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ON DRUG ABUSE

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NewsScan
NIDA ADDICTION RESEARCH NEWS

NEWS UPDATE

Research News

Intensive Foster Care Program Reduces Delinquency and Improves School Engagement for Girls

Parental abuse during childhood increases the risk of involvement with the juvenile justice system. A randomized trial of the Multidimensional Treatment Foster Care (MTFC) intervention for delinquent teenage girls with histories of maltreatment, funded in part by NIDA, showed that girls enrolled in MTFC were more likely to be engaged with school work, and as a result, less likely to spend time in locked settings such as jail, compared with girls placed in standard group care (GC). The MTFC intervention placed girls with MTFC-trained foster parents where they were taught academic and positive living skills and provided with daily supervision and support. In addition, the biological families of MTFC girls participated in family therapy where they received information on parenting skills that they practiced during home visits with their daughters. In this trial, the investigators randomly assigned 81 girls ages 13 to 17 to either MTFC or GC. The girls remained in their treatment placements on average for under 5 months. When examined at 12 months after the beginning of the study, girls assigned to the MTFC condition spent significantly more time on homework and had significantly greater school attendance than girls assigned to GC. Further, girls who had higher rates of homework completion during treatment were less likely to spend time in locked settings at 12 months post-baseline. Finally, it is important to note, explained the authors, "that the average amount of time that the girls spent in their treatment settings was less than 5 months, so the effects obtained at 12 months postbaseline persisted beyond the direct, immediate influences of the treatment providers."

Leve LD, Chamberlain P. *A randomized evaluation of multidimensional treatment foster care: effects on school attendance and homework completion in juvenile justice girls.* Res Soc Work Pract. 2007;17(6):657-663.

Intervention Prevents Disruption of Stress Hormone Levels in Preschoolers in Foster Care

Children in the foster care system in the United States are at very high risk for later substance abuse and other poor social outcomes. Many of these vulnerable children have been shown to have atypical levels of the stress hormone cortisol. Researchers, funded in part by NIDA, measured how a therapeutic family-based intervention designed to address the developmental, social, and emotional needs of preschool-aged children might affect diurnal cortisol activity, compared with regular foster care. The researchers randomly assigned 117 children ages 3 to 6 to either the Multidimensional Treatment Foster Care for Preschoolers (MTFC-P) intervention or regular foster care. All caretakers took morning and evening saliva samples for cortisol measurements on two consecutive days every month for 12 months. Cortisol levels were compared between the two groups, as well as with samples taken from a matched group of low-income children not in foster care. The researchers found that children in regular foster care developed more flattened (atypical) diurnal cortisol activity, while the levels in children who received the MTFC-P intervention did not differ significantly from the community comparison children. "It appears that the primary impact of the therapeutic parenting intervention was not to reverse atypical diurnal cortisol activity but rather to prevent the development of [flattened] patterns found in the regular foster care group," state the authors. "The MTFC-P intervention might help to limit the duration of stress associated with a foster placement, whereas such stress might persist in regular foster care," resulting in flattening of the cortisol activity patterns.

Fisher PA, Stoolmiller M, Gunnar MR, Burraston BO. *Effects of a therapeutic intervention for foster preschoolers on diurnal cortisol activity.* Psychoneuroendocrinology. 2007;32(8-10):892-905.

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Health Plans More Likely to Focus on Identifying Enrollees with Mental Illness than Substance Use Disorders

