

Introduction

Drug abuse and addiction continue to fuel the spread of HIV/AIDS in the United States and abroad. To address this significant public health threat, research is examining many aspects of HIV/AIDS, drug abuse, and addiction, including the risk behaviors associated with injection and noninjection drug abuse, how drugs of abuse alter brain function and impair decisionmaking, and HIV prevention and treatment strategies for diverse groups. This issue of NewsScan highlights NIDA-supported studies that address the multifaceted issues relating to HIV/AIDS.

HIV/STI Risk Behaviors in Delinquent Youth: A Community Health Problem

Results of a recent study of 800 juvenile detainees aged 10–18 finds that young people involved in the juvenile justice system are at great risk for HIV and sexually transmitted infections (STIs), and this risk increases dramatically as they age. Because the majority of incarcerated youth return to their communities, HIV/STI risk behaviors among this population represent a public health concern for both the individual and the community.

Background: Few comprehensive studies examine HIV/STI risk behaviors in delinquent youth. Because youth are generally detained for short periods of time (2 weeks on average), their behaviors place persons in the community at increased risk. Therefore, HIV/STI risk behaviors in delinquent youth are not just a problem for the juvenile justice system, but are also a community public health problem.

Study Design: Scientists from Northwestern University School of Medicine interviewed 800 juvenile detainees aged 10 to 18 years. The research team examined behaviors associated with an increased risk for HIV/STI, including sex and injection risk behaviors. Approximately 3 years later, 724 participants were reinterviewed (irrespective of where they lived—community, correctional facility, or residential placement facility) to assess changes in HIV/STI risk behaviors.

What They Found: More than 60 percent of the juvenile detainees had engaged in at least 10 risk behaviors at the baseline interview, and nearly two-thirds continued to engage in at least 10 risk behaviors at follow-up. Of particular concern is the fact that at follow-up, 44 percent of males and 62 percent of females had had recent unprotected sex. The scientists also observed that among juvenile detainees living in the community, HIV/STI risk behaviors were more prevalent at follow-up than at baseline, whereas HIV/STI risk behaviors were less prevalent among detainees who were incarcerated at follow-up. Although the researchers found few racial and ethnic differences in risk behaviors, several differences were noted between male and female participants. Males had higher prevalence rates of HIV/STI risk behaviors and they were more likely to continue risky behaviors and develop new ones, compared to females. For females, injection risk behaviors were more prevalent, and they were also more likely to develop and continue engaging in injection risk behaviors.

Comments From The Authors: Our findings show that youth involved in the juvenile justice system continue to be at great risk for HIV/STIs as they age. We need to develop interventions tailored to fit specific patterns of risk and transmission. Because of the disproportionate numbers of African Americans who cycle through correctional facilities, the pediatrics community must focus on implementing culturally appropriate interventions for African-American youth and young adults.

What's Next: In addition to the improving coordination between agencies, future research should examine the role of incarceration in HIV/STI risk behaviors.

Publication: Dr. Linda Teplin and her colleagues published this study in the May 2007 issue of *Pediatrics*.

Many Male Inmates Willing To Undergo Rapid HIV Testing

New research shows that a high percentage of male inmates—a population at high risk for HIV infection—are willing to undergo HIV testing soon after entering prison, even though they may consider themselves at low risk of infection.

Background: Inmates are at higher risk for HIV, but current turnaround time for traditional HIV testing means that many inmates are released before results are available, and many never receive their results. This research sought to determine the acceptability of rapid HIV testing, delivery of test results, and risk reduction counseling in a jail setting. Rapid HIV testing provides immediate results and could significantly improve detection and early intervention that might not otherwise be received.

Study Design: After the HIV test was administered, the researchers engaged the inmates in a risk reduction counseling session that collected information about HIV testing history, sexual history, injection drug use history, attitudes toward HIV testing in the jail setting, partner notification of positive HIV test results, and demographics. Participants were given information about community HIV testing and counseling sites, as well as a fact sheet about HIV infection.

What They Found: Although 76 of the 100 participants did not consider themselves to be at risk of infection, 95 agreed to undergo rapid HIV testing. Ninety-six participants thought the setting was a good locale for routine HIV testing. Ninety of the 95 who agreed to undergo HIV testing stated that if they tested positive, they would be willing to talk with a counselor about the best way to inform their partners about their HIV status.

