaine dependent females ($n=20$), control males ($n=20$) and control females ($n=24$). The subsequent HPA response was assessed by measuring percent change ($100 * (\text{maximum-baseline})/\text{baseline}$) in plasma cortisol, adrenocorticotrophic hormone (ACTH), and subjective ratings of stress and craving. Results: A significant positive correlation (Spearman's rank correlation coefficient) was observed between ACTH and cortisol in control females ($\mu=0.412$; $p<0.05$), control males ($\mu=0.797$; $p<0.0001$), and cocaine dependent males ($\mu=0.523$; $p<0.005$). However, there was no association between ACTH and cortisol in the cocaine dependent females ($\mu=0.199$; $p=0.4$). In addition, a negative correlation was observed between stress and cortisol in cocaine dependent females ($\mu=-0.497$; $p<0.05$), but not in the male cocaine dependent subjects ($\mu=-0.243$; $p=0.21$). Stress was positively correlated with craving in both cocaine dependent males ($\mu=0.473$; $p<0.05$) and females ($\mu=0.564$; $p<0.01$). Conclusions: These data suggest that repeated cocaine exposure may produce a hypo-reactive HPA axis in cocaine dependent women, which may have implications for stress induced craving and relapse. Gender differences such as these also may guide development of gender-matched treatment. Support: National Institutes of Health National Center for Research Resources M01 RR001070 National Institutes of Health National Institute on Drug Abuse and the Office of Research on Women's Health P50 DA016511

539 CHRONIC FENTANYL ADMINISTRATION IN AGING RATS: BODY COMPOSITION,13 540 THERMOREGULATION, AND BEHAVIORAL OUTCOMES

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Aims: Chronic administration of opioids is becoming widely accepted for the treatment of various age-related chronic pain conditions. The majority of studies examining the therapeutic and other effects of opioids have used young subjects. An unexplored area of research is the assessment of the behavioral and physiological outcomes in aging subjects. Methods: Chronic fentanyl administration to rats of various ages was examined using a range of dependent measures including body composition, body temperature, physical performance, open field activity, and food consumption. Rats were 12, 18, 24, or 30 months of age and were implanted with osmotic minipumps that administered fentanyl (1.0 mg/kg/day) or saline. All measures were determined at baseline and over 7 days of chronic administration. Results: Several measures showed age-related differences at baseline (e.g. body composition (fat/lean ratio), rotarod performance, and open field activity), whereas others did not (e.g. grip strength and food consumption). Administration of fentanyl produced decreases in food consumption, resulting in decreases in body weight accompanied by decreases in fat mass. Fentanyl produced hyperthermia in the younger animals with no change in older animals. Rotarod performance was decreased by fentanyl in a similar manner across ages, whereas grip strength was not altered. Fentanyl produced a general decrease in open field activity that was similar across ages. Conclusions: Although a significant interaction was observed with the hyperthermic response, most measures showed either dramatic effects due to fentanyl administration that did not differ across ages or relatively little effect of fentanyl. These data suggest that the adverse effects produced by chronic fentanyl administration are similar across ages. Support: Supported by DA-R21-023022 (to D.M.) and the University of Florida Claude D. Pepper Older Americans Independence Center grant.

COMPARISON OF THE PREVALENCE OF SEROTONIN 2A RECEPTOR (5-HT2AR)13 540 POLYMORPHISMS IN MDMA USERS VERSUS CONTROLS

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Aims: MDMA use has acute and chronic effects on the serotonin system in humans and leads to serotonin depletion. Some MDMA-induced behavioral responses and hyperthermia are mediated by 5-HT2AR. Thus, 5-HT2AR genetic variability may modulate the impact of MDMA. Promoter region polymorphisms (T102C, A1438G) can affect receptor availability by affecting transcriptional efficiency. The G allele of A1438G has been associated with lower level 5-HT2AR expression. Polymorphisms in 5-HT2AR exon 1 can lead to receptor function variation, and modulate response to atypical antipsychotics, but have not been studied in the context of MDMA use. This project compared allele distribution of pertinent 5-HT2AR single nucleotide polymorphisms (SNPs) among moderate to heavy MDMA users ($n=84$), polydrug non-MDMA users ($n=42$), and drug naïve controls ($n=25$). We hypothesized that MDMA users will display a different allele distribution than control groups. Methods: The following SNPs were studied: H452Y, A447V, I197V, T25N, T102C, & A1438G. DNA was extracted from whole blood lymphoblastoid cell lines and amplified by PCR. SNPs were determined by sequencing/pyrosequencing. Results: T102C and A1438G were expressed differentially in MDMA users versus controls. T102C, A1438G were in linkage disequilibrium. The MDMA user group had a higher prevalence of the T and A alleles ($\chi^2=0.0161$, $df=2$), respectively, compared to controls. Allele prevalence for the other 5-HT2AR SNPs did not differ significantly between groups. Conclusions: The MDMA group expressed less of the A1438G low-transcription allele. These findings are preliminary given limited sample size, and will be discussed in the context of behavioral measures (impulsivity, MDMA use pattern). The implications and behavioral correlates of this differential expression need to be investigated further. Support: P50DA009262- DA15345

541 LONGITUDINAL TRAJECTORIES OF HIV RISK BEHAVIORS AMONG METHAMPHETAMINE USERS

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Aims: Trajectories of injection and sexual risk behaviors were examined for a sample of 1,016 methamphetamine (MA) users from 4 observations over a 1-year period from treatment intake to 12-month follow-up. **Methods:** Growth mixture modeling was used to identify latent pattern groups. Pattern groups were compared on intake and follow-up characteristics using general linear models. Data were collected by the Methamphetamine Treatment Project, a multi-site randomized clinical trial of MA treatment. **Results:** The sample was 55% female/45% male; 60% non-Hispanic White, 18% Hispanic, 17% Asian-Pacific Islander, and 5% other race/ethnicity. At intake, the mean age was 33 years, and participants reported an average of 11 years of MA use. For the sample as a whole, both injection and sexual risk declined over time; but the magnitude of overall change was very small for sexual risk. Four distinct trajectories over time were identified for both injection and sexual risk. For each type of risk, one trajectory class exhibited continuously high risk, showing little treatment response. The high risk pattern groups were also characterized at 12-month follow-up by lower levels of employment, higher levels of depression, and more days of incarceration than other pattern groups; the high injection risk group also had higher rates of MA use, as well as other mental health problems and criminal justice involvement. **Conclusions:** Results showed that some subgroups were resistant to change but others exhibited clearly decreasing patterns of HIV risk. The identification of distinguishable injection and sexual risk trajectories as users experience treatment for MA use and possible recovery may be a step in a more comprehensive understanding of risk behavior change over time. **Support:** Grant #P30 DA016383 from National Institute of Drug Abuse; Methamphetamine Treatment Project contracts #T1-11440-01, 11427-01, 11425-01, 11443-01, 11484-01, 11441-01, 11410-01, 11411-01 from the Center for Substance Abuse Treatment

542 PERSONALITY FACTORS ASSOCIATED WITH METHADONE MAINTENANCE DOSE

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Aims: Methadone is the most frequently prescribed medication for the treatment of opioid dependence (OD) in the US (Health Services/Technology Assessment Text, 2007), and questions relating to appropriate dosing of methadone remain an important issue. Given accumulating evidence suggesting an elevated prevalence of personality pathology (in particular, Cluster B) in OD populations, as well as evidence of an association between Cluster B characteristics (low distress tolerance, sensation seeking, and impulsivity) and substance use severity and treatment response, we hypothesize that methadone maintenance patients with Cluster B personality pathology will have higher methadone dose prescriptions relative to patients without such characteristics. **Methods:** Participants were 54 OD individuals recruited from a methadone maintenance clinic. Measures included the Addiction Severity Index (ASI), a measure of problems associated with substance use, and the Personality Diagnostic Questionnaire Version 4 (PDQ-4), a measure that generates personality diagnoses consistent with the DSM-IV diagnostic criteria for Axis II disorders. **Results:** The sample used in these analysis was 56% male (n= 30). The mean dose of methadone was 87.11 mg (SD = 49.78), and participants' mean body mass index (BMI) was 26.62 kg/m (SD = 3.71). The mean ASI drug use composite score was 0.24 (SD = 0.16). Of the sample, 50% endorsed symptoms consistent with a diagnosis within DSM-IV Cluster B personality disorders (PD). Results of a univariate ANOVA indicate that participants with symptoms consistent within Cluster B PD had a significantly higher mean prescribed methadone dose ($F[1, 53] = 5.23, p < .01$) relative to participants without Cluster B PD when controlling for substance use severity with the ASI drug and alcohol use composite score. **Conclusions:** The presence of personality traits appears to influence methadone maintenance dosage. Assessment of Cluster B traits may clarify the range of factors that influence dosing practices in a clinical setting. **Support:** NIDA R01 DA017904 to Michael W. Otto, Ph.D.

543 ACCESS TO SUBSTANCE ABUSE TREATMENT FOR PEOPLE FROM HISTORICALLY DISADVANTAGED SOUTH AFRICAN COMMUNITIES

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Aims: To identify factors associated with access to substance abuse treatment for people from historically disadvantaged communities (HDCs) in Cape Town, South Africa. **Methods:** A mixed methods design was used that comprised a case-control study and qualitative indepth interviews. For the case-control study, data were gathered from 434 cases who had accessed treatment and 555 controls who had substance abuse problems but had not accessed services. Participants were recruited from 12 HDCs in the Cape Town metropole. The Behavioural Model of Health Services Utilisation was used to guide variable selection. Data were gathered on sociodemographic variables, treatment need and barriers to service use. Hierarchical logistic regression procedures were used to analyse the data. Indepth interviews that focused on barriers to service use were conducted with 20 key informants from the substance abuse treatment system and local community leaders. **Results:** Both quantitative and qualitative findings point to the primary determinants of treatment uptake in HDCs being non-need rather than need factors. Non-need factors included service availability, affordability, geographic accessibility, and awareness barriers. Women and men from these communities did not have equal access to services. Vertical inequities were also present: those with relatively severe drug problems experienced greater difficulty in accessing services than participants with less severe problems. **Conclusions:** This study found inequities in the use of substance abuse treatment services among historically disadvantaged communities in Cape Town. Women experienced relatively more barriers to treatment access than men. Findings highlight the need for further transformation of the social welfare system responsible for treatment delivery. Specific, practical recommendations for how to improve access to treatment for HDCs are provided. **Support:** Open Society Foundation, First Rand Foudation, Western Cape Department of Social Development, National Research Foundation

544 DIMINISHED NEUROCHEMICAL EFFECTS OF NICOTINE WITHDRAWAL IN ADOLESCENT VERSUS ADULT RATS

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Aims: Previous research from our laboratory demonstrated that adolescent rats display fewer physical and negative affective properties of nicotine withdrawal relative to their adult counterparts. Neurochemical studies have also shown that adult rats experiencing nicotine withdrawal display a decrease in dopamine levels in the nucleus accumbens (NAcc). However, it is presently unclear whether these neurochemical effects are different in rats during different stages of development. To address this issue, the current study compared NAcc dopamine levels in adolescent and adult rats experiencing nicotine withdrawal using in vivo microdialysis procedures. Based on our previous behavioral data, it was hypothesized that adolescents would display fewer neurochemical changes produced by nicotine withdrawal relative to adults. **Methods:** Adolescent (post-natal day 28; n=5) and adult (post-natal day 60; n=6) male Wistar rats were first made dependent on nicotine using subcutaneous pumps that delivered nicotine for 14 days. A dose of nicotine was used that produced equivalent blood plasma nicotine levels across age groups (4.7 mg/kg/day in adolescents; 3.2 mg/kg/day in adults; base). After 13 days of nicotine exposure, rats were implanted with microdialysis probes aimed at the NAcc. The next day, dialysate levels were collected for 1-hour sampling periods during baseline and following administration of the nicotinic-receptor antagonist mecamylamine (0, 1.5 and 3.0 mg/kg) to precipitate nicotine withdrawal. **Results:** An analysis of the average % decrease from baseline revealed that NAcc dopamine levels were decreased following nicotine withdrawal in both age groups; however, the decrease was lower in adolescent (17%) versus adult (42%) rats. **Conclusions:** Our findings suggest that both the behavioral and neurochemical effects of nicotine withdrawal are lower during the adolescent period of development. These findings have important clinical implications for developing treatment strategies for smokers during different stages of development. **Support:** Supported by the APA Diversity Program in Neuroscience and NIDA Grant R01DA021274.

- 545** **ROLE OF DELTA RECEPTOR EFFICACY AS A DETERMINANT OF DELTA/MU OPIOID INTERACTIONS IN RHESUS MONKEYS**
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 Aims: Delta opioid agonists have been reported to selectively enhance the antinociceptive effects of mu opioid agonists without enhancing other, potentially untoward mu agonist effects such as sedation, respiratory depression or abuse potential. The purpose of the present study was to examine the role of delta receptor efficacy as a determinant of delta/mu interactions in rhesus monkeys. Methods: The effects of the selective mu agonist fentanyl were examined in combination with the high-efficacy delta agonist SNC243A, the intermediate-efficacy agonist MSF61, or the delta antagonist naltrindole. Two different behavioral procedures were used: (a) an assay of thermal nociception, and (b) an assay of schedule-controlled responding for food reinforcement. Drug interactions within each procedure were evaluated using dose-addition analysis to compare experimental results with expected additive results. Drug interactions across procedures were evaluated using dose-ratio analysis to assess the relative potencies to produce antinociception vs. response rate suppression. Results: Dose-addition analysis found that fentanyl/SNC243A interactions were superadditive in the assay of antinociception and additive in the assay of schedule-controlled responding. Fentanyl/MSF61 interactions were additive in both procedures, and fentanyl/naltrindole interactions were additive or subadditive in both procedures. Dose-ratio analysis found that fentanyl alone produced antinociception and rate suppression with similar potencies. Some fentanyl/SNC243A mixtures produced antinociception with up to 4-fold greater potency than rate suppression. Conversely, fentanyl/MSF61 and fentanyl/naltrindole mixtures produced antinociception with lower potency than rate suppression. Conclusions: These results suggest that high efficacy at delta receptors is required for selective and synergistic delta/mu interactions in assays of antinociception in rhesus monkeys. Support: Supported by R01 DA11460 from NIDA/NIH.
- 546** **QUETIAPINE VERSUS RISPERIDONE: A DOUBLE-BLIND, RANDOMIZED TREATMENT TRIAL IN CO-OCCURRING BIPOLAR DISORDER WITH COCAINE OR METHAMPHETAMINE DEPENDENCE**
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 Aims: The primary aim was to compare the efficacy and tolerability of quetiapine and risperidone in the treatment of mood symptoms, drug cravings, and drug use in bipolar disorder outpatients with concurrent cocaine or methamphetamine dependence. Methods: A 20-week trial was designed. Men and women of all races, 20-50 years of age who were not currently receiving antipsychotic medications were eligible. Inpatients, those with a DSM-IV substance-induced mood disorder or any other substance dependence, euthymia, a recent suicide attempt, or life threatening illnesses were excluded. Study participants were evaluated weekly for mood symptoms, drug cravings, drug use, and medication side effects. Treatment outcomes were analyzed using linear mixed models. Fixed effects terms for medication group, study week, and group by study week were included in the models. Results: Of 651 outpatients screened, 124 were consented, 96 were enrolled and randomized. A sample of 80 attending baseline and at least one follow-up study visit was evaluated. Both quetiapine and risperidone significantly improved manic, mixed, and depression symptoms and reduced drug cravings ($p < 0.0005$). Decreased drug cravings was related to less frequent drug use ($p = 0.03$). Drug use patterns in both medication groups were similar. Conclusions: Quetiapine and risperidone used as adjunctive or monotherapy were efficacious, well-tolerated, and did not significantly differ in their effects on mood symptoms, drug cravings or drug use. Support: A grant for this study was awarded to Dr. Nejtek by the Stanley Medical Research Institute. The Investigator-sponsored program of AstraZeneca provided Seroquel.
- 547** **ONE-YEAR-TREATMENT OUTCOMES FOR PATIENTS REFERRED FROM SYRINGE EXCHANGE VERSUS OTHER SOURCES**
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 Aims: To compare the 1 year treatment outcomes for syringe exchange referrals to outcomes of patients from all other referral sources in a methadone substitution program. Methods: Of 324 consecutive admissions to Addiction Treatment Services (ATS) between 08/1994 - 09/1997, 81 were referred from the Baltimore Syringe Exchange Program (SEP) and 243 from all other sources. Treatment included daily methadone dosing, and weekly individual and group counseling, employing the adaptive Motivated Stepped Care model. Addiction Severity Index (ASI) was completed upon admission. Treatment outcome was assessed using weekly observed urine testing and days spent in treatment. General Estimating Equations (GEE) were used to compare proportion of any drug positive urines during the 1 year follow-up; Cox proportional hazards were used to evaluate retention. Regression models evaluated baseline variables associated with drug use and drop out over time. Results: SEP referrals were older, included more males and non-whites, reported greater unemployment and heavier heroin, cocaine, and injection drug use at baseline. During treatment, SEP referrals used more opioids (OR 2.57; 95% CI 1.86-3.56) and cocaine (OR 2.77; 95% CI 1.93-3.95), and were less likely to complete one year of treatment (35%) compared to other referrals (56%) (Hazard Ratio 1.88; 95% CI 1.35-2.62). Referral source was not significantly associated with treatment outcome when adjusted for baseline characteristics. Greater baseline frequency of substance and injection drug use, and younger age were positively associated with ongoing opioid and cocaine use. Non-white racial background and baseline unemployment were also associated with ongoing cocaine use. Younger age and greater baseline cocaine use were associated with poorer retention at one year. Conclusions: The poorer treatment response of SEP referrals is likely due to higher baseline problem severity. Specialized interventions may be required to reduce drug use and improve retention in this population. Support: NIDA R01DA012347 (PI: M. Kidorf)
- 548** **YOUTH'S INHALANT DRUG USE IN BOGOTÁ, COLOMBIA**
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 Aims: Inhalants are the 4th most prevalent class of drugs of abuse among Colombians. As elsewhere, 12-17 year olds are at highest risk for inhalant use and abuse. Worrisomely, national studies show that 25% of females of childbearing-age report increasing their inhalant use in late-stage pregnancy. The present study explores rates of exposure-opportunity (E-O) to use inhalants, prevalence of inhalant use and its associated factors, in a representative sample of school-attending adolescents. Methods: Data was collected via a standardized questionnaire administered to 1169 female, and 1192 male students in Bogotá, Colombia, selected in a stratified multistage probability cluster sample. Results: Average age of participants was 14.8 years (SD=1.3), 65.3% studied in public schools, and 56.3% belonged to the lowest social strata. One sixth of students (17%) reported an inhalant drug E-O, of which 65.5% were defined as "passive opportunities". Transition from E-O to use was reported by 60.7% of students. Prevalence of inhalant use was 3.7% for past-year, and 1.7% for past-month. Average age at first use was 12.9±2.2. Males were more likely to report an E-O (Odds Ratio=1.4, 95% C.I.=1.1,1.7) and to ever have used inhalants (OR=1.5, 95% C.I.=1.2,2.0). No gender differences were found for transition from E-O to use (OR=1.3, 95% C.I.=0.9,2.0). Inhalant use was associated with having used marijuana (OR=6.4, 95% C.I.=4.7,8.7), deviant peer behavior (OR=2.6, 95% C.I.=2.0,3.4), poor parental control (OR=2.1, 95% C.I.=1.6,2.9), and low academic performance (OR=1.5, 95% C.I.=1.1,2.0). Almost two-thirds (64.6%) of students perceived "great" risk in trying inhalants regularly, while 18.2% considered "trying inhalants once or twice" to be dangerous. Conclusions: By highlighting groups at risk, and substantiating reported relationships with other problem behaviors, this study of the epidemiology of inhalant use among adolescents in Colombia provides important information for developing targeted prevention strategies among youth. Support: This study was supported by a Milstein Doctoral Fellowship to C. Lopez

549 HERPES SIMPLEX VIRUS TYPE 2 INFECTION IN DRUG AND ALCOHOL USERS IN LOW- AND MIDDLE-INCOME COUNTRIES

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550 THE EFFECTS OF γ -VINYL- γ -AMINOBUTYRIC ACID (GVG, VIGABATRIN) ON THE SUBJECTIVE, CARDIOVASCULAR AND REINFORCING EFFECTS PRODUCED BY METHAMPHETAMINE (METH) IN METH-DEPENDENT VOLUNTEERS

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Aims: GVG is an anti-epileptic medication that elevates CNS GABA levels by irreversibly inhibiting GABA transaminase. GVG has promise as a treatment for METH dependence as it blocks expression of conditioned place preference and decreases cocaine self-administration in rats. In humans, an open-label clinical trial suggested that GVG may reduce cocaine and METH use. To extend this work, we conducted a double-blind, placebo-controlled, parallel groups study to determine the cardiovascular, subjective, and reinforcing effects of METH in volunteers treated with GVG or placebo. Methods: METH-dependent volunteers, who were not seeking treatment, were randomized to receive either GVG or placebo. GVG treatment was initiated at 1g/day and increased to 5g/day. After several days of treatment at 5g/day, participants received doses of METH (0 and 30 mg, IV), and completed METH self-administration choices sessions. Cardiovascular and subjective effects were assessed before and after dosing with each drug, and in IV self-administration sessions participants made 10 choices for low doses of METH (3 mg, IV) or placebo. Results: To date, 17 participants have completed the study. GVG treatment has been well tolerated and not associated with increased incidence of adverse events. A preliminary analysis indicates that GVG did not alter METH-induced subjective or reinforcing effects. Conclusions: These data do not suggest efficacy for GVG in attenuating the positive subjective effects of METH. Assessment of the effects of GVG on METH-induced subjective or reinforcing effects in this sample is continuing. Support: DA017182, DA17754, RR00865

551 RELATIONSHIP BETWEEN EXTINCTION RESPONDING AND CUE-INDUCED REINSTATEMENT IN COCAINE SELF-ADMINISTRATION IN "LOW-ANXIETY" AND "HIGH-ANXIETY" RATS

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Aims: This study investigated if sub-populations of rats characterized by their basal levels of "anxiety-like" behavior on the elevated plus maze (EPM), displayed differences in cue-evoked reinstatement upon presentation of cocaine-paired cues. Methods: Male Sprague-Dawley rats were selected on the basis of the time spent on the open arms of the EPM during a 5min. session. Subsequently rats were subjected to a cocaine self-administration paradigm tailored to measure the reinforcing properties of cocaine (Week 1: 0.25 mg/kg/0.1ml infusion/FR1 schedule; Week 2: 0.75 mg/kg/0.1ml infusion FR1/5 schedule) and cocaine-associated stimuli (stimulus light and pump) employing the reinstatement model of drug-seeking. Results: Two subpopulations of rats were identified; "low-anxiety" responders exhibited significantly greater time exploring the open arms (105.7 ± 5.0) versus the "high-anxiety" responders (0.0 ± 0.0). Baseline levels of responding on the cocaine-associated lever during the initial extinction session showed a negative correlation with the "anxiety-like" profile of the rats ($r = -0.554$, $p < 0.05$). Thus, "high-anxiety" responders exhibited a significantly greater baseline lever presses on the initial extinction session (118.9 ± 17.8) versus the "low-anxiety" responders (63.2 ± 13.9) ($t(11) = -4.111$, $p < 0.05$). Conclusions: "High-anxiety" rats that displayed reduced exploratory behavior on the EPM, demonstrated a greater resistance to extinction of cocaine-seeking behavior when both cocaine and cocaine-associated cues were eliminated, following the cocaine self-administration period. Ongoing studies are verifying whether greater resistance to extinction also suggests that the cues previously associated with cocaine delivery acquired greater conditioned reinforcing effects in the "high-anxiety" than in the "low-anxiety" group. Additionally, we will examine neurochemical differences between these two phenotypes within the serotonergic system in specific neuroanatomical loci that may be related to the anxiety endophenotype. Support: NIDA DA00260, DA06511, K05 DA020087.

552 DNA METHYLATION OF CpG DINUCLEOTIDES IN THE μ -OPIOID RECEPTOR GENE PROMOTER REGION OCCURS IN VIVO AND IS INCREASED IN LYMPHOCYTES OF CAUCASIAN FORMER SEVERE HEROIN ADDICTS

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Aims: The μ -opioid receptor is the site of action of opiates and several endogenous opioids. One study has demonstrated in transfection experiments that expression of the μ -opioid receptor gene (OPRM1) is attenuated when its promoter is methylated in vitro. We hypothesize 1) that DNA methylation of specific CpG dinucleotides occurs in vivo at the OPRM1 promoter region and 2) that the degree of methylation will be higher at specific CpG dinucleotides in the OPRM1 promoter region in former severe heroin addicts than in control subjects. Methods: Direct sequencing of bisulfite-treated DNA was performed to assess the levels of cytosine methylation at sixteen CpG dinucleotides in the OPRM1 promoter region. Analysis was conducted on 194 former severe heroin addicts and 136 control subjects, all of Caucasian ethnicity. Results: Specific OPRM1 CpG dinucleotide sites are each methylated to a different degree. The degree of methylation at two CpG sites in the upstream μ -opioid receptor gene CpG island were significantly associated with severe heroin addiction. The degree of methylation observed at one CpG dinucleotide site was 25.9% in heroin addicts and 21.8% in controls ($p=0.0035$, GEE; $p=0.0077$, t-test; $p=0.055$, FDR) and at a second CpG dinucleotide site the degree of methylation was 7.5% in heroin addicts and 5.5% in controls ($p=0.0095$, GEE; $p=0.0067$ t-test; $p=0.076$, FDR). Both CpG sites are located in consensus Sp1 transcription factor-binding sites. Conclusions: Differences between former heroin addicts and controls in DNA methylation at the OPRM1 promoter region may provide insights into the causes and/or effects of opiate addiction. Methylation of these CpG sites may lead to reduced OPRM1 expression in the lymphocytes of these former heroin addicts. Support: NIH Grants RO3- DA022266 (D.N.), K05-DA00049(M.J.K.), P60-DA005130 (M.J.K.), RO1-MH079880 (M.J.K.), RR UL1RR024143 (B.C.), and MH R01-44292 (J.O.).

553 PHARMACODYNAMIC INTERACTIONS OF ALPRAZOLAM IN METHADONE AND BUPRENORPHINE-NALOXONE PATIENTS

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Aims: Benzodiazepines are frequently reported to be used by those in treatment for opioid dependence, and are often implicated in opioid related overdoses. It is not currently well established if there is a difference in the effects of benzodiazepines when administered with methadone and buprenorphine patients, nor have the effects of different benzodiazepines been widely examined. This study aims to compare the effect of alprazolam in methadone and buprenorphine-naloxone patients. **Methods:** This study examines the effect of alprazolam (0 and 2 mg) under randomised double blind administration conditions on physiological (eg SpO₂, pupil size), subjective (Visual Analog Scales and ARCI) and performance (DSST, Cancellation Task, Simple Reaction Time and prose recall) measures in 6 buprenorphine-naloxone and 4 methadone maintained individuals. The effects induced by alprazolam when concurrently administered with methadone and buprenorphine-naloxone are compared. Measures were taken at baseline and repeated over 5 h following drug administration. **Results:** Repeated measures ANOVA showed significant effects ($p < 0.05$) on a number of performance measures including prose recall and less effect on physiological measures with a trend toward significant peak effects of alprazolam on respiration ($p = .08$) in methadone maintained individuals. **Conclusions:** Alprazolam 2 mg administration resulted in a significant impairment on performance measures but not physiological measures in buprenorphine-naloxone patients; and what appeared to be greater peak impairment in methadone patients. The differences in the time course of effects on respiration are of interest in considering the safety profile of these two treatments for opioid dependence. The effect of different use conditions and differences that may exist between different benzodiazepines required further examination. **Support:** This study was supported in part by departmental funding from Monash University and in part by an educational grant from Reckitt-Benckiser.

554 INVOLVEMENT OF ENDOGENOUS B-ENDORPHIN IN THE SUPPRESSION OF THE MORPHINE-INDUCED REWARDING EFFECT UNDER A NEUROPATHIC PAIN-LIKE STATE IN RODENTS

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Aims: The present study was further investigated the mechanisms that underlie the suppression of opioid reward under neuropathic pain in rodents. **Methods:** Conditioned place preference, Immunohistochemistry, In vivo microdialysis, Guanosine-5'-o-(3-[35S]thio) triphosphate ([35S]GTPYS) binding assay **Results:** We confirmed that sciatic nerve ligation suppressed a place preference induced by s.c. morphine ($p < 0.01$ vs. sham-saline groups) and reduced both the increase in the level of extracellular dopamine by s.c. morphine in the nucleus accumbens (N.Acc.) ($F(1, 234) = 2.824$; $p < 0.001$, sham-operated wild-type mice treated with morphine vs. ligated wild-type mice treated with morphine) and [35S]GTPYS binding to membranes of the ventral tegmental area (VTA) induced by μ -opioid receptor agonist DAMGO ($p < 0.01$ vs. sham-operated wild-type group). These effects were eliminated in mice that lacked the β -endorphin gene. Next, we investigate a possible change in tyrosine hydroxylase (TH) activity in the VTA of sciatic nerve-ligated rats, using immunohistochemical study. Sciatic nerve ligation dramatically diminished the phosphorylated-TH immunoreactivity in this region. Retrograde tracer fluoro-gold (FG)-containing cells were apparently detected in the VTA after microinjection of the FG into the shell region of the unilateral N.Acc. Further immunostaining showed that a population of retrogradely labeled neurons in the VTA was also immunoreactive for p-TH. **Conclusions:** These results provide molecular evidence that nerve injury results in the continuous release of endogenous β -endorphin to cause the dysfunction of μ -opioid receptors in the VTA. This phenomenon could explain the mechanism that underlies the suppression of opioid reward under a neuropathic pain-like state. **Support:** Grant from the Ministry of Education, Culture, Sports, Science and Technology of Japan (Frontier Research)

555 PSYCHIATRIC DISORDERS AND HEALTH CHARACTERISTICS IN MDMA USERS¹³ RESULTS FROM THE NESARC

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Aims: To examine the prevalence and correlates of mood, anxiety, and personality disorders and general health characteristics among lifetime MDMA users. **Methods:** Secondary analyses were conducted on data from the 2001-2002 NESARC, a nationally representative survey of 42,093 adults in the U.S. This study includes 562 individuals who reported lifetime MDMA use and 562 individuals who had never used MDMA. Non-users were randomly selected and matched to the MDMA users by age and gender. Psychiatric diagnoses were made using the AUDADIS-DSM-IV and health characteristics were measured using the Short Form-12 Health Survey. **Results:** Lifetime MDMA use was reported by 562 respondents representing 1.6% of the U.S. population. Compared to non-users, MDMA users were less likely to be married, had higher levels of education and income, and were more likely to have worked in the past year and to have lived in the Western U.S. Among MDMA users, 63% met criteria for at least one lifetime psychiatric disorder and 51% met criteria for at least one past-year diagnosis. In contrast, 37% of non-users met lifetime criteria and 26% met past-year criteria. Bivariate analyses showed that MDMA users were more likely to experience mood, anxiety, and personality disorders than non-users. Multivariate analyses, controlling for sociodemographic variables and number of substances used, showed that MDMA use no longer significantly predicted the presence of past year or lifetime mood, anxiety, personality, or psychiatric disorders. The only specific diagnoses that MDMA use significantly predicted were past year mania and panic disorder with agoraphobia and lifetime dependent personality disorder. The two groups did not differ in their physical functioning; however MDMA users had poorer mental health functioning compared to non-users. **Conclusions:** Although MDMA use is related to psychopathology, caution should be used in interpreting psychiatric disorders as a consequence of MDMA given the polydrug use associated with the drug. **Support:** Funded by the National Institute on Drug Abuse (RO1-DA020944).

556 COMPARING BEHAVIORAL CORRELATES OF EEG VARIATIONS BETWEEN STIMULANT¹³ USERS, ALCOHOLICS AND COMMUNITY CONTROLS

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Aims: This study examined patterns of baseline electroencephalographic (EEG) activity in detoxified alcohol-dependent ($n=26$, AD), and stimulant-dependent ($n=19$, SD) treatment seeking participants, as well as community controls ($n=21$, CC). **Methods:** Participants were aged 21-54 and smoked a minimum of 10 cigarettes/day throughout the previous year. None were actively engaged in nicotine cessation. After overnight abstinence, subjects were administered either high (14/21 mg; contingent on gender) or low (7mg) dose nicotine patches. EEG data were collected during a 2 minute eyes open and 2 minute eyes closed baseline recording session, which occurred as part of a larger study of brain electrophysiology. Previous analyses (under review; Ceballos et al) suggested the EEG measure most sensitive to drug abuse as evidenced by more widely distributed alterations was slow beta (13.5-19.5 Hz) absolute power. Thus, the current analyses examined the relationship between beta absolute power and performance on attention demanding tasks; the Trails B and the Stroop test. Pearson correlations were conducted for each group X dose combination. **Results:** These analyses produced differential results, depending on dose and group. Regardless of nicotine dose, the control group failed to demonstrate significant associations between beta power and performance. Similarly, the detoxified alcoholics also failed to exhibit significant correlations regardless of nicotine dose. Interestingly, however, the stimulant abusers exhibited a different pattern. Posterior beta absolute power was significantly and negatively correlated with Trails B performance (time to complete) ($r = -.67$, $p = .03$) under the high dose condition. The relationship between anterior beta absolute power and the Trails B approached significance with $r = -.66$, $p = .08$, but only under the low dose condition. **Conclusions:** These data, although preliminary, suggest that nicotine may differentially influence brain electrophysiology as a result of drug use history, dose and brain region. **Support:** R01DA013677

557 PREDICTIVE PHARMACOPHORE MODELS FOR NOVEL SIGMA-1 AND SIGMA-2 LIGANDS

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Aims: Sigma receptors are involved in a number of biological functions including receptor modulation and CNS activity associated with anxiety, schizophrenia, and behavioral changes induced by psychostimulants, including MDMA, cocaine, and methamphetamine. Due to the diversity and lack of selectivity of known sigma compounds, pharmacophoric features associated with sigma activity remained elusive. Ligand-based pharmacophore models based on new, selective sigma compounds were developed in order to gain an understanding of the chemical features necessary for activity and selectivity. **Methods:** Pharmacophore models were generated using the HypoGen module of the Catalyst software for sigma-1 and sigma-2 receptors. Training and test set compounds displayed a well-distributed range of activities and chemical diversity, in order to avoid redundancy and bias. The quality of the models was assessed using both an external test set and the CatScramble randomization technique. **Results:** Sigma activity of the said compounds was determined to be based on four features with different spatial arrangements for sigma-1 and sigma-2. These four features included a hydrophobic, positive ionizable, hydrogen bond acceptor, and a ring aromatic. The predictive capabilities of the models was supported by the ability of the model to assign test compounds to different activity classes. **Conclusions:** Ligand-based pharmacophore models developed for sigma-1 and sigma-2 provide insight into the features important for activity and selectivity. Based on quality validation, these models can be used for the prediction of biological activity of new ligands as well as virtual screening or de novo design of novel sigma ligands. **Support:** NIDA

558 HIV/AIDS AMONG INJECTING DRUG USERS IN INDONESIA: THE ROLE OF DRUG TREATMENT

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Aims: This study aims to describe HIV/AIDS among injecting drug users in Indonesia, to analyze coverage of methadone treatment, and to make recommendations for the future role of drug treatment. **Results:** National Narcotic Board estimated that there are 3.2 million drug users in Indonesia, and 580,000 among them are injecting drug users (IDU). A quarter of them also had unsafe sex practices. HIV prevalence among IDU is high (63.7% at Methadone Clinic RSKO, 86% at Pamardisiwi Rehabilitation Center, and 96% at Kampung Bali Health Center). Result from Behavioral Surveillance Survey 2004-2005 in several major cities has shown that IDU reuse syringes from other drug users during the prior week (in Surabaya 77%, Medan 74%, Jakarta 59%, and Bandung 35%). Methadone treatment is currently delivered through four hospitals as a pilot project and seven methadone clinics, serving approximately 1,000 clients. This will expand to reach more than 50,000 clients by 2010. Out of 375 IDU who already joined MMT in The Drug Dependence Hospital in 2005, 59% are non-active because of difficulties in accessing and paying for services. HIV/AIDS among methadone clients is 63.7%. **Conclusions:** Currently, HIV prevalence among IDU is high and the coverage of methadone treatment among IDU is low (only 0.5% nationwide). Since IDU in treatment practice lower rate of drug use and related risk behaviors, there is an urgent need to expand drug treatment in Indonesia. Regarding drug counseling, there has been insufficient attention on its use in combination with methadone treatment as a part of a comprehensive approach. There are current plans for expansion of methadone maintenance treatment (MMT). To maximize the impact of this expansion, MMT will need to be accessible, acceptable, and affordable. **Support:** National Institute on Drug Abuse (NIDA) INVEST Fellowship

559 A CONTROL TRIAL OF THE FEASIBILITY OF REMOTE REAL-TIME MONITORING OF SMOKING

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Aims: Breath carbon monoxide (CO) is a good measure of recent smoking, but requires repeated measurement for periods >8 hrs. Multiple daily CO samples are needed to monitor and reinforce continuous smoking abstinence in smokers participating in contingency management (CM) interventions, which may be too intensive. An Internet-based CM intervention was developed wherein remote real-time videos of smokers providing CO samples are collected twice/day at least 8 hrs apart. The purpose of the present study was to examine the feasibility of this approach and to examine the relationships between twice-daily CO samples, self-report smoking, and cotinine levels. **Methods:** Nine smokers were enrolled in a CM study for smoking. Subjects sent videos via the Internet of themselves providing CO samples twice daily over a 5-wk period. During wks 1 and 5, participants earned \$3 per sample independent of CO level. During wks 2-4, subjects received monetary reinforcement for providing CO samples showing recent abstinence. Urine samples and self-report assessments of smoking were collected at the end of each week during the 5-wk period. Urine samples were assayed for cotinine. **Results:** Over the 5-wk period, subjects provided 87% of all twice-daily CO samples. Mean twice-daily COs was 12.9 ppm (± 13.8). Subjects reported smoking on average 7 (± 9.2) cigarettes a day. A significant relationship between daily mean CO and self-report of daily number of cigarettes was observed ($r=0.84$, $p<0.001$). In addition, there was a significant relationship between weekly urine cotinine levels and weekly mean CO ($r=0.62$, $p<0.001$), and weekly cotinine levels and weekly self-report number of cigarettes ($r=0.67$, $p<0.001$). **Conclusions:** The high participation suggests this approach is feasible. In addition, there is good correspondence between twice-daily CO levels and other smoking measures. Remote real-time CO measurement may offer a method by which smoking behavior can be accurately and objectively assessed at frequent intervals. **Support:** Supported by KLCRP (CAM).

560 THE SUBSTANCE P SYSTEM AS A TARGET IN THE DEVELOPMENT OF PEPTIDOMIMETICS ACTING AS DRUGS FOR TREATMENT OF OPIOID ADDICTION

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Aims: The substance P (SP) amino-terminal SP(1-7) is widely distributed within the central nervous system (CNS). SP(1-7) is shown to counteract the expression of opiate tolerance and withdrawal. This is in contrast to what is seen for SP receptor (NK-1) agonists, which increase the reaction to opioid withdrawal. Previous studies suggests that SP(1-7) does not mediate its effects through any of the known tachykinin receptors and not via activation of any opioid receptor. The SP fragment rather produces its effects through specific sites, which are not recognized by SP. We recently identified and characterized specific sites for SP(1-7) in the rat spinal cord. Here we present the identification of similar sites in the rat ventral tegmental area (VTA). We also describe the synthesis and functional studies of SP(1-7) analogues acting with high affinity on these sites inducing strong effects on opiate tolerance and withdrawal. **Methods:** We used a tritium-labelled analogue for SP(1-7) to identify and characterize specific binding sites for the heptapeptide in the VTA following the procedure outlined in (5). We used a method for solid phase synthesis to prepare SP(1-7) analogues as described. The effect of the synthesised peptides on opioid tolerance and dependence was examined using an animal experimental set up described previously. **Results:** We found high affinity binding sites for the SP(1-7) in the VTA with properties very similar to those described for those recently identified in the rat spinal cord (5). Thus, the affinity of SP(1-7) for these sites highly exceeds those of other N-terminal fragments of SP. Furthermore, a synthesised SP (1-7) analogue with its C-terminal being amidated showed high binding affinity for the SP(1-7) specific sites and was highly potent in affecting opioid tolerance and withdrawal. **Conclusions:** We conclude that the synthesised SP(1-7) analogue may serve as a lead for the development of peptides and non-peptides to be used in the clinic for the treatment of opiate addiction. **Support:** This study was supported by by the Swedish Medical Research Council (Grant 9459) and by SRA.

561 ACADEMIC PERFORMANCE TRAJECTORIES IN COLLEGE STUDENTS: RELATIONSHIPS WITH ALCOHOL AND MARIJUANA USE, DEPRESSION, ANXIETY, AND BEHAVIORAL DYSREGULATION

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Aims: Drug use during college is suspected to influence academic performance, yet longitudinal data examining this association are scarce. This study examines the relationships between college academic performance, baseline risk factors, and co-occurring marijuana and alcohol use among students participating in the College Life Study. **Methods:** At study outset, participants were 1,253 students ages 17 to 19 attending a public university in the mid-Atlantic region of the US. Academic performance, as measured by grade point average (GPA) in the first four semesters of college, was gathered from administrative records. Data on alcohol and other drug use were collected semiannually via personal interviews and online surveys at the same 4 time periods as GPA. Depression, anxiety and behavioral dysregulation were measured at baseline. Gender and high school GPA served as covariates. **Results:** A growth mixture model approach revealed three groups with distinct GPA trajectories: 1) consistently superior GPA; 2) consistently inferior GPA; and 3) low-then-failing GPA. Co-occurring marijuana use-but not co-occurring alcohol use-was related to poorer academic performance. Moreover, baseline depression scores and affective and cognitive dysregulation were significant risk factors related to academic performance. In contrast, baseline anxiety was not related to academic performance. **Conclusions:** Results highlight the potential importance of co-occurring marijuana use in determining academic failure. Moreover, the fact that baseline depression scores and affective and cognitive dysregulation were found to be significant risk factors related to poorer academic performance suggests that students who are at risk for academic failure can be identified early for intervention. More research is needed to understand the interrelationships between these variables and their impact on longer-term college academic performance. **Support:** NIDA R01DA14845; A. Arria, PI

562 PROTON MRSI OF THE HUMAN BRAIN IN EARLY ABSTINENCE FROM METHAMPHETAMINE

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Aims: To measure magnetic resonance spectroscopic imaging (MRSI) metabolites in the brain (inferior frontal gyrus, caudate, putamen, thalamus, mesial parietal cortex, dorsal posterior cingulate cortex [dPCC]) during early abstinence from chronic methamphetamine (MA) abuse. **Methods:** MRSI (1.5T, PRESS, TR/TE=1500/30ms, 11x11x9-12mm3 voxels) was performed on 22 chronic MA abusers who were abstinent 4-7 days (11 male; 33.7+/-9.9 yr) and 18 healthy controls (10 male; 31.0+/-6.9yr). Two sagittal-oblique MRSI slabs sampled left, right inferior frontal gyri. One axial slab sampled bilateral caudate head, putamen, and thalamus. One sagittal slab sampled midline dPCC and mesial parietal cortex (precuneus). Metabolite levels and ratios for N-acetyl-aspartate+N-acetyl-aspartyl-glutamate (tNAA), glutamate+glutamine (Glx), creatine+ phosphocreatine (Cr), choline compounds (Cho), and myo-inositol (ml) were calculated with LCModel. UCLA software (MVP) was used to select voxels, calculate voxel tissue content, and correct for CSF. After omnibus tests, group metabolites were compared in each region covarying vol% gray- and/or white-matter. Within MA-abusers, metabolites were correlated against g/week MA consumed and yr MA abuse partialling age and/or gray/white matter. **Results:** In right inferior frontal gyrus, Glx/Cr was 14.9% lower in MA abusers than control subjects (p<0.01) and tNAA correlated with g/wk MA (r=0.59, p<0.05). In left caudate Cho correlated with yr MA abuse (r=0.9, p<0.001). In dPCC tNAA, Cr, and ml increased (all r>0.50, p<0.05) while Glx/Cr and Cho/Cr decreased (both r<-0.50, p<0.05) with increasing yr MA abuse. In precuneus tNAA/Cr (7.0%, p<0.05) and Glx/Cr (8.6%, p<0.01) were lower in MA abusers. **Conclusions:** These results suggest metabolite abnormalities in multiple brain regions in the first days of abstinence from MA. The abnormalities may reflect imbalances in the densities and/or metabolic activities of neurons and glia. **Support:** DA020512-01, DA023192-01 (JON); DA022539, DA020726 (EDL)

563 FACTORS ASSOCIATED WITH STIMULANT USE DURING SEX IN A LOW-INCOME SAMPLE OF MEN WHO HAVE SEX WITH MEN

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Aims: To examine demographic and contextual factors associated with stimulant use during sex in a sample of low-income MSM. **Methods:** MSM were recruited in Los Angeles using respondent-driven sampling (n=425). Univariate relationships between event-level stimulant use during sex and demographic and contextual variables were examined (chi-square). The dichotomized dependent variable of any stimulant use with any of the last sex partners was regressed on factors found significant in the chi-square analysis [odds ratios (OR), 95%; confidence intervals (CI)]. Post hoc, use of each stimulant alone was regressed on the same factors to examine variations by drug. **Results:** Half of the men in the study used methamphetamine, crack or cocaine during sex with at least one recent sex partner. Factors significantly increasing the likelihood of using any stimulant during sex included sex with both men and women (OR 2.14, 95%; CI 1.27-3.59); unprotected sex with two or more recent sex partners (OR 2.36, 95%; CI 1.25-4.46); and number of sex partners (OR 1.05, 95%; CI 1.01-1.10). White men and Hispanic men were more likely to use methamphetamine during sex (OR 9.17, 95%; CI 3.89-21.6; OR 3.98, 95%; CI 1.65-9.62) and less likely to use crack during sex (OR .19, 95%; CI .05-.30; OR .29, 95%; CI .14-.61) than African American men. **Conclusions:** Stimulant use during sex among very low-income MSM is associated with activities known to increase the risk of HIV transmission, such as multiple sex partners and unprotected sex, and is more likely among men having sex with men and women than men having sex with men only. The link between crack use and having sex with both men and women suggests a bridge for HIV transmission from low-income MSM drug users to women. **Support:** This study is supported by NIDA grant #DA017394.

564 CORRELATES OF SUBSTANCE USE AND RELATED PROBLEMS IN NIGERIA AND UGANDA: FINDINGS FROM GENERAL POPULATION SURVEYS

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Aims: Findings from decades of research in Africa show that the usual pattern of drinking is sporadic heavy consumption. However, little is known about the factors associated with this pattern of drinking, use of other substances and related social and health problems. The aim of this study is to assess prevalence and correlates of drinking, illicit substance use, and problems in the general populations of Nigeria and Uganda. **Methods:** The study utilizes data from the WHO-GENACIS Project, an international collaborative survey in more than 30 countries. In Nigeria and Uganda a similar questionnaire was used for data collection from a randomly selected sample of male and female adults. The sample consisted of 1,093 male and 943 female (n=2,036) respondents in Nigeria; and in Uganda 698 male and 715 female (n=1,413) respondents. Bivariate and logistic regression analyses were conducted to test the association between selected socio-demographic factors and alcohol consumption, smoking, and use of illicit drugs. **Results:** In both countries, male respondents were more likely than females to report past year (daily) smoking, alcohol use and illicit drug use even after controlling for the probable effects of other variables. Age and level of education were associated with smoking and drinking in Uganda; and in Nigeria age, marital status, education played significant roles in drinking and illicit drug use. Unemployed respondents in Nigeria were more likely to report that their drinking had caused them problems than employed respondents (OR = 2.3; CI = 1.5-3.5). The data also provided evidence showing that certain demographic factors are associated with reported physical and mental health problems among people who drink and/or use other substances. **Conclusions:** Substance use has become an issue of public health concern in African countries, especially in relation to HIV/AIDS. Careful analysis of the data from the GENACIS project which will be carried out for this paper might lead to greater understanding of this problem. **Support:** Funding for the GENACIS project in Nigeria and Uganda was provided by the WHO, Geneva.

- 565** THE EFFECTS OF KHAT AND POSTTRAUMATIC STRESS ON PSYCHOTIC SYMPTOMS: A CROSS-SECTIONAL STUDY IN SOMALI COMBATANTS
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Aims: The leaves of the khat shrub (*Catha edulis*) are traditionally chewed in Somalia where it is not restricted by law. Khat contains the amphetamine-like cathinone. Recently, the cultivation of khat has dramatically expanded and emerged as a major cash crop. Its use is a growing problem in the US as well, mainly among immigrant groups. Current evidence shows that binge use and early onset in life are related to the development of psychotic disorders. In this study we explored the effects of current khat intake and posttraumatic stress on the point-prevalence of paranoid symptoms. Methods: Using a cross-sectional design, trained local staff interviewed 8,723 military personnel in six regions of Somalia. We used selected items from the Composite International Diagnostic Interview (CIDI) and from the Somali version of the Posttraumatic Stress Diagnostic Scale (PDS) enabling the diagnosis of partial Posttraumatic Stress Disorder (pPTSD). Group differences were explored using non-parametric and Chi2 tests. We hypothesized that khat use and pPTSD are predictors for psychotic symptoms in a logistic regression model. Results: Respondents with pPTSD were more frequently khat chewers (66.2% vs. 34.6%, $p < .001$). Khat chewers with pPTSD had a higher mean khat intake in the previous week (18.8 'bundles' ± 16.3 vs. 8.7 ± 10.2 , $p < .001$). In our regression model, both factors were significant predictors: khat bundles OR = 1.036, CI 95% 1.022 - 1.050; PTSD symptoms in the past 4 weeks OR = 2.066, CI 95% 1.923 - 2.220. Among khat chewers with pPTSD, the prevalence of paranoid ideation reached up to 41%. Conclusions: Our findings support a dose effect: the more khat is consumed or the more PTSD symptoms are experienced, the greater the probability of paranoid ideation. The results support the self-medication hypothesis and confirm previous findings that khat use is especially harmful to the mental health of vulnerable individuals. Support: Supported by GTZ and EC
- 566** ETHANOL INCREASES EXTRACELLULAR GLUTAMATE LEVELS IN THE VENTRAL TEGMENTAL AREA VIA D1 RECEPTOR ACTIVATION
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Aims: The reinforcing effects of ethanol are believed to be mediated, at least in part, by activation of the mesoaccumbens dopamine reward pathway. Yet it remains to be determined precisely how ethanol activates dopaminergic neurons in the ventral tegmental area (VTA) of the midbrain. Recent in vitro evidence suggests that ethanol (10 -80 mM) increases glutamatergic neurotransmission onto dopaminergic neurons in the VTA via a dopamine D1 receptor-mediated mechanism (Ye et al., 2007; Xiao et al., submitted). Methods: To determine if this phenomenon occurs in vivo, adult male Sprague-Dawley rats were implanted with guide cannula aimed at the posterior VTA and allowed to recover for at least 5 days. Next, rats were implanted with microdialysis probes equipped with 1 mm cuprophane membranes into the VTA. On the following day, four baseline microdialysis samples were collected prior to administration of either saline or the D1 receptor antagonist SKF83566 (0.15 mg/kg i.p.). Following the collection of two additional samples, all animals were administered ethanol (1 g/kg i.p.), followed by collection of an additional six microdialysis samples. The collection time for all microdialysis samples was 15 min at a flow rate of 1.5 μ l/min. Immediately following collection, 2 μ l of each microdialysis sample was placed in a headspace vial for determination of ethanol concentration by GC, and the remainder of the sample was placed into an autosampler vial for analysis of glutamate content by HPLC with electrochemical detection. Results: Acute administration of ethanol produced a transient but significant (~125%) increase in dialysate glutamate levels during the first post-injection sample in saline-pretreated animals, but this effect was not observed in animals pretreated with the D1 antagonist SKF83566. Dialysate ethanol concentrations peaked in the second microdialysis sample at ~2-3 mM and did not differ between the two groups. Conclusions: These data suggest that ethanol may excite VTA dopamine neurons by increasing D1-mediated glutamate release in this region. Support: Supported by PHS grant AA013852.
- 567** EFFECT OF ALCOHOL DEPENDENCE DIAGNOSIS ON EFFICACY OF DISULFIRAM IN METHADONE-STABILIZED COCAINE-DEPENDENT VOLUNTEERS
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Aims: This present study conducted secondary analyses to examine whether response to disulfiram differed by whether or not participants had a SCID diagnosis of lifetime (LT) or current (CT) alcohol dependence (AD). Methods: In this 14-wk, double blind, placebo-controlled clinical trial opioid- and cocaine-dependent individuals (N=152; mean age=36.3 yrs; 59% male; 10% H/ 11% AA/ 78% Cau/ 2% Other; 36% LTAD; 20% CTAD) were inducted onto methadone (wks 1-2) and randomized to receive DSF (wks 3-14) at either 0, 62.5, 125, or 250 mg/day. All participants received also weekly 1-hour CBT. Thrice-weekly urine samples were tested for the presence of cocaine metabolites and results were analyzed using HLM with AD and DSF as factors. Results: Those with and without AD generally did not differ on subject characteristics or retention, except that those with LTAD had higher scores on the Cocaine Selective Severity Assessment ($p=0.0007$) and those with CTAD reported more days of heroin use in the past month ($p=0.04$) relative to those without AD. In those without LTAD, cocaine-positive urines increased over time in the 62.5 ($p=0.054$) and 125 ($p=0.0002$), but not 250 ($p=0.99$) DSF groups relative to placebo. In those with LTAD, cocaine-positive urines increased over time in the 62.5 ($p=0.004$), but not 125 ($p=0.41$) DSF groups and showed a trend toward decreases over time at DSF 250 relative to placebo ($p=0.07$). In those without CTAD, cocaine-positive urines increased over time in the 62.5 ($p=0.0004$) and 125 ($p<0.0001$), but not 250 ($p=0.67$) DSF, groups relative to placebo. These results cannot be explained by differences in DBH activity or gender. Conclusions: These results suggest that DSF, at doses of up to 250 mg/day, is ineffective treatment for cocaine dependence in cocaine- and opioid-dependent patients without AD, and in fact may worsen cocaine use at doses lower than 250 mg/day for those without AD. However, DSF at 250 mg/day may have some efficacy as a treatment for cocaine dependence in cocaine- and opioid-dependent patients with LTAD. Support: Supported by grant DA13441 and Arkansas Biosciences Institute.
- 568** ARTERIAL SPIN LABELING IMAGING STUDY OF IV NICOTINE ADMINISTRATION: EVIDENCE OF NEUROVASCULAR DECOUPLING?
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Aims: BOLD based fMRI studies of nicotine administration depend critically on the direct coupling of blood flow with increased local oxygen demand by activated neurons. The current literature provides limited evidence that nicotine does not promote neurovascular decoupling - but this has not been confirmed for the dosing regimen proposed in our study: 1.5mg/70kg. We present preliminary data supporting BOLD fMRI in nicotine studies at this dose. Methods: Possible changes in global cerebral blood flow (CBF) caused by the controlled injection of nicotine were studied using MRI ASL, in an IRB approved study. Six adult males who satisfied the inclusion criteria and none of the exclusion criteria for the BOLD study were given one minute injections of nicotine at 1.5mg/70kg following the protocol for the main study. MR data was acquired during a forty minute continuous ASL pulse sequence with the following parameters: TE/TR = 20ms/4s with a matrix of 64x64 on 224mm FOV, slice thickness 6mm with a 1.5mm gap. This is a multi-slice CASL method with a 80mm label offset, 1s label delay, with 20 RF blocks, RF gap 0.5ms and no pre label delay. Scanning was performed on a 3T Siemens Trio MR system. Perfusion weighted images acquired over 40 minutes were averaged within four 10 minute blocks in order to observe changes caused by the nicotine injection that occurred at 10 minutes into the study. Results: Results were averaged over subjects and are shown below. Changes in CBF were not significant and support the conclusion that there is no evidence of neurovascular decoupling during IV nicotine administration at 1.5mg/70kg. Conclusions: We find no evidence of neurovascular decoupling due to intravenous nicotine administration at a dose of 1.5mg/70kg. We are currently extending these studies to include additional subjects in order to further support the basis for BOLD based fMRI analyses of neuronal activation in this IV nicotine administration study. Support: Supported by P01-DA14528, K05-DA00101, K05-DA00064 and R01-DA15067

569 NICOTINE REPLACEMENT TREATMENT FOR PREGNANT SMOKERS

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Aims: 1. To compare smoking cessation rates and smoking reduction among pregnant smokers randomized to receive 2mg nicotine gum or a matching placebo; 2. To compare nicotine gum versus placebo on surrogate measures of maternal and fetal safety (i.e., overall nicotine and tobacco exposure) and on birth weight at the time of delivery. **Methods:** Women at 26 weeks or less gestation who smoked daily were eligible to participate. They received individualized behavioral counseling and were randomized to receive 6 weeks of treatment with a 6-week taper with either nicotine or placebo gum for smoking cessation. Women who did not quit smoking were instructed to reduce the number of cigarettes smoked by substituting nicotine gum. We monitored participants for smoking outcomes and adverse events throughout the study. **Results:** 194 women were randomized to treatment. Baseline characteristics (i.e., cigarettes smoked per day) were similar between groups; the study population was 54% Hispanic. At 6 weeks after the quit date, abstinence rates were 13% in the nicotine group and 8.5% in the placebo group (P=NS). Although at the end of pregnancy, quit rates were 18% in the nicotine group and 14.8% in the placebo group (P=NS), there was a significant reduction in cigarettes smoked per day [-5.7 (SD=6.0) in the nicotine group vs. -3.5 (SD=5.8) in the placebo group (p=.035)], and in cotinine concentration [-252 (SD=399) ng/mL in the nicotine group vs. -110 (SD=336) ng/mL in the placebo group] (p=.04). Birth weights were higher in the nicotine group 3287 (SD=569) g vs. 2950 (SD=657) g in the placebo group (p<.0001). **Conclusions:** Nicotine gum may be useful for tobacco reduction during pregnancy and may also improve birth weight. If replicated, these findings have important implications for the management of smoking during pregnancy. **Support:** NIDA DA15167

570 MET FOR PREGNANT SUBSTANCE-ABUSING WOMEN (NIDA CTN 0013): DOES BASELINE MOTIVATION MODERATE EFFICACY?

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Aims: Although originally developed to help persons who are reluctant to change, evidence of the efficacy of Motivational Interviewing (MI) has led to its use with a range of individuals. Some investigations of this practice suggest that MI may be less efficacious, or even counter-productive, with persons who report adequate pre-treatment motivation. The present analysis examined whether a crossover interaction of baseline motivation and condition (disordinal moderation) could partially explain negative findings in NIDA CTN study 0013 (Winhusen et al., in press). **Methods:** Participants were 200 substance abusing pregnant women presenting for substance abuse treatment at 1 of 4 sites. Women were randomly assigned to either a 3-session Motivation Enhancement Therapy (MET) condition or treatment as usual (TAU). Two primary measures of baseline motivation were utilized: (a) The University of Rhode Island Change Assessment Questionnaire, and (b) a single question regarding the participant's drug use goal. The primary outcome for this analysis was any positive urinalysis for drug use at either the 4- or 12-week follow-up. **Results:** Effect size analyses revealed small nonsignificant trends in the expected direction, such that MET was more efficacious than TAU with those not seeking to quit permanently (logit d = .15), with the reverse being true for participants who indicated a desire to quit permanently (logit d = -.10). However, this effect was not significant in logistic regression analyses controlling for drug use at baseline. Further, this effect was not present (and was even reversed) in some analyses of specific drugs and/or follow-up points. **Conclusions:** These findings highlight the often-neglected truth that moderation effects are unstable, and should be interpreted with caution. Disordinal moderation of MET efficacy by baseline motivation does not appear to have contributed to the negative results of CTN 0013. **Support:** U10DA013732 (Winhusen); DA000516, DA021329 (Ondersma)

571 PREEXISTING ANTI-COCAINE IgM ANTIBODY ASSOCIATED WITH LOW ANTIBODY RESPONSES TO COCAINE CONJUGATE VACCINE

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Aims: Cocaine abuse can lead to immune recognition of the abused drug by antibodies, reportedly at least in part due to immune stimulation by adducts of cocaine to native proteins. The effect of such preexisting immunity on subsequent vaccination with drug conjugates has not previously been documented. **Methods:** MATERIALS: Serum samples from subjects in a Phase II clinical trial with a cholera toxin b conjugated cocaine vaccine were available for study. ELISA: Plates were coated with a conjugate of cocaine with bovine serum albumin (BSA) to test samples and each plate contained wells coated with BSA alone as a negative control, and a standard curve of human IgG or human IgM to provide a quantitative estimate of the specific anti-cocaine antibodies of each isotype present in the samples. **Results:** About one third of subjects in the study responded with high levels of IgG antibody, theoretically sufficient to provide some protection against the effects of cocaine. Preexisting IgM that could recognize cocaine was generally low or absent in these subjects. In contrast, one third of the subjects had very low IgG responses, and at baseline half of these individuals had high IgM that could bind cocaine, suggesting that the presence of IgM may be a marker for potential unresponsiveness to this vaccine. **Conclusions:** Preexisting IgM to cocaine is associated with a poor response to immunization with a conjugate vaccine. The immunoregulatory mechanism resulting in this low response is unknown, but is an area of active investigation. **Support:** Department of Veterans Affairs National Substance Use Disorders Quality Enhancement Research Initiative (QUERI)

572 ADULT WOMEN'S ALCOHOL ABUSE: BARRIERS TO DETECTION IN PRIMARY HEALTHCARE SETTINGS

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Aims: Alcohol abuse, while common and increasing in prevalence among women in the United States, is often neither assessed for nor detected in primary care settings. It is important to understand the multi-systemic reasons for this situation. While primary care clinicians may miss the subtle signs of alcohol abuse, it is important to investigate all three pieces to the detection puzzle: the clinician, the patient, and the encounter between them. This literature review explores barriers to detection among all three entities, including challenges the clinician and patient bring to the encounter, as well as challenges inherent to the encounter itself, within the parameters of the healthcare system. **Methods:** A review of peer-reviewed literature up to 2006 within the area of detection and assessment of alcohol misuse in primary care was conducted. **Results:** Most of the intervention research in this area has focused on clinicians, such as improving training and education on alcohol misuse and screening options. Policy and organizational issues have been addressed, but to date there have been no interventions in this dimension. Similarly, although some research has suggested challenges that women have, research has been lacking with regard to what can be done to increase women's awareness and knowledge of alcohol abuse as well as decrease logistic and psychosocial barriers. **Conclusions:** Continuing to address health disparities for women includes testing interventions for clinicians, patients, and healthcare system entities that can improve early detection and assessment procedures for female patients in the primary care setting. **Support:** None

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573 THE IMPACT OF RACE AND HIV/AIDS DISCUSSION STRATEGIES ON UNPROTECTED SEX AMONG FEMALE DRUG-ABUSING CRIMINAL OFFENDERS

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Aims: The Bureau of Justice Statistics reports that HIV rates among inmates are disproportionate by gender with a higher prevalence among African American female inmates (Maruschak, 2004). Cultural differences may influence the degree of interpersonal power in sexual relationships prior to incarceration and women may be more likely to engage in HIV risk behaviors, such as unprotected sex, to attract and keep a sexual partner. As such, this study will examine racial differences and the impact of the AIDS Discussion Strategy scale (Snell & Finney, 1990) on participation in unprotected sex. **Methods:** Data were collected from female drug-abusing inmates as part of the Reducing Risky Relationships for HIV protocol within Criminal Justice Drug Abuse Treatment Studies (CJ-DATS) (n=209). Bivariate analyses were used to identify racial differences on the types of interpersonal discussion strategies (i.e., rational, manipulative, withdrawal, charm, subtlety, and persistence) that women use to discuss AIDS with an intimate partner. Negative binomial regression was used to identify the impact of race and types of discussion strategies on the number of the times someone had unprotected sex in the 30 days prior to incarceration. **Results:** Most participants were white (73%), unemployed prior to incarceration (51%), and had a high school degree (65%). T-tests indicate that African American women are more likely to use the rational, withdrawal, and persistence discussion strategies but less likely to use the manipulative discussion strategy. Multivariate findings indicate that women who use the rational discussion strategy are 7% less likely than those who don't to engage in vaginal sex without a condom and that women who use the subtle strategy are 9% more likely to engage in vaginal sex without a condom, controlling for race and the other discussion strategies. **Conclusions:** Findings will add to the literature on cultural differences in HIV/AIDS communication strategies and sexual risk behaviors among drug-abusing female criminal offenders. **Support:** This research is funded by NIDA(U01-DA16205).

574 DEVELOPING A CURRICULUM FOR CONFLICT RESOLUTION EDUCATION FOR USE BY SUBSTANCE ABUSE COUNSELORS WITH ADULT SUBSTANCE ABUSERS

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Aims: Conflict Resolution for Recovery and Relapse Prevention (CRR) is a project to develop a training program for use by substance abuse counselors with adult substance abusers. CRR aims to reduce relapse and sustain recovery by improving client conflict resolution knowledge, attitudes and skills. The goals of the CRR project are to train professionals to effectively translate to alcohol or drug abuse clients conflict resolution and communication skills and types of healthy communication; help participants understand the importance of conflict resolution for recovery and relapse prevention; train participants in the common stages of relationships and how they relate to conflict; train participants to understand and use a conflict mode instrument; help participants relate conflict mode styles to family of origin; and train participants to understand and use effective conflict resolution styles and communication skills to support recovery and prevent relapse. **Methods:** When both Phase 1 and Phase 2 are completed, CRR will consist of a training-of-trainers guide with extensive background information supporting materials and activities; a participant workbook enforcing key concepts, providing visuals that reinforce content, and including homework assignments and exercise sheets; a facilitator's guide featuring talking points, exercises, role-plays, visual aids, and evaluation forms; a DVD with modules for both counselors and clients that will include didactic and interactive elements; and a Web-based version using multimedia Flash™ technology and streaming video to enhance the learning experience for online users. **Results:** Phase 1 of this project will be completed and evaluated by March 1, 2008. **Conclusions:** CRR will meet an important need for support for those in recovery, using an innovative strategy of applying theoretical principals to relapse issues; these principles are grounded in cognitive-behavioral theory and complement current relapse prevention approaches. **Support:** CRR is Phase 1 SBIR project funded by NIDA under grant number 1R43DA020219-01A2.

