Methadone Treatment and HIV Infection

Steven L. Batki, MD

Intravenous drug users represent the "second wave" of the AIDS epidemic in the United States. More than 26 percent of AIDS patients acknowledge intravenous (I.V.) drug use as their primary or secondary risk factor and I.V. drug use is the major route of HIV transmission to women, children and people of color. It also appears to be the most significant route of transmission to the heterosexual population. Furthermore, HIV seroprevalence among I.V. drug users varies from 15 percent or lower in places like San Francisco, to 50 to 60 percent in the New York/New Jersey metropolitan area.

The emergence of HIV disease has made effective treatment of I.V. drug use more important than ever. Most heterosexual I.V. drug users with AIDS appear to use opiates primarily—heroin, morphine and codeine for example—but I.V. stimulant use is also a problem among this population. Intravenous amphetamine use may be especially prevalent among gay drug users.

While there are no commonly available pharmacologic treatments for stimulant use, methadone maintenance represents a widely offered and accepted treatment for opiate use. Other treatment strategies for these I.V. drug users include Narcotics Anonymous, residential communities, and the opiate-blocking agent naltrexone (Trexan). These methods, however, do not serve as a treatment strategy for these I.V. drug users for whom other treatments have been ineffective.

Nearly 100,000 patients in the United States receive methadone maintenance treatment, making it the largest single method of treatment for I.V. drug users. For this and other reasons outlined below, methadone programs may be the most effective way to educate and treat HIV-infected I.V. drug users.

Methadone Maintenance Treatment Programs

Methadone is a synthetic opiate. Like other opiates, it is a pain killer, a central nervous system depressant, and an addictive drug that leads to tolerance and dependence, and to withdrawal symptoms if suddenly discontinued. Methadone reduces the craving for heroin and prevents the onset of withdrawal symptoms when patients stop using heroin. Methadone is thus a treatment of substitution: an addictive drug is replaced by an addictive medication, but one with fewer medical and legal complications.

Methadone is preferable to heroin for several reasons beyond the fact that it is legal and greatly reduces criminal behavior among I.V. drug users. Methadone can be administered once a day, causing less disruption of a patient's life than does heroin, which needs to be taken three or more times a day. Methadone is also longer acting and sustains a consistent level in the blood. As a result, the patient experiences relatively little of the euphoria or depression associated with the widely fluctuating blood levels seen in heroin use. Most important, unlike heroin, methadone is an oral medication that does not need to be injected intravenously. This last point has obvious and profound implications for reducing needle use and the risk of AIDS.

Methadone maintenance programs do more than dispense methadone. Since drug users may avoid other health care institutions, and other service providers are often reluctant to work with methadone patients, methadone programs provide other services, including counseling, medical care, psychiatric care, behavior monitoring, and referrals to education and vocational rehabilitation programs. In addition, since methadone program staff usually see their patients seven days a week, they establish a closer relationship with patients than most other outpatient health care providers.

Methadone programs can provide AIDS prevention services in a variety of ways: through community outreach, AIDS education and drug abuse treatment itself.

Methadone program medical staff may be the first to diagnose HIV infection among drug users and can provide some of the primary medical care to patients with milder forms of illness. Medical staff also refer HIV-infected drug users to more specialized medical services. Medical treatment of drug users requires close liaison with other medical providers and adequate follow-up to ensure patients comply with prescribed treatment.

Even without the added stress of AIDS, opiate addicts have been shown to have high rates of psychiatric illness, particularly mood disorders. Heroin addicts frequently have poorly developed coping skills. These deficits tend to become exacerbated with the onset of HIV infection. HIV-infected I.V. drug users develop psychiatric disorders, including anxiety, depression, dementia and psychosis. These problems often represent the cumulative effects of pre-existing pathology, HIV infection and drug use.