Comments From The Authors: This study demonstrated that rapid HIV testing in a jail setting was feasible and highly acceptable to inmates. Because the turnover rate in the jail population is high and many inmates are released before HIV test results are available, an unacceptably high percentage never receive results. Jails provide an opportunity to test, counsel, and engage our community's at-risk individuals.

What's Next: Further studies will help determine how to expand the use of rapid HIV testing in prison-based HIV screening programs.

Publication: Dr. Curt Beckwith of the Miriam Hospital and Brown University Medical School and his colleagues published this study in the January 2007 issue of *AIDS Patient Care and STDs*.

Study Shows Value of HIV Screenings in Virtually All Health Settings

Research suggests that voluntary screening for HIV is cost effective and should be expanded to include all adults in populations where evidence indicates that more than 2 in 1,000 people harbor an undiagnosed HIV infection.

Background: Early detection and timely access to medical care can substantially improve the course of HIV disease in people infected with the HIV virus. However, the question of whom and how often to test remains controversial.

Study Design: The scientists developed a computerized, mathematical model to simulate what happens to a person infected with HIV, including detection, treatment, medical expenses, transmitting the disease to others, and death, as well as the degree to which life expectancy was shortened by the disease. The model also included the medical expenses incurred by the patient. The model also calculated the cost of screening and additional survival attributable to earlier detection, and then estimated the cost per extra year of life gained from HIV screening.

What They Found: The research shows that a one-time rapid screening test would cost \$30,800 per quality-adjusted life year (QALY) gained. Screening every 3 years would cost \$55,500 per QALY, while screening every 5 years would cost \$32,300 per QALY. In comparison, data from other cost-effectiveness studies show that screening for type 2 diabetes costs approximately \$56,600 per QALY, while screening costs for high blood pressure and colorectal cancer are \$48,000 per QALY and \$51,200 per QALY, respectively.

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Comments From The Authors: Our findings support routine, rapid HIV testing for all adults in the United States as long as the prevalence of undiagnosed infection is above 0.2 percent. This analysis supports the new recommendations of the Centers for Disease Control and Prevention calling for routine HIV screening in all adults and adolescents in U.S. health settings.

What's Next: Health care providers should initiate routine, voluntary HIV testing for all U.S. adults in populations where the HIV prevalence is above 0.2 percent.

Publication: The study, led by Dr. A. David Paltiel of Yale School of Medicine, was published in December 2006 in the *Annals of Internal Medicine*.

HBCU Students Willing To Accept Rapid HIV Testing; Those Most Likely To Consent Have a High Perceived Risk of Infection

Research supported in part by NIDA showed that students at a historically black college/university (HBCU) are willing to receive rapid HIV testing when asked, and those most likely to consent perceive their risk of having HIV to be high. Offering routine, rapid HIV testing on college campuses may improve the acceptance of such testing among college students by providing a nontraditional setting.

Background: African-American college students have a higher prevalence of HIV infection than white college students, but they are less likely to be aware of their HIV status. This study examined the feasibility of offering rapid HIV testing on campus.

Study Design: The scientists administered a 60-item questionnaire—examining basic demographics, sexual and drug risk behaviors, barriers to testing, and HIV testing history—to 161 students. Students then were offered free, confidential, rapid HIV testing.

What They Found: In the full sample of 161 students, 84 percent perceived their risk of HIV to be low, yet 40 percent had unprotected vaginal sex and 16 percent had unprotected anal sex during the previous 3 months. Barriers to agreeing to undergo HIV testing included the effect of results on a current relationship, lack of information about local HIV test sites, and fear that the results would not remain confidential. Eighty-one students accepted the offer of rapid HIV testing, and 77 percent of students who had a high perceived risk of HIV underwent testing. In addition, 59 percent of participants who had unprotected vaginal sex and 62 percent who had unprotected anal sex during the previous 3 months accepted the offer of HIV testing.

Comments From The Authors: These findings suggest that testing on college campuses may provide a model for student access to HIV testing, particularly males who may be less likely to get tested in traditional medical settings. This first step indicates the amenability of this population to HIV intervention and prevention efforts. Providing more accessible testing sites may potentially increase the percentages of African-American students who seek testing.