575 AN ALTERNATIVE FRAMEWORK FOR MEASURING THE ECONOMIC COST OF DRUG ABUSE

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Aims: Despite numerous criticisms regarding its applicability and utility (Cook and Moore, 2000; Reuter, 1999; Kleiman, 1999; Kopp, 1999), the traditional cost-of-illness approach has remained the primary method for evaluating and measuring the economic cost of substance abuse. We provide motivation for the field to consider an alternative theoretical construct for measuring the economic cost of drug abuse that is more closely embedded within the tradition of Economics, considering both the short and long term costs of abuse, the timing of these costs, and who bears these. We describe work currently underway at the RAND Corporation, which applies this alternative framework to assess the economic cost of drug abuse in the United States using secondary data sources and simulation methods. We demonstrate the methodological strengths of these alternative methods by comparing results regarding consumption from our model to alternative modeling methods. **Conclusions:** The results provide justification for re-thinking how policy makers consider the burden of drug use on society and show how using this new paradigm could improve policy decisions. **Support:** Supported by NIDA grant R01DA019993

576 USING MICROSIMULATION MODELING TO CAPTURE HETEROGENEITY IN MARIJUANA USE

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Aims: Demonstrate the ability of microsimulation modeling to capture heterogeneity in patterns of marijuana use and to thereby provide more accurate estimates than standard alternative approaches when modeling use trajectories. **Methods:** We compare distributions of marijuana use measures using a microsimulation model, a population-based cohort model and a Markov cohort model. Each model uses a starting population with baseline gender, race/ethnicity, and drug use characteristics of U.S. 12 year-olds. At quarterly cycles, individuals face probabilities of transitioning between four physical locations (community; outpatient or inpatient drug treatment; or death) and four levels of proclivity to use marijuana (none; occasional; regular; or heavy). Transition probabilities are based on current population data in all models, and the microsimulation model also incorporates drug use history, location states, and demographics to predict transitions. **Results:** Microsimulation is better able to capture heterogeneity in trajectories of marijuana use than are the cohort and Markov models. While the simpler cohort model recognizes the distribution over time in expected values across individuals, it is not able to fully reflect the between-individual variation. In contrast, microsimulation modeling allows for variability across both dimensions of individuals and time, and thereby more completely reflects the non-linear and interrelated nature of lifetime drug use and consequences. **Conclusions:** Microsimulation modeling of marijuana use and its outcomes is a useful complement to traditional methods for representing heterogeneity in drug use across individuals and over time. This methodology can thus provide insight into policy decisions - such as determining the optimal timing of treatment or designing other interventions - aimed at reducing the overall use of marijuana. **Support:** Supported by NIDA grant R01DA019993

CPDD 2008 Annual Meeting, San Juan, Puerto Rico

577 NOBODY ASKED ME: SUBSTANCE USE SCREENING AND HIV RISK AMONG HIGH SCHOOL STUDENTS IN TRINIDAD AND TOBAGO

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This study examined HIV risk behaviors among high school students in Trinidad and Tobago. Eight focus groups with high school students (42 girls, 25 boys) and 19 personal interviews with health care providers, school personnel, government officials and NGOs were used to examine HIV risk among high school students. Clinic operations were also observed. All interviews were recorded and with field notes transcribed and analyzed using Atlas ti. Almost all high school participants reported that large numbers of both male and female students used alcohol and marijuana. Participants also reported that alcohol use seemed to be increasing, especially among girls. About half of the female students reported that they knew girls who had unprotected sex in exchange for marijuana. Most of the students mentioned that both genders engaged in frequent sexual activity, often without condoms. Informants who work with or on behalf of youth confirmed high risk of substance use behaviors among youth yet providers at family planning and STD clinics rarely screen for substance use among youth. Interviews and observations indicated substance use screening was being neglected because management systems are not patient-friendly, providers are forbidden from obtaining STD or substance use history or engaging in counseling and medical history screening instruments are not designed to assess substance use. Alcohol and marijuana use and regular sexual activities without condoms create situations in which HIV transmission is likely. The HIV infection rate in Trinidad and Tobago is especially high among females and youth: girls 15-19 are 6 times more likely to be infected than their male counterparts. Since sex/drug use education is not provided in high schools, health care settings are often the first contact youth have to access information on sexual health and substance use. The absence of screening indicates that an important weapon in the fight against the HIV epidemic in the most affected groups is not being utilized. Screening for drug and alcohol use as well as HIV and sex education is important for designing and implementing behavioral change and HIV risk reduction interventions. Support: NIDA, NRSA,T32-DA07233

578 EFFECTS OF NALTREXONE ON THE ORAL SELF-ADMINISTRATION OF ETHANOL+MILK OR MILK ALONE IN RATS TRAINED UNDER A TWO-LEVER "CHOICE" PROCEDURE

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Aims: 1) Determine if rats "choose" ethanol when a similar appetitive reinforcer is concurrently available. 2) Determine if naltrexone affects ethanol choice in rats trained to respond on two levers for alternative reinforcers. Methods: Female, S-D, rats (n=8) were maintained at 85% body weight and trained to respond on two levers under fixed ratio (FR) schedules of reinforcement. Daily 1-hr sessions were comprised of two sample components (one per lever) followed by concurrent FR10 schedules during which responding on either lever was reinforced. Completion of each FR resulted in delivery of a 0.1ml liquid reinforcer, followed by a 30-sec time-out period. The reinforcers were 5% sweetened condensed milk (milk) or 5% milk plus 8% (w/v) ethanol (milk+EtOH); the position of the lever which resulted in delivery of either reinforcer alternated weekly. The effects of saline and naltrexone (1.0-10.0 mg/kg, ip) were evaluated following a 30 min pretreatment. Results: A solution of 5% milk was able to maintain performance and was preferred to water in all rats. One rat developed a strong lever bias; the remaining rats showed a slight preference for the right lever when milk was available on both levers (60% of reinforcers earned on the right lever). A greater percentage of responses was consistently allocated to the lever associated with milk+EtOH than the lever associated with delivery of milk alone. Under control conditions, rats earned 82 to 86% of reinforcers on the milk+EtOH-associated lever, and ethanol intake varied from 1.7±0.2 to 1.9±0.2 g/kg. Pretreatment with saline had no effect on responding. Likewise, naltrexone had no effects on response rate, percentage reinforcers earned on the milk +EtOH-associated lever, or ethanol intake. Conclusions: Operant choice procedures with alternative reinforcers that support behavior may be valuable tools in the study of ethanol self administration in rats. Naltrexone did not affect ethanol choice or intake in rats trained to self-administer ethanol using a choice procedure. Support: DA015723

579 DISTANCE TRAVELED AND CROSS-STATE COMMUTING AMONG PATIENTS IN OPIOID AGONIST TREATMENT PROGRAMS

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Aims: The number of OTPs throughout the continental U.S. varies across regions, population density areas and states; as a consequence some patients may need to travel considerable distances. This study examines commuting patterns among patients enrolling in OTPs. Methods: Opioid abusers (17,857) enrolling in 75 OTPs across the U. S. completed an anonymous survey. Distance was determined as the number of miles between the respondent's 3-digit ZIP code of residence and that of the OTP. OTPs in the southeast were oversampled. Multivariate logistic regression was used to determine associations among variables; significance was set at p<.01. Results: Less than 25% of patients were non-white (13% Latino; 10% black); 38% female; mean age 35. More than 25% of the patients in 7 OTPs traveled across a state border to attend an OTP. Among 50 (63%) of the OTPs none of the patients commuted across state lines. Cross-state commuting was most prevalent in the southeast. One-fifth of all patients traveled ≥ 20 miles to attend an OTP: 6% 51 to 100 miles; 2% 101 to 200 miles. Low population density was significantly associated with commuting distance. After controlling for density, factors significantly associated with distance were younger age, white race, employment, prescription opioid abuse, absence of injection history, and pain as a reason for OTP enrollment. Conclusions: These findings show that a significant number of patients travel for considerable distances or across state lines to attend an OTP. Policy makers and treatment providers should be alert to this phenomena and to factors associated with commuting distance in order to determine the location of future OTPs, modification of patient regulations (e.g., number of take home medications), treatment services that should be provided, and for disaster planning. Support: Rocky Mountain Poison & Drug Center operates the RADARS System and provides data to industry, regulatory agencies and researchers on a subscription.

580 ADOLESCENT WEIGHT GAIN DURING THE TREATMENT PHASE OF A NICOTINE REPLACEMENT THERAPY TRIAL: RELATIONSHIP WITH MEDICATION COMPLIANCE RATES

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Aims: Adult former smokers show post-cessation weight gain averaging eight pounds. Medication compliance has been shown to affect smoking cessation outcomes. The purpose of this investigation was to examine the relationship between weight gain and medication compliance rates following abstinence among treatment-seeking adolescent smokers participating in a double-blind placebo-controlled NRT trial. Methods: Participants visited the clinic weekly during the treatment phase for 11 weeks. Participants were given both nicotine patch and gum (either active gum and placebo patch, active patch and placebo gum, or both placebo). Weight gain was examined during treatment following at least 3 consecutive abstinent visits. Participants were 98 adolescent smokers with the following characteristics: mean age 15.1 ± 1.3, 67.6% female, 69.6% European American, mean CPD 18.3 ± 8.5, mean FTND 6.9 ± 1.3, mean Body Mass Index (BMI) 25.2 ± 6.45. Results: Weight gain did not differ by study arm during the treatment phase. Adolescents who were abstinent for at least 3 consecutive visits gained an average of 3.66 (SD 6.14) pounds. Results using a partial correlation controlling for study arm revealed that weight gain was negatively correlated with compliance rates for both nicotine gum (r = -.341, p < .001) and marginally significant for the nicotine patch (r = -.153, p = .065). Conclusions: This suggests that as adolescents gained weight during abstinence, medication compliance rates decreased. These findings reiterate the importance of interventions aimed at addressing weight gain during tobacco cessation treatment. Support: Supported by NIDA intramural funds

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581 EFFECTIVE THRESHOLDS OF ADOLESCENT SELF-HELP MEETING ATTENDANCE AND THEIR PREDICTORS

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Aims: This presentation aims to identify: 1) effective thresholds of adolescent self-help meeting attendance; and 2) natural predictors of which adolescents achieve those thresholds. **Methods:** Data are from 5,682 adolescents in 84 sites that were part of the 2007 Center for Substance Abuse Treatment adolescent treatment data set. Adolescents were 71% male, 45% Caucasian, 22% Hispanic, 15% African American, 14% mixed, and had an average age of 15. Interview data were collected with the Global Appraisal of Individual Needs at intake and 3- and 6-months post-intake. SPSS Answer tree was used to identify thresholds of days of meeting attendance associated with higher 90-day abstinence rates at 6 months. Multinomial logistic regression analysis was used to identify variables significantly associated with attendance at those thresholds. **Results:** Two significant ($p < .0001$) thresholds of days of self-help attendance were associated with past 90-day abstinence at month 6: 0-10 days of self-help (90% of sample, 39% abstinent), 11-62 days (10% of sample; 54% abstinent), and 63-90 days (2% of sample, 70% abstinent). Intake predictors of attendance included: history of self-help attendance, prior treatment history, higher levels of treatment motivation, involvement in the juvenile justice system, more frequent substance use, and more substance-related problems. Being in treatment at the beginning of the final 3 months also increased the odds of attendance. **Conclusions:** This study shows a strong relationship between self-help attendance and outcomes. Given a lack of significant difference in abstinence between no and minimal (<11) meeting attendance rates, clinicians may want to advocate at least weekly attendance in continuing care plans. Clinicians may also want to tailor recommendations based on treatment and self-help histories, level of treatment motivation, juvenile justice system involvement, and substance use severity. Further research is needed into effective self-help referral strategies with this population. **Support:** SAMHSA contract 270-2003-00006 and 86 grantees; SAMHSA grant T113356; NIDA grant RO1 DA 018183

582 EVALUATING A PARENT WORKSHOP TO PREVENT CHILDREN'S ACCESS TO PRESCRIPTION NARCOTICS ON THE INTERNET

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Aims: The Internet allows for access to narcotic medications without a prescription and prescription drug abuse by children is on the rise. This pilot study examines the preliminary efficacy and acceptability of a parent training program designed to 1) inform parents about the availability of drugs and drug misinformation on the Internet, 2) provide parents with concrete prevention strategies, and 3) teach parents how to recognize and address problematic Internet use. **Methods:** A total of 33 parents were recruited from both schools and community organizations in the Philadelphia area. Participants completed pre- and post-workshop questionnaires to assess their baseline concerns about children's access to drugs via the Internet, to examine changes in their intent to implement Internet monitoring strategies following the workshop, and to assess their satisfaction with the workshop. **Results:** Despite the well-documented availability of prescription narcotics via the Internet, only 42% of participants reported being concerned about this risk to their children prior to the workshop. However, post-workshop data indicated a significant increase in participants' reported plans to implement prevention strategies that were covered in the workshop. The number of prevention strategies endorsed was significantly higher at the post-intervention assessment than at the baseline assessment, $t(32) = -6.89$, $p < .0001$. Finally, results indicated that 100% of participants would recommend the workshop to other parents. **Conclusions:** Findings indicated that the parent workshop was both effective and acceptable. Future research is required to assess its long-term impact at reducing Internet access to prescription narcotics among children. **Support:** Pennsylvania Department of Health Grant #100707-T

583 PREVALENCE OF NON-MEDICAL PRESCRIPTION OPIOIDS AND ILLEGAL OPIOIDS USE IN CANADA

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Aims: Presently, Canada seems to be in a stage of transition with respect to opioid use and abuse, with more prescription opioids (PO) entering the legal and street markets. However, data on non-medical prescription opioid use is almost absent in Canada. The aim of this study was to synthesize all relevant information and to estimate the prevalence of the non-medical use of prescription opioids among the general population and illegal opioids and/or PO use among the street population in Canada. **Methods:** The prevalence of non-medical PO use among the general population and regular illegal opioid and/or PO abuse among the street population was estimated for Canada in 2003. Different estimation methods were used: the estimates of medical PO abuse were based on overall availability, and the ratio of availability to medical PO abuse from US surveys; prevalence of regular opioid and/or PO abuse was indirectly estimated based on overdose deaths and surveys on key informants. The prevalence of street opioid abuse by substance, trends and patterns were examined by using the multi-site Canadian OPICAN cohort data. **Results:** Between 321,000 to 914,000 non-medical PO users among the general population were estimated in Canada in 2003. The prevalence of regular illegal opioid and/or PO abuse among the street population was about 75,000 (range 48,000 - 96,000), with more individuals abusing only PO (35,000) than heroin (20,000) or combined PO and heroin (17,000). Based on data from the OPICAN survey, a relative increase of 24% from 2002 to 2005 was observed in the proportion of respondents who abused PO-only. The proportion of heroin-only and combined heroin and PO abusers decreased by about 7% and 8%, respectively. **Conclusions:** The prevalence of non-medical PO use is growing in Canada. There is an urgent need to further assess the extent and patterns of non-medical PO use, related problems and drug distribution channels in Canada. **Support:** This study was supported by Schering-Plough Canada.

584 PROGESTERONE TREATMENT OF THE ESCALATION OF I.V. COCAINE SELF-ADMINISTRATION IN RATS DIFFERING IN VULNERABILITY

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Aims: Progesterone (P) decreases the subjective effects of cocaine in women, and it attenuates cocaine-seeking behavior across several phases of the addiction process in female rats. Previous studies using rats selectively bred for high (HiS) and low (LoS) saccharin intake showed an increased vulnerability to cocaine-seeking in the HiS rats compared to LoS. Our goal was to examine the effects of P on the escalation of cocaine self-administration (SA) in HiS and LoS rats. While escalation has been studied as a hallmark of drug abuse in animal models, there has been little work examining treatment of escalation or differences in outcome due to genetic variation. **Methods:** Four groups of female rats were compared: HiS+P, LoS+P, HiS+V (vehicle), and LoS+V. Each rat was implanted with a jugular catheter and trained to self-administer 0.8 mg/kg cocaine under a FR 1 schedule during daily 2-hr sessions. After meeting the acquisition criteria, randomly-presented doses of cocaine (.2, .4, .8, 1.6 mg/kg) were tested to establish a dose response curve. The rats were then given 6-hr access to 0.4 mg/kg cocaine for 21 days. After this extended access period, the groups were reassessed under the dose response condition. Throughout the experiment, rats were treated with daily s.c. doses (0.5 mg/kg) of P or equal volumes of V 30 min prior to session. **Results:** Initial results indicate that the LoS+V, HiS+P, and HiS+V groups showed an escalation of their cocaine SA throughout the 21-day long-access (6-hr) period. However, the LoS+P group did not escalate cocaine SA compared to the other groups. The groups did not differ in the dose response short-access condition suggesting that the escalation phase was sensitive to the P treatment. **Conclusions:** This research indicated that LoS females were more sensitive than HiS to the protective effects of P on the escalation of cocaine SA. The results suggest that genetic differences in drug abuse vulnerability may contribute to treatment outcomes during critical phases of the drug abuse process. **Support:** Supported by RO1 DA003240-23, DA015267-06 (MEC), F31 DA023301-01 (JJA).

585 GENDER DIFFERENCES IN PRESCRIPTION OPIOID USE AND MISUSE AMONG CHRONIC PAIN PATIENTS IN AN OUTPATIENT PAIN MANAGEMENT CLINIC

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Aims: High rates of abuse of opioid medications among enrollees in chronic pain management programs has been observed (Manchikanti et al., 2006). This pilot study examined gender differences in prescription opioid misuse among chronic pain patients. **Methods:** Participants were 121 (72 women, 49 men) outpatients from a pain management clinic at a southeastern medical university. They completed a battery of self-report instruments assessing demographic information, prescription opiate use and misuse, alcohol and other substance use, Axis I symptomatology, and treatment satisfaction. **Results:** The most frequently prescribed opioid medications were: Hydrocodone, Lortab, OxyCodone and Percocet. Significantly more men than women (91.7% vs. 77.8%) were currently taking an opioid medication ($p = .05$). Women were more likely than men to hoard unused pain medications ($p = .02$) and to use additional medication to enhance pain medication effects ($p = .04$). Men were more likely than women, however, to feel they may be dependent on their pain medications ($p = .07$). **Conclusions:** These preliminary findings suggest there may be gender differences in prescription opioid use and misuse. Women were less likely than men to be currently taking a prescription opioid medication, but more likely to hoard unused medication and to use other medications to enhance the pain medication effects. These differences may place women at higher risk of adverse events associated with polypharmacy (i.e., respiratory depression, altered sensorium, morbidity). The findings help increase our understanding of gender differences and risks associated with prescription opioid use. Clinical implications and suggestions for future research will be discussed. **Support:** Funding from the NIH/NIDA Drug Abuse Research Training (DART) program R25DA020537-02

586 RISK FACTORS ASSOCIATED WITH DRINKING AND DRIVING IN BRAZIL

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Aims: Anecdotal information suggests high prevalence of DUI among young Brazilian males. The aim of this study was to ascertain risk factors for drunk driving in a representative sample of Brazilian adults. **Methods:** 333 subjects with valid driver licenses who drank in the last year were drawn from a household random sample of 2,346 Brazilian adults (ages 18 to 79) interviewed about alcohol use. Bivariate analysis and a multivariate logistic analysis tested the association between "having driven after drinking at least three units of alcohol (DD)" and demographics, alcohol use/abuse, drunk driving, driving accidents, and perceptions about drunk driving/law enforcement. Variables in the analysis were: (age, gender, income, region, abuse/dependence, binge drinking, age of first use, support for DUI enforcement, perception of punishment, and being a car passenger). **Results:** Being under 30 (OR 2.3, 95% CI 1.2 - 4.6), male (OR 7.8, 95% CI 3.3 - 18.4), an alcohol abuser/dependent (OR 3.7, 95% CI: 1.5 - 9.3) and having started to drink between 16 and 17 (OR 2.8, 95% CI: 1.1-6.8) remained independently associated with DD after model adjustments, as well as having had at least 2 binge episodes in the last year (OR 2.4, 95% CI 1.1 - 5.5). Having been a passenger in a vehicle where the driver was drinking (OR 2.5, 95% CI 1.3 - 4.9) was also significantly associated. Higher support for DUI enforcement was protective against DD (OR 0.3, 95% CI 0.2 - 0.7). **Conclusions:** Risk factors for DD in a representative sample of Brazilian adults are similar to those reported in other countries, except for the perception of punishment, because parallel to displaying strong opinions about DUI enforcement, subjects do not perceive punishment as effective. This factor could contribute to the elevated levels of risk factors associated with DD in this sample. **Support:** Secretaria Nacional Anti-Drogas, Brazil

587 PREDICTIVE VALIDITY OF NONPARAMETRIC-ITEM-RESPONSE-THEORY-DERIVED ASI SCORES

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Aims: Alterman et al. (2007) derived NIRT summary scores that assess problem severity in each of the seven ASI domains. In most ASI domains, a score assessing a history of problems [Lifetime Score (LS)] and one assessing recent problems [Recent Score (RS)] were derived. The pair of employment scores was both recent, employment problems and income problems. The NIRT scores have demonstrated external and concurrent validity but their predictive validity is unknown. The purpose of this research is to examine their predictive validity. **Methods:** The baseline ASI NIRT scores of patients recently admitted to substance abuse treatment were used to predict 6-month follow-up status on dichotomous outcomes corresponding ASI domains (N=585; 74% retention). Outcomes included the presence/absence of medical hospitalization(s), psychiatric hospitalization(s) and serious arrest(s) since baseline, and paid work, drug use and alcohol use during the 30 days prior to follow-up. **Results:** Logistic regressions showed that pairs of NIRT scores predicted outcomes in each domain [χ^2 ranged from 6.81 to 52.30 ($p < .05$)], amount of variance accounted for (Nagelkerke R²) ranged from 3% (medical) to 19% (psychiatric). RSs demonstrated greater predictive validity in the medical, alcohol, and drug domains; LSs demonstrated greater predictive validity in the legal and psychiatric domains. In the employment domain, income demonstrated greater predictive validity than employment problems. Pairs of scores typically accounted for significantly more variance than single scores. **Conclusions:** These findings demonstrate the ASI NIRT scores' predictive validity and also indicate a need to assess both history and acuity of problems in multiple domains; typical measures of recent status may not be adequate for risk assessment. Analyses comparing the predictive validity of NIRT scores to other ASI scores are underway. **Support:** VA and NIDA

588 SUBSTANCE USE DISORDER TREATMENT IS ASSOCIATED WITH LOWER INCIDENCE OF TRAUMATIC EVENTS FOR WOMEN

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Aims: Substance use disorder (SUD) treatment reduces criminal activity. Less involvement in criminal activity can be expected to reduce exposure to violent traumatic events and, by extension, incidence of posttraumatic stress disorder (PTSD). The present study evaluated the role of SUD treatment by comparing incidence of traumatic events and PTSD in inner-city SUD samples out of treatment and in treatment. **Methods:** Traumatic events were assessed monthly, and PTSD was assessed every 4 months. **Results:** Data collection is ongoing - 6 month data are available for 228 opioid dependent participants; 145 are enrolled in a syringe exchange program (SEP) and 83 are enrolled in opioid-substitution treatment (OST). Although there were fewer women in the SEP sample (31% SEP vs. 60% OST; $p < .001$), the samples were similar in age (42 SEP vs. 41 OST) and education (11.2 SEP vs. 11.3 OST). Exposure to a new traumatic event in a given month was twice as likely for the SEP sample as for the OST sample [e.g., Month 1: 34% SEP vs. 16% OST; PR = 2.2 (1.2, 3.7)]. This difference was largely due to higher rates of physical assault in the SEP sample [e.g., Month 1: 12% SEP vs. 4% OST; PR = 3.2 (1.0, 10.7)]. No sample differences in exposure were noted for men [e.g., Month 1: 25% SEP vs. 18% OST; PR = 1.4 (0.6, 3.1)], but women in the SEP sample were 4 times more likely to report re-exposure than women in the OST sample [e.g., Month 1: 53% SEP vs. 14% OST; PR = 3.8 (1.8, 8.0); Month 6: 40% SEP vs. 10% OST; PR = 4 (1.6, 10.0)]. Despite higher rates of traumatic event re-exposure, the proportion of each sample meeting criteria for PTSD was similar at each time-point [Month 1: 25% SEP vs. 18% OST; PR = 1.4 (0.8, 2.4); Month 4: 20% SEP vs. 26% OST; PR = 0.8 (0.4, 1.4)]. **Conclusions:** These data suggest that the harm reduction benefits of SUD treatment include less frequent traumatic event exposure in women. In spite of a lower incidence of exposure during this six-month period, SUD treatment was not associated with lower rates of PTSD for either gender. **Support:** Supported by: K23DA15739; R01DA16375; R01DA012347.

589 POOR OBJECTIVE SLEEP AMONG METHADONE-MAINTAINED PATIENTS IS ASSOCIATED WITH CHRONIC PAIN BUT NOT WITH METHADONE DOSE

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Aims: To evaluate objective sleep patterns by polysomnography (PSG) and perceived chronic pain among patients maintained on different methadone doses and duration in methadone maintenance treatment. **Methods:** Patients filled Pittsburgh Sleep Quality Index (PSQI) self-report questionnaire, a questionnaire for pain (chronic pain defined if patient had current pain that last ≥ 6 month, of moderate or worse intensity), routine urine test results for drug abuse (opiates, Benzodiazepines, cocaine, cannabis, amphetamines), and one-night PSG recordings. **Results:** Of the 48 patients studied, 22(45.8%) reported of chronic pain. These patients did not differ from the non chronic pain patients in age (46.9 ± 9.7 vs. 44.1 ± 10.9 y, $p=0.4$), methadone dose (147.3 ± 75.6 mg/d vs. 134.1 ± 59.7 mg/d, $p=0.5$), Body Mass Index (BMI) (25.1 ± 4.1 vs. 26.2 ± 4.9 , $p=0.4$), duration in MMT (4.0 ± 4.3 y vs. 3.8 ± 4.3 y $p=0.9$) and benzodiazepines abuse (59.1% vs. 53.8% , $p=0.8$). Chronic pain patients' PSQI scores were a little worse (9.7 ± 3.9 vs. 7.8 ± 3 , $p=0.07$), however, their objective sleep (PSG) was significantly worse: sleep efficiency was $65.1 \pm 23.7\%$ vs. $80.7 \pm 14.6\%$ ($F=7.8$, $p=0.008$), true sleep time was 4.3 ± 1.7 hr vs. 5.2 ± 1.3 hr, ($F=4.5$, $p=0.04$), REM stage proportion of true sleep cycle was $10.7 \pm 8.5\%$ vs. $15.7 \pm 7.3\%$ ($F=4.9$, $p=0.03$). Wake stage was longer among pain group $22.7 \pm 21.6\%$ vs. $9.9 \pm 12.3\%$ ($F=6.7$, $p=0.01$), with no differences in proportion of having apnea/hypopnea (47.8% vs. 44% , $p=1$). **Conclusions:** Methadone maintained patients with chronic pain had significantly objective poor sleep, and a trend of perceived poor sleep. Importantly, this was not related to methadone dose, duration in treatment, age, benzodiazepine abuse, and BMI. As chronic pain is highly prevalent among MMT patients, the two associated comorbidities must be evaluated and treated to improve patients' outcome. **Support:** Israel National Anti Drug Authority

590 ORAL THC (DRONABINOL) EFFECTS ON SLEEP PARAMETERS IN RESTED AND SLEEP-DEPRIVED ADULTS

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Aims: While the acute effects of marijuana on performance and mood state are well documented, how smoked or orally administered cannabis products affect sleep architecture is not as well understood. The current study was conducted to assess changes in sleep architecture following oral THC administration and to assess if it alters recovery after sleep deprivation. **Methods:** Four (4) occasional users of marijuana but otherwise healthy individuals participated in a two-week study. Full polysomnographic recordings were collected as participants slept in the laboratory during 2 sets of 4 consecutive study nights. Dronabinol (Marinol®, 5 mg) was administered 90 minutes before their usual bedtime on the 3rd night of each week. Before this sleep period, participants were either 'rested' (normal sleep period on night 2) or 'sleep deprived' (continuously awake for the preceding 40 hours). **Results:** THC given to rested individuals did not significantly affect total sleep time but did significantly alter sleep architecture. Following dronabinol administration, the percent time spent in stage 2 sleep was reduced from a baseline value of 56% to 49% of the sleep period and SWS was increased from 16% of the sleep period to 23%. Recovery sleep following sleep deprivation plus dronabinol was characterized by a greater reduction in stage 2 and increase in SWS. Sleep efficiency increased and number of awakenings during sleep decreased with and without sleep deprivation, but these changes were only significant after sleep deprivation. **Conclusions:** The evaluation of sleep architecture may provide valuable insight into the actions and mechanisms involved in the effects of cannabis on sleep and underscore previous studies indicating a therapeutic potential of THC in treating sleep difficulties. These findings also indicate that there are differential effects of oral THC on sleep following sleep deprivation. This has implications for understanding the effects of THC on sleep homeostatic mechanisms and restorative sleep processes. **Support:** NIDA Grant DA00343 and DA16542 (SEL)

591 EFFECTS OF PAIN AND ANALGESIA ON INTRACRANIAL SELF-STIMULATION IN RATS

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Aims: Current preclinical models of pain focus on the measurement of pain-stimulated behavior, which may yield false positives. Our laboratory has focused on methods development for assays of pain-suppressed behavior, which may complement existing assays. The present study compared the effects of IP lactic acid injections and morphine pretreatments on the writhing response (a pain-stimulated behavior), intracranial self-stimulation (ICSS; a behavior that may be suppressed by pain), and rota-rod activity (a measure of motor activity). **Methods:** For the ICSS procedure, Sprague Dawley rats implanted with electrodes in the lateral hypothalamus were tested on a FR1 schedule of reinforcement to respond for electrical stimulation. Response rates were measured across a descending series of 15 current frequencies, and rate-frequency curves were determined. Acid-induced writhing and rota-rod activity were measured over 60 min and 30 min, respectively, in separate groups of animals. Writhing, ICSS, and rota-rod activity were evaluated under baseline conditions and after treatment with lactic acid (0.32 - 3.2% , IP). Writhing and ICSS were also assessed after lactic acid (0.32 - 3.2% , IP) injections and morphine (1.0 - 10 mg/kg, IP) pretreatment. **Results:** Lactic acid produced concentration-dependent suppression of ICSS and stimulation of writhing, with peak effects occurring at 20 min. and subsiding by 60 min after lactic acid injections in both procedures. Lactic acid produced concentration-independent decreases in rota-rod activity relative to control, suggesting that rota-rod may be less sensitive than ICSS to pain-induced suppression. Morphine alone did not alter ICSS behavior but dose-dependently prevented both acid-induced suppression of ICSS and stimulation of writhing. **Conclusions:** The current findings suggest that ICSS may be an especially useful assay for evaluation of pain-suppressed behavior. **Support:** Supported in part by R01-DA11460 from NIDA, NIH

592 CARDIAC EFFECTS OF MDMA ON THE METABOLIC PROFILE DETERMINED WITH 1H-MAGNETIC RESONANCE SPECTROSCOPY

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Aims: MDMA (3,4 methylenedioxymethamphetamine; ecstasy) abuse abounds, driven mainly by its euphoric effects, despite the potential for deleterious (even fatal) effects on CNS or cardiac physiology. Repeated use of MDMA damages the cytoarchitecture of heart tissue and leads to cardiotoxicity. Research indicates these changes are mediated by MDMA effects on serotonergic signaling in the heart. To determine the effects of MDMA on cardiac metabolism in rats, MDMA (0 , 5 or 10 mg/kg) was injected every two hours for a total of four injections; animals were killed 2 hours after the last injection (8 hours drug exposure), and their hearts removed and tissue samples were dissected. **Methods:** High resolution magic angle spinning (HR-MAS) proton magnetic resonance spectroscopy (1H-MRS) at 11.7 T is a specialized version of MRS aptly suited for analysis of semi-solid materials such as intact tissue samples. Therefore HR-MAS 1H-MRS was used to measure the cardiac metabolomic profile, including carnitine, glutamate, glutamine, glutathione, inositol, lactate and taurine, in heart left ventricular wall tissue from rats treated with MDMA. Body temperature was measured following each MDMA administration and serotonin and norepinephrine levels were measured by HPLC in heart tissue from treated animals. **Results:** MDMA significantly altered the MR-visible metabolomic profile with a dose-dependent decrease in taurine and lactate and an increase in carnitine. MDMA also significantly and dose-dependently increased body temperature, but had no effect on whole tissue serotonin and norepinephrine levels. **Conclusions:** These data are consistent with the notion that MDMA disrupts the metabolic homeostasis of energy regulation in cardiac tissue. The enduring effects of MDMA on cardiotoxicity as well as the attendant MR-visible biochemical profile remain to be determined. **Support:** This work was supported by the Joe Young Research Fund to WSU Dept. Psychiatry and NIH grant R01DA016736 to MPG.

593 ROLE OF DOPAMINE AND SEROTONIN RECEPTORS IN MEDIAL PREFRONTAL CORTEX IN IMPULSIVE CHOICE

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Aims: The present experiments examined the role of monoamines in medial prefrontal cortex (mPFC) in impulsive choice. Exp 1 examined the effects of intra-mPFC injections of methylphenidate, d-amphetamine, and atomoxetine, drugs indicated for the treatment of ADHD, on impulsive choice. Subsequent experiments were conducted to determine whether alterations in serotonergic (5HT; Exp 2) or dopaminergic (DA; Exp 3) activity in mPFC affected impulsive choice. **Methods:** Rats performed an adjusting delay task in which a response on one lever yielded 1 food pellet immediately, and a response on the other lever yielded 3 pellets after a delay. The delay was initially set at 6 s, and it decreased or increased following responses on the immediate or delayed levers, respectively. A mean adjusted delay (MAD) was calculated upon completion of each session (higher MADs indicated lower impulsivity). After MADs stabilized, rats received an intra-mPFC drug injection before adjusting delay sessions. In Exp 1, rats were given methylphenidate (0, 6.25, 25, 100 µg), d-amphetamine (0.25, 1.0, 4.0 µg), or atomoxetine (1.0, 4.0, 16.0 µg). In Exp 2, the 5HT receptor-selective drugs 8OH-DPAT (0, 0.025, 0.1 µg), WAY-100635 (0.01, 0.04 µg), DOI (2.5, 10.0 µg), and ketanserin (0.1, 0.4 µg) were administered, and in Exp 3, the DA receptor-selective drugs SKF 81297 (0, 0.1, 0.4 µg), SCH 23390 (0.25, 1.0 µg), quinpirole (1.25, 5.0 µg), and eticlopride (0.25, 1.0 µg) were given. **Results:** The indirect DA agonists methylphenidate and d-amphetamine increased MADs (Exp 1), whereas the D2 DA receptor antagonist eticlopride dose-dependently decreased MADs (Exp 3). There were no significant changes in MADs after administration of any other drugs. **Conclusions:** Decreased D2 DA receptor activation in mPFC increased impulsive choice. Moreover, combined with previous work implicating the involvement of D2 DA receptors in drug abuse, these results suggest that D2 receptors in mPFC may play a role in the relationship between impulsive choice and drug abuse vulnerability. **Support:** Supported by USPHS grants DA05312 and DA007304.

594 HEPATITIS C AMONG HEAVY ALCOHOL CONSUMERS: DOES IT REQUIRE TREATMENT?

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Aims: Background: Alcohol consumption is still a limit for treating Hep C. A consumption over 30g per day is still a brake for bitherapy regarding consensus conferences of 2002 in France and US. **Aim:** Evaluate the impact of screening, diagnosing and treating hep C among a french group of alcohol abusers. **Methods:** during 5years (between 1997 and 2002), In St Dizier Champagne, France, 513 patients (3/4 male, 1/4 female) were consecutively hospitalized for alcohol withdrawal therapy. Their virological status, level of fibrosis, origin of infection and alcohol abuse patterns were prospectively collected. Hep C treatment was proposed to every viremic patient. Frequency of hepatitis C, impact of treatment in terms of virological response and fibrosis were analysed. **Results:** Notably, a prevalence of 4,9% positive test in the group strongly indicates that alcohol consumers concentrate a high risk population facing HCV infection. Upon 28 viremic patients, 17 were treated by the combination of Pegtn Interferon+ Ribavirine. Above them 72% (n=12) had a Sustained Viral response (SVR). Moreover, during the treatment period, they were likely to improve their level of fibrosis according to a safer drinking behavior. **Conclusion:** Heavy alcohol consumption, while requiring a long term cooperative therapy, involving pluridisciplinary setting, appears to be a major Public health target for the future of Hep C Treatment. **Support:** General Hospital of Saint Dizier

595 USE OF DIETARY SUPPLEMENTS BY REGULAR AND NON-REGULAR FEMALE USERS OF 14 TOBACCO, ALCOHOL, AND CAFFEINE

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Aims: The present study compared complementary and alternative medicine (CAM) use in women who were regular or non-regular users of tobacco, alcohol, and caffeine. **Methods:** Women were recruited from 3 health clinics within the VCU Health System including a suburban practice, an urban GYN clinic and a university student health service. A total of 294 women provided informed consent and completed the survey while waiting to see their health providers. The survey asked about lifetime (ever), recent (past 30 days) and regular use of 36 specific dietary supplements including 12 vitamins and minerals as well as alcohol, tobacco, and caffeine use. **Results:** Overall, 83% of the women reported having tried at least one CAM and 62% reported having tried a CAM excluding vitamins or minerals (CAM-EVM). Values for regular CAM use were 64% overall and 34% (CAM-EVM). When use of CAM was compared in women who were regular and non-regular users of other substances, no differences for tobacco users were found. However, regular users of alcohol were more likely to report any CAM use than non-regular users (73% and 58%, respectively, $p=.025$). A similar pattern was found for regular CAM use, with more regular alcohol users reporting regular CAM use than non-regular alcohol users (79% and 58%, $p=.001$). Similar patterns were found for caffeine, with women who regularly use caffeine twice as likely to report any CAM use than women who do not use caffeine regularly (67% and 33%, $p=.001$). The same pattern was found for ever using CAM-EVM when regular and non-regular caffeine users were compared (68% and 32%, $p=.010$). Rates of regular CAM and CAM-EVM use were similarly higher in regular caffeine users as compared to non-regular caffeine users (both $p<.001$). **Conclusions:** Study findings suggest that women who regularly use alcohol and/or caffeine are also more likely to both experiment with CAM use and progress to regular CAM use as well. **Support:** Virginia Commonwealth University, Institute for Women's Health

596 GENDER AND THE ALCOHOL-VIOLENCE ASSOCIATION IN TWO CITIES OF PERU 14

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Aims: The main aim is to estimate associations that link drinking behavior with being a victim or aggressor in partner violence, based upon epidemiological survey data from two cities of Peru: coastal Lima, with a population of 8.8 million people, and Ayacucho of the Andean highlands, with 70,000 residents. **Methods:** In 2005, the GENACIS study (Multinational OMS/PAHO Gender, Alcohol and Culture Study) drew a probability sample and assessed 18 to 64 year old residents of Lima (n= 1,110) and Ayacucho (n= 421), via standardized items harmonized to local vocabulary and conditions. **Results:** In Lima, some 10-11% of recently drinking women in Lima had been a victim of partner violence. Among Lima's women with no recent drinking, about 1 in 20 had been a victim of partner violence; 1 in 20 had been an aggressor in partner violence. Corresponding estimates for Lima's male non-drinkers were in the 1-4% range; for male recent drinkers, the estimates were in the 7-9% range. In Ayacucho, some of these estimates were larger. Logistic regression of physical partner aggression on whether respondent drank in the past year resulted in significant odds ratios for female victims and female aggressors in Lima. In both cities male alcohol consumption was more related to male physical aggression toward females than to female aggression towards males. Alcohol involvement also contributed to the severity of aggression for female victims in Ayacucho. Partner aggression was related to drinking five or more drinks on at least one occasion in the past year and was not related to other measures of alcohol consumption, such as the usual quantity of drinks and total number of drinks during the year. **Conclusions:** This study adds new epidemiological evidence on alcohol-associated physical violence directed toward males, and encompasses aggression from the perspective of the victim and from the perspective of the aggressor. **Support:** Support was provided by the Panamerican Health Organization & NIH/FIC/NIDA award D43TW05819.

597 EFFECTS OF THE VASOPRESSIN V1b BLOCKADE ON COCAINE SELF-ADMINISTRATION

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Aims: Central arginine vasopressin (AVP) plays important roles in regulating the hypothalamic-pituitary-adrenal (HPA) axis and stress-related anxiogenic and depressive behaviors. AVP is involved in psychiatric disorders such as anxiety and depression, which are major psychiatric consequences of chronic drug abuse and withdrawal. This leads to the hypothesis that the modulation of the AVP system may affect drug use. One type of AVP receptor, the V1b receptor, is involved in the actions of AVP in the hypothalamus, the anterior pituitary, and the amygdala. Interestingly, the nonpeptidic AVP V1b antagonist SSR149415 has anxiolytic-like and antidepressant-like effects in rodent models. The aims of these experiments were 1) to determine the effects of the V1b antagonist on the acute rewarding effects of different doses of cocaine, and 2) to test the effects of SSR149415 on the negative affective states induced by prolonged exposure to a high dose of cocaine. **Methods:** We used the Fischer rat because it is less sensitive to the rewarding effects of cocaine than other strains. Rats were trained to self-administer cocaine (0.5 mg/kg/injection) in two-hour daily sessions. The criteria for the acquisition of self-administration were reached after 12 days on average. **Aim 1:** rats were tested in multi-component sessions with five cocaine doses ranging between 0.01 and 2 mg/kg/injection. **Aim 2:** other groups of rats were exposed to extended (18 h) self-administration sessions for 14 days. Thirty minutes before each multi-component session, or extended session, rats were treated with vehicle, or SSR149415 (10 mg/kg, i.p.). **Results:** The administration of SSR149415 did not modify cocaine intake at any dose. Moreover, the peripheral administration of the V1b receptor antagonist did not change cocaine self-administration during extended sessions for 14 days. **Conclusions:** Our results show that the blockade of V1b receptor may not play a role in either the acute rewarding effects of cocaine, or cocaine intake over a prolonged period of time. **Support:** This work was supported by grants NIH-NIDA P60-DA05130 and NIH-NIDA DA-00049 to MJK

598 LIFESTYLE MOBILITY IN A COHORT OF INJECTION DRUG USERS

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Aims: Physical mobility is beneficial to health and disease prevention. We examined components of lifestyle mobility and their association with demographic and health factors for injection drug users. **Methods:** Using a stratified design so sex and race balanced across age groups, data were collected at 12 methadone treatment centers. There were 138 men and 153 women, M age=48.0, SD=7.78 years. All injected drugs (M=19.53, SD=11.41 years) and used the lower extremities (M=9.09, SD=8.45 years). Measurements were obtained by patient self-report and clinical assessments. An investigator developed Lifestyle Mobility Questionnaire was used to quantify the amount of walking, change in activity level over time, and attitude toward physical activity. Other measures included demographics, drug use, and health questions and a leg assessment for chronic venous disorders (CVD). **Results:** Structural equation modeling was used to test theoretical relations among lifestyle mobility attitude, amount of walking, years of injecting, and CVD. The model included comorbidities, age, and body mass index, as potential confounders. The overall fit of the model was good [$X^2/df=1.74$; comparative fit index (CFI)=.91; root mean square error of approximation (RMSEA)=.051]. Walking was significantly and inversely related to CVD disease severity. Walking mediated the relation between lifestyle mobility attitude and CVD, lending support to the hypothesis that positive attitude yields a health benefit through its effect on the amount of everyday walking activity. The model accounted for 25% of the variance in CVD severity. Positive attitude toward activity was significantly related to younger age, fewer comorbidities, and fewer years of injecting in the legs. **Conclusions:** Examining lifestyle mobility is important in understanding physical activity. More research is needed into the behavioral and physiological reasons for maintaining physical activity for those who have injected drugs. **Support:** National Institute of Nursing Research/National Institute of Health (NINR/NIH), R01 NR009264

599 NATIONAL STUDY OF DEPARTMENTS OF CORRECTIONS AS PURCHASERS OF COMMUNITY-BASED TREATMENT

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Aims: Funding for publicly funded community based treatment is often assumed to be through the Single State Agency (SSA). However, many Departments of Corrections (DOC) also purchase treatment within the community. Our previous research in one state (Kubiak & Arfken, 2007) suggests that these purchases may lead to different regulations and result in different behaviors at the provider level. The aim of this study is to describe the national pattern of DOCs as purchasers of community based treatment for offenders as a first step in examining these distinct systems. **Methods:** Web-based surveys with administrators from each state's DOC (n=41) and SSA (n=43) and review of departmental web site documents during 2007. **Results:** We found that in 38 states DOC funds treatment in prisons and in 23 states DOC funds treatment in community. Of the 23 states with DOC funding of community based treatment: 5 states fund treatment for parolees only; 1 for probationers only; and 17 fund treatment for both - with most DOC's contracting directly with treatment providers. However, DOC is significantly less likely to require program licensure and accreditation than SSA. Of the 23 states, DOC funding includes multiple revenue sources but departmental funds were most widespread. According to SSA administrators, 23 states have experienced increased treatment funding for offenders in past two years. **Conclusions:** Within the US, there are a myriad of systems for purchasing community treatment for offenders but it is not clear which system is superior and how public systems integrate resources and data. Data sharing and comparative studies are needed to examine impact on processes and outcomes. **Support:** Supported by Robert Wood Johnson Substance Abuse Policy Research Program.

600 EARLY AND LATER ABSTINENCE IN COCAINE PHARMACOTHERAPY TRIALS: IMPORTANCE OF GENDER IN PREDICTING TREATMENT OUTCOME

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Aims: There is a robust relationship between early and later abstinence in smoking cessation, but that relationship has not been explored among other substances of abuse. Data from two randomized double-blind controlled clinical pharmacotherapy trials (n=407) were analyzed to assess whether early abstinence predicted later abstinence among cocaine dependent patients. **Methods:** Stepwise linear regressions for two measures of later abstinence were conducted: abstinence during Weeks 7 & 8, and abstinence defined as percent clean urines after week 4. Early abstinence (abstinence in Weeks 3 & 4, the first two weeks of medication), as well as gender, baseline ASI composite scores, and cocaine craving were entered into the regressions. **Results:** Stepwise regression analyses of the whole data set revealed that abstinence in Weeks 3 & 4 was a significant predictor of abstinence in Weeks 7 & 8 ($p < .001$), as was early abstinence with gender ($p = .03$). Abstinence in Weeks 3 & 4 ($p < .001$), alone and with composite craving in Week 3 ($p = .04$) were predictors of percent clean urines. Subsequent analyses revealed that women in both studies achieved significantly lower rates of abstinence than did men, measured both as abstinence in Weeks 7 & 8 ($p < .005$), and as percent clean urines ($p < .05$). Women also had non-significantly lower rates of early abstinence (abstinence in Weeks 3 & 4) than did men. **Conclusions:** Similar to the findings in the smoking cessation literature, our results indicate that early abstinence predicts later in-trial abstinence during cocaine pharmacotherapy trials. Findings also suggest that women may have poorer cocaine treatment outcomes than men in part because women have lower rates of early abstinence. **Support:** This work was supported by NIDA grants P50DA12756 (Pettinati) and T32DA007241 (O'Brien)

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601 OUTPATIENT COCAINE THERAPIES: PILOT STUDY ON INCENTIVIZING STUDY ATTENDANCE AND RETENTION

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Aims: It is inherently difficult to sustain regular participation by drug abusing populations in any therapeutic regimen over prolonged periods of time, therefore, this study is being conducted as a precursor to a multi-site, cocaine vaccine study. The objective is to examine the impact of a prize-based incentive program on participation and retention rates of drug abuse patients who are offered a health care intervention over the course of six months. **Methods:** Random assignment to one of two conditions: (1) prize-based incentives (2) no incentives; all subjects receive Hepatitis B vaccine series (plus 4 placebo injections). Weekly procedures include: substance abuse assessments (cocaine and alcohol use) and computer-based substance abuse counseling. The incentive program includes: weekly drawings from container of 500 chips; prizes (valued at \$1) and gift cards (\$20 and \$80); and monthly cash bonuses (ranging from \$20 to \$50). Preliminary analysis was conducted using frequencies. **Results:** To date 23 subjects have been enrolled in the pilot study; twelve of whom were randomized to the incentive condition. Four subjects have completed the entire study and one subject was lost to follow-up. Seventy-eight percent of enrolled subjects were male and 87% were African American. Subjects in the incentive condition missed a lower percentage of once weekly study sessions (12% versus 28%). Subjects also missed fewer scheduled vaccinations (6% versus 13%). **Conclusions:** Based on preliminary analysis, retention rates and successful completion of an intervention (ie., vaccine administration) are improved with use of incentives. Therefore, implementation of a prize-based incentive program into future clinical trial design of a cocaine vaccine would be a worthy consideration. Data continue to be collected and we anticipate completion of the study by June 2008, reaching our goal of 60 subjects. Support: P50-DA018197, K05-DA0454

602 INDIVIDUAL DIFFERENCES IN STIMULANT-INDUCED INCREASES IN CIGARETTE SMOKING

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Aims: Individuals differ in their responses to drugs of abuse. The purpose of this retrospective analysis was to examine individual differences (e.g. gender, inattentive and hyperactive traits, and impulsivity) in stimulant-induced increases in smoking. **Methods:** Twenty-two human participants were included in the analyses. Participants completed a battery of psychiatric, medical and drug-use questionnaires prior to participation that were used to categorize individuals and determine individual differences. All participants were administered acute doses of methylphenidate (0, 10, 20, 40 mg). One hour after drug administration, participants were allowed to smoke ad libitum for four (4) hours. Measures of smoking included number of cigarettes, number of puffs, and carbon monoxide levels. Data were analyzed with mixed-model ANOVA, planned comparisons and simple regression. **Results:** Individuals with lower scores on scales measuring inattention, hyperactivity, and impulsivity were more sensitive to methylphenidate-induced increases in smoking than individuals with high scores on these traits. Men and women were equally sensitive to methylphenidate-induced increases in smoking. **Conclusions:** These retrospective analyses contribute to our knowledge of the extent to which individual differences contribute to behavioral responses to stimulants. Support: Supported by NIDA DA010325 and DA0126655.

603 NEURAL CORRELATES OF STRESS-INDUCED AND CUE-INDUCED CRAVING: EFFECTS OF GENDER AND COCAINE DEPENDENCE

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Aims: Stress- and drug-cue exposure each increase drug craving and contribute to relapse in cocaine dependence (CD). As no previous research has directly examined the neural correlates of stress-induced and drug cue-induced craving in women and men with CD as compared to those without, we sought to do so. **Methods:** Functional MRI responses to individualized stress, alcohol/drug cue and neutral imagery in 30 abstinent CD individuals (16 female, 14 male) and 36 healthy social drinkers (18 female, 18 male) were assessed. BOLD signal change in cortico-limbic regions (caudate, hippocampus, amygdala and anterior cingulate cortex (ACC)) was examined. **Results:** Stress and drug cue exposure each increased activity in the caudate, hippocampus and the ACC as compared to the neutral condition. Significant three-way interactions between diagnosis, sex and condition were observed for all four regions, where the CD group had greater brain response in the caudate, hippocampus and the ACC than did the control group. Men had increased activity in these regions during the stress condition and women showed greater amygdala activity during drug/alcohol cue exposure. Drug-condition-related craving correlated with caudate activation in CD men and women and stress-condition-related craving correlated inversely with amygdala activation in CD women only. **Conclusions:** Stress- and drug-cue-induced craving states are associated brain activity in distinct regions of the motivation and stress circuitry and chronic CD and gender are critical factors influencing these brain responses. Treatment development efforts to address drug craving and cocaine relapse prevention should consider environmental context and gender to generate improved interventions. Support: Yale Interdisciplinary Stress Center and the following grants from the National Institutes of Health and its Office of Research on Women's Health: P50-DA16556, K02-DA17232, and R01-DA019039.

604 RELATION BETWEEN VULNERABLE ATTACHMENT STYLES AND DRUG ABUSE AMONG METHADONE MAINTENANCE TREATMENT PATIENTS

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Aims: to evaluate the relation between vulnerable attachment styles, psychiatric symptoms and their relation to drug abuse among MMT patients **Methods:** 101 non selective MMT patients were studied between March and July 2007. Vulnerable attachment style questionnaire (VASQ) which evaluates insecure and proximity-seeking attachment styles and psychiatric symptoms evaluated by the SCL-90, were used. Drug abuse for opiates, cocaine, benzodiazepines, cannabis and amphetamines in month before filling the questionnaires was recorded, and defined as positive if any of the drug was positive **Results:** Of the 101 patients, 52(49.5%) abused drugs, 80(79.2%) defined as having insecure attachment style (scored ≥ 30). Higher proportion of any drug abuse was found in the ≥ 30 insecure group (58.8%) compared with < 30 scored group (23.8%, $p=0.006$). The ≥ 30 insecure group compared with < 30 insecure group had higher total SCL-90 score (24.2 ± 23.5 vs. 9.2 ± 11.6 , $F=8$, $p=0.006$) reflecting more severe symptoms of OCD, interpersonal sensitivity, depression, anxiety, hostility, paranoid and psychotic SCL-90 dimensions (i.e: hostility 0.39 ± 0.49 vs. 0.03 ± 0.07 , $F=10.8$, $p=0.001$; paranoid 0.64 ± 0.74 vs. 0.13 ± 0.24 , $F=9.3$, $p=0.003$), with no significant differences in somatization dimension. Multivariate analyses (ANOVA) for total SCL-90 found the score significantly higher among any drug abuse vs. no drug abuse group and as a trend among ≥ 30 insecure group vs. < 30 insecure group, with no interaction (specifically: ≥ 30 abuse 31.2 ± 24.9 vs. not abuse 14.3 ± 17.2 and < 30 abuse 17 ± 15.6 vs. not abuse 6.8 ± 9.4 , Corrected model $F=7.8$, $p<0.0005$ drug use $F=5.6$, $p=0.02$ insecure $F=3.6$, $p=0.06$ Drug*insecure $p=0.6$) **Conclusions:** Significantly higher proportion of the insecure attachment style (scored ≥ 30) patients had any drug abuse, and had more severe psychiatric symptoms. Prospective study is needed to show whether vulnerable attachment style may change thorough MMT treatment, following improved psychiatric symptoms, or whether it is a stable trait that may predict outcome Support: Internal source (M.A)

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605 SUBSTANCE USE DISORDERS, CHRONIC PAIN, AND SPECIFIC DEPRESSIVE SYMPTOMS PREDICT SUICIDALITY IN INDIVIDUALS WITH MAJOR DEPRESSION

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Aims: Specific depressive symptoms, substance use disorders (SUD), and chronic pain are all risk factors for suicidality, but limited information is available regarding their respective contributions to suicide risk for individuals with major depressive disorder (MDD). Using the National Comorbidity Survey-Replication (Kessler et al., 2004), we examined these characteristics in a sample of 1,579 individuals with MDD to understand the association between the above described characteristics and suicidality in a high risk population. **Methods:** Suicidality was defined as endorsing one or more of the following: serious thoughts about committing suicide, a plan for committing suicide, and suicide attempt. Independent variables included DSM-IV depressive symptom criteria, chronic pain (yes/no), and substance use disorder (yes/no). Sex and age were covariates. **Results:** Overall, suicidality was present in 31% of individuals with MDD. Bivariate analyses indicated that SUD, chronic pain, feelings of worthlessness, and anhedonia were significantly associated with greater likelihood of suicidality and were thus included in multivariate models. Logistic regression nested models indicated that a model that included SUD [aOR=2.0(1.5, 2.7)], chronic pain [aOR=1.5(1.2, 2.0)], feelings of worthlessness/guilt [aOR=2.4(1.9, 3.1)], and anhedonia [aOR=1.6(1.0, 2.3)] was the best fitting model to predict suicidality. Sex and age were not associated with suicidality. Hosmer-Lemeshow test showed sufficient goodness-of-fit. There were no significant interaction terms. **Conclusions:** These results suggest that suicidality in individuals with MDD is associated with specific depressive symptom criteria that, when present in combination with a SUD and/or chronic pain may place the individual with MDD as significant risk of suicidality. These results are consistent with a growing body of literature suggesting an important relationship between these distinct phenomena with implication for screening and intervention. **Support:** NIDA grants DA015831, DA15968, & DA00326

606 DRUG ABUSE AND HIV RISK AMONG IDUs NEAR DOWNTOWN KATHMANDU

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Aims: (1) To assess the scope and characteristics of drug abuse among the residents of the study area; (2) To explore the gender differences in HIV status; (3) To see, if elevated rates of needles sharing were associated with HIV positive among a cohort of IDUs. **Methods:** IDUs (n=240) aged 15-25 in Teku area (near down town Kathmandu) were administered a structured survey questionnaire from July 15 to October 15, 2006. Baseline surveys collected data on HIV infection rate, types of drug and alcohol use, demographic, sexual behavior, condom use, depression and readiness to quit drug use. Street Intercept method was used. Chi-square tests and logistic regression were used to determine associations between the above factors and needle sharing within the last one year. **Results:** Among the 240 participants, 95 percent were male and 5 percent female. Median age was 20 years. 60 percent of them were heroin injectors. Among the heroin injectors 40 percent share needles. Prior to base line of 2 months, 20 percent had >2 sex partners, 10 percent of them had casual sex partners. While only 18 percent of them use condom. The study showed high prevalence of unsafe sex, injection and taking drugs before sex. A total of 24 (10 percent) of the 240 IDUs in the study were found HIV-positive. All of them shared needles. Among them 8.33 percent (20 persons) were male and 1.66 percent (4 persons) female. So significant gender associated differences were found having high prevalence of HIV among males and high number of male drug abusers (95 percent). Also 95 percent of the 240 participants were in depression, 60 percent were unwilling or unable to quit drugs, 65 percent used alcohol, 60 percent used marijuana and 17 percent used heroin. **Conclusions:** Persons struggling with drug abuse and HIV infection in Teku have been unnoticed or underserved to HIV treatment. To control the HIV epidemic in the study area, harm reduction program is highly necessary. Similarly, in order to lower the risk of HIV transmission, drug treatment policies should be improved and awareness raising programs should be carried out. Further study of depression screening among HIV infected is also necessary. **Support:** Prof. Bill Latimer, Ph.D., M.P.H.

607 THE MARQUIS REACTION AS A HARM REDUCTION ELEMENT IN PARTY15 ATMOSPHERES: AN ASSESSMENT OF THE ON-SITE TESTING OF ECSTASY TABLETS

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Aims: The main aim of this study was to evaluate the reliability (sensitivity and specificity) of pill testing (Marquis reaction) in order to detect MDMA in ecstasy tablets. The second aim was to highlight the linear relation between MDMA concentration and the intensity of the Marquis reaction **Methods:** Between 2000 and 2001, a total of 66 ecstasy tablets were collected and analyzed using a double-blind procedure involving gas chromatography and the Marquis reaction. The level of agreement between the results of the laboratory analysis and the in situ pill testing was then verified **Results:** Pill testing detects MDMA in all tablets containing this substance (sensitivity and specificity = 100%, p<0.00001). The linear trend was also significant (F1,50= p<0.003) and showed that the more intense the Marquis reaction is, the higher the MDMA concentration **Conclusions:** This study shows that the Marquis reaction is a very valuable test for the purposes of harm reduction because of the high quality of screening it provides for MDMA in ecstasy tablets. Moreover, due to the linear relation between the MDMA concentration and the Marquis reaction, this test allows workers in the prevention field to communicate more specifically customized harm reduction messages. The present study should be considered as the first stage in the evaluation of this testing **Support:** Charles O'Brien

608 USING RACIAL ADMIXTURE TO DELINEATE GENETIC AND ENVIRONMENTAL RISK15 FACTORS OF ILLICIT DRUG USE AND DEPENDENCE

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Aims: Assuming additive genetic effects and no severe assortative mating, a phenotypic value of the admixed (mixed race) should fall in the middle value of the origin races. Our aims are to examine: (1) the extent of admixture reporting bias in the two national surveys; (2) excess risk (deviation from the mean) for marijuana and illicit drug use and addiction in the admixed adolescents and adults; (3) the stages of drug use and addiction at which the excess risks are most pronounced; and (4) the predictors of the excess risks across and within races. **Methods:** The National Longitudinal Study of Adolescent Health (Add Health, n≈20,000) and the National Epidemiologic Survey on Alcohol and Related Conditions (NESARC, n≈43,000) are used to assess patterns of exposure, clinical symptoms and diagnoses of illicit drugs and marijuana. **Results:** Admixed adults from NESARC did not generally report higher rates compared to monorace groups. However, a more than two fold increase risk of marijuana use was observed for the Asian (AS)-Caucasian (CA) admixed adolescents compared to the AS origin group. Admixed AS or African American (AA) adolescent were significantly more likely to report both illicit drug use ever (OR= 1.75 for AA and 3.16 for AS; p<=.05) and marijuana use ever (OR=1.95 for AA and 3.13 for AS; p<=.05). When additional measures were included, being of admixed race became nonsignificant for AA-CA but remained significant for AS-CA adolescents (OR=2.13 for illicit drugs and 2.16 for marijuana). Antisocial personality symptoms, friends smoked marijuana and being sexually active were powerful and significant predictors of illicit drugs and marijuana use. **Conclusions:** Admixed Asian and African American adolescents are indeed at higher risk of illicit drug use, including marijuana. The excess risk is unlikely to be explained by reporting bias of mixed race. At least for AA-CA admixed group, the sources of excess risk appear to be of environmental nature. **Support:** R01DA020922, K08DA016314

CPDD 2008 Annual Meeting, San Juan, Puerto Rico

609 INNOVATION ADOPTION: LESSONS LEARNED FROM RECRUITING DRUG TREATMENT AGENCIES INTO A RANDOMIZED CONTROL TRIAL

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Aims: This study evaluates the recruitment process of a randomized control trial (RCT) that uses process improvement techniques to improve client access to and retention in treatment across 200 drug treatment agencies in five U.S. states. Research questions were: (1) How do lessons learned from the recruitment process influence the subsequent recruitment of drug treatment agencies in RCTs? and (2) How do early adopters differ from late adopters? **Methods:** Nine standardized half-day recruitment meetings were held in partnership with the Single State Authority for Drug Treatment of five U.S. states. Meeting evaluations gathered lessons learned and the impact of state influences on recruitment. Using Roger's Diffusion Adopter of Innovation framework, we categorized agencies in three states and examined size, management scores, dropout rates, and reasons for dropping out prior to randomization. **Results:** Preliminary results indicate a significant difference ($\alpha = .05$) in the proportion of early adopters by state (MI=40%, WA=34%, NY=20%). Early adopters are slightly larger agencies ($p=.056$). The dropout rate does not vary by adoption stage or state. The four primary dropout reasons were lack of staff or staff commitment, inconsistent strategic direction, time requirements, and/or data capacity. States provided recruitment incentives including continuing education units, scholarships to state and national meetings, state-level recognition, and the post-intervention availability of the most cost-effective arm for study participants. **Conclusions:** An active state partnership, focused recruitment meetings, minimized data burdens, and state incentives impact recruitment efforts. Staff turnover, data burdens, lack of senior management buy-in, and/or multiple innovation adoptions during the pre-intervention period lead to higher dropout rates. The categories of diffusion adoption will be used to track improvements over time. **Support:** This project is funded by the National Institute on Drug Abuse (5 R01 DA020832-02)

610 THE BUSINESS CASE FOR PROCESS IMPROVEMENT: LINKING TREATMENT ACCESS AND RETENTION TO FINANCIAL PERFORMANCE AMONG SUBSTANCE ABUSE PROVIDERS

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Aims: This study provides a basis for understanding the business case for process improvement among substance abuse treatment providers. The study demonstrates that reduced no-shows, reduced waiting times, increased admissions, and increased continuation result in improved clinical access and clinical outcomes, greater service volume, and ultimately improved financial performance. **Methods:** Executive sponsors of the Network for the Improvement of Addiction Treatment (NIATx) convened in San Antonio, Texas to discuss the use of process improvement methods in the addiction treatment field. A conceptual model of the business case for process improvement was presented during the meeting: process inefficiencies indicated by long waiting times, high no-show rates, and low continuation rates prevent optimal financial performance. In the typical scenario where costs do not rise proportionally with volume, increasing volume will improve program margin. Until system capacity is reached, the marginal cost associated with providing each additional unit of service is near zero, but marginal revenue is always greater than or equal to zero (and usually substantially positive). There is a business case for increasing service volume until capacity constraints are reached. Following the meeting, NIATx members were invited to submit case studies that supported the model. **Results:** Thirteen case studies were submitted. Twelve agencies demonstrated improved programmatic margin (revenue minus costs) as a direct result of process improvements that increased service volume. One agency demonstrated improvements in staff retention as a result of their process improvement efforts. **Conclusions:** Process improvements aimed at improving client access to and retention in treatment result in increased volume and thus improved financial performance. **Support:** NIDA, the Center for Substance Abuse Treatment, and the Robert Wood Johnson Foundation.

611 ALCOHOL-ASSOCIATED SOCIAL MALADAPTATION, CANNABIS USE, AND MALE FEMALE DIFFERENCES: A LATENT CLASS ANALYSIS

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Aims: Extending more general latent structure analyses of alcohol-associated problems in the community, we hypothesized that membership in latent classes of alcohol-associated social maladaptation (AASM) might depend upon the drinker's sex and recent cannabis smoking. Data from three community surveys conducted by the World Mental Health Survey Consortium were analyzed (USA, Mexico, and Colombia). **Methods:** A total of 2,592 male drinkers and 1,706 female drinkers contributed information for the research, including confidential responses to binary items designed to tap DSM-IV alcohol abuse constructs and cannabis involvement. Multi-group latent class analysis was completed, with groups formed by sex and cannabis smoking, with the complex survey design taken into account and covariate adjustments. **Results:** Even with covariate adjustment, the great majority of male and female drinkers presented with zero AASM clinical features, irrespective of cannabis smoking; there was a latent class with primarily hazardous drinking (e.g., DUI), as well as a latent class whose members had experienced essentially all of the five clinical features of AASM. As compared to females with no recent cannabis use, female cannabis users were not more likely to be members of problem-laden AASM classes, whereas male cannabis users were more likely to be members of problem-laden AASM classes. **Conclusions:** Prior research on the latent structure of alcohol problems in the community typically has not taken into account whether these latent structures might depend upon exogenous group indicators such as sex or recent cannabis smoking. These considerations may be more important in countries where there is traditional sex role-associated variation in drinking practices and where cannabis smoking has become prevalent. **Support:** Analysis was supported by the following grants: R01DA016558, K05DA015799 & see WMHS web page.