Although accurate screening tools exist to help physicians identify people with substance abuse or other mental illness, these conditions remain under-recognized and under-treated in the United States. Researchers, funded in part by NIDA, conducted a survey to determine if and how private health plans (i.e., health maintenance organizations, point-of-service plans, and preferred provider organizations) attempt to foster screening to identify enrollees with mental health or substance use conditions. The data came from a 2003 nationally representative study of mental health, alcohol, and drug abuse services, which sampled 368 health plans (and comprised 812 private insurance products). While 34 percent of insurance products verified that their primary care providers screened for mental health conditions, only 8 percent did the same for alcohol or drug abuse. Most products (78 percent) distributed practice guidelines on screening for depression to their providers, but only 33 percent distributed guidelines on screening for alcohol or drug abuse. Overall, most health plans used multiple strategies--only 19.2 percent had no strategy for mental health screening while 52.4 percent had none for substance abuse. According to the authors, "Decisions about use of strategies [to improve the identification of mental health or substance use problems] may be driven by employers' and health plans' views about the relative cost and prevalence of these conditions, as well as by greater stigma attached to substance use conditions."

Garnick DW, Horgan CM, Merrick EL, Hoyt A. *Identification and treatment of mental and substance use conditions: health plans strategies*. Med Care. 2007;45(11):1060-1067.

Brain Regions Associated with Cue-Induced Cigarette Cravings Independent of Withdrawal

During attempts at quitting, smokers are often fixated on smoking to alleviate intolerable cravings induced by nicotine withdrawal and/or reminders to smoke (cues), both of which contribute to relapse. Nicotine withdrawal symptoms typically abate within one month of quitting. However, smokers report that cues such as the smell of a burning match, another person smoking, and even internal mood states repeatedly associated with smoking can trigger relapse months or even years after quitting. To learn more about the brain regions specifically involved in cue-induced cigarette craving, investigators, funded in part by NIDA, imaged 21 smokers during exposure to cues using arterial spin-labeled perfusion functional magnetic resonance imaging (fMRI). Perfusion fMRI is an indirect measure of brain activity; however, unlike other fMRI techniques it is quantitative, and as such smokers can exit the scanner between cue sets to smoke a cigarette. Thus, brain activation related to nicotine withdrawal can be minimized. The investigators found that smoking cues (compared to nonsmoking cues) activated brain regions (amygdala, ventral striatum, thalamus, hippocampus, insula, and orbitofrontal cortex) that mediate rewarding behaviors. In addition, perfusion in the dorsolateral prefrontal cortex and the posterior cingulate cortex positively correlated with the change in subjective craving scores elicited by the smoking cues. "Further understanding of the underlying neurobiology of cue-induced craving would facilitate the development of effective therapies and improve…success rates associated with current smoking interventions," conclude the authors.

Franklin TR, Wang Z, Wang J, Sciortino N, Harper D, Li Y, Ehrman R, Kampman K, O'Brien CP, Detre JA, Childress AR. *Limbic activation to cigarette smoking cues independent of nicotine withdrawal: a perfusion fMRI study*. Neuropsychopharmacology. 2007;32(11):2301-2309.

Prerelease Treatment with Buprenorphine-Naloxone Reduces Drug Use in Inmates Re-Entering the Community

Although around 15 percent of American prisoners have a history of heroin addiction, most inmates with a drug use disorder do not receive treatment, and very few have access to pharmacological treatment programs. Investigators in Puerto Rico and funded by NIDA tested whether treatment with buprenorphine-naloxone (bup-nx)—a medication approved by the Food and Drug Administration for the treatment of opiate addiction—could feasibly be initiated in soon-to-be-released opioid-addicted prisoners, and whether the treatment would continue in the community and decrease drug use and criminal activities. The investigators recruited 45 male prisoners with heroin addiction and approximately 6 months left in their prison sentences to participate. All received a personalized dosing schedule in prison, and before release, an appointment for community treatment. Three participants had to discontinue treatment before release; of the 42 who continued treatment while in prison, 35 attended their appointment with the community provider and reported continued

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use of bup-nx (referred to as treatment completers). Treatment completers had significantly greater reductions in heroin and cocaine use as well as a reduction in criminal activities compared with those who did not complete the program. Although the authors caution that this was a small feasibility study without a control group, and that larger future studies are needed, they believe that "the short-term outcomes of this study suggest that treatment with bup-nx may significantly contribute to reductions in readdiction to heroin and in criminal activities among re-entering male offenders."

