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# NIDA NOTES

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## Drug Abuse Links to AIDS Prompt Highly Targeted Responses

By **Neil Swan**, NIDA NOTES Contributing Writer

NIDA supported research to prevent the spread of AIDS related to drug abuse is building on what has been an array of prevention approaches that target specific populations and selected high risk drug use and sex. At the same time, basic research sponsored by the Institute is probing factors associated with the dual epidemic and drug abuse, including the role of drug use in the rate of disease progression to AIDS following exposure to human immunodeficiency virus, which causes AIDS.

Presentations at two recent NIDA conferences on AIDS and drug abuse reflect the profound role drug abuse plays in the spread of HIV. (See [NIDA Plays Key Role in Studying Links Between AIDS and Drug Abuse](#), "NIDA NOTES" May/June 1995) The conferences were held last summer in Scottsdale and Flagstaff, Arizona.

"We're learning what works for whom" in interventions to reduce the risk of infection with HIV, explained Dr. Robert Needle, chief of the Community Research Branch in NIDA's Division of Epidemiology and Prevention.

"The cumulative research literature can be examined for indications of progress," says Dr. Needle, who also sponsored the Flagstaff meeting. "Each individual study has strengths and limitations, but, collectively, general conclusions can be drawn. We see where we have been effective and we learn how to be even more effective" in curtailing drug use that puts people at risk of contracting or transmitting HIV.

"These conferences were extremely useful in bringing researchers together, involving other agencies, and providing important data that have not yet been published," says Dr. Harry W. Haverkos, director of NIDA's Office of Applied Research, which sponsored the Scottsdale meeting.

### Drug Injection and AIDS Prevention

One conference presentation examined "sociometric and personal networks" of street injecting drug users. Risk networks consist of a limited number of core users whose network standing and prominence may influence the practices of others at the network fringes. The NIDA funded study queried 687 street recruited injecting New York City about their drug use and sexual behaviors. Researchers identified two network variables as predictors of HIV infection: being a core network member and having an older IDU in one's personal network.

Drs. S. R. Friedman and A. Neaigus of National Development and Research Institutes, Dr. D.C. Des Jarlais of the Israel Medical Center, and their colleagues in New York City concluded that future prevention efforts for IDUs should target core network members and address factors leading to core group membership as well as factors that vary among groups of users of different ages and experiences.

Among emerging intervention approaches are those that target groups with dual risks for acquiring HIV: men who have sex with other men and also inject drugs engage in two high risk behaviors. They can serve as a "bridge" between the two groups who belong to one of these two high risk populations. In many western states, this dual risk category was responsible for as many as 50 percent of HIV cases.

Programs are under way in Seattle, San Francisco, and Los Angeles to target this bridge population with both HIV-infected and uninfected persons. Innovative interventions to counsel, educate, and reduce behavior have been found to be proving effective, according to several measures. They result in less needle sharing; reduced frequency of injection; increased knowledge about unsafe sex practices, sexually transmitted diseases, and HIV; and improved adherence to tuberculosis and HIV medication regimens, according to a NIDA funded grantee, Dr. Michael Gorman of the University of Washington. Injecting drug using men who have sex with other men "represent a critical, hidden, heretofore underserved, poorly understood population" that can benefit from innovative public health prevention interventions as reported.

A similar NIDA facilitated study describes HIV prevention interventions that target men who have sex with men and use methamphetamine. HIV prevention efforts in Seattle, San Francisco, and Los Angeles cities with the highest prevalence of AIDS among men who have sex with men and methamphetamine use are being studied.

Another analysis of Seattle's needle-exchange program examined IDUs who regularly pool their pocket money for drugs. The study found a link between pooling money for drugs and high risk practices like the sharing of drug paraphernalia. "It may be worthwhile to target prevention efforts at this clustering of risk around the use of drugs," reported Dr. James McGough of the King County, Washington, Health Department.