612 ADDITIONAL SUPPORT FOR THE REINFORCEMENT-ENHANCING EFFECTS OF NICOTINE IN RATS

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Aims: Two experiments evaluated further the conditions under which nicotine increases reinforced responding. **Methods:** Experiment 1 consisted of 2 phases: rats ($n=8$) could press an active lever to turn on a houselight (Phase 1) or to turn off a houselight (Phase 2), in counterbalanced order. Experiment 2 used an observing response procedure to investigate further the generality of these effects by using food and conditioned reinforcers. Three groups of rats received 0 mg/kg nicotine ($n=5$), 0.3 mg/kg nicotine ($n=6$) or 0.56 mg/kg nicotine ($n=6$) before each of 70 daily, 30-min sessions. **Results:** In both phases of Experiment 1, subjects pressed the active lever (mean On= 0.72 resp/min; Off= 1.08 resp/min) significantly more than they pressed the inactive lever (mean On= 0.05 resp/min; Off= 0.07 resp/min), suggesting that both turning on and turning off a houselight served as reinforcers. Pre-session subcutaneous injections of nicotine significantly increased responding (On: $F[2, 158] = 389, p<0.05$; Off: $F[2, 158] = 326, p<0.05$) and there was a drug condition x lever interaction (On: $F[2, 158] = 98, p<0.05$; Off: $F[2, 158] = 107, p<0.05$). Nicotine resulted in larger increases on the active lever (mean increase On= 1.6 resp/min; Off= 2.8 resp/min) than on the inactive lever (mean increase On= 0.07 resp/min; Off= 0.07 resp/min). In Experiment 2, nicotine significantly increased responding maintained by conditioned reinforcers at both the 0.3 mg/kg (mean increase = 4 resp/min) and the 0.56 mg/kg doses (mean increase = 5 resp/min) relative to vehicle ($F[2, 82] = 3.5, p<0.05$). Nicotine did not increase responding maintained by food. **Conclusions:** The results of these two experiments suggest that nicotine increases responding maintained by sensory reinforcers and by conditioned reinforcers, but not by food reinforcers. The behavioral mechanism of action responsible for these increases may be a nicotine-induced enhancement in reinforcer value; however, these effects may depend on the pre-nicotine reinforcing value of the consequence. **Support:** NIH Grant R03DA019467

CPDD 2008 Annual Meeting, San Juan, Puerto Rico

- 613 MDMA (ECSTASY) USE IS ASSOCIATED WITH ALTERED BRAIN ACTIVATION TO WORD ENCODING AND RECALL: AN fMRI STUDY**
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Aims: Ecstasy users have altered verbal and visual memory and reduced brain gray matter concentration in left Brodmann Areas (BA) 18, 21, and 45. Because these regions are implicated in verbal and visual memory processing, we chose to use fMRI to study activation of these brain regions during word encoding and recall to determine whether MDMA use was associated with altered activation in BA 18, 21 or 45. Methods: 16 right-handed polydrug users (12 Ecstasy users) abstinent from all drugs for at least 3 weeks performed a word encoding/recall task during acquisition of fMRI images sensitive to blood oxygenation level dependent (BOLD) signal changes. General linear modeling was used to contrast regional brain activation during word encoding and retrieval. Secondary analyses included association between lifetime drug use history and the primary outcome measures using non-parametric 2-sided Spearman correlations. Results: Lifetime drug use (as mean episodes \pm SD) was: Ecstasy, 43.3 \pm 40.7; alcohol 529.5 \pm 693.6; cannabis 727.6 \pm 711.0; cocaine 6.0 \pm 6.4. There was a significant correlation between lifetime Ecstasy use and lifetime use of cannabis ($p=0.001$), and cocaine ($p=0.012$), but not alcohol ($p=0.58$). The fMRI task activated left BA 9, 18 and 45 but not BA 21. Within the Ecstasy user subgroup, there was a significant negative correlation between lifetime episodes of Ecstasy use and percentage BOLD signal change in BA 18 for word recall ($p=0.034$), and BA 45 for word encoding ($p=0.029$). There was a significant positive correlation between lifetime episodes of alcohol use and percentage BOLD signal change in BA 45 for word encoding ($p=0.001$). There was no significant correlation between lifetime cannabis use and percentage BOLD signal change in any brain region. Conclusions: Ecstasy use correlates with reduced regional brain activation in left hemisphere BA 18 and 45 during performance of a word encode/recall task. This result suggests that the structural differences in MDMA user may be manifested in functional changes in the brain. Support: NIDA RO1 DA15137-01
- 614 LONG-TERM HEALTH OUTCOMES OF ADJUDICATED ADOLESCENT OFFENDERS**
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Aims: To assess outcomes across multiple health domains among adjudicated adolescent offenders followed into young adulthood. Methods: 449 13-17 year-olds adjudicated by the Los Angeles Superior Court and referred by probation to group homes were assessed between February 1999 and May 2000. 395 (88%) of the original sample were located at 87-months (7.25 years) after the index adjudication. All assessments were completed using the Global Appraisal of Individual Needs (GAIN). Results: At 87-months, 12 youth had died, all from violent causes. Of those alive who were assessed, close to 35% reported hard drug use in the past year and 26% reported experiencing five or more symptoms of drug or alcohol dependence in the past year. Aside from illegal drug use, 60% reported having done something else illegal in the past year, and almost 40% reported being arrested, charged and booked in the past year. When they were interviewed, 25% reported being in jail or prison everyday over the past 90 days. Fifty-eight percent had completed high school or had a GED and 63% reported working at a job in the past year. Conclusions: The juvenile justice system is challenged with two goals: to protect society and reform serious offenders. These high rates of negative outcomes suggest the need for more effective rehabilitation strategies in the juvenile justice system. Support: NIDA 1R01DA16722 (Morral,A.)
- 615 SELF-EFFICACY MEDIATES THE RELATIONSHIP BETWEEN DEPRESSION AND LENGTH OF ABSTINENCE AFTER TREATMENT IN YOUTH BUT NOT ADULTS**
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Aims: Research has uncovered important developmental differences in predictors of addiction relapse after treatment. While affective distress predicts worse outcomes for teens and adults, coping self-efficacy (SE) appears to be a stronger predictor for adults. The present study tested whether SE mediates the relationship between depression symptoms and length of time to first use after treatment in adolescents (N=208) and adults (N=160). Methods: Adolescents and adults in substance abuse and psychiatric treatment were followed up to 18 months after discharge and reported on depression symptoms, drug-taking coping SE and use patterns after treatment. We used path analysis, with criteria outlined by Baron and Kenny (1986), to test for mediation in these two groups separately. Results: Adults had a significantly longer time to relapse than did youth (167 days vs. 59 days; $F=17.97$, $p<.05$). There were no differences between adults and adolescents on SE or depression. In teens, SE fully mediated the relationship between depression and time to use. In the final path model, the paths between depression and SE ($B=-.48$) and SE and length of abstinence ($B=.30$) were statistically significant, while the path from depression to days abstinent was not significant ($B=-.16$). In adults, the best fitting model indicated a significant negative relationship between depression and SE ($B=-.25$), and a significant positive relationship between SE and days abstinent ($B=.19$). This model fit well statistically ($X^2(1)=3.69$, $p=.30$; CFI=.96; RMSEA=.04); but there was no mediation. Conclusions: Findings highlight developmental differences and suggest that youth cognitions may be more labile in response to affect compared to adults. Aftercare programs should emphasize continued attention to fluctuations in mood and cognitions that can put teens at risk for using after treatment. Support: This research was supported by NIAAA R37 AA07033 and VA Merit Review grants to S.A. Brown and NIDA grant F31 DA021941 to D.E. Ramo.
- 616 ANXIOLYTIC BEHAVIOR INDUCED BY DELTA OPIOID RECEPTOR ACTIVATION WITHIN THE CENTRAL NUCLEUS OF THE AMYGDALA**
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Aims: The amygdala is linked not only to fear conditioning and anxiety but also anxiogenic affects reported during withdrawal from drugs of abuse (e.g., morphine, cocaine, alcohol). Recent examinations involving the delta opioid receptor have shown anxiolytic behavior and anxiogenic behavior following the administration of the selective delta opioid receptor agonist SNC80 and antagonist naltrindole, respectively (Perrine et al., 2006). Seeing that delta opioid receptors are expressed in the amygdala, the following study examined delta opioid receptor activation in the central nucleus of the amygdala (CeA) using an animal model test of anxiety. The objective of the study was to determine the extent to which delta opioid receptors in the CeA are involved in modulating anxiety. Methods: Male Sprague Dawley rats were anesthetized and sterilized stainless steel cannula guides were implanted bilaterally into the CeA. Following a six day recovery period, subjects were bilaterally microinjected with the delta opioid receptor agonist [D-pen 2,5]-enkephalin (DPDPE) (50 ng, 0.5 μ g, or 1.5 μ g/site) or were given saline. Twenty minutes after injections, subjects were placed on the elevated plus maze for 5 min and tested for anxiety-like behaviors. Amount of time spent in open arms verses closed arms and number of open arm entries verses closed arm entries were compared between groups. Results: Subjects bilaterally microinjected in the CeA with DPDPE (50 ng, 0.5 μ g, or 1.5 μ g) had significantly greater number of open arm entries and spent more time in open arms in comparison to saline injected controls. Conclusions: These findings reveal that delta opioid receptor activation within the CeA can reduce anxiety-like behavior. These results open the possibility to examine the effect of delta opioid receptor activation in the CeA on anxiety induced by drug withdrawal. Support: NIH/NIDA T32 07237 (EMU/JRT) and DA018326 (EMU).

CPDD 2008 Annual Meeting, San Juan, Puerto Rico

617 PRELIMINARY DESCRIPTION OF SOUTH AFRICAN SUBSTANCE ABUSE COUNSELING WORKFORCE, THEIR TRAINING BACKGROUND, AND EXPERIENCE

S. Rataemane¹, D.W. Watson^{2,4}, L. Rataemane³, R. Rawson² and W.J. McCuller⁴, ¹University of Limpopo, Pretoria, and ²Mental Health and Addiction Centre, Pretoria, South Africa and ³Integrated Substance Abuse Programs, University of California-Los Angeles, Los Angeles, and ⁴Friends Research Aims: Substance abuse treatment counselors in the Republic of South Africa (RSA) enrolled as participants in an international study comparing three types of training approaches for the use of Cognitive Behavioral Therapy (CBT). Methods: Counselors were randomized into one of three training conditions: 1. In-vivo; 2. distance learning; or 3. self-guided manual only. Results: To date, 55 counselors have participated through the first 2 cohorts. The ethnic breakdown was 47% African/ Black, 44% White, 5% Indian, and 4% Coloured. The mean age was 37.2 (SD=5.6). Females comprised 93% of the sample. The primary (home) language was Afrikaans (25.8%) and Zulu (16.1%), followed by Sotho (12.9%), Xhosa (9.6%), Tswana (6.4%), Tsonga (3.2%), and Ndebele (3.2%). Counselors have an average of 17.1 years of formal education with the majority of counselors holding a Matric + honours (41.8%) or a Matric + degree (25.4%). The average years of experience for counselors was 7, with 4.8 years working with clients with substance abuse problems (43% outpatient, 36% inpatient). Most counselors preferred to use Motivational Interviewing (MI) (34.5%) and CBT (30.1%), followed by Rogerian (24.5%), Family therapy (24%), Gestalt (13.5%), Solution (12.9%), Reality (11.7%), 12-step (9.8%), and Psychodynamic (5.7%). When viewed by age group, counselors between the ages of 20 to 29 preferred MI (33.3%) and Family therapy (27.7%), while counselors ages 30 to 39 favored CBT (47.6%) and MI (45.5%). Finally, Rogerian (26.6%), Family therapy (26.6%) and 12-step (21.4%) were preferred by counselors 40 years and older. Conclusions: There is a diverse workforce in RSA treatment centers. The clinics are comprised of relatively young (30-39), well qualified, mostly African (Black) and White counselors with an average of almost 5 years experience working with substance abusing clients. Support: NIDA RO1 DA0190063.

618 BUPROPION BLOCKS ACQUISITION, BUT NOT EXPRESSION, OF NICOTINE-CONDITIONED TASTE AVERSION IN CD-1 MICE

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Aims: The atypical antidepressant, bupropion, has been shown to be an efficacious smoking-cessation agent. Its therapeutic mechanism of action, however, is unknown. In vitro research has shown that bupropion non-competitively inhibits several nicotinic receptor subtypes ($\alpha 3\beta 4$, $\alpha 4\beta 2$ and $\alpha 7$) and competitively inhibits the $\alpha 3\beta 2$ nicotinic receptor subtype. Using an in vivo preparation, the present experiments determined the effects of bupropion on the acquisition (Experiment 2) or expression (Experiment 3) of nicotine conditioned taste aversion (CTA) in mice. A preliminary experiment (Experiment 1) examined several nicotine doses to determine an effective nicotine dose to produce a CTA in CD-1 mice. Methods: In Experiment 1, mice (n = 7-8/dose) were administered vehicle or nicotine (0.2, 0.4, 0.8 or 2.0 mg/kg) following a 60-minute (min) period of drinking saccharin (0.15%) on 4 alternating drug sessions. On the 4 intervening, non-drug sessions, mice were permitted to drink water for a 60-min period. The test session occurred 48 h after the last drug session. In Experiments 2 and 3, mice (n = 8/group) were administered vehicle or bupropion (1, 5, 10 or 20 mg/kg) 5 min prior to the nicotine treatment during the drug sessions of Experiment 2 or 5 min prior to the test session of Experiment 3. Consumption data were subjected to analyses of variances followed by post hoc contrasts involving Tukey's HSD tests. Results: The two highest nicotine doses (0.8 and 2.0 mg/kg) produced reliable CTAs. Furthermore, the lowest bupropion dose (1 mg/kg) failed to alter acquisition of nicotine CTA whereas the moderate (5 mg/kg) and high (10 and 20 mg/kg) bupropion doses attenuated and blocked acquisition of nicotine CTA, respectively. No bupropion dose altered expression of nicotine CTA. Conclusions: Thus, bupropion dose-dependently and specifically altered the acquisition of nicotine CTA, suggesting that nicotinic receptor activation is involved in the acquisition, but not the expression, of nicotine CTA. Support: Supported By: A grant from the USPHS (DA019866) awarded to A. S. Rauhut

619 PROSPECTIVE STUDY OF GENETICS INFORMED CONSENT RATES FOR LOCAL STUDY AND ALSO SHARING WITH A NATIONAL REPOSITORY

B. Ray¹, C. Jackson¹, R. Raugel¹, E. Ducate¹, D. Melia¹, P. Casadonte^{2,3}, J. Rotrosen^{2,3}, S. Linzy⁴, M. Adelson^{1,4} and M.J. Kreek¹, ¹Biology of Addictive Diseases, Rockefeller University, ²VA Medical Center, NY Harbor Healthcare Sys, and ³NYU Sch. of Med., NY, NY and ⁴Adelson Clinic for Drug Abuse, Aims: To examine factors influencing the consent rates for participating in genetic studies and for sharing genetic information with the NIH/NIDA national repository. Methods: Inclusive dates for the subjects in this prospective study were July 26, 2000 to May 25, 2007, with participants at the Rockefeller University Hospital and two different addiction treatment clinics, in New York, the VA NYHHS and in Las Vegas, the Dr. Miriam and Sheldon G. Adelson Clinic for Drug Abuse, Treatment and Research. All subjects were invited to sign an informed consent for genetic studies at Rockefeller and separately for sharing DNA and selected clinical information with the NIH-NIDA genetics repository. Results: Of 1416 persons approached, healthy volunteers and volunteers with addictive diseases, 1411, or 99.6%, agreed to participate in our local genetic study. Of the 1411 persons, 1238, or 87.7% agreed to have their genetic sample (blood for DNA) shared with NIDA. Further, each person may designate for which kinds of studies NIDA is allowed to use their DNA. We saw very similar rates of consent for each study category, addiction, other medical conditions, and of population genetics, ranging from 85-87%. More than 80% of people consented to all levels of NIDA sharing, including the creation of a cell line. Volunteers with the disease under study, i.e. addictions, were more likely to consent to sharing with NIDA; most of these had a prior relationship with the clinical investigator or developed one. Conclusions: A high percentage agreed to participate in the local study, and to sharing with the NIH-NIDA repository. The level of detail and amount of time spent going over the consent, and the relationship with the clinical investigator may contribute to this. Support: NIH-NIDA P60DA05130-21(MJK), K05DA00049(MJK), CTSA UL1-RR024143(BC)

620 BUPROPION DIFFERENTIALLY IMPACTS RESPONDING FOR APPETITIVE STIMULI

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Aims: Bupropion (BUP) is used as a smoking cessation aid, an antidepressant, and is prescribed for the treatment of ADHD. This drug reduces the subjective effects and cue-induced craving for methamphetamine (METH) in humans. Given the widespread clinical use of BUP and its effects on METH in humans, we used a preclinical model of drug-taking to determine the effects of BUP on the reinforcing effects of METH (0.025, 0.05 or 0.1 mg/kg/infusion). Specificity was determined by investigating the effects of BUP on responding maintained by sucrose. Methods: Rats were surgically prepared with indwelling jugular catheters. After recovery, rats were trained to self-administer METH (0.025, 0.05 or 0.1 mg/kg/infusion) during 60-min sessions. A separate group of rats was trained to press a lever for sucrose. Initially, each response on the active lever produced an infusion of METH or sucrose. Responding on the inactive lever had no consequence. The fixed ratio 1 (FR1) schedule was increased to an FR3 and then an FR5. Once responding stabilized, rats were given BUP (0, 10, 30 and 60 mg/kg i.p.) 5 min before chamber placement. Each rat was administered the four test doses of BUP in a unique testing order. Rats that were assigned to the 0.025 METH group did not maintain responding on an FR5, thus the FR at this low dose was titrated down until the rat's responding stabilized. Results: BUP dose dependently reduced METH self-administration. This effect was not dependent upon training dose as rats trained to self-administer 0.025 to 0.1 mg/kg METH decreased drug intake. Specifically, 60 mg/kg BUP reduced METH infusions relative to 0, 10 and 30 mg/kg BUP. Further, 30 mg/kg BUP reduced METH infusions relative to vehicle. Sucrose deliveries were reduced with 60 mg/kg BUP relative to 0, 10 and 30 mg/kg. Conclusions: This pattern of findings suggests a moderate dose of BUP may have some specificity for METH. However, increasing the BUP dose produces a more generalized effect within the appetitive/reward system of the brain. Support: Nebraska Tobacco Settlement Biomedical Research Development Funds

621 PSYCHEDELIC-LIKE EFFECTS OF DEXTROMETHORPHAN

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Aims: Dextromethorphan (DXM) is a widely used over-the-counter cough suppressant that is sometimes abused at high doses. The aim of this ongoing study is to characterize the clinical pharmacology of supratherapeutic doses of DXM on various physiological, psychomotor, subjective, and cognitive measures. **Methods:** Single, acute, oral doses of DXM (100, 200, 300, 400, 500, 600, 700, 800 mg/70 kg), and placebo (lactose) are being administered to healthy volunteers under double-blind conditions using an ascending dose run-up design. Psychomotor, physiological, subjective, and cognitive effects are being assessed repeatedly after drug administration. **Results:** DXM produced psychedelic-like effects in the first two subjects in this study. At the lowest dose (100 mg/70kg) both volunteers reported a range of mild drug effects, including dizziness, sedation, and light-headedness. At 200 mg/70 kg the first volunteer reported effects similar to 100mg/70 kg, along with nausea. After 400mg/70 kg this volunteer reported an increase in "drug liking," and a range of perceptual changes, emotions, and subjective effects, including an increased sense of sacredness, and an experience in which "ultimate reality was revealed." In a follow up interview, the experience was described as personally meaningful and "could be the most reflective experience of life." After a dose of 200mg/70kg DXM, the second volunteer experienced strong drug effects, including persecutory ideation, paraesthesia, tremors, and paranoia, but no hallucinations. All drug effects were resolved spontaneously. These effects had similarities to those we have previously noted after psilocybin. Based on these observations, we revised this protocol to include additional social and emotional support, with sessions to be conducted under more relaxed and introspective conditions, including using eyeshades and listening to music. **Conclusions:** High doses of DXM may produce effects with similarities to classic serotonergically-mediated hallucinogens. **Support:** NIDA grant DA003889

622 AMPHETAMINE AND DOPAMINE INTERFERE WITH DOPAMINE TRANSPORTER OLIGOMERIZATION AND TRAFFICKING

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Aims: Our previous results indicate that amphetamine and dopamine (DA) dissociate DA transporter (DAT) oligomers, which appears to be linked with DAT endocytosis. The data are consonant with a model in which substrates such as amphetamine shift the distribution between oligomers and monomers in the cell towards monomers which can then internalize. The present study tested the hypothesis that amphetamine's effect on DAT is a function of the DAT state. **Methods:** The experiments were carried out with HEK-293 cells transiently expressing wildtype (WT) human DAT, D345N (mutant with preference for inward-facing conformation), or W84L (outward-facing preference), with Flag- or Myc-tag at the N-terminal. **Results:** In cells co-expressing Flag- and Myc-WT, anti-Flag antibody co-immunoprecipitated (CoIPed) Myc-WT. Amphetamine (2 or 20 μ M) reduced CoIPed as well as biotinylated surface myc-DAT ($P < 0.05$, one sample t-test). Co-expression of Flag- with Myc-D345N also enabled CoIP, but the effect of amphetamine on both CoIP and surface myc-DAT was lost. Co-expression of Flag-WT with Myc-D345N showed the same results as pairing D345N with itself. These results indicate that amphetamine induced dissociation of WT but not D345N protomers from oligomers, and subsequent internalization. The effect of amphetamine on CoIP in the pair W84L-W84L or WT-W84L was unchanged from WT-WT ($P > 0.05$, unpaired t-test), but the effect on surface DAT was lost ($P < 0.05$, one sample t-test). This suggests that amphetamine can interact with W84L to dissociate it from the corresponding oligomer, but that the amphetamine-induced internalization of DAT was impacted by W84L expression. **Conclusions:** It is possible that the inward- or outward-facing state of DAT plays a role in the ability of amphetamine to dissociate and internalize DAT. **Support:** Supported by NIDA (DA019676).

623 EXAMINATION OF ETHNICITY DIFFERENCES IN RISK-TAKING BEHAVIOR WITHIN A COMMUNITY SAMPLE OF YOUTH

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Aims: This study sought to replicate previous findings showing differences in engagement in risk-taking behaviors among Black and White youth (i.e., greater substance use among Whites and more delinquent behaviors among Blacks). Additionally, the study sought to extend this work to better understand these ethnicity differences by considering other relevant variables, including demographic variables (gender, age, biological father presence in the home, annual family income, and parental education level) as well as perceived environmental supports and threats, and risk perception. **Methods:** The community sample consisted of 256, 10-12 years olds (56% male, 57% White). Subjects completed the Youth Risk Behavior Survey, Tyler Environment Scale, and the Risk Perception Scale. **Results:** Black youth were more likely to engage in delinquency behaviors and White youth were more likely to report alcohol use. Multivariate logistic regression was used to assess the relative contribution of our variables of interest. Gender ($\chi^2 = 16.28$, $p = .0001$), perceived environmental threats (step $\chi^2 = 5.12$, $p = .02$), and ethnicity (step $\chi^2 = 4.00$, $p = .04$) were found to be significant predictors of engagement in delinquent behavior. For alcohol use, income (step $\chi^2 = 14.24$, $p = .0001$), perceived environmental threats (step $\chi^2 = 9.61$, $p = .002$) risk perception (step $\chi^2 = 27.97$, $p = .0001$), and ethnicity (step $\chi^2 = 4.65$, $p = .03$) were significant predictors. **Conclusions:** Ethnicity continued to be a significant predictor of engagement in delinquent behavior and alcohol use, even after the contribution of relevant demographic variables, perceived environmental threat, and risk perceptions, suggesting the type of risk behavior in which a youth engages is predicted by ethnicity and a combination of overlapping as well as unique risk factors specific to that behavior. Results also suggest the need for continued work to identify other factors that may explain the relationship between ethnicity and involvement in specific risk behaviors. **Support:** NIDA R01 DA18647

624 DELAY DISCOUNTING AND SELF-REPORTED STRESS IN ADOLESCENTS EXPERIMENTING WITH CIGARETTE SMOKING

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Aims: Delay Discounting (DD) is an index of impulsive choice, and research has shown that adolescent daily smokers discount more by delay than adolescent nonsmokers (Reynolds et al., 2007). However, it is not known if the more extreme DD seen in adolescent smokers predates their regular use of nicotine; or, alternatively, if high levels of nicotine use increase DD. **Methods:** The current cross-sectional study compared DD and ratings of stress (Perceived Stress Scale, PSS) in three different matched groups of adolescents: daily smokers ($n = 50$), never smokers ($n = 50$), and experimenters (reporting initial experimentation with smoking within three months of participation; $n = 32$). **Results:** Daily smokers had significantly higher cotinine levels (a metabolite of nicotine) than nonsmokers and experimenters, but the latter two groups did not differ in cotinine level. The daily smokers and experimenters both discounted more by delay than the never smokers [$U(99) = 626.5$, $p = 0.001$; $U(81) = 501.0$, $p = 0.028$, respectively]; however, the daily smokers and experimenters did not differ [$U(81) = 638.0$, $p = 0.183$]. Similarly, daily smokers and experimenters reported greater levels of stress than never smokers [$t(99) = 3.20$, $p = .002$; $t(81) = 3.46$, $p = .001$, respectively], but the former two groups did not differ [$t(81) = 0.65$, $p = .52$]. Because the daily smokers and experimenters did not differ on the measures of DD or PSS these groups combined for subsequent analyses. Using binary logistic regression (outcome = never versus any smoking), DD and PSS ratings were significant, independent predictors of adolescent smoking status after controlling for age and sex. **Conclusions:** These findings indicate that adolescents who are experimenting with cigarettes are similar to daily smokers with respect to DD, suggesting delay discounting may be a risk factor for smoking initiation. Furthermore, higher levels of stress may be an additional risk factor for initiation of smoking during adolescence. **Support:** National Institute on Drug Abuse

625 METHADONE MAINTENANCE IN MICHIGAN: FIVE YEARS OF DATA USING A CONTINGENCY MANAGEMENT APPROACH

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Aims: This program description presents an ongoing inner-city Detroit methadone maintenance treatment (MMT) program. Implemented in March 2002, several factors contributed to this Maintenance to Abstinence (MtoA) program's design and development. First, Michigan State regulations require that methadone treatment providers encourage clients to complete MMT within two years. Second, budget cuts for publicly funded treatment reduced by more than half the amount of therapy authorized for a typical patient. To compensate for budget reductions and to enhance therapeutic outcomes, this program was designed as an evidence-based approach relying heavily on the use of contingency management techniques. Data will be presented on program elements such as overall abstinence rates when weekly additional "bonus" take-home medication is contingent upon providing drug-free urine specimens, cocaine abstinence rates following mandatory CBT group attendance for cocaine-positive urine specimens, and treatment retention. **Conclusions:** To date, 496 MtoA patients have enrolled. For comparison, we present outcome data from 110 Standard Treatment (ST) patients admitted just prior to MtoA program implementation. In ST abstinence was a treatment goal, but not required for continued enrollment. In contrast, MtoA is a performance-based program. Additionally, in ST dose adjustments arose from a patient requesting to see the doctor. In MtoA, automatic dose increases occur over the first two weeks of treatment. Compared to ST, MtoA abstinence rates improved (22% vs. 64% opiate-negative drug screens at 90 days) and treatment retention improved (24% vs. 46% retained in treatment at least one year). Data also show that abstinence-contingent take-home medication has been an effective therapeutic strategy. Finally, data on our combined CBT/contingency management approach for crack cocaine use will be presented. **Support:** Joseph Young, Sr. Funds (State of Michigan)

626 EXAMINATION OF A BRIEF ADJUNCTIVE INTEROCEPTIVE-BASED INTERVENTION FOR HEROIN USERS WITH HIGH ANXIETY SENSITIVITY

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Aims: Recent research suggests that Anxiety Sensitivity (AS) may be a relevant cognitive vulnerability for heroin use, as heroin use may function to alleviate aversive bodily sensations associated with anxious arousal. Further, heroin users with high AS may be at greater risk for treatment drop-out and/or early relapse. Thus, we developed a brief adjunctive behavioral treatment designed to teach heroin users with high AS how to accept and tolerate anxiety sensations when they occur, thereby reducing reliance on heroin as a way of coping. **Methods:** We tested the initial effectiveness of this intervention in an open trial. A sample of 8 African-American primary heroin users with high AS were recruited from an inpatient residential substance use treatment facility in Northeast Washington, DC. The intervention (the Anxiety Sensitivity Treatment for Heroin Users) spanned six sessions and combined psychoeducation on the relationship between anxiety and heroin use with interoceptive exercises designed to facilitate the tolerance of internal sensations perceived as threatening. Participants completed the Anxiety Sensitivity Index (ASI), Reasons for Heroin Use Scale, Acceptance and Action Questionnaire, Difficulties in Emotion Regulation Scale, and Depression, Anxiety, and Stress Scales pre- and post-treatment, and one month after discharge from the facility. **Results:** Participants reported significant decreases in their total ASI score ($t(7)=2.59$, $p<.05$), ASI physical concerns ($t(7)=2.85$, $p<.05$), experiential avoidance ($t(7)=4.03$, $p<.01$), heroin cravings ($t(7)=2.36$, $p<.05$), and stress symptom severity ($t(7)=3.21$, $p<.05$) from pre- to post-treatment. All gains were maintained or improved at one month follow up. **Conclusions:** Findings highlight the need for further evaluation of this intervention in future randomized clinical trials assessing these outcome variables, as well as the role of these changes in substance use outcomes including treatment drop-out and relapse. **Support:** NIDA R01 DA 19405

627 OREXIN NEURONS THAT PROJECT TO THE VENTRAL TEGMENTAL AREA ARE ACTIVATED BY MORPHINE PREFERENCE DURING PROTRACTED FORCED ABSTINENCE

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Aims: Our laboratory recently showed that orexin neurons located in the lateral hypothalamus (LH) are activated in proportion to the magnitude of conditioned place preference (CPP) for morphine, cocaine, or food. Our report and other studies showed that orexin projections to the VTA are important in reward processing and stimulus-drug associations. The aim of this study was to determine whether LH orexin neurons that are activated by morphine CPP project to the VTA. **Methods:** Adult male Sprague-Dawley rats received a unilateral injection (300nl) in the VTA of the retrograde tracer wheat germ agglutinin conjugated to apo-horseradish peroxidase and coupled to colloidal gold (WGA-Au). Animals were subcutaneously implanted with morphine (75mg) or placebo pellets 7 days after microinjections. CPP conditioning (3 days, 10mg/kg morphine per injection or saline in a balanced design) was conducted 3 weeks after pellet removal and a drug-free CPP test was conducted the day after the third conditioning session. Brain tissue was prepared for silver intensification of the WGA-Au tracer as well as Fos and orexin immunohistochemistry, 90 minutes after the CPP test. **Results:** Morphine-pelleted animals exhibited an enhanced preference for the morphine-associated environment on the CPP test day compared to placebo-pelleted rats (as previously reported by our lab; $n=6$ per treatment group). In morphine-pelleted animals, there was a significantly greater percentage of Fos-activated, VTA-projecting orexin neurons versus placebo-pelleted animals. In addition, the number of Fos-activated VTA-projecting orexin neurons was significantly correlated with the intensity of conditioned preference. Thus, as preference scores increased in morphine-pelleted animals, the percentage of Fos-activated, VTA-projecting orexin neurons significantly ($p<.05$) increased. **Conclusions:** These data support a role for LH orexin neurons that project to the VTA in reward processing and drug abuse. **Support:** PHS grant R37-DA06214

628 RISK FOR PRETEEN SUBSTANCE USE FROM IMPULSIVITY, PERCEIVED SAFETY, AND OTHERS' USE

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Aims: Preeteen use of alcohol (PUA) and tobacco (PUT) forecast lifelong problems consequent to substance use, yet PUA and PUT etiologies are not well-known. This study was conducted to estimate risk for PUA and PUT that is associated with impulsivity, perceived safety of drugs, use by parents, use by friends, and interactions among these predictors. **Methods:** Participants were 245 eight- to 13-year-old Pennsylvanians at risk for problematic substance use because of chronic stress. About 50% of participants received a free school lunch (had low family income). Data were collected using the Assessment of Liability and EXposure to Substance use and Antisocial behavior©; (ALEXSA©) computerized self-report measure which does not require reading to complete. Analyses consisted of logistic regressions. **Results:** In multivariate analyses, the main effects between impulsivity or distractibility with PUA or PUT were accounted for by parental and friend substance use, susceptibility to peer pressure, and perceived safety of substance use. In predictions of PUA and of PUT, the same two interactions were significant: impulsivity \times perceived safety of substance use and susceptibility to peer pressure \times having a friend who uses the substance. **Conclusions:** Although impulsivity appears to play one or more central roles in substance use etiology, interactions between impulsivity and other risks suggest that the other risks might be targeted to modify the bias toward outcomes of PUA and PUT that is associated with impulsivity. Results were similar regarding peer use of alcohol or tobacco. Results were consistent with prevention efforts to increase perceived dangers of substance use and strengthen children's resolve against peer pressure, which these results suggest are especially important for children with greater impulsivity. **Support:** NIDA grants K01 00434 and P50 005605.

629 A LATENT CLASS ANALYSIS OF SUBSTANCE USE PATTERNS AND MENTAL HEALTH PROBLEMS AMONG YOUTH IN MENTAL HEALTH TREATMENT

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Aims: High rates of co-occurring substance use and mental health disorders among youth are well-documented. We conduct latent class analysis (LCA) to examine substance use patterns among youth receiving mental health services and how these patterns relate to diagnoses of mental health disorders and other youth characteristics upon treatment entry. **Methods:** Participants were youth 11 to 18 years old (N=1228) and their caregivers receiving services in federally-funded systems of care from 1997 to 2000. Participants were assessed at service entry and every 6 months up to 36 months. LCA indicators included baseline data on youth-reported substance use (alcohol, marijuana, tobacco, cocaine, stimulants, inhalants, opioids, psychedelics, sedatives, and over-the-counter medications) in the 6 months prior to service entry. Covariates of latent class membership included diagnosis of conduct disorder, mood disorder, or ADD/ADHD; demographic characteristics, and individual risk factors (ran away, attempted suicide). **Results:** A four-class solution best fit the data. Class 1 was defined by high probabilities of all drug use. Class 2 had high probability of alcohol, tobacco, and marijuana use-low for other use. Class 3 had moderate probability of alcohol, tobacco, marijuana use-low for other use. Class 4 had high probability of tobacco use-no other use. Youth who had a mood disorder diagnosis, were male, older, White and had previously run away from home were significantly more likely to be in Class 1 relative to other classes. **Conclusions:** Youth with high probabilities of using all drugs were more likely to have a mood disorder; but ADD/ADHD and conduct disorders were not related this class membership. Youth presenting for mental health services exhibit different patterns of substance use, and this information should be used to develop more targeted treatment approaches. **Support:** This study was funded by contracts #280-97-8014, #280-00-8040, and 280-99-8023 from the Center for Mental Health Services at the Substance Abuse and Mental Health Services Administration, U.S. Department of Health and Human Services.

630 ONE-YEAR POST-TREATMENT FOLLOW-UP IN ADOLESCENTS TREATED FOR DEPRESSION AND SUBSTANCE ABUSE

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Aims: To evaluate the impact of concurrent treatment for major depressive disorder (MDD) and substance use disorders (SUD) on one-year post-treatment outcomes in 63 adolescents who participated in a 16-week randomized controlled trial of fluoxetine with cognitive behavioral therapy (results reported previously). **Methods:** We compare adolescents whose depressions remitted during the 16-week acute treatment trial to non-remitters during a 1-year post-treatment follow-up period on measures of depression (Childhood Depression Rating Scale-Revised, CDRS-R), the number of days of past 30-day drug use, and the number of past 30-day CD symptoms. **Results:** Those whose depressions remitted sustained remission throughout follow up with significantly lower ($p < 0.001$) CDRS-R scores (6-month mean CDRS-R = 47.8 SD=1.4) compared to non-remitters (6-month mean = 57.9; SD=2.1). Past 30 day drug use and CD symptoms decreased significantly in both groups during the 16-week treatment trial but were lower in remitters compared to non-remitters at study exit ($p < .02$, $p < .07$, respectively). Neither drug use nor CD symptoms increased significantly in either group during the 1-year follow up period, but there was not a statistically significant difference between remitters and non-remitters on either measure throughout the follow-up period. **Conclusions:** Overall, clinically significant improvement in depression, substance use and conduct problems during a 16-week combined depression and substance treatment study were maintained throughout a one year post-treatment follow-up period. **Support:** National Institute on Drug Abuse R01 DA013176-01

631 NALOXONE AS A STIMULUS IN DRUG DISCRIMINATION LEARNING

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Aims: The characterization of the stimulus properties of the relatively non-specific opioid antagonist naloxone has focused primarily on its activity at the mu receptor subtype. The present study extended the characterization of the naloxone cue by investigating the ability of relatively specific antagonists for mu (naltrexone; 0.10-0.56 mg/kg), delta (naltrindole; 1-18 mg/kg) and kappa (MR2266; 1.8-5.6 mg/kg) opioid receptors to substitute for naloxone. Moreover, a naloxone time-course (15, 30, 45 and 60 min) was examined to determine the temporal effects of the naloxone cue. Finally, naltrexone methobromide (1-18mg/kg) was used to determine if the discriminative stimulus effects of naloxone are mediated peripherally. **Methods:** Long-Evans female rats (n=18) received an injection of naloxone (1 mg/kg; ip) 15 min prior to 20-min saccharin access which was followed by an injection of lithium chloride (1.8 mEq; ip; n=9, Group NL) or distilled water (n=9, Group NW); this was followed by three recovery days where saline injections preceded saccharin access. **Results:** Mann-Whitney U tests revealed that Group NL drank significantly less saccharin after two conditioning cycles compared to Group NW ($U = 40.5$, 7.5 , $p = 0.05$). Both naloxone and naltrexone produced dose-dependent suppression of saccharin consumption ($X^2 = 22.957$; $p = 0.001$; $X^2 = 9.4$; $p = 0.024$, respectively). Naltrindole and MR2266 did not generalize at any dose tested (all p 's $> .05$). When naloxone was administered 15 and 30 min prior to saccharin consumption, Group NL consumed saccharin less than and or equal to consumption on conditioning, respectively. When given 45 or 60 min before saccharin, Group NL exhibited drinking comparable to controls. Naltrexone methobromide only substituted at the highest dose tested (18 mg/kg). **Conclusions:** These results suggest that naloxone's stimulus effects are centrally mediated at the mu receptor. **Support:** Supported by a grant from the Mellon Foundation to A.L.R.

15 632 GENDER AND SEXUAL RELATIONSHIP POWER AMONG OUT-OF-TREATMENT METHAMPHETAMINE USERS

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Aims: This exploratory study compared demographics, drug use, HIV risk behaviors and sexual relationship power between male and female out-of-treatment methamphetamine users (MA) in Denver, Colorado. **Methods:** Between November 2006 and August 2007, 58 participants were recruited using street and community outreach techniques. All eligible participants completed a structured interview. **Results:** The average age of participants was 38 years and 48% were female. The majority were White (90%) and 21% reported Hispanic/Latino ethnicity. All participants had used MA in the past month as verified by urinalysis and 72% reported injecting MA in their lifetime. Statistically significant ($p < .05$) gender differences were found. Women were more likely to have a pattern of unemployment over the last 3 years (46%) as compared to men (21%), however, women were more likely than men to be living in their own home/apartment (61% vs. 33%). Additionally, women reported higher rates of lifetime physical (89%) and sexual abuse (64%) as compared to men (57% and 27%, respectively). The average age of first use of MA was 23 years for women as compared to 19 for men. Women were more likely to be introduced to MA by a significant other than men (29% vs. 0%). While not significantly different, high portions of both women (71%) and men (53%) had unprotected vaginal sex in the last 30 days and almost a fifth of women (18%) and a quarter of men (23%) had used previously used syringes in the last 30 days. Unexpectedly, we found that women scored significantly higher on a measure of sexual relationship power (e.g., control and decision making in the relationship) than men. **Conclusions:** Previous studies with women suggest that power within a relationship is strongly related to sex risk behaviors. This study, however, found that women scored higher than men in terms of sexual relationship power. While the construct of power can be difficult to define, further research is needed to better understand if power is an important construct to target in developing gender specific interventions for MA using women. **Support:** NIDA DA0021522.

633 EFFECTS OF NORBNI ON THE SELF-ADMINISTRATION OF ETHANOL IN CROSS- AND IN-FOSTERED LEWIS AND FISCHER FEMALE RATS

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Aims: Since kappa(κ) opioid activity reportedly mediates some of alcohol's aversive effects, antagonism of κ activity should impact these effects. Accordingly, the effects of norBNI (κ -antagonist) on ethanol (EtOH) self administration (SA) were assessed. Given that alcohol's effects are impacted by both genes and environment, this assessment was made in cross- and in-fostered LEW (L) and F344 (F) rats (that show differential sensitivity to the rewarding and aversive effects of alcohol). **Methods:** Specifically, F and L pups (n=51) were cross- or in-fostered within 24h of parturition, resulting in the following pup-dam rearing groups (n=6-8): FF, FL, LL and LF. Animals were injected with either 1 mg/kg norBNI or vehicle and then given free access to both H₂O and a mixture of H₂O and EtOH at increasing concentrations (2, 4, 8 & 12%). Bottles were switched daily and refilled in tandem. EtOH concentration increased stepwise from 2 to 12% every fifth day. **Results:** A 2x4 ANOVA was performed on percent EtOH preference at each concentration, revealing significant effects of Treatment and Rearing Group and a Treatment x Rearing Group interaction at the 8% concentration. LSD post hoc on vehicle-pretreated animals showed that in-fostered LL animals preferred EtOH more than FF, FL and LF (nonsignificant trend - p's between 0.054 & 0.077). NorBNI pretreatment significantly increased EtOH preference in Group LF, such that its EtOH preference now resembled that of Group LL, eliminating the cross-fostering effect. Groups LL and LF now preferred EtOH more than Groups FF and FL (p's<0.05). **Conclusions:** The κ -system of L females may be more susceptible to modulation caused by gene-environment interactions, as evidenced by the increase in EtOH consumption in the cross-fostered LF rats pretreated with norBNI. Further examination of the role of the κ -system in the SA of EtOH is warranted. **Support:** Supported by a grant from the Mellon Foundation to ALR and intramural funds from NIDDK.

634 INTRA-ETHNIC DIFFERENCES ON THE LIFETIME RISK FOR ALCOHOL, CANNABIS, AND COCAINE USE AMONG LATINOS

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Aims: The National Latino and Asian American Survey (NLAAS) is an effort to provide epidemiological data on the burden of mental disorders and related conditions among Latinos and Asian Americans residing in the continental United States (US). Here, we seek to estimate the likelihood of ever using alcohol, cannabis, and cocaine across four Latino groups (i.e., Cubans-C, Mexicans-M, Puerto Ricans-PR, and Central/South Americans-CS). **Methods:** The NLAAS conducted in 2002-2003 assessed a probability sample of community-dwelling Latino and Asian Americans residents of the US aged 18 + (n=4,449). The Latino sample consisted of 2,554 respondents. The key response variables in this study are prevalence proportions for ever having consumed alcohol, cannabis, and cocaine (P_a, P_{ca}, P_{co}). **Results:** For Cubans, estimated P_a, P_{ca}, and P_{co} were 85%, 17%, and 8%; for Mexicans: 82%, 28%, and 13%; for Central/South Americans: 86%, 28%, and 10%; for Puerto Ricans: 86%, 38%, and 17%. As compared to Cubans in a logistic regression model, the Mexicans were more likely to have tried cannabis (prevalence odds ratio, OR = 1.9; p<0.05), CS were also more likely (OR=1.9; p<0.05), and so were PR (OR=3.0; p<0.05). With respect to cocaine, the corresponding OR estimates for Mexicans were 1.7 (p<0.05), for Central/South Americans, 1.3 (N.S.); for Puerto Ricans, 2.2 (p<0.05). Statistical adjustments for sex and age produced little attenuation of these estimates. **Conclusions:** There is little variation in alcohol experience across these Latin-American subgroups. With respect to cannabis and cocaine, Puerto Ricans were more likely to have used both followed by Mexicans. Any underlying assumption of Latinos as a homogenous ethnic/racial group regarding drug experiences is not supported by these data. **Support:** None.

635 OPIOID PHARMACOTHERAPY MAINTENANCE: SUPPLY, DEMAND AND SERVICE SYSTEM MODELLING

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Aims: The aim of this research was to develop a dynamical systems model of the pharmacotherapy treatment system, based on the flows of opioid dependent people in and out of treatment and between the various modes of treatment provision in Australia. The research is designed to help policy makers evaluate the dynamic consequences of policy changes in relation to their impact on the numbers of opioid dependent Australians in treatment and the costs associated with supplying that level and type of treatment. **Methods:** Dynamical systems models were developed using "ithink" software. **Results:** Three models were developed which explore different aspects of the service system. The first model described flows in and out of treatment, the cycling behaviour of clients and the costs. This first model can test policy scenarios concerned with changes to the demand for pharmacotherapy treatment, impacts on costs, impact of reducing services from one treatment modality and so on. The second model explored the three drugs; methadone, buprenorphine and buprenorphine-naloxone. A critical issue for policy makers is the relative mix between these three drugs and the associated impacts on treatment services. The third model examined "constraints" on service delivery, such as costs to patient (ie too expensive); accessibility (ie inaccessible); and stigma/discrimination. The model can examine the impacts of constraint. **Conclusions:** The use of dynamical systems models to assist with understanding and exploring pharmacotherapy maintenance treatment represents a significant advance in service system research. Modelling provides policy makers with a tool to explore scenarios and improve decision-making for this important and efficacious treatment type. **Support:** This work was funded by a competitive grant with the Australian National Council on Drugs, without restriction.

636 CONDITIONING AND EXTINCTION OF CUE-REACTIVITY IN COCAINE-DEPENDENT HUMAN SUBJECTS

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Aims: Cues associated with cocaine may elicit craving for cocaine and may make cocaine dependence more difficult to treat. The present study examined conditioning and extinction of such cues in cocaine-dependent non-treatment seeking research volunteers. **Methods:** 14 subjects with histories of i.v. cocaine use meeting DSM-IV criteria for cocaine dependence participated in a 22-day inpatient experiment in which they received daily i.v. infusions of cocaine or saline. After initial assessment of responses to cocaine-related cues, a randomized cross-over design provided 10 days of repeated exposure to the cues followed by i.v. infusions of either cocaine (40 mg) or saline. This was followed by 10 days of the other condition in a counter-balanced order. **Results:** Initial assessment of cue response demonstrated that the cocaine cues produced greater arousal and craving than control cues. Over the next 10 days of repeated cocaine-cue exposure, physiological arousal (heart rate and blood pressure elevation) was increased when the cue was followed by a cocaine infusion, but decreased when the cue was followed by saline. After cross-over, the cue-induced arousal was decreased by saline substitution for cocaine, but increased by cocaine substitution for saline. Parallel changes in cue-induced "craving" were not so readily seen. The subjective, physiological, and reinforcing effects of cocaine were highly consistent across the 10 days of repeated exposure. **Conclusions:** These results demonstrate conditioning and extinction of autonomic arousal to cues paired with cocaine in cocaine-dependent subjects. However, craving ratings following the cocaine-cue did not follow the same course of changes over 10 days of conditioning/extinction indicating that this subjective report was not as sensitive to change under these experimental procedures. Reasons for this discrepancy between autonomic arousal and craving may include greater control of reports of craving by subject's expectations of about experimental procedures. **Support:** This research was supported under NIDA contract N01DA-9-8101.

CPDD 2008 Annual Meeting, San Juan, Puerto Rico

637 PUBLIC HEALTH SYSTEM STRUCTURE AND ACTIVITIES AS BARRIERS TO PRENATAL CARE FOR PREGNANT WOMEN WHO USE DRUGS AND ALCOHOL

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Aims: Background: Pregnant women who use drugs are more likely to receive little or no prenatal care. However, there is little empirical research about the barriers to prenatal care for this population. **Aims:** The goal of this study was to learn from pregnant women who use alcohol and/or drugs about barriers they face in accessing prenatal care as part of a larger project to develop a community-designed community awareness campaign about prenatal care for pregnant substance-using women. **Methods:** 20 semi-structured interviews and 2 focus groups were conducted with a racially/ethnically diverse sample of low-income pregnant and parenting substance-using (primarily methamphetamine) women in Contra Costa County, CA. **Results:** Many women reported going to the doctor out of concern for the health of their fetuses. This concern extended to fear of the effects of their drug use on their fetuses. The fear sometimes motivated them to seek care; it was also a reason they avoided care. In addition, the women faced many logistical and financial barriers to care, such as lack of transportation and problems obtaining health insurance and doctor's appointments. Drug use interacted with these barriers in a variety of ways. Resolving external barriers was a necessary, but not sufficient, criteria for women to attend prenatal care. Lack of trust in providers was also a barrier. Mistrust included fear of: urine tests, provider judgment, reports to Child Protective Services, and having children removed. **Conclusions:** The ways providers, public health practitioners, and larger systems that serve low-income women interact with pregnant substance users are barriers to care. While there are motivational barriers to care, systems barriers including health information, health insurance, logistics, and mistrust are also significant. **Support:** Graduate Research Training on Alcohol Problems, sponsored by the National Institute on Alcohol Abuse and Alcoholism, T32 AA07240, March of Dimes Community Award

638 GENDER DIFFERENCES IN LIFETIME EXPERIENCES OF INTIMATE PARTNER VIOLENCE AMONG HEROIN USERS IN A 25-YEAR FOLLOW-UP

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Aims: Prior research has indicated that intimate partner violence (IPV) is pervasive among substance abusers. This study examines gender differences in lifetime experiences of IPV, including as both victim and perpetrator, among individuals with a history of heroin use. **Methods:** Subjects were originally sampled from methadone maintenance clinics in California in 1978-81 and are participating in a 25-year follow-up interview. The current interviewed sample (N=301) represents approximately 60% of the original study cohort. This sample consists of 163 (54%) males and 138 (46%) females; 70% are white, 28% are Hispanic, and 2% are African American. Average age at follow-up is 58.9 years for males and 54.9 years for females. Lifetime Victimization and Perpetration Scales were constructed measuring frequency and intensity of IPV; predictors were assessed in multiple linear regression models. **Results:** A majority of both males and females had ever been the victim of IPV (80%, 89%, respectively; $p < .05$) and had ever perpetrated IPV (70%, 69%, respectively; NS). Women were more likely than men to report that IPV was associated with their partner's use of cocaine ($p < .01$), alcohol ($p < .001$), or heroin ($p < .001$), and with their own alcohol use ($p < .05$). In multivariate models, lifetime victimization was positively associated with being female ($p < .001$), 3 or more relationships ($p < .01$), and higher scores on the Lifetime Perpetration Scale ($p < .0001$). Lifetime perpetration of IPV was positively associated with childhood exposure to family conflict ($p < .05$), 2 or more relationships ($p < .05$), parental alcohol or drug problems ($p < .05$), and higher scores on the Lifetime Victimization Scale ($p < .001$). **Conclusions:** Lifetime experiences of IPV as victim and as perpetrator are closely related for both men and women with a history of heroin use. Women are more likely to be victimized and to attribute IPV to their spouse's substance use. Clinical interventions need to address the intertwined nature of IPV that may endure over a lifetime among heroin users. **Support:** Funded by the National Institute on Drug Abuse (RO1-DA015390).

639 CODEINE EFFECTS IN SLEEPY VERSUS ALERT HEALTHY NORMAL SUBJECTS

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Aims: Basal sleepiness-alertness modulates sedating drug effects. Sleepiness produced by severe acute or mild chronic sleep restriction is hyperalgesic, suggesting analgesic effects may also be modulated by sleepiness-alertness. This study compared thermal pain sensitivity in sleepy versus alert healthy normal subjects after codeine 60 mg or placebo. **Methods:** Twelve healthy adults, 18-35 yrs, participated. Each had a 8-hr sleep recording (NPSG) and alertness assessment (MSLT) the following day. All had sleep efficiencies $>85\%$ on their NPSG and 6 had MSLT >8 min and 6 had MSLT <7 min. All served in experiments assessing pain threshold under conditions that included a 8-hr time-in-bed condition with a standard MSLT (1000, 1200, 1400, 1600 hr) and pain assessment conducted the following day with codeine 60 mg or placebo administered at 900 and 1300 hrs. Pain threshold was assessed (AM 1030 and PM 1430 hrs) using a novel radiant heat stimulation method. Finger withdrawal latency (FWL) in sec was measured to 5 different heat intensities randomly presented to the index finger pad of each hand. **Results:** Daily sleep latency (MSLT) in the sleepy group was 4.72 ± 1.83 min and 13.04 ± 4.90 min in the alert group. As hypothesized, decreasing heat intensity (AM: $F=16.63$, $p < .001$; PM: $F=16.85$, $p < .001$), codeine 60 mg (AM: $F=7.05$, $p < .02$; PM: $F=10.21$, $p < .01$), and decreased sleepiness (AM: $F=12.23$, $p < .01$; PM: $F=6.05$, $p < .03$) produced increased FWL (i.e., analgesia). Importantly, there was a Group X Drug interaction (AM: $F=10.37$, $p < .01$; PM: $F=7.51$, $p < .02$) with codeine increasing FWL in the alert group, but not the sleepy group. There were no significant Intensity X Group or Drug interactions. **Conclusions:** These data show the analgesic effects of codeine are diminished by mild chronic sleep restriction. They suggest clinical differences in response to analgesics are partly explained by basal state of sleepiness-alertness and suggest a need to assess how abuse risk is impacted. **Support:** The Fund for Henry Ford Hospital, B10914 awarded to Dr Roehrs

16 640 IMPULSIVITY AND CIGARETTE SMOKING AMONG PREGNANT WOMEN

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Aims: Smoking during pregnancy is a leading preventable cause of poor pregnancy outcomes, but only about 30% of pregnant women quit smoking. The link between impulsivity and smoking during pregnancy is only beginning to be studied. Our group reported that Delay Discounting of money, a measure of impulsivity, in early pregnancy predicts who returns to smoking at 6-months postpartum among women who quit smoking after learning they were pregnant (Yoon et al., 2007). The aim of the present study was to make an initial effort to investigate the association between the Barratt Impulsiveness Scale 11 (BIS-11), a 30-item self-report impulsivity questionnaire, and smoking status among pregnant women enrolled in smoking cessation and relapse prevention treatment. **Methods:** 59 pregnant women completed the BIS-11 during the study-intake assessment. Higher scores on the BIS-11 indicate greater impulsivity. Women also completed questionnaires on demographics, smoking characteristics, the Beck Depression Inventory (BDI), and the Minnesota Nicotine Withdrawal Scale (MNWQ). Women were classified as smokers if they reported smoking in the past 7 days or had a urine cotinine level >80 ng/mL. **Results:** 44 smokers and 15 ex-smokers enrolled in cessation and relapse prevention treatment, respectively. BIS-11 scores at intake were unrelated to smoking status, but BIS-11 subscales correlated significantly ($p < .05$) with demographic and smoking-related variables. Nonplanning-Impulsiveness was negatively correlated with years of education, and Motor-Impulsiveness was negatively correlated with being married. Attentional-Impulsiveness was negatively correlated with cotinine level and positively correlated with BDI scores, while Perseverance was positively correlated with the MNWQ Total score. **Conclusions:** Scores on the BIS-11 were unrelated to smoking status, perhaps due to small sample size in this initial study, but were related to demographics that have been associated with cessation during pregnancy, and to smoking variables that are relevant to sustaining abstinence. Further investigation of the BIS-11 in this population of smokers is warranted. **Support:** NIDA grants T32 DA07242 and RO1 DA14028

CPDD 2008 Annual Meeting, San Juan, Puerto Rico

641 AN ASSESSMENT OF SUBSTANCE ABUSE TRAINING AND TECHNICAL ASSISTANCE NEEDS IN FRONTIER STATES: IMPLICATIONS FOR THE ADOPTION OF EVIDENCE-BASED PRACTICES

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Aims: The purpose of this project was to assess the training and technical assistance needs of substance abuse and allied health professionals in the six-state Mountain West Addiction Technology Transfer Center (MWATTC) region, and to examine their attitudes and level of interest in adopting specific evidence-based practices (EBPs). The MWATTC is a predominantly frontier region (defined as having < 7 people/square mile). The remote nature of frontier states influences the delivery of training and technical assistance activities, thereby emphasizing the importance of obtaining stakeholder input in order to effectively implement services. Drawing on previous work (e.g., Gifford, 2006; Forman, et al., 2002; McGovern, et al., 2004; & McCarty, et al., 2007), a web-based needs assessment survey was developed. Using a snowball technique, the initial recruitment email containing the link to the survey website was sent to MWATTC stakeholders. Each of those stakeholders also was asked to forward the survey link to five additional individuals in their state, thereby capitalizing on stakeholders' knowledge of other sources of information not readily available to the MWATTC and indigenous to each state (Bamberger, et al., 2006). Participants included funders, treatment providers, addiction educators, licensing/certification board members, recovery support groups, treatment providers, substance abuse treatment purchasers, and NIDA researchers. **Conclusions:** Information obtained from the needs assessment was useful in planning and implementing stakeholder-driven training and technical assistance activities throughout the MWATTC region. Providing the opportunity for stakeholder input increased the likelihood of activities being relevant to participants, thereby enhancing event attendance and attitudes towards implementing EBPs. **Support:** Supported, in part, by the Substance Abuse and Mental Health Services Administration, U.S. Department of Health and Human Services. 2TI013419-06

642 PASSIVE IMMUNIZATION WITH A NICOTINE-SPECIFIC MONOCLONAL ANTIBODY DECREASES BRAIN NICOTINE LEVELS BUT DOES NOT PRECIPITATE WITHDRAWAL IN NICOTINE-DEPENDENT RATS

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Aims: Vaccination against nicotine is under investigation as a treatment for tobacco dependence. Passive immunization with nicotine-specific antibodies (NicAbs) represents a complementary strategy to vaccination. A potential adverse effect of passive immunization in nicotine-dependent individuals is that it may lead to a rapid reduction in brain nicotine levels and trigger withdrawal. The current study examined to what extent passive immunization with the nicotine-specific monoclonal antibody Nic311 reduces brain nicotine concentrations and precipitates nicotine withdrawal in rats during chronic nicotine infusion. **Methods:** Rats received nicotine 3.2 mg/kg/d s.c for 2 days to study nicotine distribution to brain, and for 7 days to assess withdrawal by brain stimulation reward and somatic signs. **Results:** Nic311 at doses of 30, 80 and 240 mg/kg reduced brain nicotine concentrations to 55, 17 and 3% that of controls when measured 60 min after Nic311 dosing. The reduction in brain nicotine concentration was rapid and persisted over at least 180 minutes, with reductions of 50, 17, and 43% that of controls at 15, 60 and 180 min after 80 mg/kg Nic311. Nic311 at doses of 80 mg/kg or 240 mg/kg did not precipitate nicotine withdrawal compared to saline controls as measured by elevation in the brain reward threshold or somatic signs assessed over 24 hours. Mecamylamine alone precipitated withdrawal. **Conclusions:** These data show that a substantial, but not complete, acute reduction in brain nicotine concentration via immunization does not precipitate nicotine withdrawal in rats. Since the doses of Nic311 used were quite high, these results suggest that precipitation of withdrawal is not likely to complicate the use of Nic311 to treat nicotine addiction. **Support:** DA10714, F31-DA021946, F32-DA021935, T32-DA07097

643 A RANDOMIZED CONTROLLED TRIAL OF A MONEY-MANAGEMENT-BASED INTERVENTION TARGETING SUBSTANCE USE

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Aims: Money management has been implemented, often in bundled interventions, to counteract spending of public support checks and other funds on drugs and alcohol. We conducted the first randomized controlled trial of a voluntary money management based program as an adjunctive treatment for patients in treatment for mental illness and/or substance abuse disorders. In the Advisor-Teller Money Manager (ATM) intervention, a money manager stores patient checkbooks and bank cards, trains patients to manage their own funds, and links spending to activities that further treatment goals. **Methods:** Eighty-five veterans with recent use of alcohol or cocaine were randomly assigned to 36 weeks of ATM or a control intervention (completion and review of a financial workbook). **Results:** Veterans assigned to ATM attended significantly more therapy sessions than those assigned to the control therapy (mean of 20.6 vs. 8.1) and rated ATM as more helpful with their budgeting and money management. Altogether, 75% of veterans assigned to ATM gave their checkbook to their money manager to hold. Although participants assigned to ATM did not show significantly greater improvement over time on the primary outcomes (self-reported abstinence from alcohol and cocaine and negative urine tests for cocaine metabolite), they did reduce their ASI drug and alcohol use composite scale scores more rapidly than control participants. High rates of abstinence in both groups created a ceiling effect limiting the power to detect improved abstinence rates. **Conclusions:** In this relatively small trial, ATM showed promise in engaging patients, improving their money management and improving some substance abuse outcomes. **Support:** This research was supported in part by MHI 02-001, R01-DA012952, K02-DA017277 (MIR), the VISN 1 Mental Illness Research Education and Clinical Care Center (MIRECC) and P50-DA09241.

644 A PROTOCOL TO USE BUPRENORPHINE FOR CHRONIC PAIN IN PATIENTS AT RISK FOR DRUG ABUSE

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Aims: Prescribing opioid analgesics for chronic non-malignant pain is controversial due to concerns about long-term efficacy, safety, and addiction. Buprenorphine (Bup), a partial mu-agonist, may be an attractive option for long term opioid analgesic therapy because, compared to full mu-agonists, it has a high safety profile, a low level of physical dependence and reward, and mild withdrawal symptoms on cessation. The study's aim is to develop a protocol for the use of Bup to treat chronic pain. **Methods:** Through a clinical consensus process experts in addiction and pain developed guidelines for the use of Bup for patients with chronic pain who also have drug abuse histories or aberrant drug-related behavior. Key decision points were developed, 4 teleconferences were held, a website was set up to disseminate relevant literature and conference transcripts and summaries; consensus decisions were finally distilled into a 1 page algorithm and a 4 page narrative. **Results:** The guidelines developed induced chronic pain patients on to Bup/naloxone using an in-office titrated dosing schedule ranging from 2 to 20 mg. Patients would be given a prescription for a nighttime dose plus rescue doses. During the stabilization period scheduled doses would be limited to ≤ 12 mg q8h. The guidelines also address monitoring, side effects, increased pain after initial good response to Bup, and methods to stop therapy or switch to a pure mu agonist. The guidelines were favorably rated (3.8 on a 1-5 pt. scale) by 2 outside experts in pain and addiction medicine for clarity, utility and ease of implementation in a clinical setting. **Conclusions:** Clinical pilot testing of these guidelines is scheduled to start in early 2008. If the results are successful, these guidelines would promote the safe and effective use of Bup for select chronic pain patients. **Support:** NIDA; R21 DA022675

645 METHAMPHETAMINE USE AS A PREDICTOR OF A SEXUALLY TRANSMITTED DISEASE CO-INFECTION AMONG HIV POSITIVE MEN WHO HAVE SEX WITH MEN

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Aims: HIV positive persons who are co-infected with a sexually transmitted disease (STD) may fuel sustained transmission of HIV. We predict that HIV+ men who have sex with men (MSM) who reported methamphetamine (meth) use or other substance use were more likely to be co-infected with an STD compared with HIV+ non-drug users. **Methods:** Characteristics of recent substance use, demographics and sexual risk behaviors of HIV+ persons who have had two or more STD infections were compared with HIV+ persons who had one infection and HIV+ persons who have had no STD infection during any medical evaluation visit at the Los Angeles Gay & Lesbian Center's STD clinic from 1998-2007. Clients' self-reported their HIV status; laboratory testing confirmed STD infections. STD infection was classified as none, one, or two or more STD infections over the 10 year time period. STDs included urethral and rectal chlamydia (CT) and gonorrhea (GC), oral GC, and early syphilis. Reported sexual behavior characteristics were associated with the most recent STD diagnosis. **Results:** Of the 9762 unduplicated MSM clients with complete behavioral data, 626 (6%) reported HIV positive status. HIV + meth users (30% of reported total HIV+ sample) were more likely to have any infection than HIV+ non-meth users (49% vs 36%), more likely to have two or more infections (19% vs. 13%) or one infection (30% vs. 23%) ($P<0.01$). Other substance users (nitrites, ecstasy, ketamine, Viagra) in separate analyses were also more likely to have two or more infections or one infection compared with non-substance users ($P<0.05$). Of the sample, 30% reported meth use, 26% nitrites, 21% Viagra, 12% ecstasy and 6% ketamine. **Conclusions:** In a large group of HIV+ men, meth use significantly predicted one, two or more infections with an STD. **Support:** Our data highlights the importance of targeting meth users and other substance users in STI settings.

646 ALPHA-5/GABA(A) RECEPTOR MECHANISMS AND THE REINFORCING EFFECTS OF ETHANOL IN MONKEYS

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Aims: Ethanol-induced enhancement of GABA neurotransmission at GABA(A) receptors is an important mechanism underlying the abuse-related effects of ethanol in humans. GABA(A) receptors containing the alpha-5 subunit appear to play an important role in the behavioral effects of ethanol. This study investigated the role of alpha-5/GABA(A) receptors in the reinforcing effects of ethanol. **Methods:** Rhesus monkeys were trained to orally self-administer ethanol under a fixed-ratio schedule and limited daily access conditions. **Results:** The effects of a full range of concentrations of ethanol were evaluated for their ability to maintain self-administration above water levels. Concentrations of 2-6% ethanol reliably maintained self-administration above water levels (ethanol intake: 440-560 mls, 1-2.5 g/kg. Monkeys were then pretreated with the alpha-5/GABA(A) receptor agonist QH-II-066 or the alpha-5/GABA(A) receptor inverse agonist L-655,708 before daily sessions in which a 2% ethanol concentration was available for self-administration. Pretreatment with low, but not high, doses of QH-II-066 resulted in a small but significant increase in ethanol self-administration; whereas pretreatment with L-655,708 attenuated ethanol self-administration. Finally, maximally effective doses of QH-II-066 and L-655,708 were given as pretreatments before daily sessions in which a wider range of ethanol concentrations were available for self-administration. Pretreatment with QH-II-066 resulted in increased ethanol self-administration at all concentrations and a leftward shift in the ascending limb of the ethanol concentration-response function. Pretreatment with L-655,708 decreased self-administration of 1 and 2% ethanol but had no effect on self-administration of 4% ethanol, producing a rightward shift in the ascending limb of the ethanol concentration-response function. **Conclusions:** These findings suggest a key role for alpha-5/GABA(A) receptors in the reinforcing effects of ethanol. **Support:** Supported by: AA16179, MH46851, RR00168

647 THE RELATIONSHIP BETWEEN STRESS, COPING, SUBSTANCE ABUSE AND HIV-RISK BEHAVIORS AMONG AFRICAN AMERICAN WOMEN

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Aims: The aim of this literature review is to examine the variables of stress and coping as moderators of HIV risk behaviors among substance abusing African American women. **Overview:** The HIV/AIDS epidemic has disproportionately affected African American women and has signaled an alarm in the health disparities research community. Numerous researchers have examined various social, cultural, and structural factors in order to understand why African American women bear such a disproportionate burden in rates of HIV/AIDS infection. Overall, the factors that seem to place African American women at the greatest risk for HIV/AIDS include injection drug use as well as high-risk sexual behaviors with risky partners who also abuse substances themselves. An emerging body of literature have begun to examine the conceptual area of stress and coping in order to understand and reduce the heightened risk for HIV among African American women. This review will explore the following questions: 1) What is the relationship between coping, substance abuse, and HIV risk behaviors among African American women? and 2) What interventions are available to help modify the coping resources of substance-abusing African American women? **Conclusions:** Studies suggest that African American women may be more likely to engage in emotion focused or avoidant coping such as drug use and denial as a way to manage chronic life stressors such as poverty and discrimination. These coping strategies, however, place them at heightened risk for HIV infection. **Implications for prevention and intervention protocols** are discussed. **Support:** None.

