

A Note from NIDA's AIDS Research Program Director

Since the beginning of the HIV/AIDS epidemic, drug abuse and addiction have been closely linked with HIV/AIDS. Over the past 30 years, the National Institute on Drug Abuse (NIDA) has led research efforts to learn more about the critical role of drug abuse in the spread of HIV/AIDS to inform HIV/AIDS prevention and treatment (e.g., drug abuse treatment has been shown to be an effective HIV prevention modality). To coincide with the 2010 International AIDS Conference in Vienna, NIDA has written a special issue of NewsScan on HIV/AIDS which features recent articles on the connection between drug abuse and HIV/AIDS and prevention and treatment strategies, authored by researchers supported by NIDA and other leading research organizations.

— Jacques Normand, Ph.D.



Research News

Rapid HIV Testing May Be Useful in Jails with Frequent Turnover, But More Research Needed

Correctional facilities represent an important opportunity to deliver HIV counseling and testing (C&T) services, particularly for persons who may be marginalized from testing and counseling services in their communities. Although many jails currently use standard HIV tests and counseling services, the lag time between testing and test results (often 7 – 10 days) presents a challenge since jail populations are often transient. To investigate the feasibility of rapid HIV testing with individualized prevention counseling, researchers, partially funded by NIDA, conducted a pilot study involving 264 newly incarcerated detainees. Subjects were divided into two groups: those completing standard HIV C&T services and those completing rapid HIV testing + individualized risk reduction counseling. At baseline, all participants completed a behavioral assessment that collected demographic information and incarceration, mental

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health, homelessness, HIV testing, sexual activity and substance abuse histories during the three months before incarceration. Six weeks after jail release, 108 participants (58 in the standard C&T group and 50 in the rapid C&T group) completed a behavioral assessment that investigated post-release risk behaviors and receipt of HIV test results. Results showed while rapid C&T, compared to standard C&T, did not reduce risk behaviors following incarceration, there was an overall decrease in those behaviors seen in both groups. According to the authors, these study findings support the use of rapid HIV testing in jails where brief incarcerations are common. Because this was a pilot study, the authors suggest that it was not adequately powered to demonstrate greater effectiveness of rapid testing. "Future studies with larger cohorts and optimized follow-up rates will be needed to determine the efficacy of jail-based HIV testing and prevention interventions designed to increase knowledge of HIV serostatus and decrease HIV risk behaviors among those most in need."

Beckwith CG, Liu T, Bazerman LB, DeLong AK, Desjardins SF, Poshkus MM, Flanigan TP. HIV Risk Behavior Before and After HIV Counseling and Testing in Jail: A Pilot Study. *J Acquir Immune Defic Syndr*. 2010; Apr; 53(4): 485-490.



Buprenorphine – Promising Treatment for Preventing Relapse in HIV-Positive Released Prisoners

More than 7 million people in the U.S. are involved with some aspect of the criminal justice system. The drug abuse, mental health, and HIV treatment needs of this population are tremendous: approximately half of state and federal prisoners meet criteria for alcohol or drug addiction, with about 22,000 State and federal inmates known to be infected with HIV or to have confirmed AIDS at the end of 2006—a prevalence rate roughly 3 times that of the general U.S. population. This also makes criminal justice settings opportune venues for identifying and treating HIV and drug use disorders among high-risk populations and for intervening to counter the relapse-recidivism cycle, particularly within the 3-month period following release—a highly vulnerable time period for ex-offenders. Despite the fact that opioid agonist therapy (OAT), including methadone and buprenorphine/naloxone (BPN/NLX), has been shown to decrease heroin use, time to relapse, HIV risk behaviors, as well as increase retention in treatment, it has not been readily adopted by the criminal justice system. Researchers funded by NIDA recently conducted a randomized controlled trial to assess the feasibility of initiating BPN/NLX treatment among HIV-infected prisoners upon release.

Researchers followed 23 individuals assigned to 12-weeks of BPN/NLX therapy and substance abuse counseling. Data on drug craving, withdrawal symptoms, side effects, BPN/NLX satisfaction and urine drug screenings were collected daily (monthly after study conclusion). 74 percent of BPN/NLX study participants completed the 12-week treatment program and, compared to baseline, had fewer opioid- or cocaine-positive urine samples and decreased opioid craving scores. Patients reported high satisfaction with BPN/NLX treatment throughout the 12-week period. HIV treatment outcomes did not differ from baseline. This study demonstrates that “buprenorphine induction and stabilization is a highly acceptable, tolerable, and effective treatment to prevent relapse to opiate use in released HIV-infected prisoners,” say the authors. Although future studies should be done to determine optimal timing for treatment and provide a better understanding of BPN/NLX treatment impact, BPN/NLX holds promise as a method to stabilize the lives of released prisoners who are both HIV-infected and opioid-dependent.

Springer SA, Chen S, Altice FL. Improved HIV and Substance Abuse Treatment Outcomes for Released HIV-Infected Prisoners: The Impact of Buprenorphine Treatment. *J Urban Health*.2010:Feb.