## **Drug Abuse Treatment**

Several studies and analyses presented at the two conferences further document the effectiveness of drug abuse treatment in reducing drug use, crime, and HIV infection.

Data on AIDS risk behaviors of some 10,000 drug abuse treatment clients from 1991 to 1993, collected in the Drug Abuse Treatment Outcome Study, were analyzed by Dr. Wendee M. Wechsberg and others of the Research Triangle Institute and NIDA. The patients, from 99 treatment programs, reported that behaviors putting them at risk for HIV infection—needle sharing, sex with multiple partners, and unprotected sex—were reduced somewhat during treatment. Researchers suggest this large scale survey validates findings of smaller studies, demonstrating the benefits of drug abuse treatment and emphasizing the importance of AIDS prevention interventions during treatment.

While drug abuse treatment is generally recognized as effective in reducing HIV risks among those in treatment, the impact of effective treatment extends beyond treated individuals and into their social networks, research has shown. Recent studies in the Philadelphia area suggest that treatment not only reduces the frequency of injection

also changes patterns of use. Individuals in treatment report less injection drug use with strangers and a corresponding increase in the number of individuals who report always using drugs alone. The effect of removing links in drug using networks and reducing the risk of spreading HIV through those links, by reducing drug use with others, treatment's role in tertiary prevention is significant and perhaps underappreciated. This research was presented by Dr. Martin Y. Iguchi of the Medical College of Pennsylvania and Hahnemann University.

## **Basic Research on Drug Abuse and AIDS**

A number of NIDA funded basic science investigations examining the relationship between drugs of abuse and functions of the immune system were presented at the conferences.

Previous research had found evidence that drugs of abuse can suppress the immune system in laboratory animals. However, scientists have not demonstrated the clinical impact in humans. It is, therefore, important to select and use laboratory animal models of HIV infection and progression patterns in humans.

Research by Dr. Lisa H. Gold and colleagues at the Scripps Research Institute demonstrates that neurobiological abnormalities in rhesus monkeys and cats infected with viruses similar to HIV (simian and feline immunodeficiency viruses) and in certain genetically engineered mice make these animals suitable experimental models for the interactions between drugs and HIV. Cognitive testing partially supported by NIDA, along with other assessments, indicates that monkeys infected with the simian immunodeficiency virus undergo nervous system changes similar to those seen in HIV-infected human patients.

Another study examined the effects of morphine on the immune status and disease resistance of monkey and the simian immunodeficiency virus. The study found that the effect of opiates on the immune system may be conditionally dependent on whether the drug doses are long term and steady or sporadic, with sporadic having less apparent effect. The NIDA supported study was conducted by Robert M. Donahoe and colleagues at the University of Virginia and Dr. Mario Aceto of the Medical College of Virginia.

Evidence shows that opiates play a role in modulating HIV infection in the brain, according to another study by C. Chao of the University of Minnesota and others. They found that an artificial compound called U50,488, which binds selectively to the kappa opioid receptor markedly suppresses HIV cell reproduction in the brain, where it usually replicates.

## **Other AIDS and HIV Prevention Research**

More than 100 oral presentations were given and scores of scientific abstracts were displayed at the NIDA conference including those with these findings:

- Although drug use itself was not found to be associated with mother-to-child HIV transmission in the study, drug users had poorer prenatal care, more adverse birth outcomes, and many clinical characteristics. These included increased rates of anemia, pneumonia, and smoking that may increase the possibility of HIV transmission to newborns.
- Interventions with out-of-treatment heroin addicts are more successful when they include actual treatment admission instead of simply distributing lists of treatment centers. This active referral resulted in higher treatment rates, and those persons entering treatment are more strongly associated with reduced drug use and criminal activity.
- Research on community outreach for HIV prevention in mid-sized towns determined that adding treatment centers to existing health care facilities was more effective than building new facilities.

"standard" office-based counseling program led to additional reductions in HIV risks in Flagstaff, reported by Dr. Robert Trotter of Northern Arizona University.

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