648 COCAINE EFFECTS DURING D-AMPHETAMINE MAINTENANCE

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Aims: A pharmacotherapy for cocaine abuse has been identified. Identifying a pharmacotherapy for cocaine abuse has been limited partly by uncertainty regarding the predictive validity of human laboratory methods used to screen novel compounds. Agonist therapies like d-amphetamine are clinically effective for cocaine abuse. These clinical findings can now be used as a reference to determine the sensitivity and predictive validity of procedures used to screen putative pharmacotherapies for cocaine abuse. This study determined the behavioral effects of cocaine during d-amphetamine maintenance. We predicted d-amphetamine would attenuate the behavioral effects of cocaine. We also predicted cocaine would be well tolerated during d-amphetamine maintenance. **Methods:** Four d-amphetamine maintenance conditions were completed in fixed order (0, 15, 30, 0 mg/day). After 3-5 days of d-amphetamine maintenance, volunteers were administered ascending doses of cocaine (4, 20, 40, 60 mg, IN) within a single session. Cocaine doses were separated by 90 minutes. Repeated measures analysis of variance was used to analyze the data. Seven volunteers completed the study. **Results:** Cocaine alone (i.e., during placebo d-amphetamine maintenance) produced prototypical behavioral (e.g., increased crossover points on a Multiple-Choice Procedure and subject ratings of Willing to Take Again) and cardiovascular effects (e.g., increased heart rate). The cardiovascular effects of cocaine alone were not clinically significant. d-Amphetamine attenuated the reinforcing effects of cocaine as measured by the Multiple-Choice Procedure. During maintenance on the highest d-amphetamine dose, the cardiovascular effects of cocaine were larger than observed during placebo maintenance. These effects were not clinically significant and no adverse events were observed. **Conclusions:** These results are concordant with those of clinical trials and suggest agonist replacement therapy may be a viable strategy for managing cocaine abuse. **Support:** NIDA R01DA021155

649 VALIDATION AND COMPARISON OF SCREENING TOOLS FOR MENTAL DISORDERS IN SUBSTANCE ABUSERS

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Aims: Few screening tools for mental disorders have been properly validated in the substance abuse treatment population. In addition, the various measures that are available differ widely in terms of comprehensiveness, administration time, and contribution to subsequent assessment and treatment planning. We sought to validate and compare the performance of three screening tools for mental disorders (PDSQ, K10, and GAIN-SS), in a heterogeneous substance abuse treatment population. **Methods:** 115 clients were recruited from three large multimodal treatment centres in Ontario Canada (69.6% male; 30.4% female). Clients completed the selected screening tools followed by independent same-day structured clinical interview (SCID) to verify research diagnosis. Breathalyzer, urine screen and self-reported use were used to control for possible effects of intoxication and withdrawal. Performance of each measure against the gold standard SCID was compared using ROC curves. **Results:** The sample was heterogeneous in terms of drug dependence, for example, alcohol 63.5%; cocaine, 52.2%, cannabis 27.8% and opioids 16.5%. The prevalence of depressive disorder was 51.3% and for anxiety disorder 51.3%. For anxiety disorder, ROC's were .774, .663, and .626, for the PDSQ, GAIN-SS and the K10, respectively. For depressive disorder, the ROC's were marginally lower at .629, .629, and .588. **Conclusions:** All three screening measures fell short of validation data derived from non-treatment populations. The PDSQ performed best for anxiety disorders but no measure was a top performer for depression. Heavy drug use may result in mild symptoms, or sub-threshold groups of symptoms, thus blurring the boundaries across disorders. In other words, as the distinction between cases and non-cases is less clear, the accuracy of any screening tool tends to decrease. More work is needed to develop and test screening tools for these and other mental disorders in the substance abuse treatment population. **Support:** Canadian Institutes for Health Research

650 THE ACUTE EFFECTS OF TRIFLUOROMETHYLPHENYLPIPERAZINE (TFMPP) ADMINISTRATION ON THE POFFENBERGER PARADIGM OF INTERHEMISPHERIC TRANSFER TIME

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Aims: TFMPP is a designer drug reported to have psychoactive effects in humans similar to dexamphetamine and low dose lysergic acid diethylamide (LSD). TFMPP is often combined with another piperazine analogue benzylpiperazine (BZP); they are the active constituents of Party Pills. They have become popular alternatives to MDMA (Ecstasy) and other amphetamines. Although 150,000 doses/month of Party Pills are sold in New Zealand, there is little information available describing the acute effects of these drugs. A double-blind, placebo-controlled study using electroencephalography (EEG) was carried out to investigate the effects of TFMPP on interhemispheric transfer time (IHTT) using the Poffenberger Paradigm. **Methods:** Healthy, right-handed males (age: 25±5.6 years) were given placebo (n=15) or TFMPP (0.94mg/kg, oral, n=15) and tested both pre- and 2 hr post-drug administration. High-density EEG recordings (128 leads) were used to record event-related potentials (ERPs). The N160 component was defined as the biggest negative peak in the range between 140- 220 ms after the event. The IHTTs were analysed by deducting the N160 latency obtained in the contralateral hemisphere from the N160 latency obtained in the hemisphere ipsilateral to stimulus signal. IHTTs were then analysed using three-way repeated measures ANOVA with the following factors: visual field (left, right), hemisphere (left, right), and time (before, after). **Results:** Two hours after TFMPP was administered the absolute N160 latency appeared earlier in the stimulated hemisphere, suggesting earlier registration of visual stimuli. In addition there was a speeding of IHTT. No statistically significant changes were observed in the placebo group. **Conclusions:** This study is the first to investigate the effect of TFMPP on IHTT. The results suggest that TFMPP speeds cortical registration of visual stimuli and may enhance interhemispheric communication in the male brain. **Support:** T Wouldes

651 EVALUATION OF GENDER DIFFERENCES IN SUBJECTIVE CRAVING AND STRESS REACTIONS TO SMOKING AND STRESS CUES IN NICOTINE-DEPENDENT INDIVIDUALS

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Aims: Relative to male smokers, female smokers may be less successful when attempting to quit smoking. While this difference is likely to be multiply determined, one potential contributor is differential craving and stress reactivity to smoking-related and stress-related cues. **Methods:** As part of a recently completed investigation of the effects of menstrual cycle status on smoking-related craving and smoking cessation outcome, the present human laboratory study involved a session of controlled exposure to four types of cues: 1) in vivo smoking cues, 2) in vivo neutral control cues, 3) imagery-based stressful cues, and 4) relaxing imagery control cues. Both before and after each cue exposure, female (n=37) and male (n=53) nicotine dependent participants provided subjective reports of smoking-related craving and affective reactions. **Results:** Results indicated that participants reported greater craving and arousal in response to smoking vs. neutral cues and greater craving, arousal, stress and unpleasantness in response to the stressful vs. relaxing imagery cues. A diminished feeling of control was also reported in response to the stressful vs. relaxing imagery cues. With respect to gender differences, females reported greater stress (p=0.02) and greater unpleasant affect (p=0.01) in response to stressful imagery cues. There were no gender differences in responses to smoking cues. It is noteworthy that the identified gender differences cannot be attributed to variation in menstrual cycle phase (i.e., follicular vs. luteal) since the menstrual phase status of female participants was objectively verified and determined to be uncorrelated with the craving and affect measures. **Conclusions:** Thus, while this study did not yield evidence of gender differences in responsivity to smoking cues, it did identify gender as a potential moderator of stress reactivity to stress-eliciting cues. **Support:** Study funded by NIDA 1P50 DA16511. Funding support also provided by GCRC grant RR01070. * Corresponding author: Michael E. Saladin, Ph.D.: (843) 792-5306; saladinm@musc.edu.

652 PREDICTORS OF CONDOM USE AMONG DRUG-ABUSING WOMEN INVOLVED IN SEX TRADE IN BALTIMORE, MD

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Aims: Despite the considerable progress made by HIV prevention efforts, the HIV epidemic continues to be a major challenge to public health, particularly in urban areas such as Baltimore. Recent work suggests that the exchange of sex for money or drugs may be an important route of HIV infection through unsafe sex practices. However, few studies have explored this association. In this study, the researchers investigated predictors for condom use by women involved in sex trade practices. **Methods:** We used baseline data from a sub-sample of 254 drug abusing women from the Baltimore area enrolled in the Neurobehavioral Study of HIV and Hepatitis to assess the relation between sex trade and the likelihood of using a condom. **Results:** Among the 254 women who reported heterosexual sex during their lifetime, 91 (36%) reported exchanging sex for money or drugs and 163 (64%) reported sex only with casual or steady partners that did not involve sex trade. Among women who have traded sex, the prevalence of using a condom less than three-quarters of the time with their sex-trade partners was 42%. Among women who have not traded sex, 77% reported using a condom less than three-quarters of the time with their casual or steady partners. Older age, homelessness, earlier age of first sex, and problematic alcohol use were associated with a lower likelihood of condom use among women who have not traded sex. Only older age was associated with a lower likelihood of condom use among women who have traded sex. **Conclusions:** The results of these analyses suggest that Baltimore women who do not practice sex trade continue to be at considerable risk for HIV contraction and other blood borne pathogens. Older age seems to be a common predictor for a lower likelihood of condom use among the entire sample of women. Although increasing HIV prevention efforts have been made to specifically target drug abusing women in sex trade, women not involved in sex trade continue to require a significant amount of attention to address their high risk sexual behavior. **Support:** Research Support provided by R01 DA14498(NIDA)

653 MALE-FEMALE DIFFERENCES IN TOBACCO DEPENDENCE: COLOMBIA, 2003

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Aims: Our research group is probing into male-female (M-F) differences in manifestations of tobacco dependence (TD) among smokers found within community probability sample surveys completed as part of the WHO World Mental Health Surveys Initiative. In this report, we focus upon epidemiological data from Colombia. **Methods:** Data are from an epidemiological survey completed in Colombia during 2003 (n=4426), with a diagnostic assessment based on 7 items designed to tap DSM-IV nicotine dependence constructs. An 'analyze, then summarize' approach was taken such that M-F differences are disclosed with respect to TD's individual clinical features. **Results:** Estimated occurrence of tobacco dependence was numerically smaller among active male smokers (3%, as compared to female smokers 6%); this wasn't a statistically robust M-F variation (p=0.05). Profiles of individual clinical features showed little evidence of M-F differences. For example, there was a statistically insignificant tendency for female smokers to have experienced smoking 'more often than intended' (p=0.05) and to have experienced withdrawal (p=0.05). **Conclusions:** In Colombia, TD and the clinical features of TD are just as likely to occur among female smokers as among male smokers. Potential limitations of the work include the possibility of male-female differences in response validity to the DSM-IV TD items, a topic being explored in item response theory (IRT) analyses now underway. **Support:** NIDA Awards R01DA016558 & K05DA015799 & see WMH web site.

654 ADVANTAGE OF AN INTEGRATED INDIVIDUAL PSYCHOTHERAPY OVER TREATMENT-AS-USUAL FOR COMORBID BIPOLAR AND ADDICTIVE DISORDERS: RESULTS FROM A RANDOMIZED PILOT STUDY

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Aims: Evidence based individual psychotherapies addressing comorbid severe psychopathology and addictive disorders are very scarce. The aim of this randomized pilot study was to test the utility of Early Recovery Counseling (ERC), a newly developed individual therapy for comorbid bipolar and addictive disorders. This model integrates counseling methods developed for alcoholism and other addictions, such as motivational enhancement therapy and relapse prevention, with therapies proven efficacious in bipolar disorder. **Methods:** ERC was compared to Treatment As Usual (TAU) 12-step facilitation therapy in a randomized pilot study. The sample consisted of thirty four patients with SCID/DSM-IV diagnosis of bipolar disorder and alcoholism and other addictions. Patients were randomized to receive 10 sessions over 12 weeks of either ERC or TAU. Both therapies were manual-driven. Patients were assessed by an independent study staff every week for 12 weeks. **Results:** ERC showed significant advantage over TAU on change in the number of drinks per drinking day ($R^2 = .136$, $b_1 = -.434$, $p=.01$) and in number of drinks per heavy drinking days ($R^2 = .139$, $b_1 = -.422$, $p=.009$) and weekly number of drinks ($R^2 = .098$, $b_1 = -.069$, $p=.03$). There was also a similar, but not significant pattern of change in the frequency of alcohol use. There was also a significant advantage of ERC over TAU on change in depressive symptoms ($R^2 = .124$, $b_1 = -.611$, $p=.014$). **Conclusions:** Integrated individual therapy appears to be helpful for patients with bipolar disorder and addictive disorder during the early phases of recovery. Given the sample size and the limitations of a pilot study, these results are encouraging and call for more definite studies. **Support:** Supported by USPHS Grants R21 AA 014396 and in part by R01 AA015385; R01 AA11929; R01 DA019992; R01 DA-019142, R01AA13370, NIDA CTN; & VA MIRECC grant.

655 IDENTIFICATION OF A "NEUTRAL" MU OPIOID RECEPTOR ANTAGONIST, LTC-274 FOR PHARMACOLOGICAL ANALYSES

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Aims: This study tested the hypothesis that the Ke value of an antagonist is the same whether tested with an agonist or inverse agonist. **Methods:** CHO cells expressing the cloned human mu receptor (hMOR-CHO cells) were incubated for 20 hr with medium (control) or 10 μ M herkinorin (HERK). HERK-treatment generates constitutively active mu receptors, enhancing the ability to detect inverse agonists. [³⁵S]GTP- γ -S ("GTP") assays were conducted using established methods. **Results:** Initial experiments identified several highly efficacious inverse mu agonists. KC-2-009 was chosen as the first compound to study. We screened 17 mu antagonist compounds in both control- and HERK-treated cells. Only one antagonist (LTC-274, (-)-3-Cyclopropylmethyl-2,3,4,4a,5,6,7,7a-octahydro-1H-benzofuro[3,2-e]isoquinolin-9-ol) was a potent and neutral antagonist. HERK-treatment enhanced inverse agonist activity. We determined the effect of LTC-274 (1 and 5 nM) on DAMGO- and KC-2-009-dose response curves in control cells. The EC50 of KC-2-009 was 9.8 nM and the calculated Ke values of LTC-274 were 0.17 nM and 0.59 nM at the 1 nM and 5 nM concentrations, respectively. The EC50 of DAMGO was 13 nM and the calculated Ke values of LTC-274 were 0.32 nM and 0.32 nM at the 1 nM and 5 nM concentrations, respectively. HERK-treatment increased the EC50 of DAMGO to 22 nM, and did not significantly change the Ke value (0.37 nM) determined with 1 nM LTC-274. HERK-treatment decreased the EC50 of KC-2-009 to 4.9 nM, and did not significantly change the Ke value (0.24 nM) determined with 1 nM LTC-274. **Conclusions:** LTC-274 may prove to be a useful neutral antagonist for pharmacological studies. In control cells, the Ke value of LTC-274 determined with KC-2-009 varies with the test dose of LTC-274 used and differs from the Ke value determined with an agonist. Future experiments will determine if these non-classical results occur with other inverse agonists. **Support:** Intramural Research Program, NIDA, NIH, DHHS

656 PREGNANT WOMEN IN METHADONE MAINTENANCE: TREATMENT ENGAGEMENT AND ILLICIT DRUG USE

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Aims: Gender focused treatment (e.g., separate groups for men and women, interpersonally-focused treatment, treatment of psychiatric comorbidity, providing childcare) can significantly increase the effectiveness of methadone treatment for women. Little research has compared the presenting characteristics, treatment engagement, and treatment outcome in pregnant versus non-pregnant women. The aim of this study was to assess differences in demographics, drug use patterns, treatment engagement, and treatment outcome between pregnant women who are receiving specialty services (group sessions geared toward pregnant substance abusers) and non-pregnant women who are receiving treatment as usual (TAU). **Methods:** Data were collected from medical records of all women entering a methadone maintenance treatment center from 12/2006 to 10/2007. Pregnant women who participated in specialty programming (n=30) were compared with non-pregnant women (n=31) in TAU on demographics, drug use at admission, percentage of negative urine drug screens across treatment, and number of sessions (individual and group) attended. **Results:** Results indicated that, compared to non-pregnant women, pregnant women in this methadone program were younger, less likely to be using opiates and cocaine at admission, and more likely to have opiate- and cocaine-negative urine drug screens during treatment. However there were no significant group differences in rates of attendance at individual treatment or weekly group sessions. **Conclusions:** These results suggest that pregnant women entering methadone maintenance treatment may present with different characteristics and needs that must be addressed to provide the most effective treatment. As pregnant women did not attend sessions with greater frequency than non-pregnant women, it may be that provision of treatment focused on issues relevant to pregnant substance abusers in combination with the development of a social support network with women experiencing similar challenges contributes to better treatment outcome for pregnant women. **Support:** Supported by Joe Young, Sr. funds from the State of Michigan.

657 TEMPERAMENT AND CHARACTER INVENTORY DIMENSIONS CHANGE DURING A PLACEBO-CONTROLLED TRIAL OF MIRTAZAPINE FOR PATIENTS WITH COCAINE DEPENDENCE AND DEPRESSION

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Aims: The Temperament and Character Inventory (TCI) by Cloninger (Cloninger et al., 1994) posits that personality is an aggregate of largely inherited (temperament) and acquired (character) dimensions. Temperament dimensions include Novelty Seeking (NS), Harm Avoidance (HA), Reward Dependence (RD), Persistence (P); character dimensions include Self-Directedness (SD), Cooperativeness (C), and Self-Transcendence (ST). Changes in the TCI were assessed in an 8-week, double-blind, placebo controlled trial of the noradrenergic and serotonin enhancing antidepressant mirtazapine (MIT). **Methods:** Forty-six patients (38 men; 8 women) meeting DSM-IV criteria for major depression or dysthymia and cocaine dependence have enrolled thus far. Prior to medication randomization, patients participate in a 2-week behavioral lead-in during which they earn vouchers for abstinence and engage in relapse prevention therapy. Following lead-in, patients are randomized to MIT 60 mg vs. placebo, stratified by mood (dep vs. non-dep) and cocaine status (abst. vs. non-abst). Patients meet weekly with a therapist and a psychiatrist for depression and drug use ratings. The trial is ongoing and remains under double-blind. Twenty-one patients (18 males; 3 females) completed the TCI at week 0 and week 8. **Results:** Paired-samples t-tests were used to compare TCI scores. At week 8 patients scored significantly lower on HA ($t(20)=2.89$, $p<.01$) and NS ($t(20)=2.32$, $p<.05$); and scored significantly higher on SD ($t(20)=-2.52$, $p=.02$). There was no evidence of a relationship between the TCI and cocaine-use outcome, although results are preliminary. **Conclusions:** Treatment in this trial appears to change temperament and character dimensions. Future analysis will seek to understand how this treatment produces positive outcomes by observing which modality of treatment impacts on specific dimensions of the TCI. **Support:** Supported by NIDA grant P50-DA009236 to Dr. Herbert D. Kleber.

658 PRENATAL COCAINE EXPOSURE ALTERS DEFAULT MODE AND EMOTIONAL NETWORK BRAIN ACTIVITY: FUNCTIONAL AND RESTING STATE MRI EVIDENCE

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Aims: Prenatal cocaine exposure (PCE) is associated with arousal dysregulation (Mayes, L. 2002, Bendersky, et al. 1998), which also may be reflected in altered interaction between different streams of information processing observable via neuroimaging. Default mode and emotional arousal are two common brain activities that compete with high level cognitive activity for attentional resources. In this study, the effect of PCE on default mode and emotional arousal responses were examined with resting and functional MRI. **Methods:** Eleven control (age 13 ± 1 , 5M6F) and eleven PCE (age 13 ± 0.9 , 8M3F) volunteers were scanned with a 3T Siemens scanner. In the resting MRI condition, participants were instructed to simply gaze at a fixation cross. In the functional MRI task, participants were given a 2x2 working memory paradigm requiring them to respond either when "RR" was displayed (0-back condition) or when a displayed letter pair matched a previous pair (1-back condition). Distracting pictures shown between the memory task slides evoked emotion responses. Imaging analysis, performed using AFNI (<http://afni.nimh.nih.gov>), involved whole brain cross-correlation analysis for the resting MRI and multiple regression analysis for the functional MRI. Statistical significance was determined as $p<0.05$ per voxel for brain activation difference maps. **Results:** In the resting state MRI, PCE participants had stronger brain connectivity in both the default mode and emotion network as compared to the controls. Similarly, in the functional MRI, default mode activity (signal decrease with higher memory load) and emotion-associated amygdala activity were both higher in the PCE subjects. **Conclusions:** PCE subjects demonstrated a higher resting arousal as compared to controls. When challenged by increased cognitive demand, they also appear to maintain higher activation and show less ability to efficiently allocate and adjust mental processing resources. **Support:** GA Research Alliance, NIH grant RO1 DA17795

659 ASPD AND DISTRESS TOLERANCE: THE ROLE OF PSYTOPATHIC TRAITS IN 16 660 SUBSTANCE USE TREATMENT-SEEKING SAMPLE

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Aims: The co-occurrence of Antisocial Personality Disorder (ASPD) among substance dependent individuals is related to a variety of negative outcomes (e.g., relationship problems, poor substance use treatment response). As one possible mechanism, the DSM-IV (APA, 1994) indicates that individuals with ASPD have low tolerance for frustration. A study investigating the relationship between ASPD and distress tolerance (DT) indicated that ASPD was related to low DT, indexed as low persistence on psychologically stressful computer tasks. The interpretation of this finding is limited given the lack of attention to co-occurring psychopathy among individuals with ASPD. Indeed, callous and unemotional (CU) traits, which are hallmarks of psychopathy, actually manifest in emotional hypo-reactivity, as opposed to hyper-reactivity, which might suggest greater distress tolerance among individuals with ASPD and high levels of CU as opposed to lower levels of CU. Thus, the goal of the current study was to replicate previous work and extend it by testing the counterintuitive hypothesis that CU traits would serve as a protective factor in the relationship between ASPD and DT, thereby resulting in the greatest deficits in DT among those with ASPD and low CU traits. **Methods:** To test these relationships, we assessed 100 individuals (M age = 42; 89% African American) receiving residential treatment for substance dependence. **Results:** Regression analyses indicated unique contributions of ASPD ($sr^2=.04$, $p<.05$) and CU traits ($sr^2=.04$, $p<.05$) to DT, with ASPD associated with low DT and high CU traits associated with high DT. **Conclusions:** These results suggest that while the hyperarousal characteristic of ASPD is associated with low DT, the hypoarousal characteristic of CU traits actually is associated with higher DT, suggesting that DT problems are of greatest concern among those ASPD and low levels of CU traits. Studies of this kind may assist in highlighting potential behavioral mechanisms to target during substance use treatment in individuals with different profiles of ASPD. **Support:** DA R01 19405

660 CHANGES IN ADDICTION SEVERITY IN AN OPEN TRIAL OF LONG-ACTING INJECTABLE 16 RISPERIDONE FOR METHAMPHETAMINE DEPENDENCE

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Aims: We tested acceptability and tolerability of long acting injectable (LAI) risperidone for methamphetamine (MA) dependence in an open-label trial, hypothesizing that subjects would reduce MA use and addiction severity. **Methods:** MA dependent subjects ($n=34$) entered a 7 day open-label run-in with oral risperidone aiming for a minimum dose of 2 mg q hs. Subjects who tolerated oral risperidone ($n=22$) began LAI risperidone 25 mg I.M. with subsequent injections q 2 weeks to a total of 4 injections. Subjects remained on oral risperidone for 3 weeks after initial injection. Subjects were offered 8 weekly sessions of relapse prevention counseling. Assessments included the Addiction Severity Index (ASI), timeline follow-back interview for substance use, and a neuropsychological battery. **Results:** Twelve subjects received all 4 injections, 6 received 1, 3 received 2, and 1 received 3. Mean days per week of MA use was 4.1 ($SD=1.9$) at baseline and 1.0 ($SD=1.2$) while receiving risperidone, with use decreasing from baseline through week 8 ($\beta=-.27$; 95% CI: $-.38, -.16$; $p<.001$). Mean week 6 risperidone+9-OH risperidone plasma levels for subjects abstinent from MA from weeks 5-8 ($n=7$, 63.6%) were 18.8 ng/ml ($SD=6.6$) compared to 12.3 ($SD=4.0$) for those not abstinent ($n=4$; $p=.075$). After adjusting for age, drug ($\beta=-.015$; 95% CI: $-.021, -.009$; $p<.001$), medical ($\beta=-.032$; 95% CI: $-.060, -.003$; $p=0.030$), and family ($\beta=-.022$; 95% CI: $-.037, -.008$; $p=0.003$) ASI composite scores decreased over 8-weeks. The psychiatric composite was significantly lower at week 4 ($\beta=-.135$; 95% CI: $-.242, -.029$; $p=0.013$) but not week 8. Verbal memory improved at week 4 compared to baseline ($p<.05$). **Conclusions:** Within the limitations of an open trial with a high dropout rate, LAI risperidone appears to reduce MA use, reduce addiction severity, and improve verbal memory. It deserves further study in controlled trials. **Support:** Ortho-McNeil Janssen Scientific Affairs, LLC

661 MARIJUANA USE, IMPULSIVITY, COPING AND GENDER IN ADOLESCENTS

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Aims: Impulsivity and coping contribute to the initiation and maintenance of substance use by adolescents. Impulsive adolescents are more likely to initiate drug use, and they are at higher risk to develop problem use or substance use disorders (Elkins et al., 2007). Also, adolescents who cope behaviorally are at lower risk for substance use, whereas adolescents who tend to cope angrily or who tend to become helpless are at greater risk (Wills et al., 2001). The interaction of impulsivity and coping style on adolescent substance use, however, is understudied, as is the influence of gender on these variables. This research aimed to examine the relationship of these variables to adolescent marijuana use. **Methods:** We used data from 998 high school students who completed a survey on substance use, coping (Wills et al., 2001) and impulsivity (BIS-11, Barratt et al., 1995). Analysis employed ANOVAs and bivariate correlations. **Results:** Adolescents who endorsed current marijuana use were more impulsive than non-users ($F(1, 994) = 47.86; p < .001$), with no gender differences ($p = .16$) and no gender by impulsivity interactions ($p = .21$). Among marijuana users, impulsivity level correlated positively with helplessness ($r = .41$) and substance use ($r = .36$), anger ($r = .40$) and avoidance ($r = .16$) to cope with stress; it correlated negatively with seeking parental support ($r = -.14$), and the use of behavioral ($r = -.56$) or cognitive ($r = -.19$) coping strategies ($p \leq .01$). This pattern held across genders, with one exception: male users of marijuana with higher BIS-11 scores were less likely to use peers for coping support ($r = -.11; p = .018$), whereas the use of peer support for coping was unrelated to impulsivity in female marijuana users. **Conclusions:** Thus, adolescent marijuana users are more impulsive than non-users, regardless of gender. Marijuana users who were more impulsive also used substances, anger and avoidance to cope and were less likely to use behavioral or cognitive strategies. Male users who were more impulsive were less likely to use peers for support. **Support:** Supported by NIDA grants T32DA07238 and P50DA04921.

662 REFERENCED-EEG GUIDED PHARMACOTHERAPY OF DUAL DIAGNOSIS PATIENTS

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Aims: Referenced-EEG (rEEG) utilizes digital encephalography in conjunction with normative and clinical databases to identify abnormal patient physiology. Appropriate medications are then statistically selected to normalize electrophysiologic abnormalities. This process has been correlated to treatment outcome in a database of over 1,600 patients and their greater than 10,000 cumulative medication trials. rEEG has been demonstrated to be effective in the treatment of affective and attentional disorders (Suffin & Emory, 1995)(Suffin et al., 2007). This clinical case series examines the use of rEEG in dual diagnosis patients as pilot data to assess whether larger controlled studies of rEEG-guided treatment in this population are warranted. **Methods:** 77 dually-diagnosed patients were treated pharmacologically based on rEEG guidance in a variety of residential and outpatient settings as per standard clinical practice at these sites. Patients ranged from ages 14 to 62 and met criteria for DSM-IV, Axis I, non-psychotic psychiatric illness as well as DSM-IV alcohol/drug abuse/dependence diagnoses. Patients were tested at least 21 days after detoxification. A CGI-Severity score was assessed at treatment onset and a CGI-Improvement scale was assessed at least 6 weeks after treatment by the treating physicians. **Results:** 65 patients (84%) were rated markedly or severely ill. 50 of these patients (77%) were rated much to very much improved. 12 patients (16%) were rated mildly to moderately ill. Of these 11 (92%) were rated much to very much improved. Overall, 79% of patients were rated much to very much improved. **Conclusions:** This pilot data indicates that the success rate of rEEG-guided pharmacotherapy of dual diagnosis patients is consistent with rates demonstrated in studies of patients with affective and attentional disorders and would support the development of large, formal trials of the effectiveness of rEEG in dual diagnosis patients. **Support:** Dr. Schiller is Director of Medical Affairs of CNS Response, Inc., the developer of rEEG. The authors received no outside funding for their clinical work reported here.

663 SEROTONIN VS. HALLUCINOGEN ACTIONS AT THE 5-HT_{2A} RECEPTOR: A16 DETERMINING ROLE FOR BETA-ARRESTINS IN VIVO

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Aims: The serotonin 2A receptor (5-HT_{2A}R) is a major drug target for the treatment of diverse mental health disorders. It is also the receptor target of serotonergic hallucinogenic drugs. As a G protein-coupled receptor (GPCR), it can be regulated by interactions with beta-arrestins (Barrestins). Such interactions can result in receptor desensitization and internalization or in some cases, Barrestins can mediate cell signaling cascades. Accordingly, the present study is designed to explore the roles that Barrestin-2 (Barr2) plays in the regulation and signaling of the 5-HT_{2A}R in vivo. **Methods:** Behavioral assessments of 5-HT_{2A}R activation were determined by evaluating the head twitch response upon drug administration. Male Barr2-knockout (Barr2-KO) and wildtype (WT) mice were administered 5-hydroxy-L-tryptophan (5-HTP, 100 mg/kg, i.p.), the precursor to serotonin, or the 5-HT_{2A}R agonist, (+)-1-(2,5-Dimethoxy-4-iodophenyl)-2-aminopropane (DOI, 1 mg/kg, i.p.). Map kinases (ERK1/2) activation was evaluated in frontal cortex following drug treatment. Primary neuronal cultures from frontal cortex were used to study receptor trafficking patterns. **Results:** In mice lacking Barr2, 5-HTP no longer induces the robust head twitch response that is observed in WT mice. DOI induces head twitches in a genotype independent manner. WT neurons reveal intracellular 5-HT_{2A}R staining while the receptor is predominantly localized to the cell surface in Barr2-KO cortical neurons. 5-HTP induces ERK1/2 activation in frontal cortex in WT, but not Barr2-KO mice. DOI activates ERK1/2 in both genotypes. **Conclusions:** Barr2 appears to mediate serotonin signaling via the 5-HT_{2A} receptor in mice which is distinct from hallucinogen directed signaling. This differential may represent an important divergence between the pathways activated by the endogenous ligand to the receptor, serotonin, and other 5-HT_{2A}R agonists and may reveal new therapeutic avenues for drug development. **Support:** National Institute on Drug Abuse Training Fellowship (F31 DA219532, K.M.R.) and Career Award (K01 DA14600, L.M.B.).

664 HIGH-DOSE NALTREXONE THERAPY FOR COCAINE-ALCOHOL DEPENDENCE

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Aims: Concurrent dependence on alcohol is common among those seeking treatment for cocaine dependence. Despite the prevalence and clinical significance of cocaine-alcohol dependence, little is known about how to treat this type of comorbidity. Naltrexone's (NTX) effectiveness at standard dosages used for treatment of alcoholism has not been established in this dual-dependent population. We hypothesized that higher doses of this opiate antagonist might strengthen the pharmacotherapy effect, presumably by improving blockade of cocaine reinforcement. **Methods:** This study compared effects of NTX 100 mg/d (vs placebo) in a sample of 78 randomized subjects with cocaine and alcohol dependence. A second hypothesis tested whether adding contingency management (CM) targeting abstinence leads to greater reduction in cocaine use compared to cognitive behavioral therapy (CBT) without CM. Using a factorial design, participants were assigned to one of the following 12 weeks treatment conditions: (1) NTX with CBT; (2) Placebo, CBT; (3) NTX, CBT+CM; (4) Placebo, CBT+CM. Primary outcome measures collected thrice-weekly during treatment included cocaine use (urine benzoylconine) and drinking (TLFB). **Results:** All treatment groups showed a decrease in proportion of cocaine positive urines and proportion of drinking days per week over time. Significant interaction effects were found for percent heavy drinking days, with greater reductions over time observed in the groups receiving NTX and CBT. For percent days using cocaine and alcohol, the odds ratio was significant for the interaction of therapy x time, with the likelihood of using both substances lowest in the CBT group. **Conclusions:** NTX at 100 mg/d showed benefit in reducing heavy drinking rates in cocaine-alcohol dependent patients. Contrary to predictions however, the medication did not impact concurrent cocaine use. Our findings support using CBT as a platform therapy for cocaine-alcohol treatment. Adding CM to CBT did not improve treatment outcomes. Plausible explanations and recommendations will be discussed. **Support:** National Institute on Drug Abuse Grant DA15801

665 MONITORING OF FEDERAL SURVEYS AS A RISK MINIMIZATION ACTION PLAN COMPONENT: APPLICATIONS AND LIMITATIONS

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Aims: Surveillance to identify signals of misuse, abuse or diversion is a common component of a risk minimization action plan (RiskMAP) for drugs with abuse potential, and federal surveys offer a low cost, readily available source of information. These surveys include the Drug Abuse Warning Network (DAWN) Emergency Department and Medical Examiner reports, the new DAWN Live! system, the National Survey on Drug Use and Health (NSDUH), Monitoring the Future (MTF), the Treatment Episode Data Set (TEDS), and the National Forensic Laboratory Information System (NFLIS). This presentation will describe each system, summarize the pros and cons of each with respect to the quality of information obtained for purposes of risk management, and provide potential suggestions for improvement of the surveys. **Conclusions:** Over several years each of these national data sets can provide useful trend data on prescription drug abuse in general, though changes in survey methodology and other factors must be considered in data interpretation. Furthermore, most systems lack adequate timeliness, precise enough geographic specificity, and sufficient drug or brand specificity to provide guidance for on going risk management interventions. The systems are inconsistent in their categorization of drugs and classes. Some systems are more sensitive to specific classes of drugs. **Support:** Pinney Associates provides risk management services, including the monitoring of federal surveys, for several pharmaceutical companies. However, no industry funding was provided for the preparation or presentation of this poster.

666 AN EXAMINATION OF PHYSIOLOGICAL REGULATION IN COCAINE-EXPOSED INFANTS ACROSS THE FIRST 7 MONTHS OF LIFE

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Aims: To examine direct and indirect pathways (through RSA or parenting behavior at 1 month) from prenatal cocaine exposure (PCE) to physiological regulation at 7 months of age using structural equation modeling. **Methods:** RSA was collected from 169 infants (87 cocaine-exposed, 82 nonexposed) at 1 month during 10-min of sleep and at 7 months during a 3-min baseline and during tasks designed to elicit positive (PA; a puppet show) and negative affect (NA; arm restraint). Mean RSA was calculated for sleep, baseline, PA and NA. Change scores were calculated from baseline to PA and from baseline to NA. These change scores are widely considered to be an index of physiological regulation. **Results:** In the first model, the indirect path from PCE to RSA at 7 months via 1 month RSA and parenting was tested. PCE was associated with lower levels of 1 month RSA. No associations between substance use and parenting or between alcohol and cigarette use and RSA or parenting were found. Low levels of 1 month RSA were associated with low levels of baseline RSA at 7 months and greater change in RSA during the NA task. The fit of this model was quite good ($\chi^2(7) = 9.76$, $p = .20$, CFI = .98, RMSEA = .05). In the next model, direct paths from PCE to 7 month baseline RSA and RSA regulation were added. The fit of this model was excellent ($\chi^2(4) = 1.30$, $p = .82$, CFI = 1.0, RMSEA = 0.0). PCE was directly associated with lower levels of both 1 and 7 month RSA and higher change in RSA during the NA task. The path from 1 month to 7 month RSA remained significant. **Conclusions:** These findings suggest that cocaine exposed infants have higher parasympathetic activity during rest and less ability to physiologically regulate themselves during periods of negative arousal. These findings also suggest that 1 month RSA only partially mediated the association between PCE and 7 month RSA and RSA regulation. **Support:** National Institute on Drug Abuse grant # 1R01 DA13190

667 GENDER DIFFERENCES IN CORTISOL REACTIVITY AMONG AFRICAN AMERICAN POLYSUBSTANCE USERS

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Aims: Dysregulated Hypothalamic-Pituitary-Adrenal (HPA) response to stress has been repeatedly associated with poor substance use outcomes. Investigations of gender differences suggest that females exhibit blunted cortisol reactivity in response to stress, however research in this area has focused largely on cocaine users, with little focus on polysubstance users who are currently abstinent. The current study sought to replicate hyporesponsivity among females and to investigate gender differences in HPA axis reactivity within the context of polysubstance use and abstinence. **Methods:** Male ($n = 72$) and female ($n = 16$), African American polysubstance users were assessed in the first week of residential treatment. Salivary cortisol was collected pre and post psychological stressor, and at 10, 20 and 30 minutes post stress. **Results:** A repeated measures analysis of variance was conducted to examine gender differences in HPA axis response to stress. Results indicated a significant decrease in cortisol ($F = 4.5$, $p < .05$) across genders, and a gender x cortisol interaction, suggesting a more exaggerated decrease in cortisol in females ($F = 5.56$, $p < .05$). Women also exhibited a greater percent change from baseline at 20 minutes ($t(94.49) = -2.65$, $p = .009$) and 30 minutes ($t(80.53) = -2.77$, $p = .007$) post stressor. There were gender differences in self-reported response to the stressor, with women demonstrating greater changes in frustration, smoking cravings, and bodily discomfort ($p < .05$). **Conclusions:** Findings indicate an overall unexpected decrease in cortisol in response to stress, with the more exaggerated decreases in women occurring in line with a greater self-reported response. Next steps include examining how specific gender differences in HPA axis response to stress relate to substance use outcomes. **Support:** DA R01 019404

668 COGNITIVE PERFORMANCE IN A POPULATION-BASED SAMPLE OF YOUNG CANNABIS, ECSTASY OR ALCOHOL USERS AND CONTROLS

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Aims: Regular substance use, such as use of ecstasy (MDMA) and/or cannabis may cause cognitive impairments. Preclinical and human studies indicate that ecstasy use may have negative effects on executive functioning, learning, verbal memory, and attentional functions. Cannabis has also been linked to symptoms of inattention, and deficits in learning and memory. Most of the published studies recruited participants by means of advertisements or word-of-mouth. Subjects were aware that their drug use was critical to the research design. This may have caused selection bias or created expectation effects. Our study assess cognitive functioning in a community-based sample that was derived from a longitudinal representative epidemiological study. **Methods:** Cognitive functioning was examined in a subsample of 284 young participants, aged 22 to 34. In general, their lifetime drug experience was moderate. Participants completed a neuropsychological test battery, including measures for working memory, executive functioning, verbal learning, memory, and various attentional functions. Linear regression analysis was performed to investigate the relationship between cognitive functioning and lifetime experience of drug use. **Results:** Ecstasy, but not cannabis consumption was a predictor of lower performance in several tests of executive functions and working memory. Ecstasy and cannabis use were significantly related to poorer episodic memory function in a dose-related manner. For attentional measures, decrements of small effect sizes were found, specifically a stronger tendency to experience lapses of attention. **Conclusions:** The results are consistent with decrements of executive functioning, memory and attentional performance. These effects are relatively small. However, the study focused on assessing young adults with moderate drug use from a population-based study. **Support:** German Federal Ministry of Education and Research (01 EB 0441, 01 EB 0142)

669 IMPACT OF INTERIM METHADONE TREATMENT VS. WAITING LIST ON ARRESTS

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Aims: This study aimed to compare arrest rates of participants assigned to interim methadone to those assigned to a waiting list. **Methods:** 319 opioid-dependent adults enrolling on a waiting list for an MTP were randomly assigned to interim methadone treatment or waiting list. As previously reported, those assigned to the interim condition were significantly more likely to be enrolled in an MTP, to report reduced criminal behavior and to have a negative opioid drug tests at both 4-and 10-month follow-up. Subsequently, we obtained arrest records for the two years prior to and following study enrollment and scaled the severity of the arrest charges adapting the scale developed by Nurco et al., (1991). Regression analyses were used to compare frequencies of recorded arrest and severity of charges, while Cox Regression Analyses were used to analyze time to first arrest. **Results:** On an intent to treat analysis we found no significant differences between subjects in the two study conditions in terms of frequency of arrests and severity of charges, either in the two years before or the two years after entry into the study. The only two variables that were found to be explanatory of the likelihood of arrest were age (at 6, 12 and 24 months, all $ps < .05$) and the number of months of lifetime incarceration (at 6 and 12 months only, both $ps < .05$). **Conclusions:** The lack of significant differences in arrest rates between the conditions, using an intent-to-treat analysis, appears to be inconsistent with the self-reports of criminal activity of these subjects and with many published reports of the impact of methadone maintenance. This apparent inconsistency might have any of several explanations: self reports are a better gauge of criminal activity than arrest rates; Baltimore City's increases in overall arrest rates obscured a reduction in criminal activity; and/or the magnitude of the difference between groups in treatment participation was not sufficient to produce significant differences in criminal activity leading to arrest. **Support:** NIDA R01 DA 13636

670 DIFFERENCES IN RATES AND LENGTH OF INCARCERATION FOR MINORITY VS. NON-MINORITY WOMEN: A DRUG DIVERSION STUDY

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Aims: As of 2005, the US Justice Department Bureau of Statistics indicated that African American females were more than twice as likely as Hispanic females and more than three times as likely as Caucasian females to have been in prison. The average length of incarceration for females reveals similar racial and ethnic differences. Although research has examined racial inequalities of imprisonment for men, little attention has been given to the same discriminatory factors for women. However, it is important to highlight such inequalities if such issues are to be rectified. The purpose of this study was to assess differences in legal characteristics between minority and non-minority women being diverted into substance abuse treatment. **Methods:** This study utilized data collected in a previous study of participants referred to a drug-diversion program. Participants were women ($N = 134$) who had been arrested for drug related charges prior to a pre-sentence drug diversion evaluation. Age of participants ranged between 23 to 58 years; racial composition included: 25% African American, 66% Caucasian and 9% Hispanic. Participants reported the following psychiatric characteristics: 34% were victims of family violence in childhood, 31% reported being victims of domestic violence and 57% reported having a family history of addiction. **Results:** Results showed no significant difference in the average total number of arrests across minority and non-minority groups [$F=0.621$, $p<0.539$]. However, between the time of arrest and the pre-sentence drug-diversion evaluation, significantly more African American women (62%) were incarcerated than were non-minority women [20%; Chi square=19.9, $p<0.001$]. Additionally, length of incarceration showed a significant difference, with Caucasian women averaging 4 months and African American women averaging 13 months [$F=4.9$, $p<0.09$]. **Conclusions:** Results revealed significant inequalities in the treatment of minority vs. non-minority women arrested on drug-related charges. Implications of these findings are addressed. **Support:** Supported by Yale School of Medicine and NIDA RO1 DA018284-01.

671 PREDICTING THE RELATIVE RISK OF DEATH OVER A 9-YEAR PERIOD TAKING INTO ACCOUNT BASELINE RISK, SUBSTANCE ABUSE TREATMENT HISTORY AND DURATION OF ABSTINENCE

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Aims: To assess the impact of treatment and the duration of abstinence on death over a 9-year period after controlling for baseline risk factors. **Methods:** Participants ($n=1326$) were interviewed at intake into substance abuse treatment, 6 months, 2 years, and annually thereafter (follow-up rates ranged from 94%-97% over 9 years). Participants were mostly black (87%) and female (59%), with an average age of 34 years, never married (65%), had less than a high school education (51%), had symptoms of major depression or severe anxiety (41%), and prior treatment (54%). Over 9 years, 131 (9.9%) participants died. Discrete time survival analysis was conducted and factors examined to discover those related to death. **Results:** A multivariate 8-factor model was identified. Baseline risk factors related to an increased likelihood of death included: age, 1 or more pre-existing chronic illness [i.e., asthma (16%), high blood pressure (11%), head injury (6%)], number of nights spent in a hospital in past 6 months, ever having been charged with violent acts or admitting to violent acts in the past 6 months, low SES, and referred to Methadone treatment. At 6-months post-baseline, participants who successfully completed treatment or were still participating in treatment, were less likely to die in the next 8.5 years (risk ratio=0.63). Each year, the cumulative years of abstinence was associated with reduced risk of death in the subsequent year (risk ratio=0.86 per year of abstinence). **Conclusions:** Successful treatment completion and duration of abstinence are associated with reduced risk of death among people with substance use disorders after controlling for baseline risk factors. **Support:** The National Institute on Drug Abuse (NIDA) grant number DA15523.

672 COST-EFFECTIVENESS OF A CONTINGENCY MANAGEMENT INTERVENTION IN A COMMUNITY SETTING

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Aims: Voucher-based incentives programs constitute effective therapy for drug abuse treatment. However, the use of vouchers has been criticized for its cost. The main objective of the present study was to analyze the cost-effectiveness of a voucher-based reinforcement therapy, that of CRA plus Vouchers, compared to standard outpatient treatment, in a community setting in Spain. **Methods:** In making the calculations we used the categories suggested in the Drug Abuse Treatment Cost Analysis Program (DATCAP). Calculation of the application costs for the programs was based on the costs of treating 10 patients for a period of six months. **Results:** Cost per patient in standard treatment would be \$605, as against \$858 on the CRA plus Vouchers program. However, if we take into account treatment retention at six months, the figures are different. In this case, of every ten patients who start out in the standard group, just four complete six months of treatment, so that the cost per successful patient would be \$1,512, while on the CRA plus Vouchers program, seven of every ten patients complete six months of treatment, making the cost per successful patient \$1,226. **Conclusions:** The results show that standard treatment was less expensive than CRA plus Vouchers. But if we take into account not only the direct costs but also the efficacy of the intervention, then the experimental protocol emerges as considerably more cost-effective than the standard treatment. In sum, despite being in principle more expensive, the CRA plus Vouchers program is more efficient than standard treatment. **Support:** Spanish National Plan on Drugs (MINT-03-01), University of Oviedo (UNIOVI-04-BECDOC-05) and Foundation for the Promotion of Applied Scientific Research and Technology in Asturias (BP05-002).

673 ESTROGEN INTERACTS WITH MU OPIOID PEPTIDES TO MODULATE BEHAVIORAL SENSITIZATION TO COCAINE IN FEMALE RATS

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Aims: There is substantial literature pointing to estrogen as a critical chemical signal affecting cocaine sensitization in the female. The present study was investigated if the mu opioid participates in estrogenic modulation of behavioral sensitization to cocaine. **Methods:** Rats were ovariectomized (OVX), half received a subcutaneous Silastic implant filled with estradiol benzoate (EB), the other half received an empty implant. A week later, they were tested for their locomotor response to cocaine (15 mg/kg, i.p.) in the presence or absence of naloxonazine (15 mg/kg, i.p.). **Results:** Blocking the μ 1-opioid receptor abolished the development of behavioral sensitization to cocaine in OVX-EB rats. In contrast, in OVX rats, naloxonazine increased cocaine-induced locomotor activity on days 3 and 5, an effect that disappeared after a 2 day withdrawal period. fMRI studies revealed that the increased neural activity observed in OVX-EB rats sensitized to cocaine was also decreased by naloxonazine pretreatment. **Conclusions:** The present data suggests that estrogenic regulation of cocaine-induced behavioral sensitization involves the μ 1 receptor. It also provides evidence of neuroadaptations induced by estrogen during cocaine re-exposure such as enhanced neural activation in brain areas associated with learning and reward. **Support:** This work was supported by a SNRP grant from NINDS (U54 NS39405) a SCORE grant from NIGMS (S06 GM08224). GD, PH and GS received support from RISE Program og NIGMS (R25 GM61838)

674 ATROPISOMERS AS CONFORMATIONAL PROBES OF THE HUMAN hCB1 CANNABINOID RECEPTOR

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Aims: It was the aim of this study to design and synthesize non-interconvertible, conformationally distinct rotamers known as atropisomers to probe conformational requirements of the cannabinoid antagonist Rimonabant in the cannabinoid CB1 receptor active site. Understanding these requirements could lead to more active and potentially specific drugs. **Methods:** The methods involved NMR, chromatographic and computational examination of candidate compounds that looked for evidence of non-interconverting enantiomers and separation of these isomers for separate pharmacological study. The first compound reported as NESS 0327, limits the rotational conformations of the 4-chlorophenyl ring in the 5-position with a three-carbon bridge connecting it to the pyrazole 4-position. In this case the above evidence showed that the energy barrier between the enantiomers of NESS 0327 is too low to isolate the two conformers. We then synthesized a methyl-substituted analog with the same constraining bridge where the energy barrier was calculated and chromatographically demonstrated to be sufficient to isolate the enantiomeric atropisomers A & B. Two distinct isomers were pharmacologically characterized by binding affinity (hCB1), GTP γ S and calcium flux CA3 assay. **Results:** The binding results (K_i, nM) at the human hCB1 receptor versus tritiated SR141716 and CP 55,940 were 15.9 & 59.3 (A+B); 13.3 & 32.7 (A); 10.5 & 18.1 (B); 4.77 & 11.2 (NESS 0327) respectively. The GTP γ S assay showed all the analogs to be antagonists while in the CA3 assay they behaved as partial agonists. **Conclusions:** We conclude that suitably substituted analogs of Rimonabant can be locked into separate conformers for pharmacological study. Further, the current pair of atropisomers have comparable affinities for hCB1 (vs SR141716) indicating that the incident difference (orientation of the 4-chlorophenyl ring) is tolerated by the receptor and does not alter binding or function. **Support:** Supported by commercial funds to HHS, Grant R01 DA19217 to BFT and internal funds to HAN.

675 MISUSE OF PRESCRIBED STIMULANT MEDICATION FOR ADHD AND ASSOCIATED PATTERNS OF SUBSTANCE USE: A PRELIMINARY ANALYSIS AMONG COLLEGE STUDENTS

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Aims: To explore the misuse of prescribed stimulant medications for ADHD and assess whether this behavior is associated with substance use (SU) among college students. It was hypothesized that a significant number of college students who are prescribed stimulants for ADHD misuse their medication and that SU rates are elevated among these individuals. **Methods:** In 2007, a random sample of 1738 undergraduate college students self-administered a Web-based survey at a large Midwestern university. From this sample, 55 respondents were identified as past-year users of prescribed stimulants for ADHD. A four-item Misuse Index was adapted from previous work (Wilens et al, 2006) to assess the misuse of prescribed stimulant medication. Associated patterns of SU were evaluated using measures such as the Drug Abuse Screening Test, Short Form (DAST-10). **Results:** Of the 55 college students who reported past-year use of prescribed stimulants, 40% (n=22) endorsed at least one item on our Misuse Index (i.e., misusers). The most frequently reported items of misuse included used too much (36%) and intentionally used with alcohol or other drugs (19%). Analyses showed that misusers had higher prevalence rates of SU compared to non-misusers. For example, 55% of misusers reported past-month cigarette smoking compared to 25% of non-misusers (p=0.022). Notably, misusers were more likely to screen positive on the DAST-10 compared to non-misusers (65% vs. 18%, respectively; p=0.002). **Conclusions:** There is a clear association between misuse of prescribed stimulant medication for ADHD and SU behaviors. Our findings suggest the need for close monitoring of prescribed stimulant medications among college students. **Support:** N/A

676 EFFECTS OF NORBNI ON ETHANOL-INDUCED CONDITIONED TASTE AVERSIONS IN BOTH IN- AND CROSS-FOSTERED LEWIS AND FISCHER FEMALE RATS

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Aims: Since kappa(κ) opioid activity reportedly mediates some of alcohol's aversive effects, antagonism of κ activity should impact these effects. Accordingly, norBNI's (κ -antagonist) effects on ethanol (EtOH)-induced conditioned taste aversions (CTA) were assessed. Given that alcohol's effects are impacted by both genes and environment, this assessment was made in cross- and in-fostered LEW (L) and F344 (F) rats (that display differential sensitivity to alcohol's aversive effects). **Methods:** F and L pups (n=48) were cross- or in-fostered within 24h of birth, resulting in the following pup-dam rearing groups (n=4-8): FF, FL, LL and LF. Prior to conditioning, animals were injected with 1 mg/kg norBNI or vehicle. They were then given 20-min access to saccharin followed by 1.25 g/kg EtOH (for a total of 4 trials). Core temperature was recorded during conditioning. Conditioning was followed by 12 two-bottle extinction trials. **Results:** A 4x2x4 ANOVA revealed no norBNI effects on acquisition or extinction. However, effects of Trial and Rearing Group as well as a Trial x Rearing Group interaction were evident in acquisition. Group LF drank significantly less than FF and FL on Trial 2 and less than FF, FL and LL on Trial 3. A 3x2x4 ANOVA revealed effects of Trial and Rearing Group in extinction. Group LF extinguished slower than FF and FL. Further, a 3x2x4 ANOVA revealed a slower recovery from the hypothermic effects of EtOH in L than F rats (all F's>2.0, p's<.05). **Conclusions:** The fact that norBNI failed to affect acquisition or extinction of ethanol-induced CTAs suggests that κ activity may not mediate the aversive effects of EtOH as assessed in this preparation. Interestingly, L rats appear more sensitive to cross-fostering effects in the acquisition and extinction of ethanol-induced CTAs, as well as to the hypothermic effects of EtOH. **Support:** Supported by a grant from the Mellon Foundation to ALR and intramural funds from NIDDK.

677 IMPULSIVITY AND COCAINE USE AS RISK FACTORS FOR HIGH-RISK SEXUAL BEHAVIOR IN Dually Diagnosed Outpatients

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Aims: An HIV prevalence rate of 6.2% has been estimated among people dually diagnosed with psychiatric and substance abuse disorders (Klinkenberg et al., 2003). High risk sexual behaviors (HRSBs) that transmit HIV have been associated with several measures of impulsivity, but it is not known whether any impulsivity measure is associated with HRSBs in addicts with comorbid psychiatric illnesses. The purpose of this study was to determine the unique association between impulsivity and other covariates with HRSBs in dually diagnosed outpatients. **Methods:** Data were collected during screening of dually diagnosed outpatients for a clinical trial comparing two money management-based therapies. Only the 54 participants from the clinical trial who were sexually active were included in these analyses. All participants were prescribed concomitant medications and 37% were male. HRSBs were assessed by the HIV risk behavior scale. Other measures included demographics and three measures of impulsivity: 1) Barratt Impulsivity Scale-11, a measure of rash-spontaneous impulsivity, 2) the Delayed Discounting Questionnaire (DDQ), a measure of the tendency to prefer immediate rewards, and 3) failure to maintain set on the Wisconsin Card Sorting Task -64, a measure of cognitive impulsivity/distractibility. Variables that demonstrated significant bivariate correlations with risk behavior were entered into a path analysis. **Results:** In the final path analysis, cocaine use in the past 28 days had a moderate correlation ($\beta = 0.33$, $p < 0.01$) with risk behaviors while the impulsivity construct, preference for immediate rewards, approached a significant correlation ($\beta = 0.17$, $p = 0.09$). Internal validity checks suggested this impaired population completed the DDQ consistently. **Conclusions:** Factors associated with HRSBs in addicts were also associated with these behaviors in a dually diagnosed cohort. **Support:** This research was supported in part by R01-DA012952, K02-DA017277 (MIR), the VISN 1 Mental Illness Research Education and Clinical Care Center (MIRECC) and P50-DA09241.

678 PHARMACODYNAMIC AND PHARMACOKINETIC EVALUATIONS OF IMMEDIATE RELEASE MORPHINE IN COMBINATION WITH ETHANOL IN HEALTHY SUBJECTS

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Aims: The objectives of this study were to evaluate the effects of ethanol on the pharmacokinetics (PK) of immediate release (IR) morphine and its metabolites and to evaluate the PD effects of IR morphine and ethanol administered in combination. **Methods:** This was a single-center, double-blind, placebo-controlled, randomized, crossover study conducted in 24 healthy male subjects, aged 18 to 65 years. Fasted subjects randomly received the following treatments: morphine IR (30 mg) with one of five doses of ethanol (g) [0g, 11.9 g, 28.4 g, 30.8 g, and 42.7 g or placebo with ethanol (42.7 g), per treatment period. Safety, PK and PD effects were measured. **Results:** Analysis of the evaluable population (N=16) failed to show additive effects (Emax) resulting from the co-administration of the highest dose of ethanol (42.7g) and morphine on pupil diameter ($P=0.859$), end tidal CO₂ ($P=0.9891$), oxygen saturation ($P=0.7624$) and CRT ($P=0.9064$). For Any Effects, Bad Effects, High, and Sedation, morphine alone was associated with a significantly lower Emax compared to ethanol alone (42.7g) ($P \leq 0.0434$). Ethanol dose dependently increased scores for all VAS measures. The combination of morphine and ethanol (42.7g) produced slightly higher scores on all VAS measures relative to the administration of ethanol (42.7 g) alone, which were not significant ($P \geq 0.1595$). PK evaluation (N=17) showed a mean (SD) plasma morphine C_{max} of 16.3 (5.3) ng/mL and AUC (0-12h) of 58.2 (13.3) ng*h/mL following administration of morphine (30 mg) alone. Increasing amounts of ethanol did not alter the PK of morphine and its metabolites. No serious or severe AEs were reported. Twenty-three (95.8%) of the 24 subjects reported mild and moderate AEs. **Conclusions:** No significant interactions were found on select PD measures between IR morphine 30 mg and ethanol at the tested doses. These doses of ethanol did not significantly change the PK of morphine and its major metabolites. **Support:** Ligand Pharmaceuticals Inc.

679 DISCRIMINATIVE-STIMULUS EFFECTS OF METHAMPHETAMINE, D-AMPHETAMINE, METHYLPHENIDATE AND TRIAZOLAM IN HUMANS

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Aims: Methamphetamine abuse is a significant public-health concern. Although widely studied in laboratory animals, little is known about the abuse-related behavioral effects of methamphetamine in controlled laboratory settings in humans. The aim of this study was to examine the discriminative-stimulus, participant-rated, performance and physiological effects of methamphetamine in humans. The present study also examined the extent of generalization to the behavioral effects of methamphetamine by d-amphetamine, methylphenidate and triazolam. **Methods:** Seven participants that reported recreational stimulant use first learned to discriminate 10 mg oral methamphetamine. The behavioral effects of a range of oral doses of methamphetamine (2.5-15 mg), d-amphetamine (2.5-15 mg), methylphenidate (5-30 mg), and triazolam (0.0625-0.375 mg) were then tested. **Results:** Methamphetamine readily functioned as a discriminative-stimulus and produced prototypical stimulant-like participant-rated effects. d-Amphetamine and methylphenidate increased drug-appropriate responding as a function of dose, with the highest doses substituting completely (i.e., >80% drug-appropriate responding). Triazolam occasioned on average 27% drug-appropriate responding. d-Amphetamine and methylphenidate produced stimulant-like subject-rated effects, while triazolam produced sedative-like effects. **Conclusions:** Overall, these results demonstrate that the acute behavioral effects of methamphetamine, d-amphetamine and methylphenidate overlap extensively in humans, which is concordant with the findings from preclinical studies. The results of the present study could aid in laying the foundation for future studies to determine the influence of putative pharmacotherapies on the discriminative-stimulus effects of methamphetamine in humans. **Support:** Supported by DA017711 to CRR.

680 THE ASSOCIATION BETWEEN EXECUTIVE FUNCTIONING AND READINESS TO CHANGE DRUG USE BEHAVIOR AMONG INJECTION AND NON-INJECTION DRUG USERS IN BALTIMORE, MD

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Aims: Many theoretical models investigating behavior change are based on an individual's recognition of and desire to change problem behaviors, such as drug use. The present study sought to evaluate the association between impairment on an executive functioning measure and readiness to change drug use behaviors. **Methods:** This study used baseline data from the International Neurobehavioral HIV Study, an epidemiological examination of neuropsychological and behavioral risk factors of HIV and Hepatitis A, B, and C. The present study sample included 410 injection and non-injection drug using participants from the Baltimore region that reported lifetime daily or nearly daily use of heroin and/or cocaine use and reported using either substance within one week preceding the assessment. Impaired executive functioning was defined as performance below the 5th percentile using population norms of the Categories Completed scale of the Wisconsin Card Sorting Test (WCST). Factor analysis was performed using sixteen items from the Readiness to Change Questionnaire. Composite scores were computed for each factor by summing items associated with each factor. Linear regression models were used to assess the relationship of WCST performance on composite scores while controlling for potential confounders. **Results:** Four factors were identified and named Intention, Problem Recognition, Desire to Enter Treatment, and Ambivalence. Regression analyses indicated impairment on the WCST was associated with lower Intention scores ($\beta = -0.55$, $t = -2.17$, $p < .05$) and lower Problem Recognition scores ($\beta = -0.38$, $t = -2.12$, $p < .05$). Other notable findings were observed with recent treatment involvement, injection status, length of drug use, and gender. **Conclusions:** Implications regarding the recruitment and treatment of individuals with cognitive impairment and substance use disorders are discussed. **Support:** This research was supported by RO1 DA014498 to Dr. Bill Latimer and the Drug dependence Epidemiology Training Program T32 DA007292 (PI: Dr. Bill Latimer)

CPDD 2008 Annual Meeting, San Juan, Puerto Rico

681 DISULFIRAM ENHANCES SUBJECTIVE EFFECTS OF DEXTROAMPHETAMINE IN HUMANS

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Aims: Disulfiram has shown promise for the treatment of cocaine addiction in several clinical trials. Disulfiram's potential for the treatment of amphetamine addiction has not been examined in controlled human studies. The goal of this study was to determine the effects of disulfiram on the acute physiological and subjective responses to dextroamphetamine in healthy volunteers. **Methods:** Five male and five female subjects participated in this outpatient double-blind, placebo-controlled, crossover study in which they were randomly assigned to four days of either disulfiram 250 mg/day or placebo. Day four of each treatment period was the experimental session, in which subjects orally ingested a single dose of amphetamine 20 mg/70 kg. Heart rate, blood pressure, plasma cortisol and prolactin, and subjective effects were then measured. The main analysis used mixed model analysis with SAS Proc Mixed. **Results:** Disulfiram did not ameliorate the dextroamphetamine-induced increase in heart rate or diastolic blood pressure or the increase in cortisol and prolactin levels ($p > 0.05$). Disulfiram enhanced some of the subjective effects of dextroamphetamine, including ratings of "high", "anxious", "bad drug effects", "want more drug", and "drug liking" ($p < 0.05$). **Conclusions:** These findings suggest that disulfiram is safe to coadminister with amphetamine. The utility of disulfiram in the treatment of amphetamine addiction is unclear but should be tested in clinical trials. **Support:** NIH P50-DA18197 and VA New England MIRECC.

682 SEXUAL RISK FACTORS: RATES AND RELIABILITY AMONG ECSTASY USERS

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Aims: This study aimed to assess the rates and reliability of sexual risk behavior measures by gender among a multi-site study of club drug users. **Methods:** As part of a multi-site NIDA-funded (DA14854-01) nosological study of club drugs, test-retest measures were collected of the revised version of the Risk Behavior Assessment for Club Drugs (RBA-CD) (NIDA, 1993). Eligible participants had used ecstasy at least 5 times throughout their life, once within the past 12 months and were at least 15 years old. Structured interviews were conducted in St. Louis, Miami, and Sydney, Australia among club drug users in 2002-2005. Descriptive statistics were conducted to provide the prevalence rates of sexual behaviors and drug dependence diagnoses based on the Substance Abuse Module (Cottler et al, 1989). Test-retest reliability analyses were conducted using Kappa coefficients for the dichotomous items and Intraclass Correlation Coefficients (ICC) for the continuous variables. Z statistics were calculated to assess significance of reliability coefficients between genders. **Results:** A total of 603 participants completed the RBA-CD at two time points. High proportions of this sample of club drug users met criteria for lifetime DSM-IV dependence diagnoses for alcohol, cocaine, cannabis, and ecstasy across the three study sites. The mean number of female sex partners for men was 24.8 and for females with their male sex partners was 12.7. Reliability for all 51 items of the sexual activity section of the RBA ranged from a .23 -1.00, with 36 of those items resulting in moderate to high reliability (.55-1.00). There were few significant differences in reliability between gender. Few items were less reliably reported, which included reasons for condom use (.45-.82) and behaviors and attitudes while using drugs (.23-.87). **Conclusions:** This study found high reliability in reported sexual behaviors among a club drug-using population. Further methodological research is needed to continue improving the psychometric quality of instruments that assess HIV risk behavior. **Support:** This study was conducted with the support of DA14854-01 and T32 DA07313.

683 EVALUATION OF A DRUG TREATMENT PROGRAM FOR FAMILIES ENGAGED IN THE CHILD WELFARE SYSTEM

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Aims: A program providing drug treatment to child welfare systems involved families is described and evaluated. Services are provided through nine agencies to parents whose children have been abused or neglected for whom parental substance abuse has been identified. This evaluation focuses on identifying client and family characteristics and the relationship with a variety of treatment process and outcome indicators. **Methods:** Administrative data were used to generate clinical and service profiles including clinical assessment and enrollment information; service utilization data including service type and dose; child welfare investigation, case processing, and resolution; and, parental employment activity. These data are and supplemented with qualitative information from key informant interviews of services providers and clients and structured client satisfaction survey. **Results:** Most clients were women, 1/3 are Latina, a little slightly more than 1/2; possessing a GED/diploma and 40% employed. Families received a mix of services from state substance abuse and child welfare agencies; clients served by a single agency had significantly longer lengths of stay, as compared to clients served by both systems. Using self-report and urinalysis, nearly 60% of the clients were abstinent at program discharge. Recurrence of abuse or neglect was significantly lower for families served by the AFF program. Nearly 1/4 of the children served in the program were reunified with their families. **Conclusions:** This program description and evaluation provides exemplary evidence of an inter-agency systems approach to identifying, engaging, and treating families with drug use. A number of relationships between client and family characteristics and service process and outcome indicators provide provocative implications for the delivery of drug treatment services to this population. **Support:** A number of relationships between client and family characteristics and service process and outcome indicators provide provocative implications for the delivery of drug treatment services to this population.

684 CONTEXTUAL DIFFERENCES IN SUBSTANCE USE AMONG TREATMENT-SEEKING WOMEN

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Aims: While there is literature to describe rural versus urban substance users, there is little research comparing rural Appalachian women's substance use with women in non-Appalachian areas. This area of research is of growing importance given recent findings suggesting increasing rates of substance use in rural, Appalachia. This study examines differences in self-reported past year substance use among Appalachian and non-Appalachian treatment-seeking women in Kentucky. **Methods:** Baseline intake data from the 2006 Kentucky Treatment Outcome Study (KTOS) were utilized representing publicly-funded treatment programs statewide. Women accounted for 35.1% (N = 2786) of total baselines. Women's county of treatment entry was coded based on classifications from the Appalachian Regional Commission. Women in treatment in Appalachian counties accounted for 31% (N = 872). **Results:** On average, women were 32 years old (M = 31.90, SD = 8.93) and the majority were non-Hispanic white (85.4%). Multiple logistic regression analyses were used to compare substance use among women in Appalachian and non-Appalachian areas. Those entering treatment in Appalachia were less likely to use: alcohol (AOR: .75, 95% CI: .62, .90), cocaine (AOR: .46, 95% CI: .38, .55), marijuana (AOR: .73, 95% CI: .62, .87), and methamphetamines (AOR: .51, 95% CI: .40, .64), but were more likely to report past year illicit opiate (AOR: 2.1, 95% CI: 1.76, 2.51) and tranquilizer (AOR: 1.57, 95% CI: 1.32, 1.88) use, after adjustment for sociodemographic, mental health indicators and self-reported pain. **Conclusions:** These findings join a small but growing literature on the emergence of prescription drug use in Appalachia. Most of the previous research has focused on men and this study contributes important information about the substance use patterns of women in Appalachia. Given the paucity of treatment in Appalachia, the results of this study underscore the need to increase treatment availability in this population of rural women. **Support:** Kentucky Department for Mental Health and Mental Retardation

685 COMORBIDITY AMONG DRUG USERS PRESENTING TO AN EMERGENCY DEPARTMENT

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Aims: Assess comorbidity among drug users presenting to an emergency department (ED). **Methods:** Retrospective chart review of all ED visits by patients meeting Drug Abuse Warning Network (DAWN) criteria (age > 6 years, use of an illegal drug or non-medical use of a legal drug [excluding alcohol]) from June 1992-December 1993 at an urban, academic teaching hospital. Comparisons among drug user groups used chi-square tests for categorical data and ANOVA for quantitative data. **Results:** Data were abstracted for 839 patients (437 [52.1%] males) with mean [SD] age 31.6 [9.7] years: 585 used illegal drugs (69.7%), 120 (14.3%) used only legal controlled drugs, 134 (16%) used uncontrolled drugs. 573 (68.3%) patients had multiple diagnoses (83.5% of illegal drug users, 66.2% of legal drug users). Illegal drug users were more likely to have a single medical diagnosis (27.5%) than both controlled legal (9.7%) and uncontrolled (7.5%) drug users. Illegal users were also more likely to have comorbid medical diagnoses (3.9%) than either controlled legal (0%) or uncontrolled (0.7%) drug users. Users of uncontrolled drugs (14.9%) were more likely than illegal drug users to have comorbid psychiatric diagnoses (3.2%). Illegal drug users (44.8%) were more likely than controlled legal (25.9%) or uncontrolled (5.2%) drug users to have comorbid substance abuse diagnoses. 84.9% of illegal drug users reported using drugs because of dependence. 57.7% of controlled legal drug users and 86.6% of uncontrolled drug users presented to the ED after a suicide attempt. **Conclusions:** These findings suggest differential medical and psychiatric co-morbidity among drug users presenting to an ED, which may influence clinical care. **Support:** Supported by the Intramural Research Program of NIH, National Institute on Drug Abuse.