Community Plasma HIV-1 RNA Concentrations are Predictive of HIV Incidence Among Injection Drug Users

Although highly active antiretroviral therapy (HAART) has been shown to reduce patients’ plasma HIV concentrations as well as HIV-related morbidity and mortality, there is great debate about its potential to reduce HIV transmission. Some researchers have suggested, for example, that increased use of HAART may lead to increased HIV risk behaviors, and ultimately counteract the protective effects of HAART. In contrast, increased use of HAART could impact population viral load and thus HIV incidence. However, to date, there have been no studies describing the real world relationship between community plasma HIV concentrations and HIV incidence. Researchers, partially funded by NIDA, recently completed a prospective cohort study examining this relationship among a population of injection drug users (IDUs). Between May 1996 and June 2007, researchers recruited and interviewed IDUs from an urban Vancouver neighborhood and collected blood samples

as well as information on participant demographics, drug use and safe sex practices. Subjects were then divided based on HIV status at baseline. By the end of the study, 155 subjects who were HIV negative at baseline became HIV positive, resulting in an overall incidence density of 2.49 per 100 person years. When the 11 year study period was divided into 22 six month intervals, mean plasma HIV concentration and HIV incidence were positively correlated. In analyses examining possible relationships between unsafe sex practices, sharing used syringes,

mean plasma HIV concentration and HIV incidence were positively correlated

daily drug use, unstable housing and median plasma HIV levels, researchers found that community plasma HIV-1 RNA concentration could predict estimated community HIV incidence independent of HIV risk behaviors. When assessing for possible explanations for the longitudinal decline in community HIV concentration, the researchers noted that both the number of individuals who started antiretroviral therapy and the number of those using at least three antiretroviral drugs increased during the study period. The authors note that these results “should prompt a re-examination of arguments that dichotomize HIV prevention and HIV treatment as they might not be independent strategies to reduce the rate of new HIV infections” and should inform global policies regarding the use of antiretroviral drugs.

Wood E, Kerr T, Marshall BDL, Li K, Zhang R, Hogg RS, Harrigan PR, Montaner JSG. Longitudinal Community Plasma HIV-1 RNA Concentrations and Incidence of HIV-1 Among Injecting Drug Users: Prospective Cohort Study. *BMJ*. 2009;338:b1649.

Methadone Maintenance Therapy Promotes Use of Antiretroviral Therapy Among HIV-Infected Injection Drug Users

Despite proven benefits of antiretroviral therapy (ART) in reducing HIV-related morbidity and mortality, many injection drug users (IDU) with HIV do not access

treatment, even in settings with free health care. Methadone maintenance therapy (MMT) has been shown to improve adherence to ART but to date there have been no prospective studies examining the role of methadone in improving initiation of ART. Investigators, partially funded by NIDA, recently conducted the first-ever study using a cohort of antiretroviral-naïve HIV-infected IDUs with access to health care to examine whether exposure to MMT would increase ART initiation and adherence. Researchers collected data from 231 participants over the course of 12 years (May 1996–April 2008). At baseline and every 6 months during the study, participants completed questionnaires that asked for participant demographics as well as sexual, drug use and drug treatment histories since the last visit. By the end of the study, more than 65.8 percent of participants had initiated ART, with a higher incidence rate among those on MMT at baseline (64.2 percent) compared to those not on MMT (44.8 percent). Researchers also found that participants on MMT initiated ART at a faster rate and demonstrated increased adherence. Since there are many barriers that HIV-infected IDU face in accessing appropriate treatment, MMT appears to be an effective and underutilized strategy for increasing access to care. “These results underscore the importance of providing MMT to opioid-dependent, HIV-infected IDU as a strategy to address the ongoing HIV epidemic among this population,” note the authors.

Uhlmann S, Milloy M-J, Kerr T, Zhang R, Guillemi S, Marsh D, Hogg RS, Montaner JSG, Wood E. Methadone Maintenance Therapy Promotes Initiation of Antiretroviral Therapy Among Injection Drug Users. *Addiction*. 2010; 105(5):907-13.

Substantial Global Health Crisis—High Prevalence of HIV-infected Injecting Drug Users Worldwide

Injection drug use (IDU) is responsible for an increasing proportion of new HIV infection in many parts of the world, however the stigma of IDU makes calculating the number of IDUs worldwide extremely difficult. To derive a reliable population estimate of IDUs aged 15–64 years worldwide, and of HIV among IDUs, members of the 2007 Reference Group to the UN on HIV and Injecting Drug Use conducted a review of peer-reviewed, internet, and

non-peer-reviewed literature databases and collected information from UN agencies and international experts. While IDU was documented in 148 countries—with 128 of these countries reporting the presence of HIV infection among injectors—IDU prevalence estimates were only determined for 61 countries, representing 77 percent of the world's population aged 15–64 years. Estimates suggest that in 2007, 15.9 million people injected drugs worldwide, with the largest IDU populations in China, the United States, and Russia. Researchers also found that estimates of HIV prevalence among injectors in these countries were 12 percent, 16 percent, and 37 percent, respectively. Worldwide, they estimate that about 3 million people (range 0.8–6.6 million) who inject drugs may also be HIV positive. Within this population, researchers found clear geographic differences in estimated HIV prevalence, with countries in southeast Asia, eastern Europe, and Latin America of particular concern. The authors expressed concern over the inadequate data available, in both quality and quantity, especially in the context of IDU as a mode of HIV transmission. “Developing research capacity within countries is an important priority. Only then can efforts to prevent HIV infection among this population be targeted appropriately.”