What's Next: Additional research is needed to explore further implementation of rapid HIV testing on college campuses.

Publication: The study, led by Dr. Nanetta Payne of Jackson State University, was published in the December 2006 issue of the *Journal of the National Medical Association*.

First Molecular Examination of HIV in High-Risk People Along U.S.–Mexico Border

The first report examining the subtypes of HIV infection among injecting drug abusers and female sex workers along the U.S.–Mexico border shows evidence of resistance to antiretroviral drugs in people who had not taken the medications, posing a potential public health threat.

Background: HIV prevalence is increasing among high-risk populations in U.S.–Mexico border cities, particularly among female sex workers. Due to the increasing prevalence of subtype C strains reported in Latin America and the rapidly changing nature of HIV epidemics, studies on the genetic diversity of HIV strains are needed. Research on HIV resistance mutations can also help physicians develop new therapeutic guidelines.

Study Design: In this community-based study, researchers collected 35 HIV-positive samples from injecting drug abusers and female sex workers in Tijuana and Ciudad Juarez. They were able to analyze the DNA from 11 samples (8 from injecting drug abusers, and 3 from female sex workers).

What They Found: The samples obtained were HIV subtype B, the most prevalent strain in North America, Western Europe, and Australia. They also observed that two of the three samples from female sex workers had low-level antiretroviral resistance mutations, even though they had not taken antiretroviral medications.

Comments From The Authors: Although the sample size was small, the antiretroviral drug resistance found in two drug-naïve female sex workers is of concern; the potential for primary drug resistance poses a potential public health threat to both sides of the border.

What's Next: Further studies in Mexican high-risk groups are needed to determine the rate of primary drug resistance in individuals along the border and throughout Mexico. Testing for HIV drug resistance will aid clinicians in selecting appropriate treatment for patients in whom antiretroviral therapy is not successful.

Publication: The study, led by Dr. Jean Carr of the University of Maryland, was published in the February 2007 issue of *AIDS Research and Human Retroviruses*.

Adding HIV Risk Reduction Strategies to Drug Abuse Treatment Has Favorable Outcomes for Pregnant Women at Risk of Infection

Six months after completing an addiction program with an HIV risk-reduction component, 69 HIV-negative, inner-city, pregnant women demonstrated significant increases in favorable attitudes toward condom use as well as factual knowledge about HIV and a significant decrease in the number of sexual partners.

Background: Sexually transmitted HIV infection is rapidly increasing among reproductive-age, noninjection substance abusing women. Data show that 4.3 percent of pregnant women admit using illicit drugs during pregnancy. The period of pregnancy and the early postpartum period represent a window of opportunity for intervening with pregnant women at risk for HIV. Few studies have addressed women's motivation or their ability to employ key behavioral skills for HIV risk reduction during pregnancy.

Study Design: The researchers recruited 81 inner-city minority women receiving alcohol and nonmethadone drug use treatment in a hospital-based addiction program through the pregnancy and postpartum period. Scientists added a four-session cognitive-behavioral skills, HIV prevention training to their intervention plan, and conducted follow-up assessments 6 months later to identify behavioral changes in these women.

What They Found: Among the 69 women who participated in the 6-month follow-up, scientists observed significant increases in favorable attitudes toward condom use and factual knowledge about HIV, and decreases in the number of partners. However, there were no significant differences in response efficacy, intentions to engage in safer sex behaviors, sexual self-efficacy, or alcohol or drug use.

Comments From The Authors: This is perhaps the first prospective evaluation of the determinants of change with regard to HIV-related, high-risk behavior for pregnant alcohol or other drug users in treatment. This information can be very useful in guiding the development of target interventions for this disempowered group of pregnant women.

What's Next: A "one size fits all" approach to HIV prevention among women will not be sufficient. Future studies with larger sample sizes need to address the heterogeneity of women in target populations.

Publication: Dr. Robert Malow of Florida International University and his colleagues published this study in Vol. 41, No. 13, of *Substance Use and Misuse*.