686 DEVELOPING A COMPUTERIZED ASSISTED TRAINING PROTOCOL FOR COMMUNITY-BASED THERAPISTS: CONTINGENCY MANAGEMENT WITH ADOLESCENTS AND THEIR FAMILIES

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Aims: Concerted efforts of researchers, government agencies, and others have established certain EBTs for adolescent problems, including substance use. Remarkably few EBTs, however, are routinely employed by community-based therapists. Development of an adequately prepared workforce is one of the most urgent challenges for transporting EBTs to real world settings, and efficient, but also effective, mechanisms for training are needed. However, little empirical effort has been devoted to establishing the best training practices. Recent studies have confirmed that usual formats for training and continuing education (e.g., didactic lecture, workshop, conferences) do not lead to changes in clinician behavior or clinical outcomes. CAT offers a more viable solution to training community-based providers. First, CAT has high fiscal feasibility: it eliminates travel expenses, time off work to train, and the delay for new hires attending workshops (e.g., training can begin immediately). Second, CAT has advantages over other methods for teaching clinical interventions in that it adheres to Instructional Design Theory (IDT), the approach recommended by educational researchers when developing training materials. This theory explicates a comprehensive set of targets and self-directed features, neither of which is possible in single workshops or seminar series. Similarly, manuals and print materials can accomplish only some of the IDT aims. Further, researchers have demonstrated superiority of video over traditional lecture training. **Methods:** In conjunction with a NIDA-funded empirical investigation studying methods for training community-based therapists, a CAT protocol was developed entitled, "Contingency Management with Adolescents and Their Families." **Conclusions:** Development of this protocol will be described, using the IDT framework. User satisfaction data will be presented, as will preliminary data on changes in therapist knowledge. **Support:** Research funded by the National Institute on Drug Abuse (K23DA015658 & R01DA017487)

687 DESCRIBING DIFFERENCES BETWEEN NEVER SMOKERS, CURRENT SMOKERS, AND FORMER SMOKERS IN A LOW SES COMMUNITY SAMPLE

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Aims: Ethnic minority groups have high rates of tobacco smoking and are less likely to quit. The present study compared characteristics of people who have never smoked tobacco products versus those who are current smokers, and from current smokers versus former smokers. **Methods:** The sample includes 1442 participants with similar low SES from two adjacent communities, with similar representation of Blacks and whites who were interviewed using a standardized questionnaire. Tobacco use was assessed using two questions: "Have you ever smoked cigarettes regularly?" and "Do you smoke cigarettes now?" Participants were classified either as current smokers, former smokers, or persons who never smoked. Covariates included race, age, gender, marital status, educational attainment, perceived stress, meeting criteria for major depression episode, perceived social support, and perceived community problems. **Results:** Half (56%) of the total sample were current smokers, 32% never smokers, and 12% former smokers. The odds of being a current smoker vs. non-smoker were lower among African Americans and higher by each of age year until the age of 45 and among those who met criteria for major depressive episode. Compared to current smokers, married individuals had higher odds of being former smokers, as well as those with higher education attainment. Individuals with less than 50 years old had lower odds of being former smokers. **Conclusions:** This study offers a unique perspective for the analysis of tobacco involvement in low SES and minority populations, which may help develop better interventions. Covariates of differences between smokers and non-smokers are not the same as those for the differences between current vs. former smokers. **Support:** NIDA, grants DA12390 & DA19805, and MD002217 from CMHHD.

688 DISCRIMINATIVE STIMULUS EFFECTS OF TOLUENE VAPOR: EFFECT OF EXPOSURE DURATION AND ROUTE OF ADMINISTRATION

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Aims: Inhalant abuse is a major problem in both the United States as well as worldwide. Despite the magnitude of the problem our knowledge of the neurochemical systems responsible for the abuse related properties of these chemicals is lacking. The drug discrimination procedure in animals has proven to be a valuable model for understanding the neurochemistry underlying the discriminative stimulus effects of drugs. We have shown that the discriminative stimulus effects of at least one inhalant, toluene, can be successfully trained in mice. The goal of the present study was to more thoroughly explore the nature of toluene's discriminative stimulus. **Methods:** Eight B6SJL/F1/J mice were trained to discriminate 10 min of exposure to 6,000 ppm toluene vapor from air using a standard two-lever, food reinforced operant procedure. **Results:** All 8 mice acquired the toluene discrimination. Subsequent tests confirmed our prior published observations that the toluene vapor discrimination was concentration dependent, producing full substitution at concentrations of 4000 ppm and greater. Injected toluene liquid also dose-dependently and fully substituted for toluene vapor. Pretreatment with a low dose of 100 mg/kg i.p. liquid toluene, which did not itself produce any substitution for the 6000 ppm training concentration, resulted in a significant leftward shift in the inhaled toluene concentration-effect curve. Extending the duration of exposure to toluene from 10 min to 20 min produced a significant leftward shift in the toluene concentration-effect curve. **Conclusions:** These results show that route of administration of toluene does not appear to be an important factor in producing toluene's discriminative stimulus effects. The exposure duration data suggest that 10 min of exposure is not sufficient to produce maximum observable stimulus effects. Studies are ongoing to compare toluene blood levels following varying exposure durations as well as to determine the duration of toluene's discriminative stimulus effects after cessation of exposure. **Support:** Supported by NIDA grant RO1 DA020553

CPDD 2008 Annual Meeting, San Juan, Puerto Rico

- 689** SCREENING, BRIEF INTERVENTION, AND REFERRAL TO TREATMENT IN AN UNDERGRADUATE NURSING PROGRAM
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Aims: To discuss the process of embedding a screening, brief intervention, and referral to treatment (SBIRT) educational and skill-building program within a top-ranked undergraduate nursing curriculum. Use of SBIRT in numerous healthcare settings (trauma, primary care, community health clinics, etc.) provides tools to healthcare practitioners so they can identify and provide services to individuals who exhibit problematic or high-risk substance use. SBIRT programs benefit patients by reducing reoccurrence of injury and/or trauma related to harmful substance use, benefit healthcare providers by offering another effective tool which can be used to address the root or exacerbating factor (substance use) of many other diseases, and benefit health systems by preventing future health problems which may develop due to substance use. Despite these clear benefits, most educational programs do not include adequate training in addictions. In 2006, the Institute for Research Education and Training (IRETA) in collaboration with the University of Pittsburgh, School of Nursing began development and implementation of an innovative educational and skill-building program based on SBIRT to enhance undergraduate nursing education. Conclusions: While implementation is still in the formative stages there has been a wealth of positive feedback from both faculty and students, and this program can serve as an easily replicable model which other schools of nursing can use to enhance the education of their students and increase student 'readiness to practice.' Support: Anne Helene Skinstad, Ph.D.
- 690** THE EFFECT OF ESTROGEN ON CYTOKINE PRODUCTION DURING INFLAMMATORY PAIN IN OVARECTOMIZED FEMALE RATS
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Aims: Estrogen attenuates the behavioral responses to inflammation-induced pain. However, the mechanism underlying estrogen's antihyperalgesic effects is not known. The aim of this study is to determine whether estrogen's analgesic effects on inflammatory pain are in part mediated through attenuation of proinflammatory or induction of anti-inflammatory cytokine levels. Methods: To this end, eight-week old ovariectomized (OVX) Sprague-Dawley female rats (N=24) were subcutaneously implanted with a Silastic capsule containing either 20% 17 β -estradiol or vehicle (cholesterol). One week after implantation, naïve and formalin-treated (5% injection into the intraplantar region of the right hind paw) rats were rapidly decapitated, and serum collected after centrifugation at 2,600 rpm for 30 minutes at 4°C; C was stored at -80°C until use. TNF- α (a proinflammatory cytokine) and IL-10 (an anti-inflammatory cytokine) serum levels were analyzed using the Enzyme-Linked Immunosorbent Assay (ELISA) technique. Results: Estrogen administration lowered TNF- α serum levels in naïve rats (F(1, 20)=4.401; p=0.05). However, formalin administration did not alter TNF- α serum levels in either hormonal treatment groups. Further, IL-10 serum levels were not altered in either naïve or formalin-administered rats, regardless of hormonal treatment. Conclusions: Taken together, our results suggest that estrogen's attenuation of behavioral responses to inflammation is in part mediated through a reduction of proinflammatory mediators that occur before nociceptive stimulation. Support: Supported by: SCORE 506-GM60654, MIDARP DA12136, and SNRP NS41073.
- 691** AN EXPERIMENTAL INVESTIGATION OF A SELF-CONTROL MECHANISM UNDERLYING THE DETRIMENTAL EFFECTS OF DIETING ON CONCURRENT SMOKING CESSATION
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Aims: Tobacco cessation treatment guidelines specifically discourage efforts at weight control through caloric restriction when quitting smoking out of concern that cessation efforts will be compromised with the competing behavioral demands (Fiore et al., 2000). The self-control strength model (Muraven & Baumeister, 2000) posits that self-regulation relies on a limited resource which is consumed with use and thus impairs subsequent attempts at self-regulation. In a controlled randomized experiment, we examined the effect of resisting tempting sweets on subsequent smoking behavior. Based on the self-control strength model, we predicted that resisting tempting sweets would lead to a greater likelihood of subsequent smoking. Methods: Participants were 100 smokers (54% male; age M=42; 41% non-Hispanic Caucasian) recruited from the San Francisco Bay Area. Participants were tested once, individually, in sessions lasting one hour. They were randomly assigned to resist eating either from a tempting plate of sweets or from a plate of less tempting vegetables. All participants were then given a 10-minute recess, and whether or not they smoked during the break served as the primary dependent variable. They were not aware that a primary goal of the study was to measure their smoking behavior during the break, so as not to influence their decision to smoke. Results: Findings showed that 48% of the sample smoked during the break. As predicted, participants who resisted sweets were more likely to smoke during the break (60.0%) than those who resisted vegetables (38.8%), Chi-Square = 3.97, df=1, p<.05. Conclusions: These findings support the self-control strength model and may have important implications for tobacco cessation interventions. In particular, although concerns with weight gain may lead to an increased desire to resist sweets while quitting smoking, there may be detrimental immediate consequences for relapse. Support: Study supported by the State of California Tobacco-Related Disease Research Program (#16FT-0050 and #13KT-0152) and the National Institute on Drug Abuse (#T32 DA007250, #K23 DA018691 and #P50 DA09253).
- 692** RANDOMIZED, PLACEBO-CONTROLLED TRIAL OF BUPROPION FOR THE TREATMENT OF METHAMPHETAMINE DEPENDENCE
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Aims: To compare bupropion to placebo for reducing methamphetamine (MA) use, increasing retention, and reducing the severity of depressive symptoms and MA cravings. A secondary objective compared bupropion to placebo for reducing cigarette smoking among MA dependent participants. Methods: Following a 2-week, non-medication baseline screening period, 73 treatment seeking MA dependent participants were randomly assigned to bupropion sustained release (150 mg twice daily; N=36) or placebo (twice daily; N=37) for 12-weeks under double blind conditions. Participants attended clinic thrice weekly to provide urine samples analyzed for MA-metabolite, to complete research measures and assessments, and to receive contingency management and weekly cognitive behavioral therapy sessions. Results: There were no statistically significant effects for bupropion relative to placebo on MA use verified by urine drug screens, for reducing the severity of depressive symptoms or MA cravings, or on study retention. In a post hoc analysis, there was a statistically significant effect of bupropion treatment on MA use among participants with lighter (0-2 MA-positive urines), but not heavier (3-6 MA-positive urines) MA use during baseline (OR=2.81, 95% CI=1.61-4.93, p<0.001 for MA-free week with bupropion among light users). Bupropion treatment was also associated with significantly reduced cigarette smoking, by almost 5 cigarettes per day (p=0.0002). Conclusions: Bupropion was no more effective than placebo in reducing MA use in planned analyses, though bupropion did reduce cigarette smoking. Post hoc findings of an effect for bupropion among baseline light, but not heavy, MA users suggests further evaluation of bupropion for light MA users is warranted. Support: NIDA grant 1 P50 DA 18185

CPDD 2008 Annual Meeting, San Juan, Puerto Rico

693 DEVELOPING A TREATMENT FOR PRESCRIPTION OPIOID ABUSE

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Aims: Despite recent increases in prescription opioid (PO) abuse, little is known about effective treatments. While long-term maintenance may be warranted for this population, we believe an initial effort at opioid detoxification is important to explore as some early data suggest that PO users may be less severe than heroin users and also may avoid maintenance therapies due to the stigma associated with them. The aim of this project was to develop a treatment for PO abuse which included brief buprenorphine stabilization, a 2-week taper and transition to naltrexone therapy. **Methods:** Fourteen PO abusers were enrolled in a 12-week, outpatient pilot study. Subjects were on average 30 yrs old, 100% Caucasian, and 43% female. Oxycodone was the primary opioid of abuse, with 79% of subjects reporting the intranasal as their primary route and using an average of 80 mg/day. All subjects received double-blind, double-dummy medication administration, intensive behavioral therapy and urinalysis testing throughout the study. **Results:** The intervention produced high initial rates of opioid abstinence, with 83.8% and 91.7% of urines testing opioid-negative during the stabilization and 2-week taper, respectively. At the end of the taper, 36% of subjects successfully transitioned to naltrexone, defined by receiving a full opioid-blocking 50mg dose of naltrexone. Additional data from this double-blind trial with PO abusers will include a full characterization of opioid withdrawal via self-report, observer-rating and pupillometer assessments, examination of the baseline demographic and drug use characteristics that may predict treatment outcome, and discussion of potential methods for improving outcomes. **Conclusions:** Data from this initial study suggest that a brief outpatient taper may be effective in a subset of PO abusers. Our future efforts will aim to further improve outcomes, as well as to identify individuals for whom a short-term taper vs. longer-term maintenance is indicated. Overall, data from this trial will contribute important information to the development of effective treatments for PO abuse. **Support:** This study was supported by NIDA grants R01 DA019989 and T32 DA007242.

694 D-SERINE REDUCES SPATIAL LEARNING AND MEMORY DEFICITS BY L-HYDROXYBUTYRIC ACID IN ADOLESCENT RAT

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Aims: GHB is abused for its euphoric, sedative and anabolic effects, and in almost all cases of GHB abuse, the user reports of amnesia. Previously, we have shown that GHB exposure in adolescent rat impairs spatial learning and memory. Since the N-methyl-D-aspartate (NMDA) class of glutamate receptor is known to play an important role in learning and memory, we studied the role of NMDA receptor (NR) regulation in GHB-induced cognitive deficits. Cognitive impairments by GHB were found to be associated with alterations in NR regulation. [3H]MK-801 binding was significantly reduced in GHB-exposed adolescent rats compared to saline controls. Here we further examined the role of NR in GHB-induced cognitive deficit. Functional NR activity requires activation of both the glutamate and strychnine-insensitive glycine-recognition sites, and maximal activation of the latter site is thought to attenuate NR hypofunctioning. The hypothesis tested was that NR activation with D-serine, an endogenous full agonist at the glycine recognition site, will improve GHB-induced spatial learning and memory deficits. **Methods:** Adolescent rats were treated with either GHB (100 mg/kg) or saline. Groups of rats were preinjected with D-serine or vehicle, prior to drug or saline administration. All rats were tested in the hidden platform task (reference memory) of the Morris water maze. **Results:** As reported previously, GHB-treated rats performed poorly in the water maze task. They took significantly longer and swam greater distances to find the platform than saline controls. Pretreatment with D-serine attenuated GHB-induced deficit in the acquisition of spatial memory. **Conclusions:** Cognitive deficits caused by GHB in adolescent rats appear to be sensitive to the activation of the glycine-recognition site but the effects were not robust. NR agents targeting the other regulatory/modulatory NR sites may have better therapeutic effects in reversing or attenuating GHB-induced cognitive deficits. **Support:** Supported by the NIDA(DA-018234)

695 BASELINE STUDY OF PROBLEM GAMBLING AND CO-OCCURRING SUBSTANCE USE AMONG STUDENTS AT THE UNIVERSITY OF IOWA

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Aims: Gamblers are more likely than non-gamblers to binge drink, use marijuana and illicit drugs, and participate in unprotected sex; the strongest relationship is between binge drinking and gambling (LaBrie et al, 2003). Since high risk behaviors tend to cluster, an increase in one can lead to an associated increase in another. In response to the absence of research on the effects of casino development and student high risk behavior on student gambling, this study aimed to establish a baseline picture of college student gambling behaviors at the University of Iowa, where a nearby casino recently opened and students engage in high risk behaviors (69.6% (n=1,468) and 74.9% (n=353) were found to binge drink in 1997-2001 and 2003 studies respectively). **Methods:** Ten gambling-related items taken from two previously validated screening tools, the South Oaks Gambling Screen and the Lie/Bet Screening Tool, were included in a pre-existing student health survey. The response rate was 96%. **Results:** Although students gamble infrequently during the week (no more than 9% of students surveyed gambled more than once a week on a particular game), 15% may have a gambling problem (of students surveyed, 15.2% have felt a need to bet more and more money and 7.2% have lied about how much they gambled). Of the first-year students surveyed, 54% have gambled on cards or dice in their lifetimes; 19% have been to a casino at least once in their lifetimes; and 12% have lied to significant people in their life about how much they gamble. **Conclusions:** These findings suggest the need for prevention programs which target first-year undergraduates prior to their attendance at the university. In the future, this baseline assessment will be compared to bi-annual survey results to monitor changes in students' gambling habits as the new casino further develops. **Support:** Survey data were collected from a sample of 797 students enrolled in a mandatory health promotion class, with an even split of male and female students.

696 UNDERSTANDING THE LATENT STRUCTURE OF ALCOHOL AND CANNABIS PROBLEMS IN A COMMUNITY SAMPLE: A TAXOMETRIC EXPLORATION

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Aims: There is growing evidence that problems associated with substance use disorders (e.g. dependence and abuse) are most appropriately conceptualised using one or more continuous dimensions rather than as categorical "yes/no" entities. Taxometric analysis is a statistical technique specifically designed to test this assertion. The aim is to use taxometric analysis to examine the latent structure of problems associated with the use of alcohol and problems associated with the use of cannabis. **Methods:** DSM-IV symptoms associated with the use of alcohol and cannabis dependence and abuse were subjected to a taxometric analysis using data from a large epidemiological survey of mental disorders (Australian National Survey of Mental Health and Wellbeing) in the Australian adult general population. **Results:** Alcohol use problems were best explained by a latent, continuous dimension ranging from mild to severe while there was tentative evidence that problems associated with using cannabis were best explained by a latent discrete category. **Conclusions:** These findings have implications for the way that substance use problems are measured and classified and may demonstrate specificity in latent structure with regard to the type of substance under investigation. **Support:** This research is supported by an Australian National Health and Medical Research Council project grant (no. 510137).

CPDD 2008 Annual Meeting, San Juan, Puerto Rico

697 THE EFFECT OF EDUCATIONAL BACKGROUND AND INDIVIDUAL LEARNING STYLES ON SUBSTANCE ABUSE CLINICIAN TRAINING

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Aims: Clinicians in the substance abuse treatment field often do not employ state-of-the-art interventions when treating their clients, in large part because of the well-established research to practice gap. There is a lack of research that has explored the most effective way to overcome the research to practice gap, and how best to transfer information from researcher to clinician. In developing an effective method of technology transfer, a potentially important question that has been largely overlooked is, what role, if any, do the cognitive and learning styles of the participants play? There are two reasons to consider assessment of cognitive and learning styles. First is to provide a reliable and valid way of being able to compare individual learners. The second is that individuals are frequently unaware of their own learning style preferences and, therefore, the type of learning materials and methods that are best for them. **Methods:** A recently funded NIDA project addresses begins to examine issues related to the research to practice gap. In this project, field clinicians will be offered evidence-based training (based on Behavioral Couples Therapy [BCT]), and then receive post-training support system, designed using principles of the constructivist learning theory. A part of this research project looks at the impact of the process of learning, based on Kolb's cyclical model of the learning process. The Learning Style Questionnaire (LSQ) will be administered to study participants prior to training. The LSQ will help identify individual preferences for learning and categorize the participants in four styles of learning (Activist, Reflector, Theorist and Pragmatist). **Conclusions:** It is hypothesized that learning style differences will have an impact on the liking and use of the post-training support system. The long-term implications of this research may be significant, as using theory-based approaches to facilitate learning may help improve the methods and efficacy of technology transfer. **Support:** This project is supported by NIDA R01 DA018295.

698 DOES CHILDHOOD ABUSE HISTORY IMPACT OUTCOMES AMONG HOMELESS YOUTH RECEIVING SUBSTANCE ABUSE TREATMENT?

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Aims: The most recent federal study of runaway and throwaway youth found that 1.7 million youth were homeless in 1999 and prolonged abuse by family members appears to be the most common reason that youth leave home. Evaluations of the efficacy of interventions for homeless youth with a history of childhood abuse are virtually absent. To address this gap, this study explored treatment outcome among homeless youth with and without histories of childhood abuse who received a substance abuse treatment intervention. **Methods:** This study compared treatment outcomes among abused (n=140) and non-abused (n=110) homeless youth between the ages of 14 to 22 who met criteria for substance abuse or dependence. Participants were randomly assigned to either a substance abuse treatment intervention, the Community Reinforcement Approach, or to treatment as usual, and were assessed at baseline, three and six months post-baseline. **Results:** Hierarchical linear modeling was used to investigate changes in the outcome variables (substance use, Beck Depression scores and total problem behaviors) and the impact of treatment, demographic characteristics, coping style, social stability, and childhood abuse on these changes. Interaction terms with gender were included assuming that different forms of abuse would impact males and females differently, which might then interact with treatment outcomes. Findings showed that outcomes differed among youth depending upon the type of abuse experienced, coping style, outcome measured, and gender. **Conclusions:** Although more research is needed, the current findings suggest that in order to improve substance abuse treatment outcome, the form of abuse experienced by homeless youth should be assessed. Treatment strategies may need to be tailored to the individual depending upon which type of abuse has been experienced and who the survivor of the abuse is, male or female. **Support:** This work has been supported by NIDA grant R01 DA13549 and CSAT grant T112503.

699 CHRONIC EXERCISE DECREASES THE REINFORCING EFFICACY OF COCAINE

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Aims: Aerobic exercise can serve as an alternative non-drug reinforcer in laboratory animals and has been recommended as an intervention in drug abuse prevention and treatment programs. Unfortunately, relatively little empirical data have been collected that specifically address the possible protective effects of voluntary long-term exercise on measures of drug self-administration. The purpose of the present study was to examine the effects of chronic exercise on sensitivity to the positive-reinforcing effects of cocaine in the drug self-administration procedure. **Methods:** Female rats were obtained at weaning and immediately divided into two groups. Sedentary rats were housed individually in standard laboratory cages that permitted no exercise beyond normal cage ambulation; exercising rats were housed individually in modified cages equipped with a running wheel. After 6 weeks, rats were surgically implanted with indwelling venous catheters and trained to self-administer cocaine on a fixed-ratio schedule of reinforcement. Once self-administration was acquired, cocaine was made available on a progressive ratio schedule and breakpoints were obtained for various doses of cocaine in both groups of rats. **Results:** Sedentary and exercising rats did not differ in the time to acquire cocaine self-administration or responding on the fixed-ratio schedule of reinforcement. On the progressive ratio schedule, breakpoints were significantly lower in exercising rats than sedentary rats when responding was maintained by both low (0.3 mg/kg/infusion) and high (1.0 mg/kg/infusion) doses of cocaine. In exercising rats, greater exercise output prior to catheter implantation was associated with lower breakpoints at the high dose of cocaine. **Conclusions:** These data indicate that chronic exercise decreases the positive-reinforcing effects of cocaine and support the possibility that exercise may be an effective intervention in drug abuse prevention and treatment programs. **Support:** This study was supported by US Public Service Grant DA14255, the Howard Hughes Medical Institute, the Duke Endowment, and Davidson College.

17 700 ROUTES OF NONMEDICAL USE/ABUSE OF OXYCONTIN® (OXYCODONE HCl) CONTROLLED-RELEASE TABLETS

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Aims: Understanding how individuals self-administer opioid analgesics for nonmedical use/abuse purposes is important for informing efforts to mitigate this problem. OxyContin® is one of a number of opioid analgesics that have been nonmedically used/abused in the United States. The purpose of this study was to determine the specific routes of administration employed by nonmedical users and abusers of OxyContin and the characteristics of such individuals. **Methods:** A review of the published scientific literature. Inclusion eligibility criteria were: any study presenting original empirical data on routes of self-administration of oxycodone, oxycodone extended-release or OxyContin for nonmedical use or abuse purposes. **Results:** Six studies met inclusion criteria. Study design, sampling frame, and sample size varied widely. Identified routes of current OxyContin administration included swallowing intact tablet(s); chewing and swallowing; crushing and snorting; and crushing, dissolving and injecting. Two studies assessed respondents' recall of routes of administration at first instance of OxyContin nonmedical use. Those nonmedically using the drug for the first time were more likely to swallow tablets intact; more experienced nonmedical users/abusers were more likely to snort or inject them. **Conclusions:** Information on routes of administration involved in the nonmedical use or abuse of OxyContin is limited, and does not adequately represent all the relevant populations who are at risk for OxyContin nonmedical use/abuse. What data are available suggest that route of nonmedical administration of OxyContin may be a function, in part, of the length of time the individual has been nonmedically using/abusing the drug. **Support:** N/A

CPDD 2008 Annual Meeting, San Juan, Puerto Rico

701 ADOLESCENT COPING AND SELF-EFFICACY TO RESIST MARIJUANA USE IN THE PRESENCE OF NEGATIVE EMOTION

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Aims: Emotional Self-efficacy(SE)- self-efficacy to abstain from use in the presence of negative emotion has been linked to adolescent substance use. Coping skills may be important in enhancing SE to abstain from use while experiencing negative mood and these skills may vary as boys and girls differ in coping used in response to stress. Girls tend to seek relational support while boys tend towards externalizing strategies. This study aimed to test how coping skills influence boys' and girls' self-efficacy to abstain from marijuana. **Methods:** 251 high school students (33% of total sample, N=1093; 50% female) reported current marijuana use on an anonymous survey measuring adolescent substance use and potential moderators of use. Teens rated the extent to which they engage in eight coping styles, such as behavioral, cognitive, and peer support. They also rated their self-efficacy to resist using when experiencing negative emotion. Linear regression analysis regressed self-efficacy on gender, the eight coping styles, and interaction effects. **Results:** Boys and girls did not differ in rates of use ($p=.17$) or in their confidence to resist using marijuana when experiencing negative mood ($p=.45$). After accounting for the relative influence of the 8 coping subscales, greater use of helpless coping was associated with lower SE to resist use ($\beta=-.72$, $p<.05$). Significant coping by gender interaction effects indicated that seeking peer support was related to higher SE for girls ($\beta=.29$, $p<.005$) and lower SE for boys ($\beta=-.363$, $p<.05$). Seeking parental support was related to greater SE for boys ($\beta=.45$, $p<.05$) but not for girls. **Conclusions:** Skill based coping strategies - such as behavioral coping or cognitive coping may be less related to SE to abstain when experiencing negative emotion than more interpersonal strategies. The use of certain interpersonal strategies may be protective for girls but risky for boys. Implications of these findings for treatment development will be discussed. **Support:** This research was supported by a project grant to S. Krishnan Sarin from a NIDA Center grant P50 DA09421.

702 THE EFFECTS OF PROLONGED EXPOSURE TO COCAINE SELF-ADMINISTRATION ON FUNCTIONAL ACTIVITY IN MONKEY STRIATUM

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Aims: We have previously shown, using a monkey model of cocaine self-administration, that the duration of self-administration experience is a critical factor in determining the functional response to cocaine. As the length of cocaine exposure extends from 5 to 100 days, alterations in functional activity increase in magnitude and anatomical extent. These time points allow the assessment of changes due to chronic cocaine exposure, but are still well short of the duration of use by most cocaine addicts. The purpose of the present study, therefore, was to characterize changes in brain glucose metabolism following prolonged exposure to cocaine self-administration (1.5 years), a period of time more relevant to human use patterns. **Methods:** Monkeys self-administered cocaine (0.3 mg/kg/infusion; 30 reinforcers per session; FI-3 min schedule) for a period of 1.5 yrs ($n=4$) and were compared to food controls ($n=4$) whose responding was maintained under an identical schedule. Immediately following the final reinforcer of the last self-administration session functional activity was assessed via the 2-[14C]deoxyglucose method. **Results:** Prolonged cocaine self-administration of 1.5 yrs resulted in statistically significant decreases in glucose metabolism (15-22%) in ventral portions of the anterior pre-commissural striatum. Furthermore, decreases of 14% to 18% were measured in all sub-regions of the posterior pre-commissural striatum. Although these effects were highly significant compared to the food control group their magnitude was less than those previously observed following 100 days of cocaine experience, when decreases of up to 30% were measured. **Conclusions:** These data indicate that the impact of cocaine on functional activity following a prolonged regimen of cocaine self-administration appears to moderate or even decline compared to effects seen after 100 days of exposure. This finding is consistent with both the deficits in dopamine release and reports of reductions in the pleasurable sensations associated with cocaine use in humans with protracted drug histories. **Support:** DA09085, DA06634

703 LICIT SUBSTANCE USE, DEPRESSION AND TRAUMA IN PREGNANT WOMEN AT HIGH AND LOW RISK FOR PRENATAL ILLICIT DRUG

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Aims: The purpose of this study was to examine whether pregnant women at increased risk for prenatal illicit drug use also reported higher rates of licit substance use, increased risk for depression and greater violence exposure than pregnant women at low risk. **Methods:** The sample included 375 pregnant women who sought prenatal care at an urban OB/GYN clinic. All women provided informed consent and completed a 35 min. questionnaire battery at first prenatal visit. For the present study, the 4-item drug CAGE, a standardized screening instrument, was used to classify women as high risk (scores ≥ 2) for illicit drug use (HR, N=63) or low risk (scores < 2 ; LR, N=312) for prenatal illicit drug use. Other measures examined included: CAGE for alcohol, Household Survey items on tobacco, CES for Depression (CES-D), and standardized screening questions for physical abuse. **Results:** Demographically, the sample had a mean age of 25.7 yrs; sought prenatal care at average EGA of 16 weeks; 75% were single and over three-fourths reported the pregnancy was unplanned. HR pregnant women were twice as likely to report ever smoking daily (76%) than LR women (36%) ($p<.001$). They were also less likely to report cutting down on their smoking during pregnancy (80% and 91%, $p<.10$). HR pregnant women were nearly six times more likely to also be at risk for prenatal alcohol use (29%) than LR women (5.5%) ($p<.001$). Rates of depression were similar for the groups. However, HR women were nearly twice as likely to report a history of physical abuse than LR women (40% and 21%, $p<.006$) and they were more likely to report recent (past year) physical abuse (21% and 11%, $p<.05$). **Conclusions:** Study findings confirm that pregnant women at HR for illicit drug use are also more likely to report other behaviors associated with adverse maternal and infant outcomes (e.g., smoking, drinking, physical abuse). Data suggest OB clinical staff should target screening and intervention efforts toward this multiple-risk group of pregnant women. **Support:** Research was supported by NIH grants NIDA R01 DA11476 and NIAAA AA11802.

704 PERIPHERAL ADMINISTRATION OF COCAINE, ACTING VIA D2 DOPAMINE RECEPTORS, CAUSES THE RELEASE OF ENDOGENOUS OPIOID PEPTIDES THAT ACTIVATE MU RECEPTORS WITHIN THE STRIATUM AND VTA

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Aims: The purpose of the present study was to determine if peripheral cocaine administration causes the release of endogenous opioid peptides that bind to mu opioid receptors in the nucleus accumbens and VTA. The dose- and time-dependency of cocaine-induced release of endogenous mu opioid peptides was characterized, as was the involvement of D1 and D2 dopamine receptors. **Methods:** Adult male Sprague-Dawley rats were given peripheral injections of cocaine (0, 2.5, 10 or 20 mg/kg ip). Ten minutes following injections, brains were removed and prepared for measurement of mu opioid receptors by quantitative in vitro receptor autoradiography. For the time course study, rats were given ip injections of cocaine (10 mg/kg) and brains removed at 0, 5, 10, 20 or 30 minutes following cocaine injection. For the dopamine receptor antagonist study, rats were given ip injections of the selective D1 receptor antagonist, SCH23390 (0.5 mg/kg) or the selective D2 receptor antagonist eticlopride (1.0 mg/kg) 30 minutes prior to ip injections of cocaine (10 mg/kg) and 10 minutes later, the brains were removed and prepared for receptor measurements. For all three studies, 15 uM sections were taken throughout the striatum and VTA, and mu opioid receptor occupancy was measured by 3H-DAMGO binding. **Results:** Results demonstrate that peripheral cocaine administration caused a dose- and time-dependent decrease in 3H-DAMGO binding within the striatum and VTA. Maximal displacement of 3H-DAMGO binding, which can be attenuated by D2 receptor blockade, occurred at a cocaine dose of 10 mg/kg and at 10 minutes following cocaine administration. These data indicate that cocaine causes the release of endogenous opioid peptides that bind to mu opioid receptors in the accumbens and VTA. **Conclusions:** These results demonstrate that cocaine, acting via D2 dopamine receptors, can cause the release of endogenous opioid peptides that activate mu receptors within the striatum and VTA. **Support:** This work was supported by NIH/NIDA DA09580 (EMU)

CPDD 2008 Annual Meeting, San Juan, Puerto Rico

705 VALIDATION OF ASSESSMENTS FOR ABUSE LIABILITY TRIALS

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Aims: Drug abuse potential is determined based on various measures including assessments of subjective drug effects over time using "at this moment" measures (e.g., Visual Analog Scale [VAS], Addiction Research Centre Inventory [ARCI] and Cole Modification of the ARCI [Cole/ARCI] scales). The Overall Drug Effect VAS (at either 12 or 24 hours post dose) is assumed to be a preferred summary measure but its validity has not been established. **Methods:** This was a randomized, double-blind, triple-dummy, single-dose, crossover study. 32 subjects with a history of recreational opioid use were administered 2 x 60 mg extended-release morphine sulfate pellets with naltrexone core in capsules; 120 mg morphine sulfate in solution and placebo. The capsules were given whole and crushed. Subjects completed assessments over 24 hours (VASs [for Drug Liking (at this moment), High, Good Effect and Overall Drug Liking], ARCI [MBG] and Cole/ARCI [Stimulation Euphoria and Abuse Potential] scales and estimate of Subjective Drug Value (SDV) using validated computerized tests (DecisionLine-SMS). Correlations between the assessment scales were analyzed using Pearson correlations. **Results:** Measures of positive drug effect at this moment and overall drug effect were highly correlated ($P < 0.001$) however correlation between scales was affected by treatment. In comparison to ARCI and Cole/ARCI scales, VASs (at the moment) showed higher correlation with the measures of overall drug effect. Furthermore, the responses on SDV and VAS Overall Drug Liking at 12 and 24 hours post dosing were highly correlated. **Conclusions:** The responses on the "at the moment" and overall drug effect scales are highly correlated. SDV and VAS for Overall Drug Liking are equally valid summary measures of positive drug effects suggesting both are not needed. VAS measures are superior to ARCI scales. The high correlation among measures indicates simpler designs of abuse liability studies are possible. **Support:** Alpharma Pharmaceuticals LLC, Piscataway, NJ, USA

706 FEASIBILITY OF CONDUCTING GENETICS RESEARCH AT COMMUNITY TREATMENT PROGRAMS

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Aims: The addition of genetics research to pharmacotherapy trials is becoming more and more common. However, there has been some concern among community treatment providers that genetics research would be unacceptable to their clients. The NIDA Clinical Trials Network (CTN) is currently conducting an add-on genetics substudy to a medication trial comparing the effects of long-term methadone and buprenorphine on liver function (Starting Treatment with Agonist Replacement Therapies; START). The genetics substudy is exploratory in nature, with 3 main goals: 1) To better understand the potential genetic influence on opioid addiction (wk 2 sample); 2) To better understand how opioid dependent individuals metabolize buprenorphine and methadone (wk 12 sample); and 3) To evaluate feasibility of conducting a genetics study within the CTN. **Methods:** Samples for genetic analysis are drawn during regular START blood draws. Week 2 samples are sent to the NIDA repository and wk 12 samples to MUSC for pharmacogenetic analysis. **Results:** Although data are still being collected, there is good evidence to support the feasibility of collecting genetic samples for analysis through the CTN. To date, all 8 of the START research sites have been fully trained and are actively enrolling participants. Of the 288 START participants eligible to enroll in the genetics substudy to date, 243 have been approached to participate and 228 consented. There have been 210 blood samples obtained for the wk 2 sample, and 117 samples obtained for wk 12. This substudy has 4 different levels of consent so that participants can choose how their samples may be used in the future. Most (72.5%) have agreed to the most liberal use of their samples. **Conclusions:** These data suggest that individuals in community treatment settings are willing to participate in genetic studies on addiction. **Support:** This project is sponsored by NIDA and the NIDA CTN.

707 METHADONE VS. NON-METHADONE PATIENTS IN A THERAPEUTIC COMMUNITY: TESTING OF EQUIVALENCY

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Aims: Residential therapeutic communities (TCs) have demonstrated effectiveness, yet for the most part they adhere to a drug-free ideology that is incompatible with methadone maintenance (MM). This study compared MM to non-MM clients enrolled in a TC. Testing the statistical hypothesis that the two groups were equivalent. **Methods:** The sample consisted of 125 MM and 106 non-MM clients. Assessments were conducted at 6, 12, 18, and 24 months. Clients in both groups were opiate-dependent and matched on psychiatric history, criminal justice pressure, and expected length of stay in the TC. Primary hypotheses were that retention in the TC and illicit opiate use would be equivalent between MM and non-MM groups. Secondary hypotheses were that stimulant, benzodiazepine, and alcohol use, as well as HIV risk behaviors and criminal behaviors, would be equivalent between groups. **Results:** As expected, MM and non-MM groups were statistically equivalent on retention in the TC (166.5 days for the MM group versus 180.2 days for the non-MM group) and illicit opiate use. MM and non-MM groups were also equivalent on stimulant and alcohol use. The groups were statistically equivalent for benzodiazepine use at all assessments except at 24 months where 7% of the MM group and none of the non-MM group tested positive. Regarding HIV risk behaviors the groups were equivalent at all observation points. **Conclusions:** These findings suggest that methadone patients fared as well as other opiate users in TC treatment, and provide additional evidence that TCs can be successfully modified to accommodate methadone maintained patients. **Support:** Supported by grants from NIH/NIDA: R01DA014922, P50DA09253 (San Francisco Treatment Research Center), and U10DA15815 (CA-AZ Clinical Trials Network Node).

708 CHARACTERIZATION OF BUPRENORPHINE ABUSE USING RADARS® SYSTEM POISON CENTER DATA

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Aims: Buprenorphine (bup) is believed to have low abuse potential. We characterized the abuse of buprenorphine as reported by RADARS System Poison Centers (PC). **Methods:** PC use a standardized, electronic data collection system to record spontaneous calls from the public and health professionals. PC bup intentional exposure calls from 43 participating PC (1/2003-6/2007) servicing more than 190 million people were abstracted using a standard abstraction form to characterize cases of abuse. Cases were defined as abuse when case notes specified bup was either injected or snorted, or the case notes indicated bup was "abused", used "recreationally" to get "high", or similar terms. Abuse rates per 1,000 URDD (Unique Recipients of Dispensed Drug-proxy for drug availability in a community) were analyzed. **Results:** 125 cases of bup abuse were reported during the analysis period. The mean age of abusers was 27 years, and 65% were male. The most common routes of exposure were ingestion (34%), injection (29%) and inhalation (18%). Medical effects were noted in 50% of bup cases, including 1 death. In 62% of cases, only bup was involved-no other products or substances were reported. While 7% were chronic abusers, 12% of abusers were first time users; the remainder (81%) did not report whether abusers were chronic or first time users. Quarterly bup abuse rates averaged 0.2 cases per 1,000 URDD (i.e. two cases of abuse for every 10,000 people filling a bup prescription); this rate has not significantly varied over time ($p > 0.05$). However, the number of reported abuse cases has significantly increased at a rate of one case per quarter from 0 cases in 1st quarter 2003 to 18 cases in 2nd quarter 2007 ($p < 0.001$). **Conclusions:** PC data clearly demonstrate the abuse of bup. Despite efforts made by manufacturers to deter abuse by injection or inhalation, such as combining naloxone with bup, these routes of exposure are being utilized to abuse bup products. **Support:** RMPDC operates the RADARS System and provides data to industry, regulatory agencies and researchers on a subscription basis.

CPDD 2008 Annual Meeting, San Juan, Puerto Rico

709 SBIRT OUTCOMES IN HOUSTON: INITIAL REPORT ON A HOSPITAL-DISTRICT PROGRAM

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Aims: A Screening, Brief Intervention, and Referral to Treatment (SBIRT) program was implemented in the Harris County Hospital District (HCHD). This study measured changes in patients' heavy alcohol use, illegal drug use, mental problem status, and health problem status who received SBIRT services. **Methods:** SBIRT services were implemented at multiple HCHD Emergency, Trauma, and Community Clinic sites as the standard of care for all patients. The follow-up sample available for outcomes analyses was 1,147. Association between patients' age, gender, and other demographic characteristics with alcohol and drug usage were examined as well as changes in outcomes from admission to 6 month follow-up. **Results:** The follow up sample's basic demographics were similar to the total service population. For patients with AUDIT scores indicating drinking problems, the percentage of patients with any days of heavy drinking during the prior 30 days changed from 73% at admission to 26% at follow-up. Mean days of heavy drinking reduced from 7.1 days to 1.9 days per month. For patients with DAST scores indicating drug usage, 82% reported any days of drug use in prior 30 days at intake compared to 12% at follow-up. Mean days using illicit drugs went from 7.3 days at intake to .9 days per month at follow-up. Mental health problems as measured by K6 scores decreased on average from 12.5 at intake to 10.8 at follow-up. General health problems decreased on average from 3.6 at intake to 2.9 at follow-up. All were statistically significant. **Conclusions:** The findings are consistent with positive effects of SBIRT on patients' alcohol and drug usage and health. Differential findings for subgroups are expected to inform refinements in design and targeting of services. Without a randomized control group, these findings are descriptive. **Support:** The SBIRT project is supported by a SAMHSA/CSAT grant through the Texas Department of State Health Services (DSHS), Contract #11618.

710 EPIDEMIOLOGICAL TRENDS IN PRESCRIPTION DRUG MISUSE AND ABUSE

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Aims: Prescription drug abuse is endemic in the US. We evaluated for trends between social, geographic and demographic factors and cases of select scheduled drugs (SD - buprenorphine, fentanyl, hydrocodone, hydromorphone, morphine, methadone, and oxycodone) using RADARS System poison center (PC) data and census data. **Methods:** Spontaneous calls from the public and healthcare professionals are recorded by PCs using a standardized, electronic data collection system. We compared the annual incidence of total SD cases to annual data from the US Dept of Labor and US Census Bureau by year and by state for unemployment rate (UP), poverty rate (PV), population density (PD), high school graduation rate (HS) and bachelor degree proportion (BD) using best least square fit, in an evaluation for trends for 2003 - 2006. The SD rate of the three drugs with the highest individual rates was individually compared to evaluate the influence each drug played in any identified trend. **Results:** Two strong positive trends were found with PV and UP and SD rates, with SD rates increasing as PV and UP increased. This trend was consistent over the 4 years of study and strongly influenced by hydrocodone and methadone rates, with less influence from oxycodone rates. Both BD and HS and SD rates were inversely related. The BD trend was consistent over the 4 years of study and strongly influenced by the hydrocodone and methadone rates, with less influence from oxycodone rates. The HS trend was consistent over the 4 years and strongly influenced by the hydrocodone and methadone rate, but not influenced by oxycodone rates. No consistent trend was identified with PD and SD rates, suggesting this may not be a significant factor in prescription drug diversion. **Conclusions:** Educational or treatment resources directed to drug abuse are limited. Understanding these trends may help guide distribution of scarce resources and prevention efforts to where they may have their greatest impact. **Support:** This study was supported by an unrestricted grant from Denver health.

711 EFFECTIVENESS OF A COMMUNITY PHARMACIST-BASED SMOKING CESSATION INTERVENTION: THE STOP STUDY PHASE IV

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Aims: The STOP (Stop Smoking Therapy For Ontario Patients) study is evaluating several smoking cessation models of care. The objective of this study is to evaluate the effectiveness of 2 levels of smoking cessation support provided by community pharmacists in conjunction with nicotine replacement therapy (NRT). **Methods:** In this open, randomized trial, eligible smokers enrolled using an online assessment tool and were randomized to receive 5 weeks of NRT and either 3 brief counseling sessions (initially, at 1 week and 3 weeks) or 1 brief session with a community pharmacist. **Post-treatment follow-up:** 5-weeks, 6- and 12-months. **Results:** 101 pharmacists from 83 pharmacies across Ontario participated. To date, over a 7-month period, 4313 subjects have had at least one session with a pharmacist (3-Session Group = 2219, 1-Session Group = 2094; mean age 43 ± 13 years, range 18-82 years; 54% female; 83% smoked more than 15 cigarettes/day, 60% had least 1 quit attempt in past year, mean 7.4/10 confidence in quitting; with no differences between groups). In the 3-Session Group, 69% completed 2 sessions and 45% completed all 3 sessions. Overall, most sessions (71%) were less than 10 minutes in duration. 5-week follow-up data is available for 1416 subjects (33% of each group). The 3-Session Group participants were more likely to use all 5 weeks of NRT compared to the 1-Session Group (40% vs 34%, respectively, p=0.02). Quit rates for the 3-Session Group compared to the 1-Session Group calculated assuming that those without follow-up data were still smoking were: 15.5% vs 14.3%, respectively, ns. For those attending all sessions and providing follow-up data, the quit rates were: 267/451 (59%) for the 3-Session Group vs 299/684 (44%) for the 1-Session Group, p<0.001. **Conclusions:** Results demonstrate that a program of community pharmacists' brief counselling in combination with NRT is an effective smoking cessation strategy, with potentially increased benefits for those completing 3 brief sessions. **Support:** Ontario Ministry of Health Promotion

712 COCAINE/CRACK USE IS FREQUENT AMONG NEW ADMISSIONS AND PREDICTS EARLY DROPOUT FROM PSYCHIATRIC DAY TREATMENT

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Aims: To determine the prevalence of cocaine/crack use among new admissions to psychiatric day treatment and the relation between cocaine/crack use and early dropout. **Methods:** Consecutive new admissions (N=229) to a large urban continuing psychiatric day treatment program were recruited during 2003-2005 as part of a clinical trial of self-help. Early dropout was defined as leaving the program within 90 days. At intake, DSM-IV substance dependence/abuse diagnoses were made by program psychiatrists; substance use self-reports (past 90 days) and hair (90 day segment) & urine toxicologies were obtained on a confidential basis by researchers ("research protocol"). **Results:** Age (mean) 39 y; male 60%; black 42%; Hispanic 41%; white 18%; public assistance 69%; major depression 25%; bipolar, 13%; other mood 13%; schizoaffective 13%; schizophrenia 13%; psychotic NOS 7%; anxiety 3%; other 13%. DSM-IV cocaine dependence or abuse diagnoses were received by 11% of admissions, whereas 45% were identified as recently using cocaine by the research protocol. The relative risk (RR) of early drop-out for cocaine diagnosis patients was 1.6 (.29/.18) as compared with other patients (p=ns). The RR of early dropout for cocaine users identified by the research protocol was 2.1 (.27/.13) as compared with other patients (p<.01). **Conclusions:** The relative risk of early dropout was similar for cocaine/crack users diagnosed by program psychiatrists and a research protocol at intake (although the RR for cocaine diagnosis was statistically non-significant due to skewed marginals). However, four times as many new admissions were identified as being at risk of early drop-out at intake by a research protocol in contrast to routine program diagnostic procedures. Under-identified cocaine use presents a challenge to psychiatric outpatient treatment in urban centers. **Support:** NIDA R01DA015912

713 PROJECT BRITE: DEVELOPING AND IMPLEMENTING A POSITIVE BEHAVIORAL REINFORCEMENT INTERVENTION TO INCREASE TREATMENT ENGAGEMENT IN PRISON-BASED SUBSTANCE ABUSE TREATMENT

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Aims: The purpose of Project BRITE is to (1) test the impact of a behavioral reinforcement intervention on inmate engagement in prison-based substance abuse treatment (thereby improving both psychosocial functioning over the course of treatment and post-release outcomes, and (2) assess the process by which this evidence-based innovation is implemented and sustained within prison-based treatment programs. **Conclusions:** The use of positive behavioral reinforcement for increasing desired behaviors has a long tradition of application in the behavioral literature and in alcohol and drug treatment. However, its use within the context of treating drug-involved offenders in correctional settings has received virtually no attention. Within prison settings, the reliance on punishment for controlling inappropriate or non-compliant behavior is self-evident. What is not so evident is the similarity between this reliance on punishment and the use of positive reinforcements to increase desired behaviors. Both methods of shaping behavior rely on the contingent delivery of reinforcement: punishment (in the case of prisons) or positive reinforcement to individuals who engage in specified behaviors. This paper provides an overview of the process by which the Project BRITE intervention was developed and implemented with the input and participation of institutional staff, treatment staff, and inmates enrolled in the treatment programs via planning workgroups and an emphasis on simplicity and low cost. The paper will also discuss the implementation and ultimate sustainability of the Project BRITE intervention within the context of Diffusion of Innovations Theory. Results from baseline qualitative focus groups and a baseline quantitative assessment of organizational readiness for change will be presented. **Support:** Supported by: NIDA Grant 1-R01-DA017856-01A2

714 ENRICHMENT-INDUCED DIFFERENCES IN PLASMA CORTICOSTERONE: A POTENTIAL MECHANISM FOR DIFFERENTIAL RESPONSES TO AMPHETAMINE IN RATS

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Aims: Rats raised in an enriched stimulus environment show a decrease in the locomotor and rewarding effects of repeated amphetamine. The purpose of the present study was to determine if enrichment-induced alterations in the stress axis contribute to the enrichment-induced change in the effects of amphetamine. **Methods:** Male Sprague-Dawley rats were raised in either an enriched condition (EC), standard condition (SC) or an isolated condition (IC) under a 12/12 hr light/dark cycle, with lights on from 6:00 -19:00 hr. Rats were then implanted with an intravenous catheter which allowed for blood collections. Following recovery and habituation to the blood collection procedure, six blood draws were taken within a 24-hr period starting at the 09:00 hr, resulting in blood draws at 09:00, 13:00, 17:00, 21:00, 01:00 and 05:00 hr. Following the collection of the blood samples, rats were treated with one of two doses of amphetamine (0.5 or 2.0 mg/kg) or saline, and plasma was then collected at 15, 60, and 180 min after injection. **Results:** EC rats had significantly lower corticosterone levels at two time points during the light phase compared to IC rats. Conversely, during the dark phase, EC rats had significantly higher corticosterone levels than both IC and SC rats at one time point. Fifteen minutes following treatment with either 0.5 or 2.0 mg/kg of amphetamine, EC rats had lower corticosterone levels than both IC and SC rats. In addition, 60 min following 2.0 mg/kg of amphetamine, EC rats had lower corticosterone levels compared to SC rats. **Conclusions:** Results from these studies indicate that the enrichment-induced decrease in the behavioral effects of repeated amphetamine may relate to a blunting of the stress axis. Since activation of the stress axis is known to enhance the reinforcing effect of amphetamine and to reinstate drug seeking behavior, enriching behavioral interventions may be useful for reducing drug abuse vulnerability and relapse. **Support:** (Supported by USPHS grants DA 12964 and DA 16176.)

715 WILL I STAY OR WILL I GO? ROLE OF EARLY TREATMENT EXPERIENCES IN PREDICTING ATTRITION

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Aims: Treatment effectiveness is compromised by high attrition. Elucidating predictors of attrition can inform strategies to maximize retention and the likelihood of successful outcomes. Clients' perspectives about leaving treatment are under-investigated. This study (1) Examines the role of background and psychosocial factors and of clients' early treatment experiences in predicting attrition; and (2) Explores stated reasons for attrition. **Methods:** Consecutive admissions to publicly-funded outpatient programs in NYC recruited within 2 weeks of admission (BL) and re-interviewed upon leaving treatment (N=250). **Study domains:** Demographics, clinical history, psychosocial functioning, recovery-promoting cognitions (e.g., commitment to abstinence), and treatment experiences at BL. **Results:** 59.8% of clients did not complete treatment. Drop-outs were 2.8 times more likely to return to drug use in the year after services ended (95%CI=1.86-4.23, p<.001). At intake, drop-outs and completers did not significantly differ in clinical characteristics (e.g., dependence severity, primary substance) or in psychosocial functioning. Predictors of attrition were male gender, younger age, lower BL levels of recovery promoting cognitions, lower BL rating of likelihood of completing treatment, and less favorable program ratings - e.g., agreement with treatment plan, counselor's helpfulness, degree to fit between program and expectations of what helps deal with addiction problems. Primary reasons for leaving were: dislike of program/staff/rules (31.6%), not wanting/needing help (23.1%) and interference with responsibilities (e.g. family, school). **Conclusions:** Key predictors of attrition appear established and thus identifiable, very early on. Starting at admission, open dialogue with clients may identify those at-risk for attrition and point to areas where additional clinical work is needed (e.g., problem recognition, motivation enhancement; overall therapeutic engagement) to reduce attrition and foster better recovery outcomes. **Support:** National Institutes on Drug Abuse Grant R01DA015133

716 ALTERATIONS IN SKELETAL DEVELOPMENT FOLLOWING GESTATIONAL TOLUENE EXPOSURE

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Aims: Toluene is an organic solvent commonly abused by inhalation among adolescents and young adults. Inhalant abusers are often women in their prime childbearing years. Toluene has an affinity for lipid rich tissue and can readily cross the placenta warranting concern about its effects on a developing fetus. Children born to mothers who abused solvents during pregnancy may exhibit characteristic symptoms of fetal solvent syndrome. One of these symptoms is thought to be skeletal malformations including malformations of the ribs and digits. Previous experiments in our lab measuring the effects of brief high dose prenatal toluene exposure in rats have resulted in rat pups with skeletal abnormalities including missing or malformed digits, limb deficits, and craniofacial abnormalities. **Methods:** This study examined whether repeated prenatal exposures, similar to those observed in an abuse setting, would produce a higher frequency of skeletal abnormalities, body weight, and body size differences in fetal rats as compared to those not exposed to toluene. Pregnant Sprague-Dawley rats were exposed for 15 min, twice daily, from gestational day (GD) 8 through GD20 to either air, 8000, 12,000, or 16,000 ppm toluene. Fetal skeletons were cleared of tissue, stained with Alizarin Red S and examined for abnormalities. **Results:** Exposure to toluene at all levels examined (8000, 12000, and 16000 ppm) significantly reduced growth and maturation including decreases in placental weights, fetal weights, and crown-rump length. In addition, ossification of the extremities was significantly reduced as a result of toluene exposure at all levels. Other malformations observed during this experiment include malformed scapula, missing and extra vertebrae and ribs, and fused digits. **Conclusions:** While these results suggest that animals exposed prenatally to toluene may have skeletal abnormalities, the functional significance of these morphological changes to long-term health remains to be determined. **Support:** Supported by NIH grant DA15951 to SEB.

717 SEXUAL RISK BEHAVIORS AND USE OF METHAMPHETAMINES AND OTHER DRUGS AMONG INCARCERATED FEMALE ADOLESCENTS WITH AN STD DIAGNOSIS

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Aims: Prior research has shown that high-risk sexual behaviors are associated with use of methamphetamines (MA) and other drugs. Yet there has been little exploration of the relationship of MA and other drug use with risky sexual behaviors among incarcerated female adolescents. The goals of this study are to identify demographic characteristics and sexual risk behaviors associated with use of MA and other drugs among incarcerated female adolescents with an STD diagnosis. **Methods:** Self-reported drug use, sexual risk behaviors and demographic data were examined from 478 interviews of confirmed chlamydia or gonorrhea cases diagnosed in Los Angeles juvenile hall in 2006-2007. **Results:** The sample was African American (49%), Hispanic (37%), White (7%) and Other (7%). STD diagnoses were: chlamydia (72%), gonorrhea (11%) or both (17%). Mean results were: age at arrest (16.0), age of first sexual experience (13.0) and number of lifetime sexual partners (6.0). Other sexual behaviors were: no condoms used at last sex (63%), prior pregnancy (26.2%), prior STD (25.3%), prior sexual abuse (20%), ever traded sex (17%), have children (11%), arrested for prostitution (9.3%) or drugs (7.0%), and currently pregnant (6.3%). Daily or weekly substance use was reported for any drug (51%), marijuana (36%), alcohol (21%), polydrug use (20%) and MA (15%). In multivariate analysis, MA users were more likely to be Hispanic (OR=6.30, CI: 3.6, 11.40) and report marijuana use (OR=2.00, CI: 1.18, 3.62) and less likely to report condom use at last sexual encounter (OR=.56, CI: .32, .96). **Conclusions:** Recognition of MA use and other drugs among incarcerated female adolescents underscores the need for interventions that address drug use and risky sexual behaviors through screening, referrals to drug treatment and post-release case management. **Support:** Los Angeles County Department of Public Health.

718 OPIOID ABSTINENCE REINFORCEMENT DELAYS HEROIN LAPSE DURING BUPRENORPHINE DOSE TAPERING

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Aims: This study aimed to determine if a single-component, positive reinforcement opioid abstinence contingency could delay lapse to opioid use among non-treatment seeking, heroin-dependent volunteers. **Methods:** Volunteers submitted urine specimens 3 times weekly (M, W, F) that were tested for opioids, methadone, cocaine, benzodiazepines, barbiturates, and cannabinoids during a 3-week BUP dose-tapering phase (4 mg/day, 2 mg/day, and 0 mg/day during weeks 1-3, respectively) after an inpatient research study. The control group (n=12) earned \$4 for completing questionnaires and providing urine specimens regardless of test outcome. The experimental group (n=10) earned \$30 for each consecutive opioid-free specimen collected; the first opioid-positive sample resulted in loss of further compensation. The primary outcome was time in days to opioid lapse. **Results:** The two groups did not significantly differ in demographic or heroin use histories. The opioid abstinence contingency markedly delayed time to lapse in the experimental group, relative to the control group. Survival analysis was used to measure the rate of continuous abstinence from heroin over time. Median survival time for the control group was only 1 day, reflecting rapid lapse to heroin. In contrast, median survival time for the experimental group was 15 days (range, 1 to 20). This group difference in time-to-lapse was confirmed by a significant log-rank test, $\chi^2(1) = 16.48$, $p < .001$. The hazard ratio was 3.47 (95% CI, 4.45 to 72.10). **Conclusions:** This study shows the efficacy of an isolated opioid abstinence positive reinforcement contingency for reducing opioid lapse among heroin-dependent individuals during BUP dose reduction. These findings are encouraging for demonstrating the potency of CM with a drug-dependent population that is not presently motivated for treatment. Work is underway to describe individual differences in sensitivity to this reinforcement contingency. **Support:** NIH R01 DA15462 and Joseph Young, Sr. Funds from the State of Michigan

719 COMPARISON OF AMPHIBIAN AND HUMAN MU OPIOID RECEPTORS: DIFFERENCES IN RECEPTOR INTERNALIZATION AND INHIBITION OF cAMP IN STABLE CELL LINES

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Aims: A fundamental goal in pharmacology is to correlate the primary amino acid sequence of receptors with observed ligand binding and function. Using comparative analysis of the mu opioid receptor (MOR) expressed in the amphibian, *Rana pipiens* (rpMOR) and that in humans (hMOR), we aim to examine receptor internalization and inhibition of cAMP following morphine and DAMGO administration. **Methods:** Chinese Hamster Ovary (CHO) cells were transfected with pIRESneo vectors containing the coding sequence of hMOR or rpMOR. Stable clones were selected that expressed equal amounts of receptor. For internalization, CHO cells expressing either rpMOR or hMOR were used in 24-well plates and at various time intervals (0-120 min) growth media was replaced with media containing a saturating concentration of morphine or DAMGO. Cells were rinsed and binding of [3H]naloxone (10 nM) counted. For functional assays, cells are plated as above, incubated with [3H]adenine and IBMX. 10 μ M forskolin, and various concentrations of morphine or DAMGO were added and [3H]cAMP detected by column elution and scintillation counting. **Results:** DAMGO induced a greater amount of receptor internalization than morphine in both rpMOR and hMOR cells. However, the half-life for MOR internalization was faster for morphine in rpMOR compared to hMOR cells; the opposite was found for DAMGO. Both morphine and DAMGO were more efficacious as measured by inhibition of cAMP in hMOR compared to rpMOR cells, with DAMGO significantly more potent in hMOR than rpMOR cells. **Conclusions:** These results show that significant differences in the internalization of receptors after agonist treatment and in post-receptor signaling can be detected. Taken together with previous data, these findings support the hypothesis that the molecular evolution of vertebrate opioid receptors is characterized by increased type-selectivity. Furthermore, the use of this comparative approach leads to identification of specific amino acids that are important for ligand binding, receptor internalization, and post-receptor signaling. **Support:** Support by NIH grant DA0124482 to CWS.

720 CHARACTERISTICS OF OPIOID-DEPENDENT PREGNANT WOMEN WHO ACCEPT OR REFUSE PARTICIPATION IN A CLINICAL TRIAL

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Aims: To compare the characteristics of opioid-using pregnant women who do and do not consent to enrollment in a clinical trial of agonist medications. **Methods:** Data were gathered as part of the MOTHER study, a multi-site, double-blind, double-dummy clinical trial to examine the safety and efficacy of buprenorphine v. methadone in opioid-dependent pregnant women. Of 703 women initially screened for inclusion, 283 were eligible and approached to participate. Of those women eligible, 125 (44.2%) consented to trial enrollment. The 125 women who consented and the 158 who did not consent were compared on demographic characteristics, estimated gestational age (EGA), treatment history, and concomitant cocaine use. **Results:** Compared to non-consenting women, women who consented were significantly more likely to be White (84.6% v. 72.6%) and married (15.4% v. 9.6%; both $p < .05$). Current treatment program enrollment was negatively related to consent, with 24.8% of consenting women not enrolled in a current maintenance treatment program compared to 11.5% of non-consenting women ($p < .001$). This finding may be due to a reluctance to disrupt their current treatment regimen. No significant differences were observed with respect to age, educational level, employment status, EGA, or concomitant cocaine use. **Conclusions:** Few differences were found between consenting and non-consenting women. These data show the feasibility of enrolling drug-dependent pregnant women into a complex and intensive clinical trial and is promising for future investigations involving the treatment of this high-risk population of women. **Support:** NIDA RO1DA 045778 015832 015764 015738 017513 018410 018417 015741

721 CONSISTENT USE OF METHADONE MAINTENANCE IS ASSOCIATED WITH LOWER COST TO THE MANAGED CARE ORGANIZATION

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Aims: Medicaid managed care organization (MCO) members with substance use problems (SUP) incur high costs to the MCO. Although methadone maintenance treatment (MMT) typically involves long term treatment and costs, health improvement and more efficient use of medical resources may lead to cost savings to the MCO. The purpose of this study is to examine associations between costs and SUP treatment. **Methods:** Three years of data from a Medicaid MCO paid claims database were examined for 603 members with SUP and prediction of high medical cost. Members were sorted into 4 groups based on claims codes: no SUP treatment (NoTx), non-MMT treatment only (NonMeth), low exposure to MMT (LoMeth, <50% weeks with MMT), and higher exposure to MMT (HiMeth, ≥50% weeks with MMT). **Results:** Both MMT groups had a high prevalence of opioid dependence (LoMeth: 94%, HiMeth: 92%). Substance dependence was infrequent in the NoTx group (<2% opioid, alcohol or cocaine). For NonMeth, dependence diagnosis rates were: 48% opioid, 26% cocaine, 12% alcohol. Mean total MCO costs per member per month (pmpm) for the HiMeth, NoTx and NonMeth groups were very similar (\$2,118, \$2,045, and \$2,281). However, costs were significantly lower in the HiMeth vs. LoMeth group (\$2,118 vs. \$3,824, p<0.05). This cost difference was largely driven by the HiMeth group having lower costs for hospital inpatient days (\$1,065 vs. \$2,632 pmpm, p<0.05) and emergency department visits (\$92 vs. \$215 pmpm, p<0.05). Annualized, the total cost per HiMeth member incurred by the MCO is approximately \$20,000 less than costs for LoMeth members. **Conclusions:** More consistent exposure to methadone treatment was associated with lower emergency and inpatient hospital utilization and lower total costs to the MCO. Further research is needed on ways to optimize exposure to appropriate substance abuse treatment. **Support:** NIH-NIDA K23DA16250; CHCS grant by RWJF; Johns Hopkins HealthCare, LLC.

722 THE EFFECTS OF ACUTE VARENICLINE ADMINISTRATION ON EATING AND SMOKING BEHAVIOR

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Aims: Varenicline is novel smoking-cessation agent and acts as a partial agonist at $\alpha 4\beta 2$ nicotinic acetylcholine receptors. The aim of this study is to determine the behavioral effects of acute varenicline administration in human volunteers. We hypothesized that varenicline would not alter eating behavior but would decrease smoking. **Methods:** The acute effects of doses of varenicline (0.5, 1, and 2 mg), methylphenidate (40 mg), and placebo are being assessed in cigarette smokers. Staggered, double-blind dosing is used to study eating and smoking during the peak effects of varenicline and methylphenidate. Starting at the published time to peak plasma levels of these drugs, volunteers are allowed to eat and smoke ad libitum for four hours. Caloric intake during the four-hour smoking session is calculated. Measures of smoking include total cigarettes smoked, total puffs, and carbon monoxide levels. Data will be analyzed statistically as raw scores using repeated measures ANOVA. **Results:** Four volunteers have completed the experiment thus far; we plan to enroll a total of 8 volunteers. Preliminary results suggest that acute varenicline is decreasing caloric intake, without producing nausea or vomiting, but is otherwise devoid of behavioral effects. Methylphenidate is producing prototypical stimulant like effects (e.g., decreasing caloric intake; increasing smoking behavior). **Conclusions:** The present results indicate that acute varenicline administration decreases caloric intake but does not alter smoking behavior. These data indicate that varenicline may be an effective appetite suppressant. Future research should examine the effects of chronic varenicline on eating and smoking behavior in humans, particularly using operant techniques to determine whether varenicline alters the reinforcing effects of food and cigarettes in humans. **Support:** This study was supported by seed funds from the University of Kentucky Department of Behavioral Science to William W. Stoops and by Grant R01 DA 010325 to Craig R. Rush.

723 ACCEPTANCE-BASED BEHAVIOR THERAPY FOR METHADONE DETOXIFICATION

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Aims: Acceptance and Mindfulness behavior therapies represent a shift in how we understand the problems of human private experience (e.g., cognitions, emotions), and are demonstrating promising results for a number of psychological conditions. Acceptance therapies may be particularly well-suited to address the unique problems associated with opiate detoxification. Methadone maintenance is the most common approach to the management of opiate dependence, yet many methadone dependent patients wish to undergo detoxification. Various medication and dosing strategies for opiate detoxification have been tested, however long-term success rates are dismal. Fear of the physical symptoms associated with opiate withdrawal, as well as the actual unpleasant experience of these somatic sensations, appear to be significant barriers to successful detoxification. Anxiety, fear, and intolerance of physical symptoms are certain to affect outcome negatively. Acceptance and Commitment Therapy (ACT) involves the notion that avoidance of negative emotions, thoughts, or bodily sensations results in and perpetuates maladaptive behavior (e.g., drug use). ACT methods endorse an acceptance rather than control-based model to promote more flexible and adaptive behavior consistent with identified client values. ACT uniquely addresses both the experience of psychological as well as somatic distress associated with opiate withdrawal, and may result in higher rates of successful detoxification. We have begun a program of research investigating ACT specifically targeting opiate detoxification, with a Stage I treatment development study currently underway. Data from initial subjects will be presented. **Conclusions:** Without treatment to address the psychological and behavioral aspects of opiate withdrawal, successful detoxification is likely to be rare. Innovative behavior therapies, such as ACT, that focus on acceptance of the inevitable distress of opiate withdrawal may improve methadone detoxification outcomes. **Support:** NIH R01 DA019436

18 724 ABSTINENCE AND USE OF BENZODIAZEPINES ARE MAJOR RISK FACTORS FOR FATAL OPIATE OVERDOSE: OBJECTIVE EVIDENCE FROM BLOOD AND SEGMENTAL HAIR ANALYSIS

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Aims: In this study our aim was to investigate the risk factors associated with opiate overdose death using blood and segmental hair analysis. In particular, we assessed the use of multiple drugs and the impact of abstinence in these deaths. **Methods:** We collected hair and blood from 166 deceased drug addicts subjected to a full medicolegal investigation. Hair segments and blood were analyzed with LC/MS and GC/MS methods, allowing for quantification of most opioid drugs abused in Sweden as well as amphetamines, cocaine and benzodiazepines. **Results:** Of the 166 cases, 91 were classified as opiate overdose deaths (OD) and the remaining 75 victims as non-overdose deaths. In more than 80% of the opiate overdose cases, no opiates were present in the most recent hair segment - providing strong, objective support that abstinence played a key role in these deaths. Also, most cases that did test positive for opiates in the most recent hair segment had higher concentrations in the preceding segments, suggesting a gradual decrease of opiate use. We found evidence of extensive polydrug use in both groups, most pronounced among ODs. Three or more drugs were found in 60% of the ODs in blood and 80% in hair. The toxicological results further suggest that opiate overdose death is more likely to occur if opiates are combined with benzodiazepines, but less likely if opiates are combined with amphetamines. About 40% of the opiate overdose victims suffered a delayed death; however, these subjects did not differ from rapid deaths regarding the toxicological pattern. **Conclusions:** We conclude that opiate abstinence and polydrug use constitute important risk factors for opiate overdose death. Further studies using the described strategy may identify other risk factors involved in opiate overdose. **Support:** This study was funded by grants from the Swedish National Drug Policy Coordinator and the Swedish National Board of Forensic Medicine.