Methadone maintenance programs frequently become the primary care providers of mental health services for their patients because of the shortage of such services in the community and the reluctance of mental health providers to treat drug users. Program staff also have special expertise in recognizing drug-related alterations in mental status. The potentially abusable or toxic medications required for treating certain psychiatric disorders—for example, anxiety and depression—may be monitored most effectively by methadone programs, which can apply the safeguards of the daily, rather than less frequent, dispensation of these medications.

Role of Methadone Programs in Preventing AIDS

Methadone maintenance treatment programs have a unique ability to provide AIDS prevention services in a variety of ways:

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through community outreach, AIDS education, and drug abuse treatment itself. Outreach procedures bring high-risk individuals into treatment, and often include advertising, contacts with AIDS clinics and other service agencies, word-of-mouth among drug users, and the efforts of community health outreach workers. Outreach becomes particularly effective when it promises treatment services that are free of charge or immediately available.

Methadone program staff ideally should counsel all patients, regardless of HIV antibody status, about safe sexual practices and the risks of needle sharing. Instruction in needle cleaning techniques, such as the use of bleach, is especially important, since methadone detoxification patients frequently return to drug use after a brief course of treatment.

The most important way that methadone programs can prevent HIV infection is by providing methadone treatment itself. Many studies have shown clearly that treatment reduces illicit drug use. Treatment should reduce needle use and needle sharing and, therefore, directly slow the spread of HIV. Reduced drug use may also indirectly slow HIV transmission by diminishing the incidence of unsafe sex practices that are thought to accompany intoxicated and disoriented states.

Laboratory studies of the immunosuppressant effects of certain opioids have raised concerns that methadone could suppress immunity among HIV-infected patients. To date, however, studies of street heroin users and users in methadone maintenance have shown apparently better functioning immune systems among methadone patients (Falk, et al., Lazzarini, et al.). More definitive studies are now underway. At this time, however, there is no evidence that methadone is contraindicated for HIV-infected patients, and there is clear evidence that methadone programs reduce I.V. drug use. Perhaps the benefits of methadone—reducing insults to the immune system caused by I.V. drugs—outweigh any potential suppression of immunity.

Problems with Methadone Treatment

Methadone maintenance programs face a number of problems in treating I.V. drug users with HIV disease. Programs must respond to added demands with limited resources. Inadequate staffing, large caseloads, and waiting lists for those wishing treatment become the norm for many of these programs.

In addition, these programs are affected inevitably by the ethical and public health implications of such treatment. Terminating services to a patient who continues to use drugs has been traditionally the final form of "limit setting" applied by methadone programs. The potential consequences of such measures, however, are serious for participants with HIV disease: patient discomfort, deterioration of health, and public health risks stemming from uncontrolled needle use and needle sharing. Programs may be required to adopt a more flexible or lenient approach to the treatment of patients with HIV disease. For many clinicians this compromise of traditional drug abuse treatment values is difficult to accept.

### Program for AIDS Counseling and Education

The Program for AIDS Counseling and Education (PACE)

The Program for AIDS Counseling and Education (PACE) is a part of the methadone maintenance treatment program at San Francisco General Hospital Substance Abuse Services. PACE provides specialized treatment for HIV-infected I.V. drug users and their sexual or drug-using partners and offers counseling focused on a number of issues related to the care of patients with HIV disease, such as grief, uncertainty, and isolation. Psychotherapy is supportive, didactic, and pragmatic, emphasizing stress reduction and health maintenance. Treatment in PACE also includes close monitoring of patients through frequent counseling, contacts and urine drug testing. Finally, PACE offers liaison with other providers of medical and social services.

The preliminary results from an ongoing prospective study of PACE clients show 80 to 90 percent reductions in the overall I.V. drug and heroin use of HIV-infected patients after three months of methadone maintenance. There was also a significant decline in cocaine use during this period.

Equally challenging is how to motivate terminally ill patients to stop illicit drug use. Two approaches may be effective: appealing to patients' altruism (avoid infecting others by sharing needles) and appealing to their wish to survive (maintain healthier habits). Some evidence indicates that patients with HIV disease who continue needle use while in treatment deteriorate more rapidly than those who stop I.V. drug use (Des Jarlais, et al.).