Study Investigates Impact of Partner HIV Status, Sexuality on Sex Practices of Methamphetamine-Abusing, HIV⁺ Men

Results of a recent study of 132 self-identified gay, HIV-positive men show that those who abuse methamphetamine frequently engage in risky sexual behaviors regardless of their partner's HIV status. This research also shows that they tend to disclose their HIV status only to partners who know their own HIV status—and whether or not a partner is gay or bisexual has little impact on safe sex practices. These practices raise concerns because of the potential for transmitting HIV.

Background: Studies of gay and bisexual men who abuse methamphetamine have shown a strong link between abuse of this drug and high-risk sexual behavior. But no studies have investigated whether a partner's HIV status or sexual preference (gay or bisexual) influence sexual behaviors and disclosure of an individual's HIV status.

Study Design: The scientists collected data from 132 HIV-positive, gay or bisexual men enrolled in the EDGE research project (so named by participants who consider their lifestyles as "living on the edge"). All participants had abused methamphetamine at least twice during the previous 2 months and had unprotected anal or oral sex during this time with at least one HIV-negative man, or a man who did not know his HIV status. A 60-minute interview allowed the researchers to gather information on the participants' use of methamphetamine, alcohol, and other substances; sexual risk practices with partners who were HIV-positive, HIV-negative, or did not know their status; HIV-related attitudes; sexual communication skills; disclosure behaviors; social awareness factors; and background.

What They Found: Mean levels of unprotected anal and oral sex were high, and mean levels of protected sex were low regardless of whether the partner's HIV status was positive, negative, or unknown. This pattern of risky sexual behavior was observed for steady, casual, and anonymous partners regardless of their HIV status. Despite high rates of unprotected sex, the participants consistently disclosed their HIV status to partners who knew their own HIV status. However, rates of disclosure to men who did not know their HIV status were low, particularly with anonymous partners.

Comments From The Authors: The reported rates of unprotected oral and anal sex with HIV-negative and unknown serostatus partners raise concerns because of the potential for HIV transmission. From a clinical perspective, these findings should encourage those who work with HIV-positive methamphetamine users to routinely ask questions about their partner(s) and serostatus in the context of HIV prevention counseling and/or drug treatment.

What's Next: Future research needs to focus on the reasons that gay or bisexual men who abuse methamphetamine do not change their risk behaviors with partners who are HIV negative or do not know their HIV status.

Publication: Dr. Thomas Patterson and his colleagues at the University of California, San Diego, and the VA Medical Center, San Diego, published their findings in the December 2006 issue of *Archives of Sexual Behavior*.

Minority Women with Dysthymia, a Form of Depression, May Be Less Likely To Receive HAART

Results of a study involving almost 2,000 HIV-infected people receiving HIV care show that African-American and Hispanic women with dysthymia, a less intense but chronic form of depression, were half as likely to receive life-prolonging highly active antiretroviral therapy (HAART) compared with white men with no accompanying mental disorder.

Background: It is known that women are less likely than men to receive HAART, and that members of racial/ethnic minorities often lack access to HAART therapies. The impact of major depression on the receipt of antiretroviral therapy has also been well-described. However, there is a lack of research on the effects of dysthymia in HIV-infected people. The research sought to determine whether or not the feelings of hopelessness, indecision, and mental inflexibility that commonly occur with dysthymia could impact patients being offered or accepting HAART.

Study Design: The researchers used the sample of 1,982 HIV-infected adults from the HIV Costs and Service Utilization Study, a nationally representative probability sample of HIV-infected adults receiving HIV care in the United States. They interviewed the participants and categorized them according to gender and race/ethnicity. The scientists assessed mental health disorders as well as demographic information over a 12-month period. Dysthymia was identified if a person felt sad or depressed much of the time during the 12 months; sad or depressed at least half of the day; and had at least two of these symptoms: hopelessness, loss of appetite, lack of energy, or inability to make decisions.

What They Found: Overall, 63 percent of participants received HAART. White men were the most likely to receive it, while Hispanic women were least likely. Dysthymia was significantly more common in women than in men, occurring in nearly 33 percent of women versus less than 20 percent of men. Minority women with dysthymia had approximately 50 percent lower odds of receiving HAART than white men without this condition. A statistical analysis showed that rates of HAART use were lower among African-American and Hispanic women with dysthymia (49 percent and 45 percent, respectively) than among African-American and Hispanic women without dysthymia (58 percent and 59 percent, respectively).