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725 DOES CHRONIC COCAINE USE AFFECT A MOTHER'S BRAIN RESPONSE TO BABY FACE CUES? A PILOT fMRI STUDY

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Aims: Maternal cocaine abuse is a significant public health issue particularly affecting children, with high rates of reported abuse, neglect and foster care placement. However, little is known about how chronic cocaine use may affect brain circuits involved in maternal behavior. This pilot study explores how chronic cocaine exposure may affect these brain pathways. **Methods:** Thirteen mothers with no history of prior substance abuse were compared with 4 mothers with a history of prior cocaine exposure. Two women had a history of chronic multi-drug use, whereas the other two had cocaine exposure limited to the recent pregnancy ("residential treatment controls"). In an event-related functional MRI study, the mothers were shown 60 novel facial images of their baby and a matched unknown baby, each presented randomly for 2 seconds, with a variable 2-6 second interstimulus interval. **Results:** Mothers from all 3 groups showed significant activation of the ventral striatum when shown pictures of their own baby's smiling face, compared with unknown baby faces. Both control groups also showed predominant activation of the orbitofrontal cortex. However, in contrast, the chronic abuse group showed predominant deactivation of the orbitofrontal/prefrontal cortex ($p < 0.05$, false discovery rate corrected). A region-of-interest analysis revealed a decrease in fMRI signal in this region when the chronic abuse mothers viewed their own infant's smiling faces. **Conclusions:** Chronic drug exposure may result in changes in the functioning of the prefrontal cortex, which affect how mothers respond to their infant's facial cues. This may help to explain high rates of child neglect among this population of mothers. We are currently enrolling additional mothers from the residential treatment facility to further test this hypothesis. **Support:** NIH grants K23HD43097, MO1RR00188, K12HD41648 (LS), and P50-DA18197, K05-DA0454 (TRK).

726 PREFRONTAL CORTICAL CHANGES IN GRAY MATTER ASSOCIATED WITH COCAINE ADDICTION

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Aims: Cocaine addiction has been associated with regional alterations in brain gray and white matter as well as deficits in prefrontal cortical functioning. The aim of this study was to test the hypothesis that cocaine addiction is associated with abnormal gray matter density in prefrontal cortical regions that scale to risk factors and clinical variables. **Methods:** Voxel-based morphometry (VBM) techniques were used to analyze brain magnetic resonance images (MRI) from 21 cocaine-dependent males and 11 matched comparison subjects. The Childhood Trauma Questionnaire and the Addiction Severity Index were administered to assess levels of childhood maltreatment and functional impairments due to drug use, respectively. **Results:** A significant decrease (11 %, $p < 0.001$) in gray matter was observed in the right dorsolateral prefrontal cortex of the cocaine-addicted subjects relative to the healthy comparisons. This gray matter reduction was negatively correlated with severity of childhood emotional neglect, which was also associated with the severity of cocaine-related functional impairment. **Conclusions:** Decreased gray matter in the dorsolateral prefrontal cortex in cocaine addicts suggests a functional impairment and is consistent with the view of the prefrontal cortex as being important in mediating cocaine addiction. The results further provide a possible neurobiological link between the putative risk factor of childhood maltreatment and cocaine addiction, which we speculate may primarily involve the prefrontal cortex. Functional and anatomical connectivity analyses are ongoing to clarify the roles of prefrontal cortical pathology in cocaine addiction. **Support:** Supported by NIDA grant DA 015229

727 A MOSAIC AND TAPESTRY APPROACH TO TRAINING DRUG ABUSE RESEARCHERS IN THE RESPONSIBLE CONDUCT OF RESEARCH

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Aims: Current drug abuse researchers as well as K- and T- funded trainees and graduate students require on-going training in the Responsible Conduct of Research (RCR). Many institutions have short courses to provide graduate students and trainees with RCR training; many require nothing more than Human Subjects Protection training for existing researchers. We, however, present a Mosaic and Tapestry of Training in the RCR; we provide to our fellows in drug abuse/dependence and epidemiology research training that includes discrete courses and strategies that weave RCR into their daily experiences. **Methods:** To meet the needs of our trainees, we have developed a mosaic of RCR education, instruction and training (EIT) that builds on internal resources. Pieces of the mosaic of training will be described; including a graduate student class, a postdoc case-based training, a K-awardee training, a department-specific RCR seminar, and special conferences and training in RCR offered at the University. We will also describe the RCR EIT we weave into daily research life, including materials provided to mentors on a monthly basis for discussion in one on one or small group mentoring sessions, monthly discussions in trainee/mentor meetings, wiki and other internet-based resources, and regular emails of policies and resources. Resources provided cover topics such as time management, conflict resolution, authorship, presentation skills, networking skills, and collaborating across disciplines. **Conclusions:** The metaphor of a pieced-together mosaic, and of a woven tapestry of RCR training help to understand our RCR educational efforts. Our goal is to insure the RCR EIT is a part of the everyday research experience, rather than an external, once a year event. Our approach changes the nature of RCR EIT from a peripheral to an integral part of scientific training and life. **Support:** NIDA T32 DA07313

728 POOR FRONTO-LIMBIC CONNECTIVITY DURING BOTH "SEEN" AND "UNSEEN" AVERSIVE CUES IN COCAINE PATIENTS

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Aims: Stress and negative affect are recognized relapse contributors in addiction. Cocaine patients may be poorly equipped to modulate responses to affective stimuli, given their documented frontal deficits necessary for regulating downstream limbic regions. Characterizing the brain response to negative-affect cues may help identify cocaine patients at greater risk for relapse related to affect dysregulation. Toward this goal, we probed cocaine patients' brain response to aversive cues presented both within and outside awareness ("unseen"). **Methods:** We used randomized, event-related BOLD fMRI to measure the brain response to aversive (injury or disease) and comparison cues in chronic cocaine users ($n=9$, ongoing), using tasks featuring: 1) backward-masked ("unseen") cues of 33 msec duration; OR 2) visible cues of 500 msec duration. 24 unique stimuli (in each category, presented twice), and 48 null events were "jittered" (average inter-stimulus-interval 2 sec) to optimize coverage of the hemodynamic response function. Data were analyzed within SPM2, using functional connectivity analyses with amygdala as the reference region. **Results:** Functional connectivity analyses (cluster corrected whole brain) revealed strong intra-limbic (insula, ventral striatum, hippocampus) connectivity with amygdala during both visible and "unseen" aversive cues ($P_{corrected} \leq 0.001$; cluster size ≥ 20 contiguous voxels). This effect was more pronounced in "unseen" condition, with wider spread-of-effect. Connectivity with frontal regions was absent during both tasks. **Conclusions:** Brief exposures to aversive stimuli, even when presented outside awareness, recruited intra-limbic connectivity, but not frontal modulatory regions, with amygdala. The functional disconnect between amygdala and frontal regions may explain cocaine patients' difficulties in regulating affect states. Impaired fronto-limbic connectivity may provide an important marker of relapse vulnerability and a potential treatment target. **Support:** NIDA (T32-DA07241; RO1-DA10241 & DA15149; P60-DA05186; P50-DA12756); VAMC VISN4 MIRECC

729 SEXUAL RISK AND PHYSICIAN SCREENING PRACTICES IN OFFICE-BASED BUPRENORPHINE

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Aims: Patients with opioid dependence are often at risk for STDs/HIV. Data on office-based buprenorphine prescribing physician sexual risk screening practices is lacking. **Methods:** Patients receiving office-based buprenorphine treatment self-administered a survey asking about their sexual risk behaviors before and while receiving buprenorphine. They were also asked to report their physicians' screening practices for general health and sexual risk. **Results:** We approached 131 patients, who were receiving office-based buprenorphine: ages ranged from 18-62, 78% male, 95% Caucasian, 82% employed, 48% with > high school education. Eighty-five patients completed the survey, 82% with non-injection opioid use. Compared with the month prior to starting buprenorphine, their behaviors in the past month while receiving buprenorphine had changed: they reported less sexual activity (68% vs. 57%, $p=.15$), fewer sexual partners (1.3 vs. 0.9, $p=.03$), more unprotected sex episodes (4.6 vs. 5.3, $p=.60$), fewer sex episodes while high (5.0 vs. 1.0, $p=.009$). They were less likely to be diagnosed with an STD (4% vs. 0%, $p=.25$). Patients reported that buprenorphine treatment had not changed (62%), decreased (14%) or increased (1%) their sexual risk behaviors. Patients reported that their providers screened frequently for cigarette use (94%), alcohol use (92%), other substances (96%), and depression (95%). They reported less frequent hepatitis C (HCV) screening (32%), HCV vaccinations (2%), discussion of HIV testing (29%), HIV testing (18%), discussion of sexual behaviors (28%), condom use (12%), negotiating safer sex (12%), or risk of multiple partners (11%). **Conclusions:** Office-based buprenorphine treatment may be associated with reduced sexual risk behavior. Physicians screen for other substance use and depression but according to their patients' reports screen less frequently for sexual risk behaviors. Methods supporting physician screening for these behaviors should be implemented and refined. **Support:** The Robert Wood Johnson Foundation and NIDA: K12 DA00167, R01 DA019511, K24 DA00445, R01 DA020576

-01

730 BEHAVIORAL NALTREXONE THERAPY FOR HEROIN DEPENDENCE: A RANDOMIZED CONTROLLED TRIAL

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Aims: The aims of this Stage II project were to test the efficacy of a new behavioral therapy with oral naltrexone maintenance as a treatment for heroin dependence, and to test a new long-acting depot formulation of naltrexone in initial stabilization and long-term outcome of behavioral naltrexone therapy (BNT). **Methods:** BNT is a six-month therapy protocol combining elements of several empirically validated treatment approaches for opiate dependence, including Network Therapy, the Community Reinforcement Approach, voucher-based contingency management, cognitive-behavioral Relapse Prevention Therapy, and Motivational Enhancement techniques. A randomized-controlled trial was conducted, comparing BNT to Compliance Enhancement Therapy (CE), a control condition intended to simulate the standard practice of naltrexone maintenance by a physician in an office or clinic setting. 125 participants began the trial. **Results:** Analyses were performed on 89 cases after 36 participants failed to complete the inpatient detoxification: 44 participants received BNT, 45 received CE. Retention at 4 weeks was higher in BNT (84.0%) than in CE (71.0%), as was retention at 24 weeks: BNT (36.3%) vs. CE (13.3%; $p=.012$). **Conclusions:** Overall, BNT patients showed improved retention and significantly higher rates of 6-month trial completion, compared to CE patients. Patients were also randomized to receive a depot formulation of naltrexone intended to reduce early relapse and improve long-term treatment outcome; analyses of these data will be presented. **Support:** Supported by DA010746.

731 EFFECTS OF ACUTE COCAINE ON ERK AND DARPP-32 PHOSPHORYLATION PATHWAYS IN THE CAUDATE-PUTAMEN OF FISCHER RATS

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Aims: Activation of extracellular signal-regulated kinase (ERK) and dopamine- and cAMP-regulated phosphoprotein (DARPP-32) pathways has been implicated in biochemical and behavioral effects induced by various drugs of abuse. In the study, we investigated the phosphorylation pathways of these two proteins in response to acute cocaine administration. **Methods:** Sixty-day-old male Fischer rats received an injection of saline (1 ml/kg) or cocaine (30 mg/kg) and sacrificed 5, 10, 15, 30, 45, or 60 min later. The caudate/putamen was dissected and subjected to Western blotting analysis. **Results:** A single cocaine administration significantly increased ERK-mediated signaling proteins, phosphorylation of cAMP response element-binding protein (CREB) kinase, pp90 ribosomal S6 kinase (RSK), and c-Fos protein levels in the caudate/putamen of Fischer rats compared with saline control. In addition, acute cocaine administration induced phosphorylation of the striatal-enriched protein tyrosine phosphatase (STEP), a potential inhibitor of ERK pathway activation, and decreased the phosphorylation of DARPP-32 protein at the Thr-75 site. **Conclusions:** The phosphorylation states of these inhibitors of ERK and DARPP-32 proteins thus may contribute the effects of cocaine on ERK- and DARPP-32-mediated cascades, on gene expression and on behaviors. **Support:** The work was supported by DA12136, 506-GM60654, RR-03037 and PSC-CUNY.

732 CO-MORBID PSYCHIATRIC AND SUBSTANCE USE DISORDERS AMONG AFRICAN AMERICAN WOMEN AT HIGH RISK FOR HIV

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Aims: Drug use and violence contribute to serious health problems among women sex traders. This paper examines the intersection of substance dependence and psychiatric problems among a sample of women sex traders, and assesses the impact of co-occurring disorders on health service linkages. **Methods:** The data are drawn from an ongoing intervention trial designed to test the impact of two strengths-based case management interventions on linkages with health services among African American women sex traders in Miami. Drug-involved women sex traders are recruited through targeted sampling strategies. **Results:** Data collection began in May, 2007, and 125 clients have been enrolled into the study. To date, the sample has a median age of 40.1 years. Barriers to health services are common: 53.2% reported being homeless at some time during the past 3 months; 33.3% lack valid identification documents; and, 62.7% lack any health insurance. Need for services is high: 46% reported significant physical health problems, and 52% reported significant mental health problems in the 90 days prior to interview; 84.1% met criteria for substance dependence in the past year. The majority of clients display psychiatric co-morbidities, including depression, anxiety, and traumatic stress, associated with their substance use disorders. Overall, 45% of the sample has made at least one service linkage, including drug abuse treatment enrollment, mental health care and medical care. Although outcome data are preliminary, service linkage rates appear lower among drug dependent clients with co-morbid psychiatric disorders (37.8%) compared to their non-co-morbid counterparts (51.1%). **Conclusions:** Strengths-based case management appears to be an effective mechanism for addressing the health service needs of indigent drug-using African-American sex traders and reducing health disparities; however, drug dependent clients with co-morbid psychiatric disorders may require additional efforts to achieve needed service linkages. **Support:** This research is supported by Grant Number R01 DA013131 from the National Institute on Drug Abuse.

733 MOLECULAR MODELING-GUIDED ELUCIDATION OF DOPAMINE TRANSPORTER LIGAND BINDING SITES: DEVELOPMENT OF AN IN SILICO "COCAINE ANTAGONIST" SCREENING TOOL

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Aims: The 3D structure of the dopamine transporter (DAT), a target for abused psychostimulants, has been out of reach despite the cloning of a DAT cDNA 15 years ago. Encouragingly, the structure of the bacterial leucine transporter LeuT, a distantly related DAT homolog, has recently been elucidated. It is hypothesized that a reliable DAT computer molecular model can be constructed using LeuT as a template, and that the refined model will afford in silico screening of novel DAT ligands. The specific aims were to build 3D rat and human DAT models, and use the models to guide mapping of DAT substrate and inhibitor binding sites. **Methods:** A comparative modeling approach employing MOE2005.06 software generated the LeuT-directed DAT models; substrates and inhibitors were docked to the models with one of three algorithms. Key binding pocket residues identified by the docking poses were studied via site-directed mutagenesis and subsequent pharmacologic characterization. **Results:** Unbiased docking of dopamine or amphetamine to the 3D DAT models revealed a common substrate pocket midway through the lipid bilayer, in the position analogous to that of leucine in the LeuT crystal. Docking of cocaine or benztropine to the DAT models revealed an inhibitor pocket distinct from, and to the extracellular side of, the primary substrate pocket. Mutagenesis and pharmacology of DAT inhibitor pocket residues predicted by the model to form a salt bridge between transmembrane helices 1 and 10 yielded several-fold and opposite effects on cocaine and benztropine binding affinities. **Conclusions:** Such data have refined the model to the point that in silico structural library screening has commenced. Screening "hits" will be tested in vitro, then in vivo as appropriate. In this way, novel and inexpensive DAT ligands should be discovered that interfere with binding of classic DAT blockers without inhibiting dopamine uptake to the same extent, potential anti-cocaine therapeutics. **Support:** NIH DA016604, NIH GM065805

734 USEFULNESS OF ARIPIPRAZOLE FOR REDUCING MORPHINE-INDUCED NAUSEA AND REWARDING EFFECT

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Aims: In the present study, we investigated the effect of aripiprazole on morphine-induced emesis in male ferrets. Aripiprazole is a novel candidate antipsychotic drug with an excellent side-effect profile that is presumed, in part, to be due to a lack of typical D2 dopamine receptor antagonist properties. Aripiprazole is a dopamine D2 receptor partial agonist that differs from that of currently marketed typical and atypical antipsychotics. Current evidence suggests that aripiprazole seems to provide a way to fine-tune the treatment of psychiatric disorders by maximizing the treatment effect while minimizing undesirable adverse events. Dopamine receptor antagonists are commonly used to protect the opioid-induced emesis. However, these agents show various side-effects, including extrapyramidal syndrome and hyperprolactinemic. Therefore, new strategies for the prevention of emesis are required along with a working knowledge of the proposed mechanism of drug action. **Methods:** Evaluation of emetic response. Conditioned place preference test. Catalepsy scoring. **Results:** Morphine (0.1, 0.3, 0.6 mg/kg, s.c.) induced retching and vomiting in a dose-dependent manner in ferrets ($p < 0.01$ or $p < 0.001$ vs. vehicle-saline). The emetic effect of morphine was significantly suppressed by pretreatment with aripiprazole (10 mg/kg, s.c.) in ferrets ($p < 0.05$ vs. vehicle-morphine 0.6 mg/kg). Catalepsy was not observed by treatment with aripiprazole (20 mg/kg, s.c.) in mice. In addition, the place preference induced by morphine (5 mg/kg, s.c.) was clearly suppressed by pretreatment with aripiprazole (20 mg/kg, s.c.) in mice ($p < 0.05$ vs. saline-morphine 5 mg/kg). **Conclusions:** These results suggest that the co-administration of aripiprazole may be useful for reducing morphine-induced, such as nausea and rewarding effect. **Support:** Grants from the Ministry of Education, Culture, Sports, Science and Technology of Japan (Frontier Research).

735 INDIVIDUAL DIFFERENCES IN DELAY DISCOUNTING AND NICOTINE SELF-ADMINISTRATION IN RATS

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Aims: Delay discounting (DD) has been extensively linked with tobacco smoking, but the direction of effect remains unclear. Here, we investigated whether individual variability in indifference points (IPs) derived using an adjustable delay procedure of DD in rats predicted the rate of acquisition of nicotine self-administration, break point reached on a progressive ratio (PR) schedule, or a shift in the dose-response curve. **Methods:** Stable IPs were assessed for 63 male Sprague-Dawley rats, and extreme groups of highly impulsive (HI; $n=15$) and low impulsive (LI; $n=11$) rats were selected to self-administer infusions of 0.03 mg/kg nicotine during 1 hour daily sessions. After a 20 session acquisition period (10 sessions on a fixed ratio (FR) 2 schedule and 10 sessions on a FR5 schedule), rats completed 3 4-hr PR sessions, followed by 3 1-hr FR5 sessions at each of 3 nicotine doses, presented in ascending order (0.015, 0.03, and 0.09 mg/kg). **Results:** IPs ranged from 11.1 to 59.9 seconds, with HI and LI groups averaging 17.5 and 39.0 seconds, respectively. All but one rat (HI group) acquired stable nicotine self-administration; however, no group differences in rate of acquisition were observed. HI and LI rats did not differ in their break points on a PR schedule or infusions earned at any dose of nicotine, although a significant dose-response effect was observed overall. IPs reassessed after self-administration were highly correlated with original IPs ($r=.771$, $p < .001$) after dropping 1 rat who could not be reassessed and 1 statistical outlier. Average IPs for HI (22.0 seconds) and LI rats (37.5 seconds) were not significantly different from baseline assessment. **Conclusions:** These results suggest that DD is a highly reliable measure, but may not be a predictive marker for increased vulnerability to nicotine self-administration in rats. **Support:** This research was supported by Pittsburgh Mind-Body Center (PMBC; NIH grants HL076852/076858). Maggie Sweitzer was supported by NIH training grant (T32GM081760).

736 TRAJECTORIES OF ADOLESCENT CANNABIS USE TO PROBLEMATIC USE IN YOUNG ADULTHOOD

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Aims: To examine the (i) association between adolescent cannabis use frequency and problematic use in young adulthood; (ii) impact on progression to problematic use of reducing/abstaining from use in adolescence. **Methods:** Data were collected from a 10 year longitudinal population study of 1943 Australian secondary school students. We summarised cannabis use over six adolescent surveys (14-17 years): maximum frequency, persistence (number of waves) and first wave of use. Other measures included gender, parental divorce and smoking, persistent adolescent cigarette smoking, "risky" alcohol use, depression/anxiety and antisocial behaviour. Young adult (24 years) outcomes were regular cannabis use (3+ days/week) and DSM-IV cannabis dependence. **Results:** 21% of adolescents (waves 1-6) had a maximum level of occasional (< weekly), 8% weekly to < daily, and 5% daily cannabis use. 8% of young adults (average age 24 years) were regular cannabis users and 6% dependent. Among the 668 adolescent users: male sex, weekly+ cannabis use and persistent cigarette smoking independently predicted problematic use outcomes at 24 years. There was variation in cannabis use over time. Adolescent cannabis users who subsequently abstained had a substantially reduced risk of later problematic use. Among weekly+ adolescent users, risk of problematic use at age 24 was not reduced by using less frequently during adolescence. **Conclusions:** After controlling for possible confounders, weekly+ adolescent cannabis use was clearly associated with elevated risks for cannabis-related problems up to 10 years later, although occasional users were also at some risk of such outcomes. Among adolescent weekly+ users, only subsequent abstinence, but not reduction in use, lowered the risk of later problematic use. We need careful prevention and intervention messages to accurately convey the risks associated with persistent adolescent cannabis use. **Support:** Funded by the Australian National Health and Medical Research Council and the Australian Government Department of Health and Ageing.

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737 EFFECTS OF THC ON REVERSAL LEARNING AND EXTRADIMENSIONAL SHIFTS IN RHESUS MONKEYS

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Aims: Cannabis remains the most commonly used illicit recreational psychoactive drug. Recent advances in understanding of the distribution and function of components of the brain endocannabinoid systems motivate a further specification of the behavioral consequences of acute exposure to the primary psychoactive ingredient of cannabis, Δ^9 -tetrahydrocannabinol (THC). This study was designed to determine relative effects of acute THC on two cognitive executive functions that have been associated with intact pre-frontal cortical function. **Methods:** Rhesus monkeys challenged with THC (0.1-0.3 mg/kg, i.m.) 20 and 90 minutes prior to the test sessions during which they were evaluated on reversal learning and extradimensional shift measures adapted from the CANTAB (Cambridge Neuropsychological Test Automated Battery) Intradimensional/Extradimensional Attentional Set Shifting task. **Results:** Acute administration of THC only minimally impaired performance on reversal learning and extradimensional shifts up to doses which substantially suppressed responding. A test of bimanual motor performance was impaired, and body temperature reduced, in a dose dependent fashion. This hypothermia was reversed by co-administration of the CB1 antagonist rimonabant. **Conclusions:** The study demonstrated that reversal learning and extradimensional shift executive cognitive tasks are only slightly affected by doses of THC which substantially affect motor performance and thermoregulation. Combined with prior observations this suggests a relative insensitivity of frontal cortex mediated tasks over temporal cortex mediated tasks to acute THC. **Support:** U.S.P.H.S. grants: DA018418 and DA024194.

738 DOES PARTICIPATION IN CLINICAL TRIALS RESEARCH AFFECT CLINICAL PRACTICES RELATED TO SMOKING?

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Aims: This study investigated organizational changes that occur when nicotine dependence treatment is integrated in two non-traditional service settings: substance abuse treatment and HIV-care clinics. **Methods:** In separate clinical trials, two intervention clinics (1 substance abuse treatment and 1 HIV-care clinic, N=57) participated in clinical trials for nicotine dependence treatment. Three additional clinics (2 substance abuse and 1 HIV-care) were recruited to serve as control clinics (n=62). Both administrative and clinical staff were surveyed using scaled for nicotine-related knowledge, attitudes toward nicotine services in the clinic and practices at baseline (before starting the clinical trial) and 18 months later. **Results:** Staff survey completion rates were 82% at baseline and 90% at 18 months. At baseline, intervention and control groups were similar in terms of age, gender, education, smoking status and whether or not staff were in recovery. There was a difference in ethnicity, such that staff in control clinics were more often African American. Smoking-related knowledge, barriers, efficacy and beliefs were similar at baseline while smoking related clinical practices were higher in intervention clinics. While some scales at each assessment show significant differences, the interaction indicated no significant change between the two groups at baseline and at 18 months and no significant changes over time. **Conclusions:** Findings suggest that participation in clinical trial research did not produce differential change in measures of smoking related knowledge, attitudes or practices among clinic staff. **Support:** This work is supported by NIDA San Francisco Treatment Research Center (TRC) #5 P50 DA 009253-13.

739 CURRENT DRUG-SCHEDULING REVIEWS REPORTED BY THE DRUG ENFORCEMENT ADMINISTRATION

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Aims: As mandated by the Controlled Substances Act (CSA), DEA collects and reviews scientific, medical and other data for substances with abuse potential to determine their appropriate control status for placement into one of five schedules. **Methods:** Administrative process for scheduling is currently ongoing for carisoprodol, dextromethorphan and for several petitions requesting a change in the control status of nabilone, hydrocodone combination products (from schedule III to schedule II), a methylphenidate product, removal of marijuana and tetrahydrocannabinols (THCs) from schedule I, control of tramadol, decontrol of sibutramine and 6-beta-naltrexol and amendment to CFR so as to allow generic products of dronabinol in sesame oil into schedule III. Administrative process is also ongoing for boldione, desoxymethyltestosterone, and 19-nor-4,9(10)-androstadienedione for control as schedule III anabolic steroids. **Results:** DEA is currently reviewing the data for hallucinogens such as 5-methoxy-N,N-dimethyltryptamine (5-MeO-DMT), 5-methoxy-alpha-methyltryptamine (5-MeO-AMT), 5-methoxy-N,N-diethyltryptamine (5-MeO-DET), 5-methoxy-N-methyl-N-isopropyltryptamine (5-MeO-MIPT), N,N-diisopropyltryptamine (DIPT), 4-hydroxy-N,N-diisopropyltryptamine (4-OH-DIPT), and salvinorin A for possible control under the CSA. Chemical synthesis/pharmacological studies for 4-iodo-2,5-dimethoxyphenethylamine (2C-I), 2,5-dimethoxy-4-ethylthiophenethylamine (2C-T-2), 2,5-Dimethoxy-4-chloroamphetamine (DOC), 2,5-Dimethoxy-4-chlorophenethylamine (2C-C), 2,5-Dimethoxy-4-methylphenethylamine (2C-D), and 2,5-Dimethoxy-4-ethylphenethylamine (2C-E) are currently ongoing to determine if these substances meet the requirements for possible control under the CSA. **Conclusions:** In order to comply with the 1971 Convention on Psychotropic Substances, DEA is reviewing data for zipeprol, amineptine, mesocarb, 4-methylthioamphetamine (4-MTA) and brotizolam for control. **Support:** Drug Enforcement Administration

740 MARKED DIFFERENCES BETWEEN CANNABINOID RECEPTOR AGONISTS REVEALED BY THEIR BEHAVIORAL EFFECTS

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Aims: Drugs that interact with central cannabinoid receptors can modulate various reward-related behaviors. One such behavior that has been extensively studied in relation to the actions of cannabinoid drugs is feeding. Typically, cannabinoid receptor agonists, such as Δ^9 -THC, stimulate an increase in food intake, whereas antagonists, such as rimonabant, produce hypophagic effects. However, no studies to date have systematically compared the effects of a wide range of cannabinoid ligands on feeding behavior. To this end, we compared the effects of six cannabinoid receptor agonists and one antagonist on the ingestive behavior of mice. **Methods:** We analysed the microstructure of the licking responses produced by CD-1 mice during access to highly-palatable milk solutions (10%, 15% or 20% concentrations) after i.p. administration of the non-selective cannabinoid receptor agonists Δ^9 -THC, WIN 55,212-2, HU210 and CP 55,940; the selective CB1 receptor agonists ACEA and methanandamide; and the CB1 receptor-selective antagonist rimonabant. Mice were not food deprived at the time of testing. For each test session, milk was available for three 30-second periods separated by 10-second intervals. **Results:** The drugs Δ^9 -THC, CP 55,940 and WIN 55,212-2 dose-dependently increased licking at each milk concentration. The CB1 selective antagonist rimonabant dose-dependently reduced licking. However, unlike the other agonists, the highly-potent HU210 and the CB1 receptor-selective agonists ACEA and methanandamide did not stimulate any licking behavior at all; instead, they tended to delay the onset of licking. In follow-up experiments testing the agonists CP 55,940 and methanandamide in combination with the antagonist rimonabant, only CP 55,940 showed a competitive interaction with the antagonist. **Conclusions:** The results suggest that cannabinoid receptor agonists are not functionally homogeneous, since their effects do not relate straightforwardly to their potencies or their selectivities for the CB1 receptor. **Support:** JG was supported by the MRC

741 DEPRESSIVE SYMPTOMS AND NONMEDICAL USE OF PRESCRIPTION STIMULANTS AMONG COLLEGE STUDENTS

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Aims: Studies have shown an association between nonmedical use of prescription stimulants (NMUPS) and depressive symptoms among adolescents and young adults. Although these studies have shown an association between NMUPS and depressive symptoms, differences as a function of frequency and route of administration have not been examined. We hypothesized that depressive symptoms would be associated with frequency and route of administration of NMUPS. Methods: A Web survey was self-administered by a probability-based sample of 3,639 full-time undergraduate students (68% response rate) at a large public Midwestern university in the U.S. The survey consisted of measures to assess substance use and depressive symptoms, including the 2-item Patient Health Questionnaire (PHQ-2). To reduce false positive rates, we classified participants as having past-month depressed mood only if they responded "yes" to both PHQ-2 items. Results: Past-year prevalence of NMUPS was 6.0% (n=212), of which 41.5% reported non-oral routes of administration (e.g., intranasal). Approximately 50% of past-year nonmedical users of prescription stimulants who reported frequent use (10 or more occasions) or non-oral routes of administration had a positive depression screen. Among nonmedical users of prescription stimulants, the odds of a positive depression screen were over two times greater among those who report frequent nonmedical use (AOR = 2.6, 95% CI = 1.1 - 6.3, p = 0.04) and non-oral routes of administration (AOR = 2.3, 95% CI = 1.2 - 4.4, p = 0.01) than less frequent and oral only nonmedical users, respectively. Conclusions: Results of the present study suggest that nonmedical users of prescription stimulants should be screened for depressive symptoms, especially those who report frequent nonmedical use and non-oral routes of administration. Support: This study was supported by NIDA research grants DA018239 and DA020899.

743 DIVERSION OF PRESCRIBED STIMULANT MEDICATION FOR ADHD AND ITS ASSOCIATION WITH SPECIFIC STIMULANT FORMULATIONS: A PRELIMINARY ANALYSIS AMONG COLLEGE STUDENTS

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Aims: To evaluate the prevalence of diversion among past-year users of prescribed stimulant medication for ADHD within a college population. It was hypothesized that diversion of prescribed stimulants for ADHD would be associated with specific formulations and aberrant use of these medications. Methods: In 2007, a probability-based sample of 1738 undergraduate college students responded to a Web-based survey at a large Midwestern university. Using Web-based skip logic, past-year prescribed users (n=55) received a randomly ordered list of brand and generic prescription stimulant formulations available at the time of the study. Diversion by an individual was defined as having given away, loaned, or sold their prescribed stimulant medication to someone in the past year. Results: The three most commonly prescribed stimulant medications for ADHD were Adderall, Adderall XR, and Concerta, which accounted for 89.1% of all prescribed stimulant use in the past year. Diversion was reported by 35.3% of college students who indicated past-year prescribed use of stimulant medication. For those individuals that we could attribute diversion to a specific brand or generic formulation (i.e., past-year monotherapy), 76.9% diverted Adderall or Adderall XR, while there were no reports of diversion with Concerta. The remainder of the students who diverted their stimulant medication endorsed either methylphenidate or Ritalin. Regarding aberrant use of prescribed stimulants, 40.0% of past-year users reported misusing their medication. Notably, misusers were more likely to divert their prescribed stimulant medication (54.5%) than non-misusers (18.2%; p=0.005). Conclusions: Many college students are diverting their prescribed stimulants, particularly those students who also report misusing their medication. Support: N/A

742 SUBSTANCE USE IN PATIENTS WITH STDs: RESULTS FROM A NATIONAL SURVEY

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Aims: Approximately 19 million sexually transmitted diseases(STDs) are diagnosed annually, of which 75% are diagnosed in general medical settings. We investigated the substance use patterns in patients diagnosed with STDs in the general population. Methods: We used the 2005 National Survey on Drug Use and Health to examine the prevalence and correlates of patients reporting an STD in the past year. We examined past-year alcohol use and abuse/dependence, and use of cigarettes, marijuana, non-medical prescription opioids, cocaine, intra-nasal and injection heroin. We conducted chi-square tests and unadjusted odds ratios between past-year STD and demographic and past-year substance use (SU) variables. We performed multivariable models examining the association between past-year STD and past-year SU variables, adjusting for demographic and other SU variables. Results: Of the 54,623 respondents, 1% (n=641, representing an estimated 586,328 individuals nationally) had a past-year STD. Of those with a past-year STD, 70% were women and 58% were white. The proportion of those with STDs endorsing substance use was as follows: 86% alcohol, 49% cigarettes, 32% marijuana, 14% non-medical prescription opioid, and 8% cocaine use; 22% had alcohol abuse/dependence. The characteristics most strongly associated with past-year STDs were ages 18-25 years old (OR 6.0, 95% CI 4.4-8.3), female gender (OR 2.2, 95% CI 1.7-2.8), Hispanic ethnicity (OR 7.3, 95% CI 4.2-12.8), and >12th grade education (OR 3.7, 2.2-6.2). All SU variables were associated with past-year STD. After adjusting for demographic and SU variables, past-year STD was associated with alcohol use (AOR 1.8, 95% CI 1.2-2.7), alcohol abuse/dependence (AOR 2.0, 95% CI 1.4-2.8), and marijuana use (AOR 1.8, 95% CI 1.3-2.5); but not associated with cocaine or non-medical prescription opioid use. Conclusions: A diagnosis of an STD should prompt clinicians to screen for substance use, in particular alcohol and marijuana. Targeted screening and interventions should be developed for use in patients diagnosed with STDs. Support: The Robert Wood Johnson Foundation and NIDA grants: K12 DA00167, R01 DA019511, R01 DA020576-01

744 RACIAL DIFFERENCES IN THE EFFECT OF FAMILY FORMATION ON SMOKING CESSATION BY MIDDLE AGE AMONG WOMEN

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Aims: The aims of this study are to examine the effect of family formation timing on smoking cessation among black and white women. Black women are less likely to ever smoke cigarettes when compared to white women and when they do begin to smoke, they start at a later age. But once they begin, they are less likely to quit. These smoking patterns lead to racial disparities in current smoking rates during their mid-30's. Marital and parental status has been shown to be associated with the likelihood of smoking cessation, and to vary by race. Little is known about the effect of family formation on smoking cessation among women during middle to late middle age. Methods: The National Longitudinal Survey of Women is a national representative sample of women (14-22 years of age in 1968) interviewed 22 times from 1968 to 2003. The sample were those who reported being regular smokers during at least one survey year (n=1451). Women were grouped by those who quit prior to and after 35 years of age and above. Timing of family formation was measured by the age of marriage and parenthood in relation to the age of smoking initiation. Logistic regression models were analyzed to assess the effects of family formation timing on smoking cessation. Results: White women were more likely than black women to quit by middle age (OR 2.25 95% CI 1.61-3.15). While there was an effect of family formation timing on smoking cessation by middle age among white women, there was no effect on black women. White women who never married were more likely to quit by 35 than white women who initiated smoking after marriage (OR 2.70 95% CI 1.90-3.82). Further, white women who never had children were more likely than white women who initiated smoking after they had children to quit smoking by 35 (OR 4.80 95% CI 2.64-8.74). Conclusions: These findings show that there are racial differences in the effect of timing of family formation on smoking cessation by middle age. Future research includes examining the effect of social role strain on smoking cessation among black women as an alternative to family formation timing. Support: NDRI

- 745** THE RELATIONSHIP BETWEEN TOBACCO AND CANNABIS USE AMONG TEENS IN TREATMENT FOR CANNABIS USE DISORDERS AND ADHD
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Aims: To examine the relationship between change in cannabis and tobacco use among adolescents with cannabis use disorders and attention-deficit/hyperactivity disorder (ADHD) in substance abuse treatment. Methods: Participants were 45 teens (12-19 years old) with a current DSM-IV cannabis use disorder, cannabis and tobacco use on at least one day in the 28 days before baseline or end of treatment, and who completed a 12-week placebo controlled trial of atomoxetine for ADHD. All participants received weekly outpatient cognitive behavioral therapy for substance abuse. Assessments included a baseline and 12-week end of treatment Timeline Followback Interview which measured the number of days of cannabis and tobacco use during the 28-day period before the interview. Analyses: Wilcoxon signed rank tests and Spearman's rho were used to evaluate the relationship between tobacco and cannabis pre-post change. Results: Mean 28-day cannabis use decreased from 14.4 (max=28, min=0, SD=10.0) to 8.8 days ($p<.05$); whereas the mean change in nicotine use days, 16.7 (max=0, min=28, SD=11.3) to 15.1 days, was not statistically significant. There was a significant positive correlation between change in past 28-day cannabis and nicotine use (Spearman's rho = 0.35; $p<.05$). Conclusions: These preliminary results suggest a positive relationship between reduction in marijuana use and reduction in nicotine use among adolescents with ADHD in treatment for cannabis use disorder. More definitive studies are warranted in larger samples to examine these inter-relationships. Support: NIDA: DA 000357-06A1K12, Eli Lilly and Company
- 746** A DIFFERENT KIND OF HUSTLE: A QUALITATIVE STUDY OF THE PROCESS OF LONG-TERM ABSTINENCE FROM HEROIN USE AMONG FEMALE EX-OFFENDERS
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Aims: Heroin use, especially intravenous use, is associated with high rates of infectious diseases such as hepatitis, endocarditis and the HIV virus. Despite various interventions, long-term abstinence rates from heroin use continue at low levels. This presentation reviews findings from an investigation of long term abstinence as experienced by former heroin using ex-offenders. Methods: The original study sample, consisting of fifteen males and ten females was ethnically diverse: 40% African American, 44% Latino and 16% White (non-Latino). In-depth interviews were conducted with former users who had used the drug daily for at least a year; were involved with the criminal justice system for drug related charges and have remained abstinent for five years or longer. Focusing on the female sub-sample, this presentation examines various domains, including drug use histories, criminal behaviors, health status and familial interaction. Results: Results show that when addressing triggers threatening sustained abstinence, these re-entering individuals often sought the advice of "like others," whose experiences, failures and successes, provided guidance and support, strengthening the recovery efforts of both parties. This process was enhanced when these peer networks had additional factors in common, such as gender, culture and life experiences. Conclusions: Difficulties associated with successfully re-entering society post-incarceration are many. These difficulties are further compromised by the stigma and structural barriers posed by prior criminal and drug use histories. Ongoing successes experienced and shared by peer networks facilitated the sustained abstinence this group of female ex-offenders ultimately achieved. Support: Self-Funded
- 747** BUPROPION PLUS INCENTIVES FOR SMOKING REDUCTIONS IN OUTPATIENTS WITH SCHIZOPHRENIA
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Aims: There is a high prevalence of smoking in people with schizophrenia (SZ). Cessation rates are low and effective smoking treatments are needed for these patients. Bupropion (BUP) and 5-day contingency management (CM) interventions reduce smoking in SZ. However, longer trials of CM and the combined effects of BUP and CM in SZ have not been tested. In this study we are testing the separate and combined effects of BUP (300 mg) versus placebo (PLA) and contingent incentives for smoking reductions (CM) versus non-contingent reinforcement (NR) on smoking in outpatients with SZ. We hypothesize that both BUP and CM will reduce smoking and that the combination will be most effective. Methods: In week 1, participants are randomized to BUP or PLA. In week 2, participants are randomized to CM or NR. Over a 3-week period, participants visit the laboratory 9 times to provide urine samples that are tested on site for cotinine (COT; nicotine metabolite) levels and to receive reinforcement for attendance only (NR group) or attendance plus COT reductions (CM group). 2 x 2 ANOVA's were performed to examine the effects of medication and incentive condition on COT and number of cigarettes smoked per day (CPD). Results: Participants ($n = 41$), were 45.4 ± 8.0 (M \pm SD) years old, 71%; male, 80%; white and smoked 27 ± 12 CPD at enrollment. ANOVA results indicate that contingent incentives significantly reduced COT ($p < 0.01$), CPD ($p = 0.05$) and number of samples that met the reduction criterion ($p < 0.001$). There is a non-significant trend toward BUP reducing CPD ($p = 0.11$) with a medium effect size. Currently there is no evidence of an interaction between BUP and CM on COT or CPD. Conclusions: These preliminary results suggest that contingent incentives based on thrice-weekly urinary cotinine reductions reduce smoking in outpatients with SZ. However, these data do not currently support the idea that CM and BUP have additive effects on smoking. Support: Supported by NIDA R01 DA17566 (Tidey).
- 748** THE INTRANASAL HEROIN EPIDEMIC AMONG LATINO ADOLESCENTS IN TEXAS: THEY'RE CALLING IT "CHEESE"
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Aims: 1. To provide data on trends in intranasal heroin use in Texas; 2. To describe the rapid increase in the use of intranasal heroin (aka "cheese") among Latino adolescents in Dallas Texas; 3. To describe the clinical characteristics of cheese-heroin use Methods: Treatment Episode Data (TEDS) for the entire State of Texas and Dallas County were analyzed for the period between CY2005 and 2007. Preliminary description of individual cheese-heroin use including method of manufacture, self-administration, co-administration with other drugs of abuse, cultural mitigating and exacerbating factors are derived from clinical interviews with cheese heroin users. Results: Analysis of TEDS data between CY2005-2007 for users under nineteen showed the following: 1. A 6-fold increase in percentage of admissions for intranasal heroin use (10.1 to 62.9); 2. A trend toward younger age at time of admission (17.5 to 16.2 years old); 3. A sharp rise in the percentage of Hispanics admitted for treatment (62.5 to 96.0); 4. The percentage of users reporting IV drug use has risen slightly over the period of analysis (6.3 to 7.0). Clinical interviews with cheese-heroin users revealed that most cheese-heroin manufacture is conducted by individual users. Individual cheese-heroin users and their peers are nearly universally averse to IV drug use. Cheese-heroin users routinely mix heroin with other drugs such as benzodiazepines, cocaine and antipsychotics which are regarded as stronger and more dangerous than preparations using over the counter sleep and cold medications. Conclusions: 1. Cheese-heroin use has accounted for the vast majority of new admissions for treatment of opiate dependence between 2005-2007 in Dallas county 2. Cheese-heroin use has disproportionately impacted the Latino community in Dallas Texas 3. Cheese-heroin preparations that include benzodiazepines or atypical antipsychotics are regarded as significantly more dangerous than preparations utilizing over the counter sleep aids Support: U10DA020024, Clinical Trials Network (CTN) - National Institutes of Drug Abuse, NIH Office of Health Disparities Research

749 THE BALLOON ANALOGUE RISK TASK AS A MEASURE OF IMPULSIVITY IN ALCOHOL-DEPENDENT INDIVIDUALS WITH BIPOLAR DISORDER

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Aims: Alcohol dependence and other substance use disorders are highly prevalent in individuals with bipolar disorder and are associated with worsened course of illness and increased risk of suicide. In addition to the state-dependent disruption of impulse control in mania, increased impulsivity has been reported to exist as a stable trait in individuals with bipolar disorder regardless of affective state. Increased risk taking with reduced regard for adverse consequences is thus characteristic of both bipolar disorder and substance dependence, and has been implicated in their high rate of co-occurrence. The Balloon Analogue Risk Task (BART) estimates impulsivity and risk taking through a computer simulation that rewards participants for judicious performance but penalizes indiscriminant responding. **Methods:** The present study compared performance on the BART by euthymic alcohol-dependent individuals with bipolar disorder to that by substance-dependent individuals without bipolar disorder and normal controls. Bipolar subjects met criteria for bipolar I or II disorder and for alcohol dependence within the past 90 days by the Structured Clinical Interview for DSM-IV. Euthymia was defined in bipolar subjects as Montgomery-Asberg Depression Rating Scale score <10 and Young Mania Rating Scale score <7. **Results:** No differences were found between alcohol-dependent bipolar subjects and other subjects on total ($p < 0.30$) or average ($p < 0.30$) number of responses or in money earned ($p < 0.65$) on the BART. Baseline alcohol dependence severity as measured by mean drinks per week in the 8 weeks prior to assessment did not predict total number of responses ($p < 0.26$) or money earned ($p < 0.89$) on the BART in bipolar subjects. **Conclusions:** These results do not support increased risk taking in euthymic alcohol-dependent subjects with bipolar disorder as measured by the Balloon Analogue Risk Task. **Support:** Supported by the National Institute on Drug Abuse.

750 EVALUATION OF TREATNET—THE INTERNATIONAL NETWORK OF DRUG DEPENDENCE TREATMENT AND REHABILITATION RESOURCE CENTRES

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Aims: To assess process and outcomes of Treatnet, initiated in December 2005 by the United Nations Office on Drugs and Crime, as a tool to improve the quality of drug dependence treatment and rehabilitation through exchange of experience amongst partners. Treatnet aims at improving quality, accessibility and affordability of drug dependence treatment and rehabilitation services worldwide. From 2005 to 2007, an operational network of 20 resource centres from all regions was initiated. A training package was developed by a consortium led by UCLA, and training delivered to trainers and service providers in excess of 1000 at Treatnet centres. Treatnet members prepared good practice documents on Community Based Treatment, Drug Dependence Treatment in Closed Settings, Role of Drug Dependence Treatment on HIV/AIDS Prevention and Care and Sustainable Livelihoods for Rehabilitation and Reintegration. **Methods:** A final project evaluation will be conducted in early 2008. It will focus on the relevance and effectiveness of the project with a special emphasis on project processes and outcomes. Specific issues include: Treatnet relevance and effectiveness as an international mechanisms for knowledge transfer in the area of drug dependence; network interaction and potential for sustainability; capacity building materials, methods and results; working group processes and quality of documents produced. **Results:** The poster will present results of the Treatnet evaluation and outline the lessons learned for knowledge transfer and the development of a global Partnership for Action on Comprehensive Treatment (PACT). **Conclusions:** Conclusions will focus on lessons learned for international knowledge transfer across different cultures and regions **Support:** Governments of Canada, Germany, the Netherlands, Spain, Sweden and the United States of America, as well as the Robert Wood Johnson Foundation

751 MEDICAL CO-OCCURRING DISORDERS IN A SUBSTANCE-ABUSING MEDICAID POPULATION

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Aims: Substance use problems (SUP) have well established medical consequences. However, little is known about the rates of particular co-occurring disorders in specific sub-populations. Medicaid programs, which have high rates of members with SUP, have been under increasing pressure to control costs. Many states have done so with Managed Care Organizations (MCO) but have found it difficult to control costs in members with SUP. The purpose of this study is to characterize an MCO substance abusing population with high medical expenses. **Methods:** Data were collected from a Medicaid MCOs paid claims database over the course of three years for 603 members with SUP and high medical cost. Enrollees' indications of medical diagnoses were clustered into groups via Expanded Disease Categories (EDCs). Enrollees were divided equally into three strata based on 3-year total medical costs: higher cost, middle cost, and lower cost. We then compared rates of EDCs for the higher vs. lower cost groups. **Results:** 30% of the enrollees had a diagnosis including opioid dependence, 8% had cocaine dependence, and 4% had alcohol dependence. The mean number of EDCs in the lower cost group was 4.4 versus 9.0 in the higher cost group. Bivariate analysis revealed that for 15 of the 18 EDCs, the presence of that EDC was associated with assignment to the higher (vs. lower) cost group (all $p < 0.05$). The remaining 3 EDCs (not associated with higher costs) were female reproductive ($p = 0.117$), dental ($p = 0.823$), and allergy ($p = 0.160$). Multivariate analysis controlling for gender and age showed similar results. Further analyses will be done to determine which specific (or groups of) EDCs most contribute toward higher medical costs. **Conclusions:** Medicaid MCO members with substance use problems have high rates of co-occurring disorders, most of which are associated with high medical costs. **Support:** NIH-NIDA grant K23DA16250; CHCS grant by the RWJF; Johns Hopkins HealthCare, LLC.

752 METHAMPHETAMINE USE AMONG WHITE PREGNANT WOMEN

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Aims: The purpose of the proposed presentation and/or poster board is to: (1) provide a comprehensive demographic description of white pregnant woman who use methamphetamine and to (2) identify correlates of methamphetamine use. The above two aims will be accomplished through the use of both descriptive and inferential statistical techniques. Data reveal that the methamphetamine use is done predominantly by the white population. Among pregnant women who were admitted into publicly funded treatment facilities for methamphetamine use, the number of white pregnant women far outpaced the other races and ethnic groups. The admissions have more than doubled for white pregnant women from 2001 through 2005, with an increase of 105%. The data are drawn from the Treatment Episode Data (TEDS). Methamphetamine use among pregnant women is an increasing problem in the United States. Despite increases in the prevalence of methamphetamine use among white pregnant women, there is a paucity of research related to this understudied population. The existing literature demonstrates that methamphetamine use during pregnancy is associated with a number of negative health outcomes for both the fetus and the post-partum care of infants born to methamphetamine using mothers. Taken as a whole, emerging data exist to suggest that methamphetamine admissions among white pregnant woman is a problem that warrants further study and development of therapeutic interventions. **Conclusions:** This study will explore whether there are a number of important demographic variables associated with those white pregnant women who present for methamphetamine treatment. In addition, multivariate models will evaluate the association between a range of demographic factors and methamphetamine use to determine if there are important implications for future research and provide insights into a number of factors that may be associated with methamphetamine use. **Support:** The presentation is supported by U.S. Department of Health and Human Services, Substance Abuse and Mental Health Services Administration, Center for Substance Abuse Treatment.

CPDD 2008 Annual Meeting, San Juan, Puerto Rico

753 CHANGES IN 12-STEP COGNITIONS AND PRACTICES AMONG TREATMENT-SEEKING ADOLESCENTS

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Aims: Twelve Step therapy is the dominant therapeutic model in the USA and studies have demonstrated that changes in patient 12-step beliefs, cognitions, and practices can be produced during treatment (Tonigan et al., 2002). Some of these 12-step related changes have accounted for reductions in substance use, while other cognitive shifts have not (Finney et al., 1999). This study tested whether changes in positive and negative beliefs about 12-step practices occurred during adolescent outpatient treatment and, if so, whether such changes predicted subsequent substance use. **Methods:** A total of 154 opiate-dependent adolescents were randomized to one of two pharmacotherapy conditions as part of their participation in a clinical trial investigating the effects of buprenorphine. All participants received group and individual drug counseling, emphasizing 12-step principles and participation. The 40-item Addiction Recovery scale was administered at intake and at the end of treatment (week 12). Items on the ARS contained positive and negative statements about 12-step practices and beliefs. Urine toxicology screens were conducted weekly. A positive UA screen was conservatively assumed in the absence of a weekly result. **Results:** At intake, adolescents reported generally favorable attitudes about 12-step practices and beliefs, mean 31.85 SD=5.46, and the relationship between positive and negative views of AA practices was predictably negative, $r=-.29, p<.01$. Paired t-tests indicated that significant pre-post increases in positive attitudes about AA occurred during treatment, $t(82) = 2.03, p<.05$, but that negative views about AA were relatively unaffected during treatment, $t(82) = -.25, p<.80$. Four hierarchical regressions showed that changes in positive and negative beliefs about AA practices did not predict the use of opioids during the 12-weeks of treatment. **Conclusions:** Findings suggest that negative beliefs about 12-step programs are relatively unaffected during treatment among adolescents and that substance use during treatment is largely unrelated to AA beliefs and practices regardless of the valence of such beliefs. **Support:** NIDA CTN

754 ALLÁ EN NUEVA YORK TODO ES MEJOR: A STUDY ON THE MOVEMENT OF INJECTING DRUG USERS FROM PUERTO RICO TO THE UNITED STATES

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Aims: Puerto Rican officials, overwhelmed with expanding numbers of injecting drug users (IDU), have found that relocating them to New York City for treatment is an effective and convenient way to avoid providing services to this high risk population. The purpose of this research will be to document and understand the individual and community dimensions of this phenomenon. It is hypothesized that this migration of IDUs from Puerto Rico to the United States is due to the limited resources provided in Puerto Rico to this population. It is further hypothesized that these limitations of resources detrimentally affect the daily lives of IDUs and their communities. **Methods:** For this research project I deployed two qualitative data collection methodologies: participant observation and semi-structured interviews. Through these techniques I was able to document and better understand the effects that this movement from island-side to state-side has on individual IDUs and their communities. Specific examples of the documentation include the actual journey of IDUs from Puerto Rico to the U.S. Mainland, the met/unmet expectation of services, stigma towards IDUs, and differences between treatment methodologies (e.g., harm reduction, maintenance, self-help, Christian-based). **Results:** Data from this study suggests that: 1) IDUs are highly frustrated because of the scarcity of resources/services and lack of variety of treatment options in Puerto Rico. 2) IDUs are highly stigmatized in both Puerto Rico and the U.S. and from their point of view this affects the amount and quality of services that they receive. 3) IDUs who come from Puerto Rico are further subjected to social exclusion and exploitation which has a negative impact in their daily lives and affect their communities. **Conclusions:** This research shows that IDUs in Puerto Rico have to contend with lack of resources/services, IDUs are highly stigmatized both island and state-side, and that their movement from PR to the US has many negative impacts on their daily lives and that of their communities. **Support:** NIDA, NRSA T32DA0723

755 NATIONAL MULTIDISCIPLINARY FRENCH TRAINING PROGRAM TO IMPROVE THE QUALITY OF TREATMENT FOR OPIATE ADDICTION PATIENTS AND TO MAKE A PROFESSIONAL'S CARE EASIER: OBJECTIVES AND OUTCOME

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Aims: Background : In France, the « Buprenorphin paradox » in 1995 was to allow general practitioners to broadly prescribe drug addiction treatments without limitations in order to address the HIV epidemic. In 2007 : - 120.000 patients are receiving treatment, on an estimated 200 000 opiate dependant patients. - 16.000 doctors are prescribing alternative treatments, but only 12% of these treat 50% of the patients. - All pharmacists do not dispense available treatments. - Coordination between professionals (especially GPs and pharmacists) is poor. - Misuses exist with high dosage buprenorphin (sniff, injection) and, to a lesser extent with methadone (15.000 patients). **Objectives :** - Facilitate coordination between other medicare professionals and specialised centers. - Manage misuse situations causing problems to professionals, ie respect of prescribed dosages : sniff and buprenorphin high dosage injections (BHD). - Address particular problems most frequently encountered like pregnancy of addicted patients and certain comorbidities (HIV or HCV infections) **Methods:** The favoured method of training remains the inter-exchange of experiences between professionals. This enables them to voice their daily problems and to obtain valid answers. FMC-Net, using the internet, has overcome the logistical problems linked to the GP's locations and offers greater time flexibility with several sessions being available "on line" whilst giving greater interactivity and also telephone contact with an experienced trainer. **Results:** A review will be made of Net-FMC's 40 rounds of 2 sessions throughout France with GPs, Pharmacists and also other healthcare professionals dealing with addiction linked patients. **Conclusions:** This program aims to improve prescription of drug addiction treatments within the actual regulatory context. **Support:** Program designed by IRMG with the support of Schering Plough Lab

756 THE EFFECTS OF CXCL12 ON COCAINE WITHIN THE MESOLIMBIC DOPAMINE PATHWAY

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Aims: CXCL12 is a chemokine that plays an important role in various biological processes. CXCL12 binds to two receptors, CXCR4 and CXCR7 that belong to the family of GPCRs. Cocaine binds to transport proteins and prevents the reuptake of dopamine, serotonin and norepinephrine into presynaptic neurons. Exposure to cocaine in naïve animals increases ambulatory and stereotypic behaviors across a variety of doses. The following study investigated the effects of CXCL12 on cocaine-induced activity. **Methods:** To evaluate locomotor activity, male Sprague Dawley rats underwent surgery to implant a cannula within the right cerebral ventricle. Following two days of recuperation, animals were placed in an activity monitoring system where they received combinations of CXCL12 (ICV, 12.5 - 200 ng) and cocaine (IP, 15 or 20 mg/kg) matched with saline controls. To evaluate extracellular dopamine levels, naïve rats underwent surgery to implant an ICV cannula along with a microdialysis probe into the core of the nucleus accumbens. **Results:** Upon concomitant administration of CXCL12 and cocaine, ambulatory and stereotypy activity was potentiated at both 25 and 50 ng doses of CXCL12 as compared to CXCL12 or cocaine alone (ANOVA, $p<.001$). The potentiation observed upon concomitant administration of CXCL12 and cocaine was blocked by AMD 3100, a selective CXCR4 receptor antagonist (ANOVA, $p<.01$), demonstrating that CXCL12 is producing its effects through CXCR4. Preliminary HPLC results showed a potentiation in extracellular dopamine levels following concomitant administration of CXCL12 and cocaine as compared to cocaine alone. Future studies will include microinjections of CXCL12 and immunohistochemical analysis of the CXCR4 receptor. **Conclusions:** These results demonstrate a functional interaction between CXCL12 and cocaine and preliminary data suggest that this may be due to a potentiation in mesolimbic dopamine. **Support:** T32 DA07237, DA13429, PA Dept. of Health

757 EFFECT OF WOMEN'S HIV SAFER SEX SKILLS GROUPS ON SEX-WITH-DRUG OCCASIONS: NIDA CLINICAL TRIALS NETWORK TRIAL RESULTS

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Aims: As drug-involved women are at risk for HIV heterosexual transmission, sexual risk reduction intervention for them is crucial. This must target both sexual risk behavior and concurrent substance use. The effect of an intervention on sex-with-drug occasions is presented here. **Methods:** A CTN randomized trial of an evidence-based, women's HIV safer sex skills building (SSB) group versus standard HIV education (HE) was conducted in 12 community drug treatment programs. In a prior report, reduction in the primary outcome, unprotected sexual occasions (in prior 3 months), was observed in both conditions, at 3 months; at 6 months, while this decline held in SSB, there was an increase in HE, reflecting a significant difference ($F=67.2, p<.0001$). Here, intervention effect on the secondary outcome of sex-with-drug-occasions is presented. **Results:** 465 women, sexually active at 3-month and/or 6-month follow-ups, were included in mixed effect modeling. For each woman, frequency of sex-with-drug occasions was the number of such occasions (in prior 3 months) for the drug for which this was the greatest. A significant Intervention X Time effect was obtained ($B=-.53, SE=.23, t=-2.27, p<.024$), reflecting a significant difference between HE and SSB predicted means at 6 months. While means for both decreased from baseline to 3 months (HE: $BL = 26.92, 3M = 11.92$; SSB: $BL = 23.66, 3M = 8.65$), at 6 months, in the SSB, this decline was maintained (Mean = 6.52), while in HE, there was an increase (Mean = 14.85). **Conclusions:** SSB was effective in decreasing sex-with-drug-occasions in women in drug treatment programs. While HE also produced initial decrements, only SSB maintained this decrement over time. The necessity for comprehensive skills building, beyond information alone, in maintaining risk reduction is a common finding in HIV prevention. SSB, led by counselors, could be feasibly integrated into usual treatment. **Support:** CU-Partners/LI Regional Node(E. Nunes, P.I.)(NIDA U10DA 1305);HIV Center For Clinical & Behavioral Studies(E. Ehrhardt, P.I.)(NIMH P30MH43520)

758 FOOD RESTRICTION AFFECTS COCAINE-INDUCED PRIMING BUT NOT MAINTAINED COCAINE SELF-ADMINISTRATION IN RATS

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Aims: There are multiple reports that food deprivation facilitates acquisition, reinstates and increases the rate of self-administration of all drugs of abuse tested. The aim of this study was to determine the effects of food deprivation on acquired cocaine self-administration and to interpret the results according to the compulsion zone theory. **Methods:** Rats with indwelling jugular catheters were trained to self-administer cocaine. After acquisition of reliable cocaine self-administration, the priming, satiety, and extinction thresholds and the elimination half-life of cocaine were calculated during daily sessions using mathematical models. The quantity of food was then restricted to produce and maintain body weight at 80% of baseline levels. **Results:** Body weight gradually decreased to 80% of the baseline level. The priming and extinction thresholds also significantly decreased, reaching the lowest levels after two weeks of this food restriction regimen. In contrast to many previous reports, cocaine consumption and inter-injection intervals during maintained cocaine self-administration at 0.3, 0.75 and 3 $\mu\text{mol/kg}$ cocaine unit doses did not change significantly. After termination of the food restriction regimen, body weight and priming/extinction thresholds gradually recovered. **Conclusions:** There was no evidence for any significant effect of food deprivation on the cocaine satiety threshold. Food deprivation significantly decreased the priming and extinction thresholds and, therefore, increased the width of the compulsion zone. This provides evidence that the mechanisms underlying the priming/extinction and satiety responses may be differentially regulated. **Support:** NIDA grants DA14189 and DA018538

759 REINFORCEMENT-BASED TREATMENT: A RANDOMIZED CLINICAL TRIAL

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Aims: Effective non-pharmacological aftercare interventions are needed for individuals who do not desire or do not qualify for methadone. The primary aim of this randomized clinical trial was to evaluate the efficacy Reinforcement-Based Treatment (RBT), an intensive behavioral treatment combining individualized therapy and abstinence-contingent housing (Jones, et al 2005). **Methods:** 246 eligible patients completing inpatient detoxification on the Johns Hopkins Bayview Medical Campus (JHBMC) were randomized into one of three groups: standard care (SC: $n=81$), 2) abstinence-contingent recovery housing for three months (RH: $n=81$), and 3) abstinence-contingent recovery housing for three months plus a manualized therapy package (RH + RBT: $n=84$). Groups were compared on: demographic variables, pre-treatment drug use, employment procurement rates, and abstinence from cocaine and opiates at 1, 3, and 6 month follow-up. **Results:** The three groups did not differ on demographic nor pre-treatment drug use variables. During the 30 days prior to detoxification, participants used heroin 29 out of 30 days, cocaine 12 out of 30 days, and alcohol 11 out of 30 days. Participants were predominately African American (69%), and male (74%), in their late 30s, with less than a high school education (mean=11.5 years). On treatment outcome measures, the RBT+ Recovery housing group had significantly fewer drug positive screens for cocaine and opiates at 1, 3 and 6 months follow-up compared to the standard care and recovery housing only groups ($p<.05$). The RBT + Recovery housing group was also significantly more likely to gain employment and earned more legal income at follow-up compared to the standard care and recovery housing only groups ($p<.05$). **Conclusions:** Reinforcement-Based Treatment is an effective aftercare treatment for individuals exiting detoxification. Additional data comparisons will be presented at the CPDD annual conference, including psychosocial functioning (Addiction Severity Index), days in recovery housing, and cost per participant for abstinence-contingent housing. **Support:** Funded by R01 DA13003

19 760 THE COCAINE SELECTIVE SEVERITY ASSESSMENT: SELF-REPORT VS CLINICIAN RATING

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Aims: Kampman and colleagues developed the Cocaine Selective Severity Assessment (CSSA) as a clinician administered instrument for predicting outcome in cocaine abuse treatment research. The CSSA rates 16 signs or symptoms of early cocaine withdrawal on a scale of 0-7 and has demonstrated good validity and reliability. The purpose of this study is to compare a self-administered computerized version of the CSSA with the clinician administered version. **Methods:** The sample included 42 consecutive subjects enrolled in an ongoing clinical trial of topiramate for the treatment of cocaine dependence and receiving methadone maintenance treatment. On the day of study admission, participants were administered both the clinician- and a self-administered version of the CSSA. For the self-administered version, the CSSA was modified to a fifth grade reading level; each question was presented on a computer screen and participants entered their response to get to the next question. **Results:** The self-administered computerized CSSA version generated, on average, lower scores than the clinician-administered version but this was not statistically significant (mean \pm SD: 47.2 ± 16.2 vs 52.5 ± 17.9 , respectively, NS). The Intraclass Correlation Coefficient was 0.99 indicating strong reproducibility. Time required for completion of the self-administered version averaged 3.5 minutes. Subjects ($n=13$) who scored less than 20 with the self-administered version used less cocaine in the last 30 days and the difference was statistically significant (16.5 days vs 24.5 days out of the last 30 days, $p = 0.03$). **Conclusions:** A self-administered computerized CSSA version appears to provide comparable results as the clinician administered form, with decreased staff involvement. The self-administered version also appears to correlate with the amount of cocaine use. 1: Kampman KM et al.: Reliability and validity of the cocaine selective severity assessment. *Addict Behav* 1998;23(4):449-61 **Support:** Research supported by NIDA Grant Number: DA 021808 and DA 023186

761 CORRELATES OF ADHD COMORBIDITY AMONG ADOLESCENT SMOKERS

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Aims: Attention-Deficit/Hyperactivity Disorder (ADHD) is frequently comorbid with nicotine dependence. Even though we are not specifically recruiting smokers with ADHD, a significant proportion of the sample in our ongoing adolescent smoking cessation study have a lifetime diagnosis of ADHD. Hence, we explored lifetime prevalence of ADHD comorbidity on baseline characteristics and smoking cessation outcomes in an ongoing adolescent smoking cessation study. **Methods:** Adolescent regular daily smokers (>5 cigarettes/day) were recruited in a placebo controlled randomized double-blind smoking cessation study involving medication (bupropion SR) and behavior therapy (contingency management). We examined baseline characteristics, background craving, nicotine withdrawal symptoms, and 14 day point prevalence abstinence of smokers with ADHD (n=27, 29%) as compared to the rest of the sample (total n=92). The study was not designed to test differences between smokers with and without ADHD and the medication effects cannot be unblinded at this point. **Results:** Preliminary results suggest, at baseline, smokers with ADHD were a year younger (p=.03), started smoking regularly earlier (p<.00), were more impulsive (p=.03), and had higher Fagerstrom dependence scores (p=.02). Smokers with ADHD seem to have significantly lower retention in the study (p=.03), and more severe nicotine withdrawal as compared to rest of the sample (p<.00). Although smokers with ADHD had numerically lower 14 day point prevalence abstinence rate vs. rest of the sample (21% vs. 31%) it did not reach statistical significance (p=.62). **Conclusions:** Adolescent smokers with ADHD entering smoking cessation study may initiate regular smoking earlier and may be more dependent on cigarettes compared to smokers without ADHD. Preliminary findings suggest adolescent smokers with ADHD may have poorer retention and potentially poorer abstinence rates. **Support:** Supported by NIDA Award (RO1 DA17460) and the Research Support Center (M01 RR 01070) at MUSC.