Albizu-Garcia C, Correa GC, Viver AD, Kinlock TW, Gordon MS, Avila CA, Reyes IC, Schwartz, RP. *Buprenorphine-naloxone treatment for pre-release opioid-dependent inmates in Puerto Rico*. J Addict Med. 2007;1(3):126-132.

Pharmacology Modules Help Students Learn Basic Science Concepts

High school students in the United States lag behind their peers from many other countries in terms of science knowledge. To see if incorporating drug-related teaching modules into high-school science curricula, including material on substance abuse, chemical warfare, and other socially relevant topics, would improve student learning of standard high-school biology and chemistry concepts, investigators funded by NIDA developed the Pharmacology Education Partnership (PEP). The PEP project recruited 116 teachers from across the United States to help develop classroom and laboratory activities to support six teaching modules. To generate control data, 65 teachers gave tests to determine students' knowledge of biology and chemistry concepts before the PEP modules were used. During the field-testing year, 45 out of 95 teachers used the modules in class. All 95 teachers then administered the same test. "Student achievement demonstrated a 'dose-response' relationship: As the number of modules experienced increased, the students' performance increased," explained the authors. Comparison to the previous year's control group affirmed that the modules have significant, positive effects on science knowledge. The authors conclude that inclusion of topics with personal, societal, and global relevance, repetition of important principles among modules, and professional development for teachers may all have played a role in the educational gains.

Kwiek NC, Halpin MJ, Reiter JP, Hoeffler LA, Schwartz-Bloom RD. *Pharmacology in the high-school classroom*. Science. 2007;317(5846):1871-1872.

Methamphetamine Use Increases Risk of Unsafe Heterosexual Behaviors

Although methamphetamine use has been linked to risky sexual behaviors in men who have sex with men, studies have not shown a clear link between methamphetamine use and risk taking during heterosexual encounters. Using event-level analyses to allow the researchers to examine the co-occurrence of methamphetamine use and risky sexual behavior, a new study funded by NIDA indicates that methamphetamine use increases the risk of such behaviors, which in turn increase the likelihood of infection with HIV and other sexually transmitted infections (STIs). Investigators collected data on recent drug use and heterosexual encounters from 703 injection drug users using Audio Computer Administered Self Interviews, which have been shown to increase the truthful reporting of potentially embarrassing sexual behaviors. Eleven percent of participants had abused methamphetamine in the 30 days before the interview, and methamphetamine was used in 7 percent of sexual encounters. After adjusting for social demographics and other drugs used, methamphetamine use during a sexual encounter was associated with three out of six identified risky sexual behaviors. Encounters in which both partners used methamphetamine were significantly more likely to include five out of six of those behaviors, compared to only one when a single partner had used the drug. Information such as this "will be critical to developing appropriate interventions to minimize the spread of HIV and other STIs among heterosexual methamphetamine users," conclude the authors.

Zule WA, Costenbader EC, Meyer WJ Jr, Wechsberg WM. *Methamphetamine use and risky sexual behaviors during heterosexual encounters*. Sex Transm Dis. 2007;34(9):689-694.

For more information about any item in this *NewsScan*:

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- Reporters, call Dorie Hightower at 301-443-6245.
- Congressional staffers, call Geoffrey Laredo at 301-594-6852.

The National Institute on Drug Abuse (NIDA) is a component of the National Institutes of Health, U.S. Department of Health and Human Services. NIDA supports most of the world's research on the health aspects of drug abuse and addiction. The Institute carries out a large variety of programs to ensure the rapid dissemination of research information and its implementation in policy and practice. Fact sheets on the health effects of drugs of abuse and other topics are available in English and Spanish. These fact sheets and further information on NIDA research and other activities can be found on the NIDA home page at http://www.drugabuse.gov.

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