Comments From The Authors: Our data point to dysthymia as a potentially important contributing factor to deficient receipt of life-prolonging HIV medication by minority women. We believe this evidence should prompt clinicians to consider screening for dysthymia, especially in this group (minority, HIV-infected women).

What's Next: These findings may prompt physicians to screen for this mental disorder, particularly among minority women with HIV. The data also reinforce the need for continued research into health disparities among minority women.

Publication: Dr. Barbara Turner of the University of Pennsylvania and her colleagues published their study in the December 2006 issue of the *Journal of General Internal Medicine*.

Managing Substance Abuse and HIV in Malaysia

In a significant change of policy, the Malaysian government now has authority for providing medical treatment for heroin dependence and related health conditions. Evidence shows that treating addiction and drug abuse with such medications as naltrexone, buprenorphine, and methadone could help decrease the unusually high prevalence of HIV in Malaysia.

Background: Despite consistent economic development and a respected primary health care system, Malaysia has the second highest HIV prevalence among adults in the Western Pacific region and the highest proportion of HIV cases resulting from injection drug abuse. By the end of 2004, as many as 234,000 heroin abusers had been registered in the official Malaysian government registry, but there may be as many as 500,000 heroin abusers there. Drug abuse and related disorders, such as HIV, exert a heavy burden on the country's health care and legal systems. Historically, Malaysian drug offenders were rehabilitated involuntarily in correctional, rather than health care, facilities. This approach had limited effectiveness, which led to the recent introduction of medical treatments for addiction.

Study Design: The scientists reviewed the literature to determine the scope of heroin and other drug abuse in Malaysia; treatment for heroin addiction and abuse of amphetamine-type stimulants; and the scope of HIV.

What They Found: In Malaysia, more than 30,000 opiate-dependent patients are currently treated with such medications as naltrexone, buprenorphine, and methadone. Despite the high prevalence of HIV and other infectious diseases among addicted people, few HIV prevention efforts have targeted Malaysian drug abusers, who represent only a minority of patients receiving antiretroviral therapy.

Comments From The Authors: Malaysia has until recently lagged behind in the treatment of drug addiction and related disorders, despite experiencing severe drug problems. Now, however, the Ministry of Health has authority for providing medical treatment for heroin dependence. This shift signals a remarkable change in Malaysian policies and approaches to addiction and an important opportunity to develop, implement, and disseminate effective treatments. Drug treatment may provide a unique opportunity to educate drug abusers about the risks of HIV infection and transmission. The emergence of HIV and AIDS may also lead to a resurgence of tuberculosis, especially in prison populations.

What's Next: The country's health practitioners and policymakers continue to improve treatment for heroin dependence. But efforts need to be increased to deal with escalating problems associated with amphetamine-type stimulants.

Publication: Dr. Mahmud Mazlan of the Substance Abuse Center in Muar, Malaysia, and his colleagues published their findings in the September 2006 issue of *Drug and Alcohol Review*.

Meetings of Interest

NIDA To Present New Information About Addiction and Drug Abuse at American Psychiatric Association Annual Meeting

NIDA will present a special research-based program track at the American Psychiatric Association's (APA's) 160th Annual Meeting, May 19–24 in San Diego.

Highlights of NIDA's participation in this meeting include:

- **Insights on Obesity and Drug Addiction from Brain Imaging**—NIDA Director Dr. Nora D. Volkow and NIDA Division Director Dr. Joseph Frascella will lead this session. This will take place Monday, May 21, from 2 to 5 p.m. in Room 5 B, Upper Level, of the San Diego Convention Center.
- **The Neurobiology of Free Will in Addictive Disorders**—On Tuesday, May 22, at 11 a.m., NIDA Director Dr. Nora D. Volkow will lecture on this subject. This will take place in Ballroom 6 C/D/E/F, Upper Level, of the San Diego Convention Center.

Other NIDA-sponsored events include:

- a workshop on gene–environment development interactions,
- a workshop on neuroimaging research and its implications for substance abuse treatment,
- a symposium on the adolescent brain, and
- a symposium on prenatal nicotine exposure.

Notes

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

- **Reporters**, call [Sara Rosario Wilson](#) 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 www.drugabuse.gov.

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