762 ADOLESCENT PATIENTS WITH CONDUCT AND SUBSTANCE PROBLEMS AND ADOLESCENT CONTROLS: EXAMINING PERPETRATOR TYPE AND PHYSICAL AND SEXUAL ABUSE

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Aims: Adolescent reports about the perpetrators of physical and sexual abuse vary. Studies report that physical abuse perpetrators are more often parents, whereas sexual abuse perpetrators are more likely to be strangers or acquaintances and not family members. Does this hold true in adolescents with serious substance use and conduct problems? **Methods:** 98 adolescents in treatment for substance use and conduct problems and 102 community controls (both groups ~40% female) completed an extensive battery of assessments including the Colorado Adolescent Rearing Inventory, a structured abuse and neglect assessment with probes of each endorsed item providing details including perpetrator, frequency, and onset. **Results:** In patients, 26.5% reported physical abuse by parents and only 1.0% reported physical abuse by stranger/acquaintance (p<.0001). No patients reported sexual abuse by parents and 16.3% reported sexual abuse by stranger/acquaintance. In controls, 9.8% reported physical abuse by parents and none reported physical abuse by stranger/acquaintance. Only 1.0% of controls reported sexual abuse by parents and 7.8% reported sexual abuse by stranger/acquaintance (p<.02). Cumulative occurrences of physical and sexual abuse will be utilized as proxy measures of abuse severity and their association with severity of substance use and conduct disorder will be examined. **Conclusions:** Our results confirm previous relationships between physical and sexual abuse perpetrator type, but extend those findings to a sample of adolescent patients with serious substance and conduct problems. Additional analyses will evaluate how severity of physical and sexual abuse relate to other pathology. **Support:** Supported by NIDA Grants DA011015 and DA009842.

763 EVALUATION OF CALIFORNIA'S PROPOSITION 36: AN INITIATIVE OFFERING TREATMENT TO NON-VIOLENT DRUG OFFENDERS

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Aims: To report show rates, completion rates, and re-arrest outcomes associated with California's Proposition 36. To suggest avenues for potential improvement in implementation and legislation. **Methods:** Secondary analyses of statewide administrative databases were performed to describe outcomes. Suggestions for improvements are based upon literature reviews and collection of original survey and focus group data. **Results:** Over the first several years of implementation, approximately 70-75% of offenders referred to treatment have been admitted. About one third of those admitted complete treatment. Re-offending was lowest among Proposition 36 offenders who completed treatment compared to offenders who did not. Outcomes of Proposition 36 as a policy were examined by comparing re-offending among Proposition 36 eligible offenders (Proposition 36-era offenders) to similar offenders in the pre-Proposition 36-era. Proposition 36-era offenders had a higher rate of drug and property arrests than the pre-Proposition 36-era comparison group. Violent arrests were low in both groups. This comparison may have been affected by differences in incapacitation under the two policies; pre-Proposition 36-era offenders were more likely to be sentenced to jail or prison. **Conclusions:** Proposition 36 successfully diverted thousands of offenders into treatment and saved taxpayer money on incarceration. Show rates, completion rates, and arrest rates are not surprising, but there is room for improvement. Suggestions for future efforts include increased funding, implementation of process improvement methods, locating assessment units in or near the court, allowing walk-in assessments without appointments, incorporating procedures used in drug courts, increasing use of narcotic replacement therapy for opiate users, integrated treatment for mentally ill offenders, and handling offenders with high rates of prior convictions differently. **Support:** California Department of Alcohol and Drug Programs

764 A CONTROLLED TRIAL OF FLUMAZENIL, GABAPENTIN AND HYDROXYZINE IN TREATMENT OF METHAMPHETAMINE DEPENDENCE

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Aims: This study evaluated a medication regimen of flumazenil, gabapentin, and hydroxyzine for short-term efficacy in reducing cravings and methamphetamine use in a 30-day controlled trial. **Methods:** One-hundred thirty-four methamphetamine-dependent subjects were randomized into either an active treatment (T) group or a placebo control (P) group. Data from 88 subjects who completed all flumazenil administrations and the last scheduled visit were included in the analysis. The T-group received flumazenil 2 mg administered IV by incremental push over 30 minutes on days 1, 2, 3, 21 and 22, oral gabapentin 1200 mg/day, and hydroxyzine 50 mg. The P-group received inactive formulations of the three medications. All subjects were assessed at screening and on days 4, 6, 13, 20 and 30. Craving scales assessed several dimensions of drug craving. Drug use was measured using the timeline-followback method and urine drug screens. Subjects in both groups received drug abuse counseling. Tests of significance included ANOVA and Chi-square or Kruskal-Wallis tests. **Results:** Both groups showed statistically significant reductions in METH cravings, days of self-reported drug use, and urine drug screens over the 30 days following initiation of treatment. The T-group had a significantly greater reduction in overall cravings (pAVG=.006), frequency of thoughts about use (pAVG=.002), and strength of desire during the last week (pAVG=.0032). Both groups showed longitudinally significant reduction in cravings except the P-group in disturbance by thoughts (pAVG=.07). The T-group had a 61% reduction in daily self-reported METH use and the P-group had a 49% reduction. The T-group had 49% positive urine drug screens and the P-group had 61%. **Conclusions:** Reducing cravings may contribute to a reduction in METH use and facilitate abstinence. **Support:** This study was supported by an unrestricted grant from Hythiam, Inc., which licenses the medication treatment program to physicians.

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765 DECISION-MAKING IN COCAINE ABUSERS: CONTINGENCIES AND GAMBLING TASK PERFORMANCE

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Aims: The Iowa Gambling task has been widely used to measure decision-making. The extent to which Gambling task performance under hypothetical monetary contingencies models the naturalistic decision-making of substance abusers is unclear. In the current study, we examined the effects of a cash monetary contingency on Gambling task performance in cocaine-abusing and control participants. **Methods:** Fourteen male cocaine-dependent individuals, and fourteen male non cocaine-using control participants, matched on use of other drugs, have completed this study to date. All participants performed the Gambling task under two counterbalanced conditions: 1) hypothetical earnings and losses 2) cash earnings and losses. **Results:** All participants took more time to complete the task and earned more money under the cash condition than under the hypothetical monetary condition ($p < 0.05$). Cocaine abusers made more selections from disadvantageous decks than advantageous decks, relative to control participants, under the hypothetical condition ($p < 0.05$). However, no group differences were seen under the cash condition ($p > 0.05$). Further, in a larger sample of cocaine abusers that included these participants ($n = 24$), performance under the cash condition (but not under the hypothetical condition) was associated with self-report measures of naturalistic risk-taking and impulsivity ($p < 0.05$). **Conclusions:** The application of tangible consequences improved the decision-making of cocaine abusers on the Gambling task to a level equivalent to that of control participants. Thus, differences in performance on the Gambling task between cocaine abusers and healthy controls in previous studies may have been affected by both decision-making and motivational variables. Finally, performance under the cash contingency appeared to have greater ecological validity than performance under the hypothetical contingency. These data underscore the importance of considering consequential control, in addition to instructional control, when conducting neuropsychological research in substance abusers. **Support:** K01DA019933-01, RO1DA008105-10 and P50DA09236-10

766 AN INTERVENTION TO INCREASE MEDICAL ASSESSMENT OF IN-TREATMENT SOCIALLY PRECARIOUS POLYDRUG USERS. IMPACT OF A FOCUSED GROUP COUNSELING SESSION

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Aims: Patients admitted for addiction treatment often have an impaired medical status and reduced access to medical assessment and treatments. Our objectives were 1) to describe the medical status of patients admitted to addiction treatment in a specialized addiction treatment clinic, 2) to question patients about their medical needs and 3) to implement an intervention to allow them to access medical check-up. **Methods:** The medical section of the Addiction Severity Index (ASI) was used to describe patients at admission. Patient's perceived current medical problem; how they took care of it and whether they would participate in a group counseling session addressing how to access to currently available medical check-up was collected through an auto-questionnaire. The ASI was applied to all patients admitted in 2005 and the questionnaire to a selected group of socially precarious patients for whom a medical check-up was indicated based on staff assessment. **Results:** The ASIs of 159 patients were available. 45 % reported a chronic medical problem, 43 % to be bothered by medical problems and 22 % to need additional support to deal with medical problems. Only 5% reported significant discussion regarding their medical problem with a medical staff. Twelve patients had been selected to answer the auto-questionnaire. 8 of them reported to have medical problems and 6 were taking care of them. Nonetheless, 9 reported a great deal of interest in a group session and access to a medical check-up. Four patients attended the group session and 3 of them had access to a medical check-up. **Conclusions:** The group session was an effective intervention to increase access to medical check-up (3/4). Although the auto-questionnaire was effective in helping participants to declare their interest for a medical check-up (9/12) only a minority attended the group session (4/9). **Support:** Internal funds

767 FEEDBACK AND PERFORMANCE-BASED INCENTIVES FOR COUNSELORS: RESPONSE TO A BRIEF INTERVENTION FOR IMPROVING GROUP ATTENDANCE

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Aims: Pay-for-performance strategies have been shown to improve employee productivity and morale in business settings and variations are now gaining support for use in medical care settings. Recent studies in Delaware and Massachusetts suggest that providing substance abuse counselors with contingent incentives based on client outcomes can improve treatment retention rates. This pilot study assessed whether providing feedback and performance-based incentives to counselors at a community drug treatment clinic could improve client attendance at group counseling sessions. **Methods:** Each week, counselors were given feedback regarding client attendance at each of 15 regularly held group sessions (range 7-18 clients), longitudinal attendance charts for individual clients assigned to groups they conducted, and strategies for improving client attendance were discussed. Also, each group that met a benchmark attendance cut-off of 80% was entered into a weekly drawing, and the counselor(s) who conducted the winning group received a \$25 gift card. An additional token was placed in the drawing for each consecutive week a group met the benchmark attendance criteria to improve chances of winning among best performing groups. **Results:** After 8 weeks, 12 out of 15 groups met the 80% attendance benchmark at least once, and average attendance rates across the clinic increased from 63% to 69%. Interviews with the counselors indicate that they support pay-for-performance incentives, and in response to the program they increased the frequency of existing behaviors and developed new strategies they felt helped improve client attendance at group sessions. **Conclusions:** These findings suggest that a relatively inexpensive feedback and incentive program can positively impact counselor performance, and, indirectly, client engagement in treatment services. Further research is needed to investigate effects of the intervention on other client outcomes (drug use, retention), the mechanism of the intervention (feedback vs. incentives), and the feasibility of implementing the intervention across more diverse clinic settings. **Support:** NIDA/CTN Grant U10-DA13034

768 DISRUPTIVE BEHAVIOR DISORDERS INFLUENCE RESPONSE TO CONTINGENCY MANAGEMENT AMONG ADOLESCENT MARIJUANA ABUSERS

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Aims: To explore the role disruptive behavior disorders play in treatment for adolescent marijuana use. **Methods:** Adolescents ($n = 69$) received MET/CBT for marijuana use and were randomly assigned to: (a) parent- and clinic-administered abstinence-based contingency management (CM; $n = 36$) or (b) parent drug education (DE; $n = 33$). DSM-IV disruptive behavior disorders (DBD; Oppositional Defiant Disorder and Conduct Disorder) were diagnosed at intake. Youth with DBD represented a majority of participants (DE: 61%; CM: 58%). **Results:** Overall, youth receiving CM had higher rates of during- and post-treatment abstinence. DBD alone did not significantly predict prolonged continuous abstinence (> 10 weeks) during treatment; however, the treatments showed differential impact on youth with versus without DBD. Youth without DBD achieved prolonged continuous abstinence at equivalent rates across treatment groups (CM: 53%, DE: 38%; OR=6; 95% CI=1.2-5). Youth with DBD reached this goal at a significantly higher rate with CM than with DE (CM: 58%, DE: 5%; OR=17.3, 95% CI=1.9-153.7). At 9 months post-treatment, youth without DBD who received CM had the highest rates of abstinence (60%), significantly higher than youth with DBD in the CM condition (19%; OR=6.4, 95% CI=1.4-28.6); within the DE condition, abstinence rates at 9 months were similar across groups (DBD: 30%, no DBD: 31%; OR=1.0, 95% CI=2.4-7). **Conclusions:** CM increases the likelihood that youth with comorbid marijuana use and DBD will achieve prolonged abstinence during treatment; however, high relapse rates during post-treatment were noted. The highest long-term abstinence rates were observed in youth without DBD who received CM. Taken together, these results suggest that CM can equalize results during treatment for youth with and without behavior disorders, but enhanced interventions targeting the post-treatment period may be necessary to maintain treatment gains for youth with DBD. **Support:** NIDA: DA 015186 and the Arkansas Biosciences Institute-the major research component of the Tobacco Settlement Proceeds Act of 2000

769 D-AMPHETAMINE MODIFIES THE DISCRIMINATIVE-STIMULUS EFFECTS OF METHAMPHETAMINE IN HUMANS

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Aims: There is no approved medication for the treatment of methamphetamine dependence. d-Amphetamine is a promising agonist-replacement medication. The aim of the present investigation is two-fold: 1) to determine the safety and tolerability of d-amphetamine-methamphetamine combinations and 2) to determine the effect of d-amphetamine pretreatment on the discriminative effects of methamphetamine. Results from preclinical drug-discrimination experiments suggest that acute pre-treatment with an agonist shifts the cocaine dose-response curve up and to the left. We hypothesized that acute d-amphetamine pretreatment would shift the methamphetamine dose-response curve similarly. **Methods:** Two participants have completed, another is currently enrolled and five more will be recruited. Participants learn to discriminate 10 mg methamphetamine. After acquiring the discrimination (i.e. >80% correct responding on 4 consecutive session), the effects of methamphetamine (0, 1.25, 2.5, 5 and 10 mg) alone and in combination with extended-release d-amphetamine (0 and 15 mg) are tested. Outcome measures include responding on a point distribution task, subject-rated drug effect questionnaires and cardiovascular indices. **Results:** Preliminary results indicate that methamphetamine (10 mg) functions as a discriminative-stimulus and produces prototypical stimulant-like effects. Pre-treatment with extended-release d-amphetamine is well tolerated and shifts the methamphetamine dose response curve upward. **Conclusions:** The results of this study are concordant with those from preclinical experiments and could have implications for the use of drug-discrimination procedures to screen potential agonist therapies for stimulant dependence. Future studies should examine the effects of chronic d-amphetamine dosing on the discriminative effects of methamphetamine as well as other agonist therapies (e.g., bupropion or modafinil). **Support:** NIDA DA 021155 (CRR)

770 A TRANSTHEORETICAL MODEL GROUP THERAPY FOR COCAINE ABUSERS

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Aims: This study compared a group therapy for cocaine abuse based on the Transtheoretical Model's (TTM) stages and processes of change (POC) to an education/advice group. Cocaine use and POC, the proposed mechanisms of change, were examined. **Methods:** A TTM intervention for cocaine was developed based on Group Treatment for Substance Abuse: A Stages-of-Change Therapy Manual by Velasquez et al. (2001). This 12-session group therapy focused on TTM processes of change and included six experiential POC sessions and six behavioral POC sessions. The TTM intervention incorporated motivational interviewing, relapse prevention, and other strategies to facilitate clients' use of POC. The comparison group was a more traditional educational-advice intervention that focused on didactics and skill building strategies for reducing cocaine use. We recruited 138 participants and conducted 10 groups. Group comparisons on POC use and percent days abstinent (PDA) at baseline, end-of-treatment and 3-months post treatment were examined using GLM Repeated Measures. **Results:** During treatment increases in the use of the TTM experiential and behavioral POC were linked to reductions in cocaine use at 3 months. Participants significantly increased their POC use ($p < .001$) and reduced their cocaine use ($p < .001$), and there was no main treatment effect. However, treatments were moderated by baseline readiness to change. Participants with lower levels of baseline readiness to change their cocaine use had greater success in the TTM condition than in the Ed-Advice condition. Conversely, participants with higher levels of baseline readiness were more successful in the Ed-Advice condition. **Conclusions:** Facilitating TTM experiential and behavioral POC use, and assigning participants to treatment groups based on their readiness to change may improve outcomes. This could have substantial positive impact on the delivery of treatment in community treatment programs. **Support:** NIDA R01 DA015453

771 INVESTIGATING THE ACTIVE INGREDIENTS OF MOTIVATIONAL INTERVIEWING

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Aims: In spite of the generally good results produced by MI, the precise mechanisms of action associated with MI remain poorly understood and rarely conform to its theoretical model describing behavior change. This study investigated changes in motivational profiles of pregnant substance abusing women, half receiving MI and half receiving treatment as usual (TAU). Reported elsewhere, no main effect of treatment on later substance use was found between the MI and TAU conditions (Winhusen et al., in press). One explanation for this finding is that the MI intervention failed to mobilize the intended change processes thought to produce positive outcome. **Methods:** A total of 135 pregnant women were administered the 32-item stage of change tool, the URICA, and had complete data for the intake and end of treatment periods (MI: $n = 62$, TAU: $n = 73$). **Results:** Hierarchical multiple regressions were done to determine if there were differential pre-post relationships between the four URICA scales by treatment group. The direction and magnitude of pre-post changes in precontemplation did not differ between TAU and MI ($p < .09$; β combined = .48), and controlling for intake precontemplation scores the two groups did not differ in mean posttest precontemplation scores. In contrast, the slope for pre-post contemplation scores was significantly more positive for the TAU group ($\beta = .71$) relative to the MI group, ($\beta = .42$), $p < .02$, and MI participants reported, on average, lower contemplation scores at the end of treatment, $p < .003$. Finally, the slopes between pre-post scores for the action ($\beta = .49$) and maintenance ($\beta = .63$) scales did not differ between the TAU and MI clients. **Conclusions:** Unexpectedly, the TAU group reported significantly higher mean action and maintenance scores relative to the MI group at the end of treatment. Reasons for these differences are unclear but warrant future investigation. Findings offer partial support for the ability of MI to aid in the resolution of ambivalence, here characterized as contemplation. **Support:** NIDA Clinical Trials Network

19 772 TWELVE-MONTH PREVALENCE OF SUBSTANCE USE AND SUBSTANCE USE DISORDERS IN PREGNANT AND POSTPARTUM WOMEN

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Aims: To present, for the first time, national data on the 12-month prevalence of substance use and substance use disorders among pregnant, postpartum and non-pregnant women in the U.S. **Methods:** Face-to-face interviews were conducted in the 2001-2002 National Epidemiologic Survey on Alcohol and Related Conditions ($n = 43,093$). **Results:** Rates of any substance use disorder were significantly higher in non-pregnant women (19.9%), compared to pregnant (14.6%) and postpartum women (12%). Rates of any alcohol use (59% and 58.1 %, respectively) and any tobacco use (21.9% and 21.5, respectively) in pregnant and postpartum women were significantly lower than those observed in non-pregnant women (68.5% and 26.6%). Rates of any illicit drug use were 6.2%, 6.1% and 6.8% in pregnant, postpartum and non-pregnant women, respectively, and were not significantly different. **Conclusions:** Although, pregnancy per se is not associated with increased risk of substance use, and substance use disorders, the prevalence of these disorders is strikingly high. Substance use by pregnant women is a leading preventable cause of adverse outcomes in their offspring. Special focus should be given to developing effective screening and intervention efforts to assist pregnant and postpartum women to reduce substance abuse, and to evaluating the effectiveness of current treatment programs and barriers to treatment for pregnant substance users. **Support:** Preparation of this report was supported in part by grants from the National Institute of Health: K23 DA00482, R01 DA019606 and R01 DA020783 (Dr. Blanco), K05-AA014223 and R01 DA 18652 (Dr. Hasin) and by the New York State Psychiatric Institute (Drs. Blanco, Hasin, and Olfson).

773 LABORATORY MODEL OF A COCAINE BINGE

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Aims: An important aspect of cocaine dependence is the cycle of "binge" use followed by a period of abstinence that may last several days. This study examined how the motivation to take cocaine changed during a binge. **Methods:** To date, eight cocaine-dependent participants who reported spending approximately \$385 (+/- 300) per week on cocaine have completed study procedures. On admission, participants had two days of monitored abstinence, then 5 consecutive days with 2 lab sessions per day (binge). In each session, they could choose to either self-administer (smoke) cocaine or draw ping-pong balls from a bingo wheel. This binge period was followed by 9 days where no cocaine was available, which was then followed by 2 days where cocaine was once again available. During each laboratory session, participants drew blindly, out of a hat, a card that was labeled 2, 4, or 6 to determine how many ping-pong balls they could draw from the bingo wheel containing 20 balls. Each ball was worth a specific monetary amount, ranging from \$0 - \$20, and participants could keep the amount of money that the balls were worth. Thus, during each laboratory session, participants had 6 opportunities to choose between cocaine self-administration or playing this game of chance where they could win money. **Results:** Participants chose to smoke cocaine more often when they picked 2 balls (87%) versus 4 balls (77%) or 6 balls (57%). Planned comparisons indicated that motivation to smoke cocaine increased within a binge. **Conclusions:** These data suggest that a binge is characterized by an increased motivation to use cocaine as the binge progresses, and the current model could be used to evaluate behavioral and pharmacological manipulations aimed at decreasing the size of a binge. **Support:** This study was supported by DA08105.

774 ABSTINENCE DURING CONTINGENCY MANAGEMENT TREATMENT PREDICTS ABSTINENCE AT FOLLOW-UP IN THREE CLINICAL TRIALS WITH HOMELESS COCAINE-DEPENDENT PERSONS

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Aims: Clinical trials with cocaine-dependent outpatients have found that abstinence during treatment predicts abstinence at follow-up, and that this relation is constant across treatment and control conditions. Our aim was to determine if similar relations hold for homeless persons. **Methods:** In Homeless 2 (H2), all participants received behavioral day treatment and either abstinent-contingent housing (DT+, N = 72) or no housing (DT, N = 69). In Homeless 3 (H3), all participants received behavioral day treatment and either abstinent-contingent housing (ACH, N = 63), non-abstinent-contingent housing (NACH, N = 66), or no housing (NH, N = 66). In Homeless 4 (H4), all participants received abstinent-contingent housing and vocational training and either behavioral day treatment (BT, N = 103) or no behavioral day treatment (NBT, N = 103). **Results:** Logistic regressions evaluated relations between consecutive weeks of abstinence during treatment and point abstinence at 12-month follow-up. For all groups combined within each trial, this relation was significant for H2 (p < .001), H3 (p = .003), and H4 (p < .001). Differences emerged when evaluating the individual groups. In H2, the in-treatment and follow-up abstinence relation was significant for DT+ (p = .001) but not for DT (p = .056). In H3, the relation was significant for ACH (p = .034) but not for NACH (p = .242) or for NH (p = .058). In H4, the relation was significant for both BT (p = .002) and NBT (p < .001). **Conclusions:** The relation between in-treatment and follow-up abstinence found with cocaine-dependent outpatients does not entirely generalize to homeless persons. Although significant in each trial for all groups combined, the analyses for the individual groups showed differences. Specifically, the in-treatment and follow-up abstinence relation was significant only in those groups that received abstinent-contingent housing. This is an important finding regarding the special needs of homeless persons. **Support:** DA11789

775 D-AMPHETAMINE SELF-ADMINISTRATION IN WOMEN AND MEN

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Aims: Results of some recent studies suggest that women and men may respond differently to the effects of stimulants such as amphetamine and cocaine. In order to assess potential sex-differences in the reinforcing effects of d-amphetamine, we conducted a retrospective-analysis of three studies that employed similar d-amphetamine self-administration procedures and used identical subject-rated drug-effect measures. **Methods:** Ten women and fifteen men were included in the analysis. In all studies, participants sampled placebo, low (8 to 10 mg) or high (16 to 20 mg) dose oral d-amphetamine. Following sampling sessions, participants worked for capsules containing a fraction of the previously sampled dose on a progressive-ratio schedule of reinforcement. We hypothesized that women and men would be differentially sensitive to the reinforcing effects of d-amphetamine. Two-way analysis of variance (sex and dose) and planned comparisons were used in the statistical analyses. **Results:** As expected, d-amphetamine functioned as a reinforcer and produced prototypical subject-ratings and cardiovascular effects. Men self-administered a significantly greater number of capsules under the high dose condition than women. **Conclusions:** The results of this study suggest that men and women are differentially sensitive to the reinforcing effects of d-amphetamine. Future research should be conducted to determine if menstrual cycle phase might affect the reinforcing effects of d-amphetamine in women. **Support:** Supported by Grants DA 010325, 012665, and 021155 to Craig R. Rush, Ph.D.

19 776 CANNABIS AND OTHER ILLICIT DRUG USE PREDICT DELAYED REPRODUCTION IN MEN AND WOMEN

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Aims: We examine the relationship between reproductive onset and history of regular smoking, nicotine dependence, cannabis use, problem use of cannabis, and other illicit drug use. **Methods:** Data were drawn from a young cohort of Australian twins born between 1964-1971 (3386 female and 2751 male twins). Survival analyses were conducted using Cox proportional hazards regression models predicting age at first childbirth from substance ab/use and dependence, with history of conduct disorder and educational attainment included as covariates. **Results:** For women, delayed reproduction is associated with history of cannabis use (HR=.71, 95% CI: .64-.80) and problem use of cannabis (HR=.74, 95% CI: .63-.88), with reduced probability at or after age 20. Delayed reproduction is also associated with other illicit drug use (HR=.67, 95% CI: .57-.80), with reduced probability at or after age 25. In contrast, and despite high comorbidity between smoking and use of cannabis and other illicit drugs, early childbearing is associated with history of regular smoking (HR=2.30, 95% CI: 1.69-3.15) and nicotine dependence (HR=1.99, 95% CI: 1.50-2.64), with increased probability before age 20. A similar pattern was found for men, but with weaker effects and without age interaction (cannabis use HR=.86, 95% CI: .75-.98; other illicit drug use HR=.83, 95% CI: .72-.95; regular smoking HR=1.55, 95% CI: 1.25-1.93). **Conclusions:** Findings that cannabis and other illicit substance ab/using men and especially women show overall delayed reproductive onset are striking given that early use of licit and illicit substances is a strong predictor of future substance abuse and dependence and adolescent substance use is associated with risky sexual behavior predictive of early childbearing. While underlying mechanisms remain unknown, higher rates of illicit substance ab/use among individuals without steady partners may help to explain observed delays. **Support:** NICHD grant HD52543 and NIAAA grants AA07728, AA1998, and AA15210

777 RELIGIOSITY AND SUBSTANCE USE IN A COMMUNITY SAMPLE OF ADULTS

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Aims: This research examined the relation of religiosity and substance use in a community sample of adults. We intend to show that religiosity operates as a protective factor in the adult population, which is consistent with findings that suggest religiosity operates as a protective factor in the adolescent population. **Methods:** We analyzed data from a community sample of 330 adults from the New York area, M age 40.6 years (SD 6.4). The data were obtained through interviews conducted in households using a computer-based protocol. The sample was 23% African American, 17% Hispanic, 52% Caucasian, and 8% other ethnicity. Several indices of religiosity were obtained, together with indices of tobacco, alcohol, and other drug use (amphetamines, marijuana, or cocaine). **Results:** Confirmatory analysis indicated that a latent construct for Behavioral Religiosity was loaded by indicators of belonging to a religious organization (standardized factor loading = .53) and frequency of attendance (loading = .77). A latent construct for Personal Religiosity was loaded by indicators of perceived importance, value on religion, nonreligious spirituality, praying, and religious forgiveness (all loadings above .75). The personal construct was correlated $r = .30$ with the behavioral construct. A multivariate model predicted a composite score for substance use (tobacco, alcohol, and other drugs) from the religiosity indices together with demographic controls (age, gender, ethnicity, and education). **Conclusions:** An inverse relation was found; the standardized coefficient for the path from Personal Religiosity to substance use was $\beta = -.27$ ($p < .0001$). An index for nonforgiveness was related to heavy drinking, $\beta = .21$ ($p < .0001$). Caucasian ethnicity was predictive of higher levels of substance use. **Implications of this research** are that the findings provide us with a framework of what mechanisms we can explore religiosity through. **Support:** This research was supported by NIDA grant DA-12623 Protective and Vulnerability Factors for Early Onset of Substance Use.

778 OVARIAN HORMONES MODULATE THE WITHIN-ANIMAL RELATIONSHIPS BETWEEN DOPAMINE CELL NUMBER, COCAINE-STIMULATED BEHAVIOR AND DOPAMINE RELEASE

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Aims: Our laboratory has shown that female rats exhibit greater cocaine-stimulated behavior, dopamine release and dopamine cell number, than males and that these differences depend largely upon ovarian function. The purpose of the present study was to determine if ovariectomy (ovex) affects electrically-stimulated dopamine release in striatum and how these effects may be related to dopamine cell number and cocaine-stimulated behavior, within individual sham and ovex female rats. **Methods:** We used a within subject design to assess all three parameters (DA cell number, DA release and cocaine-stimulated behavior) in sham (N=6) and ovex females (N=7). We first determined locomotor behavior during habituation and following 10 mg/kg cocaine. Three hours later, each rat was anesthetized and electrically-stimulated dopamine release was determined at baseline and again following 10 mg/kg cocaine. The rat was then perfused and tyrosine-hydroxylase positive cells were counted in substantia nigra (SN) and VTA. **Results:** Post-pubertal ovex decreased DA cell number in substantia nigra and lowered dopamine release. This design proved the feasibility of serial, within animal, correlations of behavior, neurochemistry and morphology. DA neuron density in SN of all ovex and sham rats correlated significantly with certain behavioral topographies before (center time) and after cocaine (ambulations). In sham females nigral cell density was strongly correlated with cocaine-stimulated behaviors and cocaine-stimulated DA release. In ovex rats, cocaine-stimulated behaviors were correlated with DA release elicited before and after cocaine administration. **Conclusions:** These results suggest that estrogen influences cocaine-stimulated responses through dopamine neuron survival as well as through activation effects on downstream mediators. Thus, nigral cell number may prove to be an understudied determinant of drug responsivity and addiction. **Support:** Supported by DA09079

779 FOLLOW-UP DRUG USE OF COCAINE-DEPENDENT HUMANS GIVEN COCAINE IN EXPERIMENTAL STUDIES

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Aims: Human laboratory studies giving cocaine to cocaine users raises an ethical question whether cocaine dosing and money payments increase drug use after the study. We report herein follow-up drug use over 2 weeks after discharge from studies where cocaine-dependent subjects (S's) were given cocaine following cue-induced craving procedures. **Methods:** 28 cocaine-dependent, non-treatment seeking, S's, 23-51 yrs of age (mean=38.7) participated in one of two studies on a hospital research unit. S's were exposed repeatedly to cue-induced craving procedures. Most S's also received both cocaine and saline i.v.'s over several days, although a few received only cocaine or saline during the study. Drug use was assessed for 2 weeks after hospital/study discharge. **Results:** S's mostly were male (89%), unemployed, not married, and low income (< \$20,000). Study earnings averaged \$947 for staying an average of 15 days in the hospital where an average of 12 cocaine injections were given. Using time-line-follow back methods, cocaine use decreased in 23 of the 28 subjects from 64% of days in the 6 weeks prior to the study to a frequency of 40% in the 2 weeks after the study; 3 subjects actually became abstinent after the study. The magnitude of cocaine use decreases were unrelated to how much cocaine or money was received in study or whether S's got cocaine or saline as the last dose before discharge. Rates of drinking alcohol, smoking cigarettes, or using other drugs did not change from before to after the study. **Conclusions:** Most subjects (82%) decreased cocaine use in the 2 weeks after the study. This is especially significant given repeated exposures to i.v. cocaine and cocaine-related cues across many days in cocaine-dependent research volunteers who earned an average of \$947 and had no interest in quitting cocaine. Though the 2 weeks of post-study follow-up provide only limited data, the results substantially countermand concerns about experimental exposure to cocaine or cocaine-related cues in clinical research. **Support:** Supported under NIDA contract N01DA-9-8101.

780 IS METHADONE TREATMENT AND INDICATION MISSING FROM THE MEDICAL RECORD? A PATIENT SAFETY ISSUE

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Aims: The Joint Commission requires that medications be completely documented across the continuum of care so as to minimize adverse drug interactions. As many medications interact with methadone and as it is often provided in clinical sites separate from routine medical care, the risk for patient safety problems existed. We sought to assess these concerns. **Methods:** Patients from one methadone clinic had their electronic medical record (EMR) at an affiliated, but separate, medical center reviewed for documentation of methadone treatment, medical diagnoses and medication lists. EMR review specifically examined the most recent inpatient discharge summary and the most recent outpatient primary care note. Outcomes included documentation of methadone on the medication list and opioid dependence on the diagnosis list in the EMR. We also assessed the proportion of subjects on medications interacting with methadone. **Results:** Among 84 subjects, 70% (95%CI: 59%-80%) had opioid dependence documented in the medical center EMR. Methadone was not listed in the last discharge summary in 5% (95%CI: 1%-12%) and not listed in the last outpatient primary care note in 5% (95%CI: 1%-12%). At least one medication potentially interacted with methadone for 63% of subjects; 18% had 3 or more interacting medications. The proportion of subjects with specific interaction categories were as follows: 25% increase methadone, 11% decrease methadone, 24% unpredictable interaction, 21% benzodiazepine use with potential additive sedative impact, 25% other opioid use and 23% QT-interval prolonging medication. **Conclusions:** Among patients receiving care at both a methadone clinic and a medical center, EMR documentation of opioid dependence and methadone occurs for the majority but not all patients. Medications that interact with methadone are common. For patients receiving methadone maintenance, documentation of opioid dependence diagnosis and its treatment should be considered as potential quality standards for both substance use treatment and medical care. **Support:** NIDA R25 DA13582 J. H. Samet, PI

CPDD 2008 Annual Meeting, San Juan, Puerto Rico

781 THE DEVELOPMENT OF A SURVEY INSTRUMENT FOR THE PROBLEM GAMBLING WORKFORCE

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Aims: The number of gambling venues in the continental US is increasing rapidly. It is anticipated that, with this continuing increase in access to gambling venues, there will be an increase in the number of individuals experiencing problem gambling as well, and hence an increase in the need for increased treatment opportunities for problem gamblers. As victims of an impulse control disorder, individuals with problem gambling often have co-occurring mental health and substance use disorders, which they more readily report than the problem gambling. Principal goals for the development of this survey instrument are to describe the characteristics of the problem gambling workforce, their level of competence and skills in the use of empirically supported treatments for problem gambling, their working conditions, and their need for training in the use of empirically supported assessment and treatment strategies. **Conclusions:** The research team used a well-established workforce development survey instrument for counselors working in substance abuse treatment centers as the basis for this instrument, which was accommodated for assumed problem gambling workforce issues. A team of international experts reviewed the draft of this instrument and made several corrections and suggestions, which were incorporated into the instrument. **Support:** The instrument was sent to 20 professionals in a Midwestern state for review; 50% of the counselors responded with feedback on the instrument. The research team based subsequent changes to the instrument on this feedback, as well as feedback from the expert panel and suggestions from the research team.

782 THE RELATIONSHIP BETWEEN EMOTIONAL ABUSE, DISINHIBITION, AND SUBSTANCE USE AND RISK-TAKING BEHAVIOR IN A COMMUNITY SAMPLE OF YOUNG ADOLESCENTS

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Aims: Although considerable literature suggests childhood abuse is related to risk-taking behaviors in youth and adulthood, few studies have explored psychological risk factors underlying this relationship. A recent study, using older adolescents, indicated the mediating role of sensation seeking. The goal of the current study was to extend this work to pre-adolescents and to broaden the assessment of disinhibition to include impulsivity. **Methods:** This cross-sectional study examined impulsivity and sensation seeking as mediators in the relationship between emotional abuse and engagement in risk-taking behaviors (i.e., substance use, delinquency, and safety behavior) among a community sample of 195 youth (mean age = 11.8 years, 41% female, 50.8% White). Youth completed the CDC Risk Behavior Survey, the Childhood Trauma Questionnaire-Short Form Emotional Abuse Subscale, the Eyesenck Impulsivity Subscale, and the Brief Sensation Seeking Scale. **Results:** Controlling for age and neighborhood disadvantage, findings indicated emotional abuse history positively related to self-reported engagement in risk-taking behaviors, as well as to impulsivity and sensation seeking, and that the latter disinhibition measures also related to risk-taking behaviors. Thus, the first three conditions necessary to examine mediation were met for both measures of disinhibition. In the final model, sensation-seeking, although not impulsivity, fully mediated the relationship between emotional abuse history and engagement in risk-taking behaviors. **Conclusions:** Findings provide further evidence for the role of disinhibition as a potentially complex mechanism underlying the relationship between childhood abuse and engagement in risk-taking behaviors and suggest these links are well developed by the emergence of adolescence. **Support:** NIDA Grant R01 DA18647

783 COMPROMISED ENDOGENOUS OPIOID ACTIVITY RESULTS IN HABITUAL BEHAVIOR

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Aims: We tested the hypothesis that blockade of endogenous opioid receptors would induce stimulus-response operant behavior by compromising circuitry involved in incentive value. **Methods:** Food-deprived male rats (N=16) were trained in 2 alternating contexts, 1 over-trained (OT) context in which they received 500 reinforced 45mg sucrose or grain pellet outcomes, and 1 under-trained (UT) context in which they received 50 alternate reinforced outcomes. **Results:** When tested under extinction conditions following satiation on the UT outcome animals significantly reduced their response rate in the UT, not OT context. Conversely, animals satiated on the OT outcome and tested in the OT context were insensitive to outcome devaluation, indicative of stimulus-response behavior. When animals were given naloxone (4mg/kg i.p.) prior to each training session in the UT context at test they were insensitive to outcome devaluation, just as if they were responding in the OT context. This effect occurred both on and off drug at test. Subsequent experiments are investigating the anatomical locus of naloxone's action. Preliminary data indicate blockade of opioid receptors in the basolateral amygdala alone is not sufficient to induce this effect. **Conclusions:** These data suggest that endogenous opioids may be involved in processes facilitating the encoding or use of incentive value information to direct behavior. When the opioid system is compromised animals appear to exhibit a stimulus-response pattern of learned behavior. **Support:** Goal-directed instrumental behavior involves encoding the action-outcome association and the incentive value of the outcome. However, instrumental outcomes can serve not only as rewards, but also as reinforcers. This distinction is important for drug addiction, as behavior can transition from being goal-directed, sensitive to changes in incentive value, to a habitual state that can be reward value-independent, driven by cues connected with the seeking response through reinforcement. In rodent models of instrumental behavior extended training on an action produces a reinforcement-induced increase in its habitual control.

19 784 OUTCOMES OF A SUBSTANCE USE AND HIV PREVENTION PROGRAM FOR INCARCERATED ADOLESCENTS

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Aims: Introduction: Evidenced-based programs for substance use and HIV prevention were adapted for high-risk juveniles detained at 24-hour secure correctional facilities. Study results report outcomes of program implementation. **Methods:** Knowledge of HIV prevention behaviors, beliefs about HIV, substance use, and HIV risk-taking behaviors were assessed and compared between intervention (highly-interactive SUHIP) and control groups at baseline and 6-month follow-up. **Results:** Participants were 66 predominately African American (28%) and Latino (57%) youth, ages 14 to 19 years (mean 16.3, SD= 1.12). Males comprised 56% of the sample. The follow-up rate was 73%. No differences were found between groups at baseline. At follow-up, a significant difference was found between groups on knowledge of HIV prevention/ transmission, $F(1, 44) = 7.46, p < .01$. Moreover, paired samples t-tests showed significant changes for the SUHIP group but not the control group on the following items: increased knowledge scores ($t = -2.61, df = 20, p < .02$), decreased erroneous beliefs regarding HIV vulnerability/ testing ($t = -2.58, df = 20, p < .02$) improved attitudes related to school atmosphere ($t = -3.31, df = 20, p < .00$), and a reduction in problem behaviors at school/work ($t = 2.89, df = 20, p < .01$), fights ($t = 4.42, df = 20, p < .00$), and with the law ($t = 2.89, df = 20, p < .01$). Lastly, there were significant differences between groups at follow-up on ease of carrying/using condoms, $F(1, 44) = 5.20, p < .03$, and lower crystal methamphetamine use for SUHIP girls, $F(1, 40) = 7.30, p < .01$. **Conclusions:** Summary: Incorporation of evidence-based HIV- and substance use-prevention programs in juvenile correctional facilities is feasible and can yield positive outcomes for high-risk incarcerated male and female juvenile offenders. **Support:** This research was funded by the National Institute on Drug Abuse R21 DA018578

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785 TOLERANCE TO DECREASES IN PIGEON LOCOMOTION FOLLOWING REPEATED COCAINE ADMINISTRATION

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Aims: Repeated exposure to cocaine can result in tolerance (decrease of effects) or sensitization (increase of effects). Often, operantly-maintained behavior (e.g., key-pecking) results in tolerance. Measures of behavior not explicitly maintained by operant contingencies (e.g., locomotion) have been associated with sensitization. The current study addressed the nature of the sensitization-tolerance dichotomy by making access to food contingent on locomotion maintained under an operant schedule (i.e., a fixed ratio ten [FR 10]). That is, we asked; Will the presence of an operant contingency lead to tolerance in a measure that typically shows sensitization? **Methods:** Subjects: Five Experimentally Naïve White Carneau Pigeons. Apparatus: Modified operant chamber with floor consisting of six panels used to collect locomotion (walking) data. DV: Locomotion was maintained by presenting the subject with 3-sec access to food following the depression of any ten floor panels (i.e. FR 10). IV: Effects of cocaine on locomotion were assessed under pre-chronic (acute), chronic, and post-chronic (abstinence) dosing conditions. **Results:** Acutely administered cocaine led to dose-dependent decreases in rates of locomotion. Repeated, chronic administration of a rate-decreasing dose led to tolerance to the rate-decreasing effects of cocaine on locomotion. Following a drug abstinence period tolerance to the effects of cocaine was lost. **Conclusions:** The results of this study are consistent with previous studies that included operant contingencies and resulted in tolerance to the initial effects of cocaine. We believe, that the inclusion of an operant contingency promoted tolerance, rather than sensitization. **Support:** R01DA004074-21 from NIDA

786 TRENDS IN ADOLESCENT SUBSTANCE USE, ABUSE, DEPENDENCE, AND TREATMENT NEED BETWEEN 1998 AND 2005 IN KENTUCKY

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Aims: New data from Kentucky, with its mix of Appalachian, southern-rural, and urban subcultures, provide an opportunity to examine trends from 1998 to 2005 related to prevalence of substance use, abuse and dependence, as well as treatment need in a rural state. **Methods:** A probability sample of 1607 Kentuckians (12 to 17 years old) was contacted using random-digit dialing in 2005; the survey methods matched exactly a survey done in 1998. Prevalence of tobacco, alcohol and illicit drug use; drug and alcohol abuse and dependence by DSM-IV criteria; and indicators of treatment need were collected. Data analyses were conducted following an estimation study design to develop detailed demographic distributions of prevalence estimates. **Results:** Trends in substance use between 1998 and 2005 generally reflected national trends for adolescent males and females toward less use of tobacco, alcohol, and illicit drugs. DSM-IV criteria for alcohol abuse and dependence revealed increases except for dependence among adolescent males who experienced a marked decrease in prevalence. DSM-IV criteria for drug abuse and dependence reflected reductions since 1998 for both adolescent males and females. Need for substance abuse treatment decreased, most markedly in males. **Conclusions:** These results offer indications of reduction of substance use in relation to tobacco, alcohol and illicit drugs, and a corresponding reduction in unmet treatment need for substance use problems among adolescent Kentuckians. Alcohol use is more problematic, with modest increases in prevalence of DSM-IV-defined alcohol abuse for adolescent males and females and alcohol dependence for females. Comparisons with the National Survey on Drug Use and Health are presented. **Support:** This research was supported by funding from the Kentucky Division of Mental Health and Substance Abuse.

787 TECHNOLOGICAL INNOVATIONS IN ADAPTING AN EVIDENCED-BASED HIV19 INTERVENTION FOR PREGNANT AFRICAN AMERICAN WOMEN IN SUBSTANCE ABUSE TREATMENT

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Aims: This NIDA-sponsored study builds on a woman-focused intervention designated by the CDC as an evidenced-based HIV prevention intervention. It adapts the intervention with a technological innovation by videotaping women in recovery. Intervention efficacy is currently being pilot tested in formal substance abuse treatment settings. **Methods:** In Stage 1, focus groups were conducted with women (both HIV- and HIV+) who had used illicit drugs, had unprotected sex, and had been victimized during pregnancy. Stage 1 also included medical experts, service providers, and community advisory board members. Adaptations to the intervention were iterative based on this formative process and taping of the women. **Results:** Qualitative data identified treatment barriers for pregnant African-America women, including lack of access to prenatal care, obstacles to other health care, stigmatization, and racial prejudice among health care providers. Other important areas for adaptation included escalated intimate partner violence during pregnancy, poor communication with partners, lack of social support, and low condom use. Preliminary Stage 2 quantitative data will also be presented from the women who are in formal substance abuse treatment and were randomized into the gender-focused intervention. **Conclusions:** The incidence of HIV among African-American women in the southeastern United States is particularly high. Among this population, HIV risk is compounded by illicit drug use and perpetration of violence during pregnancy as well as unsafe sex practices. These factors may result in negative consequences to both the mother and the unborn child. Innovative HIV prevention interventions need to be developed and tested rigorously to determine their efficacy with women at high risk. Segments of the innovation will illustrate the salience of the women's voices specific to African-American women in North Carolina. Barriers to recruiting this special population into the randomized trial will also be discussed. **Support:** Sponsored by NIDA R01 DA020852

788 HISTORY OF ESCALATION OF COCAINE INTAKE WITH EXTENDED ACCESS FACILITIES19 SUBSEQUENT ESCALATION OF COCAINE INTAKE AFTER PROLONGED DRUG WITHDRAWAL IN RATS

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Aims: Cocaine self-administration by rats increases with extended access. Our initial results suggested that this escalation becomes more pronounced with repeated escalation. Therefore, the present study investigated changes in the cycle of cocaine self-administration with extended access and prolonged cocaine withdrawal and tested the hypothesis of a role for dopamine D2 receptors. **Methods:** Two groups of rats were tested on a cycle of cocaine self-administration (0.25 or 0.5mg/kg/injection, >14 sessions), prolonged withdrawal (16 days) and cocaine self-administration (14 sessions). Within each group, one subgroup (LgA rats) self-administered cocaine for six hours per day, and the other subgroup (ShA rats) did so for an hour. In a group at 0.5 mg/kg/injection of cocaine, rats were injected with aripiprazole (3 mg/kg), a partial D2 receptor agonist, or the vehicle twice a day for 13 days of the withdrawal. **Results:** LgA rats showed an increased cocaine self-administration to an asymptote at both unit doses. On the first session after the withdrawal, a decrease in cocaine self-administration was observed in LgA rats at both unit doses compared with the last previous session, but the self-administration re-escalated over subsequent sessions. Aripiprazole-treated LgA rats self-administered cocaine at a previous asymptotic level on the first session after the withdrawal and maintained the level of intake over subsequent sessions. ShA rats did not show any changes in cocaine self-administration. A statistical comparison of cocaine self-administration between two self-administration periods suggests that daily sessions produced a different pattern of escalation in cocaine self-administration between the two self-administration periods. **Conclusions:** The data suggest that neuroadaptations by cocaine self-administration with extended access are long lasting to influence the subsequent cocaine self-administration with extended access, and that the neuroadaptations include the D2 dopaminergic system in rats. **Support:** Supported by NIDA grants DA004398 to G.F.K.

789 SELF-ADMINISTRATION OF THE GAMMA-HYDROXYBUTYRATE (GHB) PRODRUG GAMMA-BUTYROLACTONE (GBL) IN BABOONS

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Aims: The aim of current study was to evaluate the reinforcing effects of GBL in baboons using an IV drug substitution procedure. GBL is a GHB prodrug in that it is rapidly metabolized to GHB in the body, and the active compound is GHB. GHB is currently used for the treatment of narcolepsy, but is also a drug of abuse. GHB received a dual classification under the Controlled Substances Act; it is a Schedule III marketed product Xyrem, but unapproved forms of GHB are Schedule I. Following the scheduling of GHB, illicit use of GBL and other GHB prodrugs increased. GBL is used commercially as an industrial solvent and for the manufacturing of paints, plastics, textiles and other chemicals. The widespread and legitimate commercial use of GBL makes the control of this GHB prodrug more difficult. **Methods:** Sessions were continuous (24 h/day, 7 days/week). Each injection was contingent upon completion of 160 lever responses [i.e., a fixed-ratio (FR) 160 schedule of reinforcement]. A 3-hr timeout began with completion of the response requirement, limiting the maximum number of injections to 8 per 24 h. Self-injection was first established with 0.32 mg/kg cocaine as the baseline drug. Cocaine maintained 6-8 injections per day. A dose of a GBL (10-78 mg/kg/injection) or its vehicle was substituted for cocaine for 15 days. The cocaine self-injection baseline (6-8 injections/day) was reestablished before each dose was evaluated. The mean of the last 5 days of each dose or vehicle substitution period was used to characterize self-administration. Food pellets were continuously available 24 h/day under a low FR schedule on a second lever. **Results:** When substituted for cocaine, GBL maintained rates of injection greater than vehicle. At doses of 56-78 mg/kg, GBL maintained high rates of self-injection (6-8 per day). Food-maintained behavior was reduced at these high doses. **Conclusions:** These data demonstrate that GBL functions as a reinforcer, and thus meets the criterion for abuse liability. **Support:** NIH/NIDA N01 DA 87071, R01 DA14919 and F32 DA019294

790 METHODOLOGICAL ISSUES IN DESIGNING A CLINICAL TRIAL FOR OPIOID ANALGESIC DEPENDENCE:

DEFINING THE POPULATION

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Aims: With the increased prevalence of OAD, studying treatments for this population is critical. This report presents an approach to defining a distinct population of patients with OAD so that we can communicate clearly the population we have chosen to study. **Methods:** The NIDA Clinical Trials Network is studying combinations of buprenorphine and counseling for OAD. In identifying the study population, physical pain and heroin use were critical issues to address. Chronic pain was defined as "other than everyday kinds of pain" for > 3 months. We excluded subjects with a major pain event in the past 6 months or pain requiring ongoing opioids. Subjects were excluded for lifetime opioid dependence due to heroin use; ever injecting heroin; or using heroin > 4 of the past 30 days. Thus, some patients with pain and/or heroin use could enter the trial. Subjects met DSM-IV opioid dependence criteria and had to have ≥ 20 days of opioid use in the past month and be physically dependent; physical dependence alone was insufficient. We hypothesized that these criteria would yield a representative, distinct population. **Results:** To date, 2,016 individuals have been phone-screened. Reasons for ineligibility (45%) include recent major pain event (7%), heroin injection (40%), and current heavy heroin use (15%). Of those potentially eligible, 361 have completed an in-person assessment; 274 (76%) have been randomized. Reasons for exclusion include lack of medical clearance (16%), lifetime heroin dependence (11%), heroin injection (7%), current heavy heroin use (13%), < 20 days of opioid use in the past month (18%), and no diagnosis of opioid dependence (27%). 34% of those randomized have chronic pain, and 22% have ever used heroin. **Conclusions:** It is feasible to identify individuals with OAD for a multi-site study and recruit a sufficient number of participants. **Support:** Supported by NIDA Grants DA15831, DA022288, DA13035, and DA013045

791 JUVENILE ARREST AS AN INDICATOR OF HIV-RELATED SEXUAL RISK BEHAVIORS AND ADULT CRIMINAL INVOLVEMENT IN A COMMUNITY SAMPLE OF SUBSTANCE-USING AFRICAN AMERICAN WOMEN

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Aims: The current study examined whether African American drug using women with a juvenile arrest engaged in higher rates of HIV-related sexual behaviors and adult criminal involvement than their counterparts without a juvenile arrest. **Methods:** The sample consisted of 740 African American out-of-treatment female drug users recruited for two community-based HIV prevention studies in St. Louis. The sample was stratified into: women arrested before age 18 (n=74); women with a first arrest after age 18 (n=391); and women with no history of arrest (n=275). We hypothesized that women with a juvenile arrest (JA: before 18) would exhibit greater HIV risk through unprotected sexual activity, number of sex partners in the past 4 months, and trading sex to get drugs or alcohol than women with a later arrest (LA: after age 18) and women with no arrest (NA); women with a JA would exhibit greater criminal involvement through income from prostitution and from other illegal activity in the past 12 months than women with LA and women with NA. **Results:** Women with JA or LA were more likely to trade sex to get drugs/alcohol than women with NA, $\chi^2(2, N = 740) = 82.26, p < .01$. ANOVA revealed a significant difference in the mean number of sex partners across groups, $F(2, 267) = 3.98, p < .05$. Women with a JA were significantly more likely to have more sex partners than women with NA. Multinomial logistic regression analyses revealed that women with LA were 2 times less likely (OR=2.05) to always use a condom than women with NA. Women with a JA were > 2 times more likely (OR=2.56) and women with a LA were over 4 times more likely to receive income from prostitution than women with NA. Women with JA were nearly 4 times more likely (OR=3.82) and women with LA were > 2 times more likely to receive money from other illegal activity (OR=2.50) than women with NA. **Conclusions:** Having an arrest history may serve as a marker for greater HIV-sexual related risk behaviors and greater involvement in criminal behavior among African American female drug users. **Support:** NIDA DA11622, NIAA AA12111

792 MOTIVATIONS FOR COCAINE USE AMONG URBAN YOUNG ADULTS

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Aims: Cocaine use is increasing among young adults (SAMHSA, 2005). With the increasing rates of use and myriad negative consequences, understanding motivations for cocaine use is critical. Research has primarily examined motivations for use among individuals presenting for cocaine dependence. Consequently, this study qualitatively examined motivations for cocaine use among 56 club-going urban young adults (aged 18-29) in New York City. **Methods:** This study qualitatively examined baseline semi-structured interviews from 56 young men and women (ages 18-29) who participated in a larger study of club drug use and sexual behavior. Utilizing Critical Incident Measures (Ross, Wodak, Miller, & Gold, 1993), interviewers elicited narratives of the first and most recent times participants used cocaine and also asked participants to broadly reflect on their reasons for use. **Results:** Participant motivations for cocaine use primarily fell into one of three categories: Psychological reasons, Social reasons, and Alcohol-related reasons. In terms of psychological motivators, participants reported that cocaine use enhanced their mood and increased self-confidence. Related to social reasons, participants cited using cocaine to increase their ability to stay out late at night, to facilitate socialization, and that cocaine use was a function of availability and convenience of use in their social networks. Finally, participants reported using cocaine either to allow them to consume more alcohol or to negate the negative effects of excessive alcohol consumption. **Conclusions:** In conclusion, participants cited multiple and interrelated motivations for cocaine use and that these motivations impacted their patterns of use and perceptions of dependence. Findings highlighting the importance of cocaine use motivations for developing preventions and interventions and for understanding abuse and dependence among emerging adults. **Support:** This research was supported by the National Institutes of Drug Abuse (R01 DA014925-02; PI: Parsons).

793 OXYCODONE-INDUCED CONDITIONED PLACE PREFERENCE IN ADOLESCENT AND ADULT MICE

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Aims: The aim of this study was to compare adolescent and adult mice in the development of oxycodone-induced conditioned place preference. Oxycodone-induced locomotor activity during conditioning trials was also examined in both age groups. **Methods:** Conditioned place preference (CPP) experiments were conducted on male C57BL6 mice in two age groups: adolescent (four weeks old) and adult (ten weeks old). Three different doses of oxycodone (0.3, 1.0, and 3.0 mg/kg, ip) were administered with a saline control. Each mouse was allowed to explore the CPP compartments, one white and one black, for 30 minutes during the pre-test. During the conditioning period, mice were injected with oxycodone (or saline) and restricted to one of the compartments for 30 min. On alternate days the mouse was placed in the other compartment after injection with saline (or oxycodone). Assignment of drug-paired compartments was counterbalanced. Each mouse had eight conditioning trials, four with saline and four with oxycodone. On the test day, mice were placed in the CPP box without injection and with free access to both compartments, and the amount of time spent in each compartment was recorded. **Results:** Mice of both ages showed significantly greater locomotor activity at the highest dose of oxycodone ($p < 0.00001$). Both age groups of mice showed significant conditioned place preference to oxycodone at all doses tested ($p < 0.000005$). However, only the adolescent group showed a significantly greater time spent in the drug-paired compartment at the highest dose compared to the lowest ($p < 0.05$). **Conclusions:** Only a subtle difference between adolescent and adult mice was found in oxycodone-induced conditioned place preference. Mice of both ages developed conditioned place preference in response to administration of oxycodone. Adolescent mice, but not adult, showed greater conditioned place preference with increasing dose. **Support:** NIH-NIDA P60 DA05130 and KO5 DA00049 to MJK.

794 MEASURING DISSEMINATION OF EVIDENCED-BASED PRACTICES: THE CREATION AND VALIDATION OF THE SURVEY OF PRACTICED RESEARCH EFFORTS TO AID IN DISSEMINATION

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Aims: A large gap exists between evidenced-based practice (EBP) and clinical practice in substance abuse. Unfortunately, efforts to increase the use of EBP are themselves rarely evidence-based. The majority of the literature available regarding effective dissemination and implementation strategies is anecdotal, retrospective, and focuses on practitioner characteristics. Our aim was to create an instrument, Survey of Practiced Research Efforts to Aid in Dissemination (SPREAD), that measures characteristics of community-based trials that influence dissemination and to gather psychometric data by applying it to a sample of motivational interviewing (MI) outcome studies. **Methods:** The procedure involved: (1) conducting a comprehensive literature search to identify community-based trial characteristics hypothesized to influence dissemination, (2) developing SPREAD, and (3) administering SPREAD to a sample of community-based MI outcome trials. Subjects were researchers with published randomized MI outcome trials on substance abuse treatment conducted in community-based treatment centers. Descriptive statistics will be provided regarding normative data on survey items. SPREAD interrater reliability analyses will be conducted using intraclass correlation coefficients. **Results:** Over forty individual items were included in the SPREAD instrument. The items fall into several subscales, including activities related to the development of the study, assessment practices, and reporting study results to the clinic. Instrument items include assessment of the distribution of responsibility between research and clinic staff for developing and implementing key study tasks and the timeliness and nature of reporting research findings to clinic staff. **Conclusions:** Future research should test the predictive validity of SPREAD by applying it to community-based clinical trials and determining rates of adoption at the clinics. **Support:** This work was funded by RWJ SAPRP grant # 62706.

795 EFFICACY OF BRIEF IMAGE-BASED INTERVENTIONS FOR EMERGING ADULTS

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Aims: The aim of this randomized trial was to test the efficacy of brief image-based substance abuse interventions for emerging adults. It was hypothesized that adolescents exposed to either of two experimental interventions emphasizing college/career social images would significantly reduce substance use compared to those receiving the control, and that pre-intervention drug use would moderate intervention effects. **Methods:** A total of 451 11th and 12th grade students from a large suburban high school in Northeast Florida were stratified by grade level and drug use and individually randomized into two brief interventions or a control, including: 1)health behavior goal clarification survey, 2) one-on-one image-based tailored consultation, or 3)control print materials. Baseline and three-month post-intervention data were collected on multiple health behaviors. Repeated measures MANOVA and ANOVA models were used to test primary behavioral effects. Factorial repeated measures MANOVAs and ANOVAs were used to test the moderating effects of pre-intervention drug use. **Results:** Significant positive increases in health behavior goal setting, and decreases in heavy cigarette smoking and length of using marijuana over time were found for all groups ($p < .05$). Treatment group by drug use status by time interactions were seen for alcohol and cigarette use behaviors, with reductions in heavy alcohol use and length of cigarette smoking over time for drug users receiving either of the interventions ($p < .05$). Effect sizes were primarily small on alcohol, cigarette, and marijuana use measures ($d = .07$ to $.45$) for drug using adolescents receiving brief intervention. **Conclusions:** Brief interventions addressing a goal image of college or career/job success had limited effects across targeted health behaviors three-month post intervention, but may be more efficacious for drug using youth. **Support:** This work was supported by funding from the National Institute on Drug Abuse.

19 796 HEAVY MARIJUANA USERS SHOW ALTERED NEUROFUNCTIONAL ACTIVITY DURING DECISION MAKING AND FEEDBACK PROCESSING WHILE PERFORMING THE IOWA GAMBLING TASK

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Aims: Heavy marijuana users (Users) consistently make disadvantageous choices while performing the IGT. The IGT is a complex task where decisions are followed by feedback that provides the basis for future choices. To this end, poor performance in MJ Users could be due to altered brain function during the decision making and/or the feedback portions of the task. The purpose of this study was to test whether Users differ from Controls in brain function while making decisions and processing feedback during the IGT using fMRI. **Methods:** We collected event-related fMRI as non-treatment seeking Users (N=14) and Controls (N=12) performed a modified version of the IGT. Brain activity was recorded while participants selected cards from 1 of 4 decks with different win and loss contingencies. For each participant, activity associated with decision making and feedback was compared to control events. Next, activity during decision making and feedback was compared between groups. **Results:** During decision making Controls had greater activity in the thalamus, striatum and anterior cingulate, compared to Users. Users however, had greater activity in the orbital frontal cortex and bilateral insula, compared to Controls. During the feedback portion of the task Controls had greater activity in the amygdala, hippocampus and posterior cingulate, compared to Users. Conversely, Users had greater activity in the rostral prefrontal cortex. **Conclusions:** These data demonstrate that functional activity in Users differs from Controls in both the decision making and feedback aspects of the IGT. During decision making Controls activate regions involved in performance monitoring and memory whereas Users have more diffuse activity in areas associated with affective processing. During feedback however, Controls activate limbic regions proportionally more than Users. This suggests that Users may be less responsive to feedback which may contribute to continued poor performance. **Support:** Supported by DA07246 (MJW), DA20074, DA06634 (LJP)

CPDD 2008 Annual Meeting, San Juan, Puerto Rico

797 FAMILY HEALTH AND NEIGHBORHOOD SATISFACTION AS A CONTEXT FOR MOTIVATED LEARNING AMONG URBAN AFRICAN AMERICAN ADOLESCENTS AT RISK FOR DRUG USE

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Aims: Urban African American Adolescents have lower rates of drug use than whites. However, in adulthood, their drug use surpasses that of their white counterparts. In this crossover effect, individual, family and neighborhood factors are poorly understood. It has long been shown that academic failure and school dropout relate to subsequent drug use among at risk populations. Therefore, given the absence of drug use during adolescence among urban African Americans, poor motivation to learn may be used as a proxy of risk behavior. The primary aim of this study was to examine probable associations between adolescent ratings of family health, neighborhood satisfaction, and learning motivation. **Methods:** One hundred and eighty one middle school-aged African American adolescents, recruited from Baltimore, MD, completed a structured clinical interview and neuropsychological evaluation, with an emphasis on the examination of psychosocial, physical and behavioral predictors of drug behaviors. **Results:** In this sample, lower ratings of family health (FAM-III), predicted lower motivated learning (MSLQ-25) scores $\beta = -.23$, $t = -3.01$, $p = .003$. Also of note, motivated learning scores decreased with age $\beta = -.164$, $t = -2.27$, $p = .024$, after controlling for gender, neighborhood status and other factors. **Conclusions:** The findings suggest that family factors affect motivation to learn among urban African American adolescents. Further, notwithstanding those factors, learning motivation declined with age. Understanding the prospective correlations between family factors and neighborhood dynamics to later substance use susceptibility will enable more appropriate intervention programming for urban African American adolescents. **Support:** Chaffin, M., et. al (1996). Onset of physical abuse and neglect: Psychiatric, substance abuse and social risk factors from prospective community data. *Chil Ab & Neg*, 20, 191-203. Leventhal, T., Brooks-Gunn, J. (2004). A randomized study of neighborhood effects on low-income children's educational outcomes. *Dev Psych*, July, 40(4): 488-507.

798 FINDINGS FROM THE STRENGTHENING COMMUNITIES FOR YOUTH INITIATIVE: A CLUSTER ANALYSIS OF SERVICES RECEIVED, THEIR CORRELATES, AND HOW THEY ARE ASSOCIATED WITH OUTCOMES

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Aims: This paper describes the Strengthening Communities for Youth (SCY) multisite initiative and aims to better understand the pattern of services that adolescents received, how these services varied by the pattern of need, and how they were associated with initial treatment outcomes. **Methods:** Data include adolescent reports collected with the Global Appraisal of Individual Needs (GAIN) at treatment intake and 90 days post-intake and staff reports from treatment service logs on 1,203 adolescents from 8 cities. Cluster analysis identified 4 services patterns: (1) high levels of co-occurring mental health treatment, (2) high levels of residential substance abuse treatment, (3) outpatient substance abuse treatment, and (4) low levels of engagement and continuing care. **Outcomes** includes changes in substance use, abuse, and dependence problems; recovery environment risk; social peer risk; illegal activity; and emotional problems. **Results:** There were significant differences in correlates and outcomes by cluster, with 4 notable findings. First, all four clusters showed significant reductions in frequency of substance use and in abuse and dependence problems. Second, the greatest change from intake to follow-up occurred for cluster 2 (residential). Third, cluster 1 (mental health) actually had increases in emotional problems at follow-up. Fourth, cluster 4 (low engagement) showed improvements on all outcome measures despite their low levels of engagement in services and low levels of continuing care received. **Conclusions:** The differential correlates and outcomes by cluster provide support for the use of clustering based on services received. While the findings are encouraging, more research is needed to identify ways to reach a maximum level of benefits from treatment received. **Support:** The development of this paper was supported by the Center for Substance Abuse Treatment (CSAT), Substance Abuse and Mental Health Services Administration (SAMHSA) contract 270-2003-00006.