Mathers, et al. Global epidemiology of injecting drug use and HIV among people who inject drugs: a systematic review. *Lancet*. 2008; 372: 1733–4.

Global Coverage of HIV Services for Injecting Drug Users Inadequate to Prevent HIV Transmission

Injection drug use (IDU) is an important contributor to the HIV pandemic worldwide. In 2007, between 0.8 and 6.6 million injecting drug users (IDUs) were estimated to be infected with HIV. To slow the spread of HIV, effective public health interventions are needed to address HIV among IDUs. While previous reviews have identified the existence of HIV prevention, treatment, and care services for IDUs, they have not examined the scale of coverage. Members of the 2009 Reference Group to the United Nations on HIV and Injecting Drug Use conducted a systemic search and review of peer-reviewed, internet, and non-peer-reviewed literature databases and collected information from UN agencies and international experts on needle and syringe programs (NSPs), opioid

substitution therapy (OST) and other drug treatment, HIV testing and counseling, antiretroviral therapy (ART), and condom programs worldwide. By 2009, NSP had been implemented in 82 countries, while OST in 70 countries. Both interventions were available in 66 countries. Researchers also found that the level of coverage varied

findings demonstrate an urgent need to scale up HIV services in high risk populations

substantially between regions and nations. For example, western European countries and Australia tended to have the highest levels of NSPs, OST coverage and IDUs receiving antiretroviral treatment, while areas in Latin America, Africa, and the Middle East had the lowest. The findings demonstrate an urgent need to scale up HIV services in high risk populations, especially IDUs, worldwide. The authors encouraged future studies to review national policies and programs on HIV services for IDUs in order to determine where existing policies are not conducive to increasing coverage to adequate levels.

Mathers, et al. HIV prevention, treatment, and care services for people who inject drugs: a systematic review of global, regional, and national coverage. *Lancet*. 2010: Mar;375(9719):1014–1028.

HIV-infected Injecting Drug Users Benefit from Highly Active Antiretroviral Therapies

Since the mid-1990s, substantial reductions in HIV-related morbidity and mortality have occurred with the implementation of highly active antiretroviral therapy (HAART). HIV-infected injecting drug users (IDUs), however, may not be receiving the full benefits of HAART treatment because they are less likely to be prescribed HAART therapy, due in part to the belief among clinicians that the lifestyle of the IDU will reduce the benefit of HAART therapy. To date, however, long-term evaluations of HIV treatment outcomes among IDUs in comparison with other risk groups have not been conducted. Researchers recently compared survival rates of HIV patients using HAART with and without a history of injection drug use to determine the effects of HAART on mortality rates among IDUs. Researchers

reviewed mortality data from the HAART Observational Medical Evaluation and Research (HOMER) study of 3116 antiretroviral-naïve HIV-infected patients in a British Columbia HIV/AIDS treatment program. Of the 3116 patients, 915 were IDUs (29.4 percent) and the median age was 39.4 years. Patients started HAART treatment between 1996 and 2006 with median follow-up after 5.3 years for IDUs and 4.3 years for non-IDUs. Overall, 20 percent (622 total; 232 IDUs, 390 non-IDUs) of study participants died during the study period. Researchers found that mortality rates were similar between the IDUs (26.5 percent) and non-IDUs (21.6 percent) 84 months after the initiation of HAART, suggesting that IDU is not associated with decreased survival among HIV-infected patients initiating HAART in a population-based setting. The authors conclude that, “although these findings cannot be generalized...the fact that survival patterns were not significantly different between IDUs and non-IDUs should help to challenge the belief that IDUs may be markedly less likely to benefit from HAART.”

Wood, et al. Highly Active Antiretroviral Therapy and Survival in HIV-Infected Injection Drug Users. *JAMA*. 2008;300(5):550-554.



The AIDS Memorial Quilt displayed on the National Mall in Washington, DC

For more information about any item in this NewsScan:

- All studies described can be obtained through PubMed (www.pubmed.gov).
- **Reporters**, call the **NIDA Press Office** at 301-443-6245.
- **Congressional staffers**, call **Geoffrey Laredo** at 301-594-6852.

The National Institute on Drug Abuse 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 inform policy and improve practice. Fact sheets on the health effects of drugs of abuse and information on NIDA research and other activities can be found on the NIDA home page at www.drugabuse.gov. To order publications in English or Spanish, call NIDA's new DrugPubs research dissemination center at 1-877-NIDA-NIH or 240-645-0228 (TDD) or fax or email requests to 240-645-0227 or drugpubs@nida.nih.gov. Online ordering is available at <http://drugpubs.drugabuse.gov>. NIDA's new media guide can be found at <http://drugabuse.gov/mediaguide>.

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