799 NICOTINE REPLACEMENT THERAPY USE AND FTND SCORES IN ADOLESCENTS SEEKING TOBACCO CESSATION TREATMENT

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Aims: There is limited research on nicotine replacement therapy (NRT) use in adolescents. NRT may be used by smokers to aid in cessation efforts. The purpose of this analysis was to explore the difference between adolescent smokers who had used NRT (and those who had not) and their degree of tobacco dependence. **Methods:** Data were gathered from 1,273 adolescent participants during a prescreen telephone interview for a tobacco cessation trial (61% Female, 55% European American, age 15.6 ± 1.60 years, cigarettes per day 14.0 ± 8.72 , years smoked 3.1 ± 1.83). Demographic, smoking-related, medical, and psychiatric history, previous quit attempts, degree of smoking and tobacco dependence, other drug use, motivational level to quit, and NRT use information was collected during the phone screen. In particular, participants were queried, "Have you ever used nicotine replacement therapy?" and their answers were recorded as either a "yes" or "no." The Fagerström Test for Nicotine Dependence was used to assess adolescents' dependence on nicotine. **Results:** Adolescents who did not report NRT use ($M = 5.66$, $SD = 2.20$) had significantly lower FTND scores than adolescents who had used NRT before ($M = 6.45$, $SD = 1.98$), $t(1271) = -5.55$, $p < .001$. **Conclusions:** These findings suggest a positive relationship between degree of adolescent nicotine dependence and use of NRT and may also suggest that highly addicted tobacco smoking adolescents are actively seeking cessation methods. Further analyses are warranted to examine the circumstances and motivation behind NRT use among adolescent smokers. **Support:** Supported by NIDA Intramural Research Funds

800 ADDICTIVE BEHAVIOR IS ASSOCIATED WITH CHANGES IN PUTAMEN DOPAMINERGIC FUNCTION

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Aims: Striatal dopaminergic activity plays a major role in reward seeking behavior and there is evidence that aberrations of dopamine function in this region correlate with addictive behaviors. The radiotracer 6-[18F]-fluoro-L-m-tyrosine (FMT) is a substrate of aromatic amino acid decarboxylase (AADC), which converts levodopa (L-DOPA) to dopamine. Thus, FMT uptake tracks the capacity of nigrostriatal neurons to synthesize dopamine. FMT is similar to 6-[(18F)]fluorodopa (FDOPA), in that both ligands are substrates of AADC, but since FMT is neither metabolized by catechol-O-methyl transferase nor stored in vesicles, the PET signal is less noisy and easier to model. Prior work in alcoholics found a lower FDOPA signal to be correlated with increased craving and a higher relapse risk, and another showed increased L putamen signal in alcoholics compared to controls. We hypothesized there would be a correlation between striatal FMT PET signal and addictive behavior. **Methods:** Subjects were 14 healthy young adults (age 20-30) who were not regular cigarette smokers or heavy drinkers. Each was given a series of questionnaires about smoking, alcohol, and eating behavior. Subjects were scanned after injection of approx. 2.5 mCi FMT on a Siemens ECAT EXACT HR PET system and a 90 min. dynamic scan was acquired. PET Ki images were created using time activity curves from cerebellum as a reference region with a Patlak graphical analysis on a voxelwise basis, and scans were partial volume corrected with coregistered MRI data. ROIs were hand drawn on MRI scans and inter rater reliability was established. **Results:** Controlling for age, FMT PET signal in the bilateral putamen, but not ventral striatum or caudate, was significantly negatively correlated with a composite addictive behavior score (comprised of information about alcohol use, cigarette smoking, eating behaviors, BMI; Spearman's rho $p = .01$ $r = -.75$). **Conclusions:** These data are consistent with the idea that individuals with higher addictive behavior have decreased presynaptic dopamine synthesis capacity in the dorsal putamen. **Support:** NIH

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801 BLOOD LEVELS AND DOPAMINE TRANSPORTER OCCUPANCY OF ORALLY ADMINISTERED METHYLPHENIDATE IN JUVENILE RHESUS MONKEYS MEASURED BY HIGH RESOLUTION PET

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Aims: The pharmacokinetics and pharmacodynamics of MPH, in both blood and brain, are of increasing interest to many researchers, including those in the fields of drug abuse and attention deficit disorder (ADD). Previous studies have shown that oral MPH is less bioavailable in adult macaques than in humans, but little is known about the availability of MPH in juvenile macaques. The aim of the present study was to determine the relationship between blood levels and striatal DAT occupancy after oral dosing of MPH in juvenile macaques to help determine drug administration in subsequent studies. **Methods:** DAT occupancy for oral MPH (0.80-32 mg/kg) in two male rhesus monkeys (2.5-3.0 yrs old) by displacement of [¹¹C]MPH from the striatum using a high resolution research tomography (HRRT) PET scanner (2.2 mm resolution). Doses of MPH included those producing blood levels within the therapeutic range reported in children with ADD (i.e., 15-25 ng/ml). Levels of MPH in plasma were determined using isocratic HPLC. **Results:** The EC₅₀ for DAT occupancy was 21.5 mg/kg with a 95% CI of 13.00 to 35.64. There was a positive relationship between plasma MPH concentration and DAT occupancy, with the EC₅₀ for DAT occupancy occurring in the range considered therapeutic for ADD. Interestingly, blood plasma concentrations in the juvenile monkeys did not reach the therapeutic range until 17 and 32 mg/kg MPH were administered, doses approximately 5 to 10-fold higher than that reported for adult macaques, and 15 to 30-fold higher than reported in children. **Conclusions:** This is the first PET occupancy vs. oral MPH study reported in macaques. MPH is less bioavailable in juvenile macaques than adults. Once sufficient MPH enters the blood, MPH occupancy of striatal DATs occurs at similar blood levels between humans and macaques. **Support:** NIH grants MH075378, DA00412, MH78175, AA12839 **Acknowledgments:** JHU:H.Kuwabawa, A. Crabb, A.Nandi; NIDA: N.Volkow

802 TREATMENT OF ATTENTION-DEFICIT HYPERACTIVITY DISORDER AND SUBSEQUENT CIGARETTE SMOKING AND SUBSTANCE USE DISORDERS IN ADOLESCENT GIRLS

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Aims: Controversy remains as to the effect of stimulant treatment (Tx) on the development of substance use disorders (SUD) and cigarette smoking; particularly on girls with ADHD. To this end, we evaluated the risk of stimulant tx for ADHD, on SUD and nicotine dependence in a prospective study of girls with ADHD. **Methods:** We conducted a case-controlled, five-year follow up study of adolescent girls with and without ADHD. Psychiatric and SUD diagnoses were made by blinded structured interviews. We modeled time to onset of SUD and smoking as a function of lifetime stimulant tx history. **Results:** In all, 114 subjects with ADHD (mean age at follow-up of 16.2 yrs) had complete medication and substance abuse data of which 82% had a lifetime history of stimulant tx. There were no differences in risk factors for SUD between the naturalistically tx and untx groups other than a family history of ADHD. Controlling for family history of ADHD, we did not find any increased risks for cigarette smoking or SUD associated with stimulant tx. In contrast, we found significant protective effects of stimulant tx on the development of subsequent SUD (N = 113; HR = 0.27 (0.125 0.60), c₂=10.57, p=0.001) and cigarette smoking (N = 111; HR = 0.28 (0.14 0.60), c₂=10.05, p=0.001). We found no effects of the time of onset or duration of stimulant tx on development of subsequent SUD or cigarette smoking (dependence) in ADHD subjects. Likewise, we found no effect of stimulant tx on duration of SUD in subjects that developed SUD. These results maintained significance when controlling for conduct disorder. **Conclusions:** Stimulant tx does not increase and appears to reduce risk for cigarette smoking and SUD in adolescent girls with ADHD. Follow up studies should confirm if this effect persists into adulthood. **Support:** DA R01 DA14419 & K24 DA016264 from the National Institutes of Health, Bethesda, MD

803 THE RELATIONS AMONG MORAL CONSCIENCE, PARENTAL SUPPORT, AND SUBSTANCE USE IN YOUNG ADULTS

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Aims: The health and legal implications of substance use have important moral implications. However, few studies have directly examined substance use from a moral perspective. In contrast, previous researchers have presented evidence on the importance of parent support in substance use. The present study was designed to investigate the relative predictive roles of moral conscience and parent support in substance use among young adults. **Methods:** Undergraduate students (N = 207; 100 males; M age = 20.0 years) completed a survey that included measures of parental support, moral reasoning, perspective taking, empathic concern, shame, guilt, and nicotine, alcohol, and marijuana use in the last 30 days and year. Factor analysis showed that moral reasoning, empathic concern, perspective taking, guilt, and shame loaded on one factor (loadings range from .55-.75) that was labeled moral conscience and used for the primary analyses. Regression analyses including moral conscience and parental support as predictors of substance use were conducted separately by gender. **Results:** Results showed that, for males, parental support predicted alcohol and marijuana use in the past 30 days (Bs = -0.21 and -0.20 respectively, ps < .05) while moral conscience predicted yearly nicotine use (B = -0.22, p < .05). For females, parental support predicted 30 day nicotine and marijuana use and yearly nicotine and marijuana use (Bs = -0.26, -0.24, -0.21, and -0.22 respectively, ps < .05) whereas moral conscience predicted 30 day alcohol and marijuana use and yearly alcohol use (Bs = -0.21, -0.22, and -0.20 respectively, ps < .05). **Conclusions:** The results suggest a gender-specific pattern of relations between moral conscience and parental support and substance use in young adulthood. The discussion will focus on the role of internal (e.g., moral conscience) and external (e.g., parental support) regulators of substance use. **Support:** Nebraska Tobacco Settlement Biomedical Research Enhancement Funds

804 BARRIERS TO THE IMPLEMENTATION OF AN INTEGRATED CO-OCCURRING DISORDERS TREATMENT MODEL

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Aims: In 2005, the District of Columbia was awarded the Co-occurring State Incentive Grant from the Substance Abuse and Mental Health Services Administration to increase the Districts' capacity to provide treatment to consumers with substance abuse and mental health disorders. The Danya Institute collaborated with the Districts' Department of Health to develop a 100 hour co-occurring disorders training program. The year-long course was designed to enhance the knowledge and skills of mental health and substance abuse professionals around best practices in the treatment of consumers with co-occurring disorders. The current study summarizes participants' beliefs about the usefulness of this course as well as reported barriers to the implementation of course knowledge and training at the agency level. **Methods:** Graduates of the training program were asked to complete a questionnaire which addressed issues related to the usefulness and effectiveness of the course. They were also asked about what barriers if any, they had encountered while trying to implement co-occurring best practices at their respective agencies. **Results:** Surveys results indicated that most participants found the training course to be highly useful and effective in achieving its' goals. Participants also reported barriers to the implementation of the knowledge gained in the training program such as: a lack of internal resources, client tracking databases, and funding for additional staff training. **Conclusions:** Results of this survey and similar studies can provide helpful data to policy makers which in turn can be used to make changes in resource allocations and policies that currently hinder the integration of substance abuse and mental health services. **Support:** This abstract was prepared by the Danya Institute, Inc., through a subcontract with the Washington DC., Department of Health (DOH). The contents of this publication are solely the responsibility of the authors and do not necessarily reflect the official views DOH.

CPDD 2008 Annual Meeting, San Juan, Puerto Rico

805 PRELIMINARY FINDINGS FROM AN ECOLOGICAL MOMENTARY ASSESSMENT STUDY WITH POLYDRUG USERS AT A METHADONE CLINIC

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Aims: We have completed an EMA study of craving and relapse in methadone-maintained outpatients who met DSM-IV criteria for heroin and cocaine dependence. The study goal was methodology development for prospective assessment of the natural history of relapse. **Methods:** After 3 weeks of stabilization on methadone 114 participants were issued PalmPilots (PDAs). The PDAs generated 5 random prompts per day for 5 weeks, then 2 random prompts per day for 20 weeks. In addition participants were instructed to initiate a PDA entry whenever they craved or used cocaine or heroin (event contingent entries). **Results:** We report here preliminary results on compliance and findings on place and company of participants for random prompts (RP) and event contingent (EC) entries. Over the course of the study, 34,400 RP were issued, of which 27,413 (80%) were answered. 2919 EC entries were initiated (25.7 entries per person; median 18.5; range 0-156) with 175 (6%) incomplete, 1709 (59%) entries of drug craving and 1035 (35%) entries of drug use. The 3 most common responses to "Who are/were you with" were: RP - alone (39%), in a mixed group (17%), with family (11%); EC - alone (42%), in a mixed group (18%), with friends (12%). The 3 most common responses to "Where are/were you" were: RP - at home (57%), at work (12%), waiting for ride/bus (8%); EC - at home (41%), at another's home (11%), waiting for ride/bus (10%). The 3 most common responses to "What are/were you doing" were: RP - watching TV/DVD (16%), resting/sleeping (14%), talking/socializing (12%); EC - talking/socializing (18%), watching TV/DVD (13%), thinking/planning (10%). **Conclusions:** EMA in methadone maintenance patients is feasible with good compliance with random prompts. Preliminary data analysis showed different patterns of companions, locations, and activities in RP vs. EC. Additional data will be presented showing differential concomitants of drug craving and drug use. **Support:** NIH NIDA Intramural Research Program

806 GENDER DIFFERENCES IN HIV RISK: RESULTS FROM A RANDOMIZED CLINICAL TRIAL

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Aims: Examine gender differences in HIV risk behavior among heroin-dependent adults enrolled in a randomized clinical trial comparing interim methadone treatment with waiting list. **Methods:** Mixed model analyses were used to determine gender differences on selected items from the TCU AIDS Risk Assessment measure in 319 adult heroin-dependent participants who were randomly assigned on a 3:2 basis to interim methadone treatment or wait list conditions and were assessed at baseline and 4- and 10-month follow-ups. Interim methadone treatment consisted of daily observed methadone dose; counseling was available only for crises. **Results:** There was a significant gender x Condition x time interaction for the number of times participants reported sharing dirty needles ($p = .023$). All groups reported a decrease over time, although males in the control group showed the least change while females in the control showed the greatest change. There was also a significant gender x Condition x time interaction for participants' reported ability to control their risky drug use activities ($p = .012$). In terms of sexual risk behaviors, examination of gender effects (regardless of Condition or time) revealed significant gender differences for the following items: men were more likely to have sex without a condom ($p < .001$); women were more likely to have a partner who injects drugs ($p = .02$); and men were more likely to have sex without a condom while high ($p = .004$). **Conclusions:** Findings suggest there are considerable gender differences in HIV drug and sex risk behaviors among heroin-dependent adults. However, there did not appear to be a significant reduction in HIV risk behavior associated with interim maintenance. **Support:** NIDA RO1DA13633, R.P. Schwartz, PI

807 DEVELOPMENTAL EPIDEMIOLOGY AND PREVENTION OF DRUG DISORDERS AND HIV SEXUAL RISK BEHAVIOR

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Aims: We report on the prevention of drug disorders and HIV sexual risk behaviors from 1st grade through age 19-21 in an epidemiologically defined population in Baltimore public schools. We previously reported the impact of a universal classroom-based intervention, the Good Behavior Game (GBG) on drug disorders through young adulthood. This paper investigates how early aggressive, disruptive behavior relates to sexual practices (initiating vaginal, anal, and oral sex, multiple sex partners, STI's) and investigates the sequencing of drug use and sexual practices. GBG was directed at improving teacher's classroom behavior management and reducing aggressive, disruptive behavior, an antecedent of problem outcomes including drug abuse and risky sexual behavior. **Methods:** The trial involved 41 1st and 2nd grade classrooms in 19 schools. Schools were matched and randomized. Within schools teachers were randomized. Students were balanced across classrooms. **Results:** Early aggressive, disruptive behavior was related to later HIV sexual risk behavior: to anal sex (males; $p < .001$); having multiple sex partners (males; $p < .001$) and STIs (females; $p < .001$). GBG impact includes a reduction in anal sex (GBG vs. controls, $p = .005$) and the number of sexual partners (GBG vs. controls; $p = .04$) among high risk males and the number or reported STIs among all males ($p = .003$). Drug use was related to high risk sexual practices; e.g., using alcohol or illegal drugs before age 15 was related to having multiple sex partners (males and females; $p = .001$) and insertive anal sex (males; $p = .01$). Analyses are ongoing of the inter-relationships over time of drug use and high risk sexual practices. **Conclusions:** Early aggressive, disruptive behavior led to drug disorders and risky sex behaviors. GBG targeted early aggressive disruptive, behavior and reduced both drug disorders and HIV sexual risk behaviors. Discussion will focus on further analyses of paths and mechanisms. **Support:** NIMH R01s MH 42968 and MH 40859 with NIDA supplements

808 CLASSISM, RACISM, AND EXPECTATIONS OF DRUG USE PREVALENCE AMONG LOW INCOME AFRICAN AMERICANS IN THE NATIONAL SURVEY ON DRUG USE AND HEALTH

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Aims: The media has portrayed African Americans as drug users and criminals. The purpose of this study is to test the assumption that low income African Americans use more drugs than other racial groups using data from the 2005 National Survey on Drug Use and Health (NSDUH) to compare drug abuse and dependence across low income racial groups ($N = 20,172$). **Methods:** Logistic and standard hierarchical regression analysis was conducted using data from the 2005 NSDUH. Only participants earning less than \$30,000 (150 percent poverty) were included. Models were conducted to examine the impact of race on drug, alcohol, and nicotine abuse and dependence when controlling for age, gender, and population density. **Results:** Most respondents were White, female, and above 26 years of age. The majority completed High School and reported annual family incomes between \$10,000 to \$19,000. Few participants reported receiving public assistance. Findings indicate that low income African Americans: 1) abuse alcohol less than any other racial/ethnic group; 2) were less likely to be dependent on cigarettes when compared to low income Whites; and 3) were more likely to become dependent on marijuana than any other group. No differences in dependency on other illicit drugs nor on marijuana abuse were found when low income African Americans were compared to low income Whites controlling for other factors. **Conclusions:** Results reveal that the expectations of high drug and alcohol use and abuse rates among low income African Americans should be, at best, re-examined. This study has significant implications for both policy and treatment as it challenges normalized and biased assumptions about the propensity of low income African Americans for illicit drug use and abuse. **Support:** Used data sponsored by the Substance Abuse and Mental Health Services Administration

CPDD 2008 Annual Meeting, San Juan, Puerto Rico

809 POTENTIAL TRIGGERS FOR OVERDOSE AMONG INDIVIDUALS WITH SUBSTANCE DEPENDENCE

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Aims: Despite increasing regional overdose (OD) rates in the US, circumstances surrounding an overdose, especially events that may trigger these life-threatening events, are poorly characterized. Recent evidence from community and treatment samples suggests a potential role for depressive symptoms in the etiology of OD. **Methods:** We studied 301 subjects with alcohol and drug dependence recruited from a detoxification unit. Subjects were asked, "Have you ever overdosed?" Drug use, depression, and intentionality in the four hours prior to an OD were assessed for subjects reporting a recent OD (i.e., in the past three months). **Results:** At least one past OD was reported by 43% (128/301) of subjects. Of these 128 subjects, 79% had at least one OD requiring emergency medical care and 31% were recent. With a recent OD, 85% injected just prior to the OD; 88% used heroin, 8% OxyContin, 8% fentanyl and 13% other opioids. No subject reported buprenorphine use and only 5% used methadone. Other drugs used prior to the OD included: cocaine 43%, benzodiazepines 35%, alcohol 35%, marijuana 18%, methamphetamine 3%, antidepressants 10%, and OTC meds 13%. Although only 13% reported that a recent OD was a suicide attempt, 33% reported "wanting to die" and 73% reported feeling depressed, sad or blue just prior to the OD. **Conclusions:** Injection drug use, opioids, polydrug use, and depression are present at the time of OD and represent potential triggers for OD. Future analyses employing case-crossover methods will examine these factors in greater detail and evaluate whether they are associated with overdose. **Support:** Supported in part by grants DA20030 and DA10019 from NIDA and AA10870 from NIAAA/NIH

810 NICOTINE ENHANCES RESPONDING FOR CONDITIONED AND UNCONDITIONED REINFORCING STIMULI UNDER A SECOND-ORDER SCHEDULE OF FOOD REINFORCEMENT IN RATS

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Aims: Conditioned stimuli play an important role in nicotine dependence and it has been suggested that contingent and non-contingent nicotine can enhance the motivational value of conditioned stimuli. The aim of this experiment was to compare acute and chronic effects of nicotine administration on operant responding maintained under a second order schedule of food reinforcement. **Methods:** Male hooded Lister rats (n=8) treated with chronic saline or nicotine (0.4mg/kg, S.C) were trained to lever press for food. Delivery of a food pellet was paired with a period of light oscillation, which thus gained conditioned reinforcing properties. A second order schedule [FI 15 (FR5)] was then implemented; lever pressing resulted in presentation of the brief stimulus light and the first fixed ratio (FR) component completed after the end of every 15 minute fixed interval (FI) produced both brief stimulus and food presentation. Within-subject tests, following acute saline or nicotine (0.05, 0.1 and 0.2 mg/kg, S.C), were conducted in the presence of both food and brief stimulus and food or brief stimulus alone. **Results:** Removal of food or brief stimulus presentation significantly reduced responding in saline treated animals, whereas only removal of the brief stimulus caused a reduction in nicotine treated animals. In the chronic nicotine-treated group, acute nicotine challenge increased responding under the second-order schedule and also when food and the stimulus light were presented separately. These rate-enhancing effects of nicotine less orderly in saline-treated rats. **Conclusions:** Since the endocannabinoid system has been implicated in the motivational effects of nicotine and nicotine associated stimuli, the effect of cannabinoid CB1 receptor antagonists, on nicotine's enhancement of responding under the second-order schedule is currently under investigation. In conclusion this data supports the hypothesis that nicotine can enhance the motivational value of conditioned and unconditioned reinforcing stimuli, further highlighting their role in nicotine dependence. **Support:** Newcastle University

811 NEONATAL TOBACCO EXPOSURE IN OPIOID-MAINTAINED PREGNANT WOMEN: IMPACT AND CONSEQUENCES

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Aims: It is well known that smoking during pregnancy implicates not only serious risks for the mother but also for the child's health. This study compares the influence of nicotine exposure on neonates born to mothers maintained on methadone, buprenorphine or oral slow-release morphine (SROM). **Methods:** The study examines 139 opioid maintained pregnant women and their neonates. Based on maternal self-reports, participants were divided into two groups: Women who reported a low cigarette consumption of ten or less cigarettes per day (56.8%) and those with heavy consumption of 20 or more cigarettes (43.2%). Neonatal outcome measures were assessed using Finnegan Score to determine neonatal abstinence syndrome (NAS). **Results:** The mean age of the women was 26 years. Sixty-three of the participants (45.4%) were maintained on SROM, 54 (38.8%) on methadone, and 22 (15.8%) received buprenorphine. Based on our results, a significantly higher number of neonates born to mothers treated with buprenorphine did not require NAS treatment (p<0.001). Heavy cigarette consumption was associated with significantly lower neonatal birth weight (p<0.001), significantly smaller birth length (p=0.017) and tended to produce smaller head circumference (p=0.054). In addition, we found significant effects of tobacco consumption on the severity of NAS (p=0.030). Regarding concomitant consumption of opioids (p=0.537), cocaine (p=0.248), amphetamines (p=0.903) or benzodiazepines (p=0.086) no significant differences between heavy or low nicotine consumption have been revealed. **Conclusions:** Heavy tobacco consumption in opioid maintained pregnant women leads to several detrimental medical and developmental consequences for the newborn. Special offers for the treatment of nicotine dependence need to be integrated into programs for opioid dependent pregnant women. **Support:** -

-20 812 LACK OF EFFICACY OF FLUOXETINE IN DEPRESSED COCAINE-DEPENDENT SUBJECTS

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Aims: In a previously-reported randomized clinical trial we found a significant benefit of abstinence-contingent vouchers, but no benefit of fluoxetine in treatment of cocaine dependence. The purpose of the present analysis was to assess the efficacy of fluoxetine in a subset of patients who were depressed. **Methods:** This 33-week double blind outpatient clinical trial of fluoxetine (60 mg per day) for cocaine dependence was conducted from 2001 to 2005. In a 2x2 design patients were randomized to either fluoxetine or placebo and either vouchers contingent on cocaine abstinence or no vouchers. Only patients with a pre-fluoxetine Beck Depression Inventory (BDI) score of 14 or higher at study week 4 (n=36) were included in the present analyses. Outcome measures included thrice-weekly urinalysis and post-treatment BDI total scores. **Results:** The groups were similar on predictive and demographic characteristics. The percent cocaine positive urine results during the 12-week medication period was 72% in the fluoxetine plus vouchers group (n=11); 46% in the placebo plus voucher group (n=8); 73% in the fluoxetine only group (n=8); and 85% in the placebo only group (n=9). There were no statistically significant differences between the groups in terms of percent of cocaine or opiate positive urine results, treatment retention or in BDI scores assessed just prior to fluoxetine tapering, and no trend suggesting benefit of fluoxetine in depressed cocaine abusers. Consistent with the findings of the full study, the voucher only condition had the best outcomes across all measures, although this effect did not achieve statistical significance with the present smaller sub-samples. **Conclusions:** Fluoxetine did not demonstrate efficacy in reducing cocaine use or depression in depressed cocaine abusers. The results support previous findings that fluoxetine may reduce the positive benefits of abstinence-contingent vouchers. **Support:** The original data were supported by NIDA grants DA10754 and DA00332, and these further analyses were also supported by NIDA grants T32 DA07209 and DA023186.

CPDD 2008 Annual Meeting, San Juan, Puerto Rico

813 BRIEF INTERVENTION FOR DRUG-ABUSING ADOLESCENTS

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Aims: To compare the efficacy of two brief interventions to reduce drug use among adolescents identified in a school setting as drug abusers. **Methods:** Students (N = 140) were randomly assigned to receive either a 2-session adolescent only (BI-A; n = 50), 2-session adolescent and additional parent session (BI-AP; n = 50), or assessment only control condition (n = 40). Students had to have a current substance use disorder. The BI-A and BI-AP interventions were delivered via a detailed therapy manual. Follow-up assessments at 1 and 6-months post-intervention measured a range of drug use behaviors, psychosocial variables, and parenting practices. **Results:** Follow-up assessments at 1- and 6-months post-intervention on 97% of the participants showed that 1) the adolescents in the BI-A and BI-AP conditions generally showed statistically superior outcome on the drug use behaviors compared to the control group, 2) students in the BI-AP group had significantly better outcomes compared to adolescents in the BI-A group on most drug use outcome variables, and 3) the superior outcome results associated with the BI-AP group appeared to be mediated by the higher rate of additional community-based treatment they received post-intervention. **Conclusions:** This study provides further evidence that brief interventions for drug abusing adolescents has merit. Two major significant findings were observed from the study: (1) both brief intervention conditions were associated with reduced drug use and related consequences, and these improvements exceeded the changes in the assessment-only control group; and (2) the group that included a parent session (BI-AP) exhibited greater and more consistent intervention effects compared to the condition in which only the adolescent client received services (BI-A). Also, there are indications that the BI-AP condition promoted initiative for the parent to seek additional treatment for the teenager. **Support:** This study was supported by grants K02 DA15347 and R01 DA017492 from the National Institute on Drug Abuse.

814 DRUG TREATMENT AND DATA MANAGEMENT: AN ANALYSIS OF INFORMATION TECHNOLOGY INFRASTRUCTURE

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Aims: This study evaluates processes for clinical and administrative data collection and use at eight drug treatment agencies in four U.S. states. Research questions were: (1) To what extent do agencies use electronic records and what factors influence their methods of record keeping? (2) How do agencies use the clinical and administrative data they collect? and (3) What facilitators and barriers influence information technology (IT)-related improvements at drug treatment agencies? **Methods:** Data mapping, a process improvement tool from business and management fields, was combined with qualitative inquiry, a type of social science research, to analyze and map data processes. We interviewed 55 people in eight drug treatment agencies and examined each agency's protocols and documents. **Results:** Drug treatment agencies use both electronic and paper records; double data-entry and multiple storage systems reduce efficiency across agency processes. State IT sophistication is a strong influence. Few agencies follow written protocols for intake, discharge, and transfer processes. Data were used universally for level of care placement and billing, and less frequently for system improvements. Facilitators of IT improvements include participation in grant-funded projects and state-level IT initiatives. Barriers include limited funding, time and staff for developing and implementing IT-related changes, and divergent staff skills and attitudes regarding IT changes. **Conclusions:** This analysis provides a snapshot of drug treatment agencies' data management capabilities that confirms a need for increased sophistication and efficiency to enable agencies to evaluate and improve their services. External factors (e.g., state or other funder requirements) drive technological development, and agencies have insufficient resources to maximize data use for system and service improvements. Infusion of expertise, training, and funding are needed to improve drug treatment agencies' IT-related systems. **Support:** This project was funded by the Robert Wood Johnson Foundation (#57582).

815 DEVELOPING A DATA RESOURCE CENTER FOR INTERNATIONAL SUBSTANCE ABUSE RESEARCHERS

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Aims: The aim of International Substance Abuse Data Resource Center (ISA-DRC) is to support NIDA International Program's mission to disseminate research methods, findings, and tools by maximizing data utilization through increased access, analysis, and dissemination of international and domestic substance abuse research data. **Methods:** During Phase I of the project, Danya research team focuses on developing the infrastructure of the ISA-DRC. Activities include: (1) assessing the data exchange needs of international substance abuse research community, exploring its willingness to share data, research findings, and research protocols, and exploring the practicality and feasibility of the proposed technological solution; (2) conducting a comprehensive search and review of the substance abuse literature to identify and acquire existing survey data; (3) with guidance from a panel of experts, conceptualizing the content and structure of the ISA-DRC and developing a detailed site map; (4) developing a prototype of several ISA-DRC components; and (5) conducting a feasibility evaluation of the prototype components. **Results:** Results from the needs assessment among seasoned researchers and new investigators from different countries showed a strong support and interest. The feasibility evaluation of the web-based ISA-DRC prototype from a selected sample of international researchers rate the prototype favorably. **Conclusions:** With strong favorable interest and support of the prototype by international researchers, the project team will focus on data utilization and data dissemination during the next phase. We will also finalize the content and technical interfaces of all components of the ISA-DRC, update the search and review of existing substance abuse survey data, and evaluate the entire system through usability testing. **Support:** This SBIR Phase I project is funded by National Institute on Drug Abuse International Program.

20 816 INTERNET-BASED CONTINGENCY MANAGEMENT FOR SMOKING CESSATION

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Aims: Tobacco use remains a major public health problem. An innovative Internet-based contingency management (CM) intervention for smoking was recently developed wherein smokers are regularly monitored and reinforced for abstinence via the Internet. Research has shown vouchers exchangeable for goods and services used to reinforce CO samples less than ≤ 7 ppm could significantly increase rates of smoking abstinence compared to noncontingent vouchers. Using a within-subject reversal design, the present study tested an Internet-based CM intervention that used money as the reinforcer to reinforce a CO level of ≤ 4 ppm. **Methods:** Nine (9) smokers made twice daily video recordings of themselves providing a CO sample with a web camera. Videos were transmitted and saved onto a secured network server. Subjects received feedback and reinforcement regarding their smoking status. During Week 1, subjects earned monetary incentives for providing twice daily videos of themselves providing CO samples. During week 2, subjects were required to provide 15% reduction in CO in order receive a monetary incentive that increased in value for each consecutive sample that showed a 15 % reduction in CO. During Weeks 3-5, subjects earned monetary incentives if their CO sample was ≤ 4 ppm. During Week 6, participants were required to provide a CO sample to earn a monetary incentive, independent of their CO level. **Results:** Results showed that the percent of CO samples ≤ 4 ppm was significantly higher during weeks 3-5 compared to Week 1 (59% vs. 0%, respectively, $p < .01$). The percent of CO samples ≤ 4 ppm did not differ during Weeks 3-5 and Week 6 (59% vs. 42%, respectively, n.s.), suggesting some subjects may have sustained smoking abstinence during the return to baseline condition. **Conclusions:** The present results systematically replicate prior findings and provide support for using a lower CO cutoff and money as a reinforcer to promote smoking cessation. **Support:** Supported by KLCRP (CAM).

CPDD 2008 Annual Meeting, San Juan, Puerto Rico

817 EFFECTS OF THE NICOTINIC ACETYLCHOLINE RECEPTOR ANTAGONIST, N,N'-DECANE-1,10-DIYL-BIS-3-PICOLINIUM DIODIDE, ON NICOTINE SELF-ADMINISTRATION AND FOOD-MAINTAINED RESPONDING IN RATS

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Aims: The limited efficacy and side effects of current smoking cessation agents warrants development of alternative medications. We have reported previously that the novel nicotinic acetylcholine receptor (nAChR) antagonist, N,N'-dodecane-1,12-diyl-bis-3-picolinium dibromide (bPiDDB), decreases nicotine-evoked dopamine release and attenuates nicotine self-administration. In the present study, we determined the effects of a bPiDDB homolog with a shorter C10 linker unit, N,N'-decane-1,10-diyl-bis-3-picolinium diiodide (bPiDI), on nicotine self-administration and food-maintained responding. Previous work found that each compound decreased nicotine-evoked striatal dopamine release, but bPiDI had reduced affinity for peripheral nAChRs. **Methods:** Rats were trained to respond for intravenous nicotine (0.03 mg/kg/infusion) or food pellets using a standard two-lever operant conditioning procedure during daily 1-hr sessions, and were then given acute pretreatment with bPiDI (0.58-5.8 µmoles/kg, randomized order) or saline prior to the session. Separate groups of rats received repeated bPiDI (1.94-5.8 µmoles/kg) or saline for 7 consecutive sessions. **Results:** Acute bPiDI (1.94 µmoles/kg) reduced nicotine self-administration without altering food-maintained responding. The highest dose of bPiDI tested (5.8 µmoles/kg) reduced both nicotine self-administration and food-maintained responding. With repeated administration, tolerance did not develop to the decrease in nicotine self-administration across any dose tested. Importantly, and unlike bPiDDB, there was no evidence of peripheral toxicity at any dose tested. **Conclusions:** These results indicate that bPiDI can selectively and repeatedly reduce nicotine self-administration at doses that appear to have an improved side-effect profile compared to bPiDDB, thus making it a new lead compound toward the development of selective nAChR antagonists as smoking cessation agents. **Support:** Supported by USPHS grant DA017548

818 STRESS, HEALTH-RELATED QUALITY OF LIFE AND DSM-IV SUBSTANCE ABUSE AND DEPENDENCE IN YOUNG, LOW-INCOME WOMEN

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Aims: Young, low-income women have received inadequate attention in most studies of stress, drug disorders and comorbid psychiatric disorders. The aims of the study assess the associations between stress, health related quality of life, measured by Short Form 36 (SF36-V2), and drug abuse/dependence with comorbid psychiatric disorders. **Methods:** This ongoing research conducts face-to-face interviews in a sample of low-income women aged 18 to 30 in southeast Texas, so far between December 2006 and November 2007. **Results:** Among 215 women recruited, childhood trauma, major life events, chronic stressors and daily hassles were reported significantly more by DSM-IV drug dependent women compared to those without this diagnosis. Examples of recent life events that occurred significantly more among drug dependent women included disruption in romantic relationships, losing their driver's license, being kicked out of a house, and being a victim of theft. Regarding comorbid psychiatric disorders, 60% of drug dependent women additionally had one or more of the psychiatric disorders of depression, PTSD, or Generalized Anxiety Disorder; and so did 44% of women with drug abuse, and 20% among those without any drug dependence/abuse diagnoses. Overall physical health was not significantly associated with substance abuse and other psychiatric disorders, compared to those without any diagnosis. However, co-morbidity was significantly associated with poor social functioning, lower levels of vitality, higher levels of role disability due to emotional problems, and poor overall mental health status. In contrast, women diagnosed with only substance abuse/dependence but no other psychiatry disorders reported higher levels of body pain. **Conclusions:** This study suggests that young women with substance abuse/dependence and comorbid psychiatric disorders are relatively healthy physically in spite of their poor mental health. However, other aspects of health related quality of life in these women, such as vitality and social function are poor. **Support:** Support for this research was provided by NIDA R01DA020058 and NIDA K01 DA021814.

819 SOURCE OF METHADONE IN OVERDOSE DEATHS IN RURAL WESTERN VIRGINIA IN 2004

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Aims: Aims: Methadone-related overdose fatalities have increased in the US yet information needed to guide prevention efforts is lacking. Rural southwestern Virginia has had a marked increase in methadone overdose fatalities. The aims of this study were to carefully describe characteristics of these methadone-related deaths and to identify the potential source of methadone. **Methods:** The Virginia Prescription Monitoring Program (PMP) was implemented in August 2003. During January 1, 2004 to December 31, 2004, ME cases (n=61) from rural western Virginia were identified where methadone was a direct or contributing cause of death and present on toxicology. In order to determine the potential source of the methadone, the PMP was queried for 90 days preceding decedent demise. All three regional Opiate Treatment Programs (OTP) were contacted to determine if decedents had ever been enrolled in their program and prescribed methadone. Demographic information and toxicology results were used to examine differences between three methadone sources: PMP, OTP and Illicit. **Results:** Regarding methadone source, 24% of decedents were prescribed methadone for treatment of pain and identified via PMP, 13% were ever enrolled in an OTP, and 62% of decedents were not identified in either database (illicit source). When the three sources of methadone (PMP, OTP and Illicit) were compared, there were significant differences in demographics, concentrations of methadone and toxicological presence of other prescription medications and drugs of abuse. **Conclusions:** In the majority of these deaths, the methadone source appears to be illicit rather than from physician prescription for pain or the treatment of opioid addiction. Toxicology profiles also differed by methadone source. This information may be important for the design of interventions to decrease the number of prescription opioid related overdose deaths. **Support:** This work was supported by RO3 DA019047-01A1.

820 PREVALENCE OF VIOLENCE AND SUBSTANCE USE AMONG FEMALE VICTIMS OF INTIMATE-PARTNER VIOLENCE

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Aims: In order to improve understanding of the complex dynamics involved in intimate-partner violence (IPV), this study explored violence and substance use in the female partners of men entering treatment for both IPV and substance-related problems. **Methods:** Acts of IPV were assessed via self-report and partner-report from each partner at baseline. Female partners who agreed to participate (N = 22) were interviewed by phone. Due to the strong association between substance use and violence, we also investigated the men's (N = 75) reports of their own and their partners' substance use at pre- and post-treatment. **Analyses:** Two-way contingency analyses were conducted to compare men's vs. women's reports of violent acts committed by self and by partner, as well as men's vs. women's reported substance use at baseline and treatment completion. **Results:** Female partners were equally likely as men to engage in substance use the week prior to treatment. However, female partners were reportedly more likely than men to use substances during the last week of treatment, due to a reported increase in use during the male partners' treatment. Regarding violence, 59% of female IPV victims reported engaging in mild violence, and 63.6% reported engaging in severe violence. By contrast, only 27% of male batterers reported that their female partners had engaged in mild violence, and only 14.7% reported that their partners had engaged in severe violence. **Conclusions:** Results suggest that women in relationships with men in treatment for substance abuse and IPV are in need of their own treatment. Results do not indicate how much of the IPV committed by female partners was utilized at their own initiative versus in self-defense or retaliation for violence received. Even so, this violence has the potential to lead to increased conflict, which may result in increased harm to both women and their families. Implications of these findings and potential targets for treatment are discussed. **Support:** DA 007238-17 and DA018284-01

CPDD 2008 Annual Meeting, San Juan, Puerto Rico

821 THE ASSOCIATION OF STATE PROGRAMS WITH INDIVIDUAL RISK OF DRUG USE DISORDER

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Aims: To explore the association of state characteristics and programs, in relation to individual drug use disorder. **Methods:** Multilevel modeling (MLM) is used to test the effects of state level predictors and individual characteristics on the risk of abuse/dependence drug use disorder (LDD). Data at the individual level are from the 2001-2002 National Epidemiologic Survey on Alcohol and Related Conditions. State level variables are constructed from a variety of secondary data sources. Individual level factors include demographic, family substance history (parental drug abuse or alcoholism, sibling/child drug abuse, nicotine disorder, other lifetime DSM-IV disorder (mood, anxiety, and personality disorder), health insurance measures, score on the bodily pain scale SF-12 (BPS), unemployment, and being arrested. State characteristics include demographic composition measures: % of young males, and % of the state with a high school education or lower. From SAMHSA, we obtained state % reporting Perceptions of Great Risk of Smoking Marijuana Once a Month. We constructed a rate of drug-free community coalition (DFC) grantees by dividing the number of DFC in each state by the number of counties. Other state measures include persons in drug treatment, incarceration rate, and indicators of health system organization. **Results:** The unadjusted rate of LDD ranges from 5.4% to 20.9% among states. The MLM indicate that at the individual level, being older, not Hispanic, and reporting better health on the BPS puts one at a decreased risk of LDD. Whereas being male, having family substance history, nicotine dependence, any 3 lifetime DSM-IV disorders, unemployed, and arrested, increased the risk of LDD. At the state level, in addition to state demographics, perceptions of great risk was significantly and inversely associated with LDD ($p < .0001$). **Conclusions:** Lifetime rates of LDD vary considerably among states even when individual factors are controlled. The state level average perception of risk is inversely associated with individual drug use disorder and may represent the impact of exposure to prevention messages. **Support:** NIAAA, R01 AA016268

822 TURNING K ON ITS HEAD: COMMENTS ON USE OF AN ED50 IN DELAY DISCOUNTING

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Aims: The purpose of the current report is to examine the utility of using an ED50 measure in delay discounting (DD) research. Delay discounting describes how the value of a reinforcer decreases as delay to its delivery increases. Relationships between DD and various aspects of drug abuse have been reliably demonstrated. A potential barrier to wider adoption of DD techniques is that results are often expressed in terms that may be too abstract or unfamiliar to a broader audience, particularly when describing or comparing hyperbolic DD functions or values of k . In DD, k is a fitted parameter characterizing the discounting rate of a delayed reinforcer. In an effort to potentially make DD results more accessible, the current report explores using an ED50 value in characterizing DD functions, similar to that used in pharmacology research for characterizing dose-effect functions. The ED50 proposed with regard to DD is the delay that is effective in discounting the subjective value of the delayed reinforcer by 50%. Additionally, a convenient method for calculating ED50 values for DD is described. **Conclusions:** The ED50 value can be obtained by simply taking the inverse of k . In doing so, the ED50 measure's use of explicit time units provides several benefits. It makes DD results more accessible than with discounting curves and k values alone. The ED50 measure may also potentially increase the ease in comparing results across DD experiments. In turn, the ED50 measure may help in establishing DD norms for various populations. Given the potentially significant benefits in using ED50 values in DD research and the ease in which it can be calculated, reporting ED50 values is readily justified in any DD research where k is calculated. **Support:** Research supported by National Institute on Drug Abuse Research Grants DA 14028, DA 90378, DA 08076, and Training Grant DA 97242.

823 DO ACTIVE ADDICTIONS CONTRIBUTE TO MORTALITY AMONG URBAN AFRICAN AMERICANS WITH POORLY CONTROLLED BLOOD PRESSURE?

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Aims: Urban African Americans die earlier than other Americans. Active addictions may contribute to this excess mortality through their impact on the management of chronic illness. **Methods:** We conducted a longitudinal cohort study of inner-city African Americans with severe, uncontrolled blood pressure. We reviewed medical records and interviewed 195 consecutive patients admitted to an inner-city academic hospital from 1999 - 2004 whose admission blood pressure was $>180/110$. Urine toxicology was obtained at the time of admission on all patients. Active heroin or cocaine use was defined as either positive urine toxicology or self-report. **Results:** Average age on admission was 50.7 yrs (range 27.5 - 88.8), 51.3% were women, 52.3% had completed high school, 69.3% were unemployed and average monthly income was \$855 (SD \$1075). 52% were current tobacco users, 25% active heroin users, and 20% active cocaine users. In heroin users, 5-year mortality was 60% compared to 34% in non-heroin users. The predominant cause of death in both users and non-users was cardiovascular disease. In proportional hazards models adjusting for age, sex, and comorbidities, the mortality hazard ratio associated with active heroin, cocaine, tobacco, or heavy alcohol use was 2.31 (95% CI 1.33-3.99), 2.02 (1.12-3.67), 1.98 (1.16-3.38), and 1.49 (0.69-3.23), respectively. **Conclusions:** Inner-city African Americans suffer excess mortality from treatable conditions such as hypertension. A portion of this excess mortality is due to the impact of active addictions on chronic disease management. The impact of addiction treatment on mortality in populations with chronic illness needs further study. **Support:** This work supported through a Research Career Award (K23, NIH, NCCR) and an American Heart Association Scientist Development Award

824 A HAPLOTYPE IMPLICATED IN COCAINE DEPENDENCE SUSCEPTIBILITY IS ASSOCIATED WITH REDUCED PDYN EXPRESSION IN HUMAN BRAIN

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Aims: We have found that three adjacent single nucleotide polymorphisms (SNPs) (rs910080, rs910079, rs2235749) in 3'UTR of PDYN were in high LD, comprising a haplotype block. The haplotype CCT was significantly associated with cocaine dependence and alcohol codependence. This study was to assess whether the haplotype CCT was associated with altered PDYN gene expression. **Methods:** Allele-specific gene expression of PDYN mRNA was measured in human brain using the rs910079 as an indicator SNP, and SNaPshot assay. SNaPshot analyzed the ratio of signals of a primer-extension reaction from each allele in PCR-amplified cDNA and genomic DNA in heterozygous samples. Postmortem brain tissues derived from the nucleus accumbens and caudate of 21 subjects were obtained from the Manhattan HIV Brain Bank (Mount Sinai Medical Center, New York). Sequencing of 3'UTR of PDYN showed that eight subjects were heterozygous for the indicator SNP. Total RNA and genomic DNA were extracted from the nucleus accumbens and caudate. The same primers were used for amplification of 3'UTR region of PDYN containing the indicator SNP in cDNA and genomic DNA. Products of primer extension reactions were run on an ABI 3730 sequencer, and analyzed with GeneMapper 3.0 software. The relative expression of two alleles in each sample was calculated as allelic ratio of cDNA peak areas, normalized by the genomic DNA ratio. **Results:** All samples yielded allelic ratios for genomic DNA close to the expected value of 1.0. Seven samples of the nucleus accumbens cDNA and eight samples of the caudate cDNA showed significantly lower expression for C-allele of the rs910079 SNP compared to T-allele (t-test, $p < 0.05$ or lower). **Conclusions:** This study provides evidence that the haplotype CCT implicated in cocaine dependence and cocaine/alcohol codependence susceptibility may be associated with reduced PDYN expression in the striatum of human brain. **Support:** NIMH-R01-79880 (MJK), NIDA-P60-05130 (MJK), NIDA-K05-00049 (MJK), NIMH-R24-59724 (SM) and NIMH-R01-44292 (JO).

825 WITHIN-SUBJECT COMPARISON OF THE PSYCHOPHARMACOLOGICAL PROFILE OF HYDROCODONE/ ACETAMINOPHEN AND OXYCODONE/ACETAMINOPHEN IN HEALTHY VOLUNTEERS

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Aims: The aim of this study is to directly compare, within the same subject, the psychopharmacological profile of two oral opioid combination products that are both widely prescribed and used non-medically - hydrocodone/acetaminophen (HYD/ACET) and oxycodone/acetaminophen (OXY/ACET). **Methods:** An ongoing randomized, placebo-controlled, double-blind, crossover study is being conducted; 14 volunteers (7 males, 7 females, mean age: 23.5 yrs) have completed the study (projected N of 20). Conditions, run on separate sessions, are 15 mg HYD/487 mg ACET, 30 mg HYD/975 mg ACET, 10 mg OXY/487 mg ACET, 20 mg OXY/975 mg ACET, 975 mg ACET, and placebo. Drug (i.e., opioid) doses are equated on an objective measure of opiate effects: miosis. Subjective, psychomotor, reinforcing, and physiological effects of the opioids are assessed. **Results:** Preliminary data analyses reveal that the two opioid products, at equimolar doses, are producing similar prototypic opiate-like effects and psychomotor impairment of similar magnitude. ACET has no effects by itself. Although not statistically significant, peak liking ratings in the two HYD/ACET and OXY/ACET conditions are higher than that in the placebo condition (e.g., placebo: 56.6 mm; 30 mg HYD/975 mg ACET: 66.8 mm). One difference noted between the two opioid combination products was that only 20 mg OXY/975 mg ACET significantly elevated VAS ratings of "drunk." Neither opioid combination product at either dose is functioning as a reinforcer, as measured by the Multiple Choice Procedure. **Conclusions:** The psychopharmacological profile of HYD/ACET and OXY/ACET at equimolar opioid doses have many similarities, consistent with their putative mechanisms of action. However the differences in VAS rating of drunk is interesting in that in a recent study (Zacny and Lichtor, 2007; Psychopharmacology, e-pub), 20 mg OXY but not an equimolar dose of morphine, increased this rating. Further research is needed examining HYD/ACET and OXY/ACET, and other prescription opioid products, in polydrug abusers. **Support:** Supported by NIDA Grant DA08573

826 AGE AND SEX ALTER SENSITIVITY TO COCAINE-CONDITIONED REWARD IN RATS

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Aims: Human and animal laboratory studies show that females and males respond differently to drugs and that drug administration during adolescence leads to different behavioral effects than during adulthood. While it is known that adult female rats are more sensitive to the behavioral effects of cocaine than adult males, it is not known if the same effect of sex exists during adolescence. In the present study, sensitivity to the conditioned reward of cocaine was evaluated in male and female adolescent and adult rats using a conditioned place preference (CPP) paradigm. The hypothesis was that females would respond differently to cocaine than males and that the differential responses would be age-specific. **Methods:** Adolescent (PND 34) and adult (PND 66) male and female rats were trained and tested for the development of CPP to multiple doses of cocaine. On the first day, a pre-test was done to determine initial preference to both sides of the chamber. This was followed by 3 days of training, with saline administered in the preferred side of the test chamber in the morning and cocaine in the non-preferred side in the afternoon. On day 5, a post-test was done to determine if preference had changed as a result of the training. Each training and test session was 30 min. **Results:** Adolescent male and female rats established CPP at lower doses of cocaine than adult male and female rats, respectively. In addition, female rats developed CPP at lower doses of cocaine than males, regardless of age. Thus, both age and sex altered the conditioned reward associated with cocaine with the order of sensitivity being adolescent females > adult females > adolescent males > adult males. **Conclusions:** These data show that adolescents are more sensitive to the conditioned rewarding properties of cocaine than adults. However, females respond to lower doses of cocaine compared to males, regardless of age. Thus, sex and age are factors that predetermine sensitivity to the rewarding effects of cocaine. A better understanding of this differential regulation may lead to sex- and age-specific preventions and treatments for cocaine abuse. **Support:** NIDA grants DA24584 and DA15119

827 SMOKING CESSATION OUTCOMES AT END OF TREATMENT USING NICOTINE REPLACEMENT THERAPY: A CANDIDATE GENE ASSOCIATION STUDY

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Aims: Nicotine replacement therapy (NRT) has been shown to double the chances of quitting smoking but is only effective in less than 20% of those who try it. Previous candidate gene studies have suggested that both the vulnerability to develop tobacco dependence and the effectiveness of NRT may be, at least in part, genetically determined. Some studies have found that age-at-onset of tobacco dependence (TD) is influenced by genetic factors. **Methods:** Study subjects were male or female, 18 years of age or older and currently smoking 10 or more cigarettes per day. The study was open-label whereby subjects were given 10-weeks of NRT and were followed up at 6-weeks and 10-weeks post quit date. To date, functional SNP on DRD3 (Ser9Gly), BDNF (Val66Met) and DRD2 (TaqlA) were genotyped on 155 of the 400 plus DNA samples collected from TD subjects. A survival analysis (Cox proportional hazards model) was performed to investigate whether any of the genotypes were associated with age-at-onset (AAO) of TD. Once a significant number of subjects have completed the treatment, we will investigate if treatment response is associated with genetic polymorphisms on DRD3, BDNF or DRD2. **Results:** Our preliminary results show no association of either BDNF (Val66Met or DRD2 (TaqlA) or DRD3 with age-at-onset of TD. However, the analysis will be repeated with a sample size of 400. **Conclusions:** We have not found association between AAO of TD and functional polymorphisms on DRD3, BDNF and DRD2. Our results will be confirmed with a larger sample size. It would also be useful to investigate the effect of other polymorphisms both on these and other genes involved in the reward system. **Support:** Supported by the Ontario Ministry of Health Promotion.

828 NUCLEUS ACCUMBENS CORE ACETYLCHOLINE IS SELECTIVELY ACTIVATED DURING DRUG- VS FOOD-REINFORCEMENT ACQUISITION

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Aims: Acquisition of drug reinforcement is accompanied by a systematic increase of release of the neurotransmitter acetylcholine rather than dopamine, the expected prime reward neurotransmitter candidate, in the nucleus accumbens core (AcbC) (Crespo et al. 2006, J. Neurosci. 26, 6004-6010), with activation of both muscarinic and nicotinic acetylcholine receptors in the AcbC by ACh volume transmission being necessary for the drug conditioning. The present study was designed to investigate if the activation of AChRs in the AcbC during the acquisition of drug conditioning represents a general learning response or if this neurochemical event is selective for drugs of abuse. **Methods:** To that end, we simultaneously determined the release of AcbC ACh and DA as well as intra-AcbC drug levels and operant behavior in a rat runway procedure during the conditioning to sweetened condensed milk vs morphine. **Results:** The present findings demonstrate that activation of the AcbC ACh system is selective for drug reinforcers, because (1) acquisition of food reinforcement was not paralleled by activation of ACh release in the AcbC whereas acquisition of morphine reinforcement (like that of cocaine or remifentanyl, tested previously) was, and because (2) local intra-AcbC administration of muscarinic or nicotinic ACh receptor antagonists (atropine and mecamylamine, respectively) did not block the acquisition of food reinforcement whereas acquisition of drug reinforcement had been blocked. Interestingly, the speed with which a drug of abuse distributed into the AcbC and was eliminated from the AcbC determined the size of the AcbC ACh signal, with the temporally better defined drug stimulus producing a more pronounced AcbC ACh signal. **Conclusions:** In conclusion, activation of muscarinic or nicotinic ACh receptors in the AcbC during reward conditioning does not seem to represent a general learning phenomenon but seems to be selective for drugs of abuse. **Support:** This work was supported by the Austrian Science Fund grant P18787-B05 and by the Verein für Experimentelle Psychiatrie, Psychotherapie und Pharmakologie (VEPPP).

829 AGE-RELATED DRUG USE PATTERNS IN CENTRAL UKRAINE

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Aims: Official prevalence of drug abuse in Ukraine is 17 to 34 abusers/10,000 population, per reports from public treatment facilities only. Primary drugs of abuse are marijuana, homemade opiates and stimulants. The aim of this study is to identify use patterns related to age. **Methods:** This is a preliminary analysis of baseline data from a clinical trial of behavioral treatment efficacy. The study is conducted at Vinnitsya Regional Narcological Dispensary in Central Ukraine. 89 IDUs were recruited from patients with past-month history of injecting opiates. They were divided into 2 groups: 18 to 25 years (younger) and 26+ years (older). Instruments used include Addiction Severity Index(ASI), SF-36v2 Health Survey, Beck Depression Inventory-II; HIV Knowledge Questionnaire, Blood Borne Virus Transmission Risk Assessment Questionnaire and Brief Symptom Inventory (BSI). **Results:** The sample was 78.9% male, 19.1% female. Mean age was 29.7 years. Mean duration of opiate use was 8.7 years. Frequency of alcohol use \leq 30 days was higher for older v. younger groups(mean 8.47 v. 4.41 days, $p=0.0076$). Younger subjects had shorter lifetime opiate injecting experience (mean 4.7 v. 10.5 years, $p<0.001$) but more experience with other opiates (Tramadol) (2.8 v. 0.91 years, $p<0.001$). Greater differences in lifetime amphetamine use (3.08 v. 0.47 years, $p=0.01$) and injection stimulant use (2.8 v. 0.31 years, $p=0.02$) were observed in younger v. older groups. The younger group had higher ASI employment subscale scores (mean 0.86 v. 0.76, $p=0.04$) and higher family subscale scores (mean 0.7 v. 0.57, $p=0.06$). **Conclusions:** These analyses reveal significant differences in drug use patterns between two age groups. Differences may be due to drug scene changes or natural age dynamics of IDUs. This topic will be a subject of further research. **Support:** This project is funded by the U.S. National Institute on Drug Abuse, Grant # 5R01DA18240.

830 OXYCODONE SELF-ADMINISTRATION IN ADOLESCENT AND ADULT C57BL/6J MICE

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Aims: Non-medical use of the prescription opioid analgesic oxycodone is a major problem in the United States, mostly among adolescents and young adults. This study was conducted to characterize self-administration of oxycodone by adolescent and adult mice, and how this affects striatal dopamine levels. **Methods:** Male C57BL/6J mice (4 or 10 weeks old) were acclimated for 1 week before surgery. Mice were first trained to self-administer oxycodone (0.25 mg/kg/infusion). Mice were then tested with varying concentrations of oxycodone (0, 0.125, 0.25, 0.5 and 0.75 mg/kg/infusion) in a counterbalanced order. After the self-administration study, a CMA guide cannula was implanted into the striatum of these mice. Six days later, a dialysis probe was lowered into the striatum and the mouse was placed in an individual microdialysis chamber. The next morning, microdialysis studies were carried out on the freely moving mice. Dialysate was collected in 20-min samples. After collection of baseline samples, oxycodone was administered i.p. (1.25, 2.5 and 5.0 mg/kg) and samples were collected for 1 hr after each dose. **Results:** Adult mice showed a significantly greater number of self-administered infusions of oxycodone across the doses tested (0, 0.125, 0.25, 0.75 mg/kg/infusion) ($p < 0.05$). Basal striatal dopamine levels were lower ($p < 0.000001$) in mice of both ages that had previously self-administered oxycodone. In response to oxycodone injection, striatal dopamine levels increased in a dose dependent manner in both adolescent and adult mice. Of interest, the lowest dose of oxycodone (1.25mg/kg) induced an increase in striatal dopamine levels in the adolescent mice but not in the adult mice ($p < 0.01$). **Conclusions:** The fact that adolescent mice showed a lower number of infusions of oxycodone, and increased striatal dopamine in response to the lowest dose of oxycodone (not found in adults) suggests that they may be more sensitive to the rewarding effect of oxycodone. **Support:** Support: NIH-NIDA P60 DA05130 and KO5 DA00049 to MJK.

831 CONFORMATIONAL CONSTRAINED ANALOGS OF SR141716: DESIGN, SYNTHESIS, COMPUTATIONAL ANALYSIS AND BIOLOGICAL EVALUATIONS

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Aims: The structure-activity relationships of SR141716, the first drug that selectively blocks both the in vitro and in vivo effects of cannabinoids mediated by the CB1 receptor, have been widely studied. The conformational properties of SR141716 and its analogs, however, have only recently received attention. In efforts to determine the exact ligand and receptor conformations for optimal receptor recognition and inverse agonist activity, we have designed and synthesized a number of derivatives of SR141716, including a four carbon-bridged molecule, to further constrain the conformational mobility of the diaryl ring systems. **Methods:** Competitive displacement assays with [3H] CP55940 and [3H]SR141716 as ligands have been employed to determine the affinity of the compounds. 2D and variable temperature NMR studies were carried out to investigate their conformational properties. Sybyl and Spartan were used for computation of the rotational energy barriers. **Results:** Most compounds showed nM affinity for the CB1 receptor in competition assays against [3H]CP55940, and [3H]SR141716, but all lower than SR141716. 2D and variable temperature NMR study of the four carbon-bridged compound suggests the existence of atropisomers, which would allow for the study of the orientation of aryl rings when interacting with the CB1 receptor. Computational analysis suggested a ~20 kcal/mol energy barrier for the rotation of the two aryl rings in the four carbon-bridged compound. **Conclusions:** The decreased affinity of these conformationally-constrained compounds as compared to SR141716, indicates that our approaches either constrained the ring systems in an orientation less optimal for interaction than that of SR141716; or introduced steric bulk to constrain the conformations leads to disfavored steric interactions with the receptor. These results provide basis for the further understanding of the conformational characters of SR141716 and its analogs. **Support:** This work was supported by the National Institute of Drug Abuse, National Institute of Health (grant No. DA019217).

832 GENDER DIFFERENCES IN PREVALENCE, RISK AND CLINICAL CORRELATES OF SMOKING COMORBIDITY IN SCHIZOPHRENIA IN A CHINESE POPULATION

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Aims: The prevalence of smoking in patients with schizophrenia is substantially higher than a variety of comparison populations, including those with other severe mental illnesses. This study examined gender-specific relationships between smoking and schizophrenia, which have previously received little systematic study. **Methods:** This case-control study included patients with a DSM-IV diagnosis of schizophrenia ($n=510$) and a representative sample of the normal population ($n=793$). The Fagerstrom Test for Nicotine Dependence (FTND) was used to assess nicotine dependence. Smoking and its relationship to retrospectively assessed measures of the course of schizophrenia were evaluated by patient-rated and clinician-administered questionnaires. **Results:** When compared with normal control subjects, schizophrenia patients had significantly higher prevalence of ever daily smoking (55.9% vs 49.7%; OR=2.1), current daily smoking (51.4% vs 40.9%; OR=4.3) as well as heavy smoking (62.2% vs 32.7%, OR=3.9) among current daily smokers. As in the general population (54.6% vs 7.7%), more men than women with schizophrenia (75.5% vs 3.5%) were current smokers. However, the risk of smoking was greater for men with schizophrenia (odds ratio=7.35) than for women with schizophrenia (odds ratio=2.77), compared with the general population. The prevalence of those who had quit smoking was significantly lower in schizophrenia than in controls ($p<0.01$). Smoking was associated with a history of alcohol use and family history of smoking in men with schizophrenia and with a family history of schizophrenia in women with schizophrenia. **Conclusions:** This study suggests that there are gender differences in the prevalence, risk, and clinical correlates of smoking in schizophrenia. The magnitude of these gender-specific differences is substantial and warrants further prospective study. **Support:** This study was funded by the Stanley Medical Institute Foundation (03T-459, 05T-726)(XYZ), and the MIRECC and National Institute on Drug Abuse K05-DA0454 and P50-DA18827 (TRK).

833 INDIVIDUAL DIFFERENCES IN STRESS-INDUCED HEROIN-SEEKING BEHAVIOR AND NEUROENDOCRINE RESPONSES IN RATS: INVOLVEMENT OF ARGININE VASOPRESSIN AND V1b RECEPTOR

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Aims: We have recently demonstrated an involvement of arginine vasopressin (AVP) and V1b receptor system in heroin seeking behavior. In the present study, we tested whether individual differences in two separate stress responsive brain systems AVP/V1b and orexin (OX), prolactin (PRL) and hypothalamic-pituitary-adrenal hormones, are associated with heroin seeking induced by footshock stress (FS). **Methods:** On the basis of voluntary intravenous heroin self-administration (SA) (7 day, 3h/d, 0.05 mg/kg/inf), 36 outbred Sprague-Dawley rats were divided into drug responsive (SA, n=30) and non-responsive (nonSA, n=6). All SA and nonSA rats were subjected to extinction sessions, heroin priming- (0.25 mg/kg) and FS-induced reinstatement. Ten SA rats were randomly selected to receive V1b receptor antagonist SSR149415 (30 mg/kg, ip) before extinction, heroin or FS reinstatement. The other 20 SA rats were subjected to FS and divided to high and low responders (HR, n=10; LR, n=10) by median split of lever-pressing responses after FS. **Results:** Both HR and LR displayed similar increases in: 1) active lever responding, heroin infusion and total heroin intake over SA sessions; 2) lever responding in heroin priming reinstatement; and 3) OX mRNA level in the lateral hypothalamus (LH), plasma ACTH and corticosterone (B) levels after FS. Compared to LR, however, HR showed greater increases in: 1) lever responding in both the first extinction session (1.5x) and FS reinstatement (3x); and 2) AVP mRNA level in the medial/basolateral amygdala (1.3x) and plasma PRL level (1.4x) after FS. SSR149415 pretreatment blunted the increases in: 1) lever responding in both the extinction and FS reinstatement; 2) FS-induced plasma PRL level; and 3) LH OX mRNA level, plasma ACTH and B levels after FS. **Conclusions:** Our results suggest that stress responsive AVP/V1b system is one critical component of neural substrates involving in individual vulnerability for stress-induced heroin seeking behavior and PRL response. **Support:** NIDA-P60-05130 (MJK) and NSERC (FL)

834 SEX DIFFERENCES IN THE DEVELOPMENT OF COCAINE-INDUCED STEREOTYPED BEHAVIOR

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Aims: Sex differences in behavioral response to cocaine administration have been reported; female rats are more sensitive to cocaine-induced behaviors than males. This study aimed to determine if acute and chronic cocaine treatment persistently induce higher stereotyped behavior in female than male along different length of treatment. **Methods:** To this end, male and female Fischer rats were randomly divided into three groups: saline, acute- and chronic-cocaine treatments. Saline groups received daily administration (i.p.) of saline. Acute-cocaine treated groups received saline administration throughout the experimental time course and the last day received a single cocaine treatment of 15 mg/kg. In the chronic-cocaine groups, rats received daily administration of cocaine (15 mg/kg) throughout 2, 5, or 14 days. Stereotyped behavior was videotaped for 45 seconds each at 15, 30, and 45 minutes after administration. The videotapes were analyzed for stereotypic activity by three trained observers, who were blind to the animal's treatment conditions using a modification of the Daunais and McGinty rating scale. **Results:** Overall, cocaine increased stereotyped behavior in both male and female rats. Across treatments, female rats exhibited higher stereotyped behavior to cocaine when compared to males. Longer pre-treatment with saline, produced more robust sexual dimorphic responses to acute-cocaine administration than shorter saline pre-treatment. Male rats exhibited higher stereotyped behavior after 5-day cocaine treatment than 2-day or 14-day, which is consistent with their sensitization in locomotor activity. However, female rats did not develop sensitization to stereotyped behavior after chronic cocaine administration. **Conclusions:** Taken together, these data suggest that female rats are more sensitive in response to cocaine than males. **Support:** This research was supported by SCORE 506-GM60654, MIDARP DA 12136, and SNRP NS 41073.

835 METHAMPHETAMINE-RELATED IMMUNE SYSTEM CHANGES IN METHAMPHETAMINE-DEPENDENT PARTICIPANTS

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Aims: Methamphetamine (MA) abuse is a growing major medical, social and legal concern, and the HIV-infected population is preponderantly affected by this pervasive problem. The primary aim of this study is to define immunologic parameters, pertinent to HIV infection, which may be modulated in MA users following protracted use and following experimental administration of intravenous MA in a controlled clinical setting. **Methods:** Non-treatment seeking, MA-dependent volunteers are being recruited. One-half of all participants are HIV positive and one-half are HIV negative. Volunteers receive either placebo or propranolol (40 mg) and 2h later receive either placebo or MA (30 mg, IV). Three hours later patients receive the alternate infusion (either placebo or MA). On a subsequent day, volunteers receive the alternate condition of that previously assigned (either placebo or propranolol) and the MA and placebo challenges are repeated. **Results:** In addition to obtaining basic cardiovascular and subjective effects data, we are currently performing a detailed analysis of PBMC surface phenotype by standard flow cytometry in order to confirm the differential regulation of immune cell markers and HIV coreceptors by MA. Our preliminary data indicate that acute exposure to MA appears to upregulate the number of T-cells expressing the HIV co-receptor, CXCR4. Additionally, there is a modest effect on expression of CCR5, another HIV coreceptor. MA may also diminish the number of T regulatory cells (CD25+). Finally, MA-mediated modulation of immune cells and HIV co-receptor expression is diminished in the presence of propranolol. **Conclusions:** Our experimental findings indicate that a study of non-treatment seeking MA-dependent volunteers will be useful in defining the specific effects of acute MA exposure on parameters pertinent to HIV infection. Our results also suggest increased ANS activity may be a potential mechanism by which MA alters HIV infectivity and HIV-relevant immune parameters. **Support:** DA20394, RR-00865

836 DEMOGRAPHIC VARIABLES ASSOCIATED WITH PRESCRIPTION OPIOID-ABUSE AND DIVERSION DETECTED BY THE RADARS® SYSTEM

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Aims: To identify socio-economic factors that influence the incidence of PO AD. **Methods:** The RADARS® System is a surveillance network comprised of 4 signal detection systems (SDS): key informant (data are obtained primarily from clinicians treating drug abuse [KI]), drug diversion (police departments and drug task forces [DD]), poison center (exposures reported by the public and physicians [PC]) and opioid treatment programs (anonymous patient questionnaires [OTP]). Demographic information was obtained from the 2000 Census. PC data 2003 to present, OTP 2005 to present and KI data 2002 to present were analyzed using negative binomial regression. DD data 2002 to present were analyzed using linear mixed modeling. **Results:** Population within a 3 digit zip code, drug availability (as purchased from Verigan LCC), and female proportion of the population had a significant positive association with number of cases in each SDS. Household size had a significant negative association with number of cases. Median household income and white race had a significant positive association in some SDS. Population density, median age, and percent of population with a bachelor's degree were negatively associated in some SDS. Association of number of cases with time, working proportion of population, divorced status, and high school education or equivalent differed between SDS. **Conclusions:** In this analysis several demographic factors consistently have a significant positive association with PO AD. Drug availability, population and female gender have a significant positive association in each SDS. These findings may help guide intervention and education efforts to attenuate the problem of PO AD in the United States. **Support:** RMPDC operates the RADARS System and provides data to industry, regulatory agencies and researchers on a subscription basis.

837 ANXIETY AND DEPRESSIVE SYMPTOMS AMONG CRACK AND INHALANT USERS IN SOUTHERN BRAZIL

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Aims: To investigate possible differences of anxiety and depressive symptoms in crack cocaine and inhalant drug users in comparison with medicine students in Southern Brazil. **Methods:** Species: Human subjects. Number of subjects: 150 volunteers divided in 3 equal groups of inhalant and crack users and of medicine students. **Procedures:** All drug users were assisted via the Brazilian public health system in a psychiatric hospital associated to the University of Caxias do Sul. Drug users completed questionnaires under guidance by trained examiners. Students self-completed all questionnaires. Depressive symptoms were assessed via the Beck Depression Inventory, Hamilton Depression Scale and the Montgomery-Asberg Depression Rating Scale. Anxiety was evaluated via the State-Trait Anxiety Inventory and the Hamilton Anxiety Scale. The Self-Reporting Questionnaire and the Suicidality Questionnaire were also used. MADRS, HAM-D and HAM-A were not tested on the control group (not amenable to self-completion). **Statistical Analyses** was conducted using SPSS®; statistical software. Analyses of Variance (ANOVA) were performed to test differences among the 3 groups. Post-Hoc analyses (Tukey Test) were conducted for subsequent pairwise comparisons. Independent-samples t tests were performed to examine differences between two groups only. **Results:** A significant difference of general mental health, anxiety and depressive symptomatology was observed between the control-group and drug users (both inhalant and crack) across all questionnaires, while post-hoc analysis did not reveal any difference between crack and inhalant users. A significant difference in terms of suicidality was observed among the three different subgroups, having the group of inhalant drug users attained the highest level of suicidality. **Conclusions:** The results herein described indicate that crack and inhalant drug users present significant comorbidity elements of anxiety and depression. Additionally, inhalant drug users may be a higher risk for suicidal behavior. **Support:** Research grants: SCT-RS (000605-25.00/03-8) and FAPERGS (0166/04), Brazil.