One treatment approach advocated by some clinicians is the creation of "low-threshold" methadone maintenance programs. These programs, unlike existing ones that adhere to traditional drug abuse treatment values, would allow patients who were doing poorly to remain in treatment with fewer restrictions. Low-threshold treatment might bring into and keep in treatment those I.V. drug users who would otherwise remain on the street.

Finally, recent studies have pointed to an important link between I.V. cocaine use and HIV infection. While most patients in methadone treatment reduce cocaine use, a minority appear to increase cocaine use. These patients need special attention in methadone programs.

**Conclusion**

Despite various problems, methadone maintenance programs are treating increasing numbers of HIV-infected I.V. drug users. Methadone treatment offers the opportunity to intervene constructively in the lives of these patients by helping to prevent the further spread of HIV and by providing medical, psychiatric, and social services. The need for expanded AIDS services presents a serious challenge to methadone programs. These programs require additional resources, as well as new, more flexible, and possibly "lower-threshold" treatment techniques to meet this challenge.

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Implications of Relapse From Safe Sex
Ron Stall, PhD, MPH and Maria Ekstrand, PhD

The dominant approach in AIDS prevention efforts among gay and bisexual men in the United States is to encourage the adoption of safe sex practices. Among the techniques used to effect this change have been the widespread dissemination of AIDS risk reduction information, focused group interventions to demonstrate ways to eroticize safe sex, and the use of group norms and social support to motivate behavior changes. These efforts have been highly successful and have resulted in the most profound modifications of personal health-related behaviors ever recorded.

For the large coastal cities in the U.S. with well-established gay male communities, the emphasis on adopting safe sex methods may be outdated. A more important focus may be the prevention of relapse to prior high-risk behaviors among those men who have adjusted their behavior. This change in emphasis would be consistent with what is known about the difficulties associated with changing other behaviors—such as smoking, alcohol use, diet and a sedentary way of life—that can result in an increased risk of death. It has long been recognized that it is often more difficult to maintain long-term sobriety from alcohol or drugs, for example, than to make the initial change to these healthy behaviors.

The importance of discouraging relapse from safe sex in heavily populated gay areas is also consistent with what is known about the prevalence rates for HIV infection in those communities: there are very high levels of risk for new HIV infection caused by behavior relapse. Only the long-term and consistent practice of safe sex will prevent further infection within these communities.

Study Design and Findings
The AIDS Behavioral Research Project (ABRP) was originally designed to determine how the AIDS epidemic was influencing gay men's psychological adjustment and sexual risk behavior. ABRP modified a scale developed by the Chicago Multi-Center AIDS Cohort Study and divided participants into four categories: no risk, low risk, modified high risk and high risk—depending on a combination of frequency of anal sex and condom use during sexual activity in the prior 30 days.

Since the AIDS Behavioral Research cohort has been followed for over four years, it can be used to provide an estimate of long-term relapse rates among men who previously practiced only safe sex, but who reverted to high-risk sexual behaviors. As these relapse rates are based on behaviors that occurred during the previous month, they are probably lower than they would have been had they been based on all sexual behaviors that occurred over the previous year.

Of the 453 men who responded to all waves of data collection, there was a decline of 39 percent in the incidence of participation in high-risk sexual behavior between 1984 and 1987. The percentage of those in the sample who were included in the high-risk category dropped from 38.7 percent to 15.5 percent. The incidence of celibacy, which implied no sexual risk, increased from 12.6 percent to 22.5 percent of the sample over the same time period. The most common risk level in 1984 for this sample was high risk, but changed to low risk by 1985 and has stayed at this level since that time.

The study also tracked changes in behavior among individual participants in the project. At four points in time over the study period, from 1984 to 1987, individual behavior was rated. From this data, four patterns of change were developed: stable low risk (not at high risk at all); changed to low risk (changed from high risk to low risk without returning to high risk); relapse (changed for at least one point in time to high risk from low risk); and stable high risk (at high risk for all four points in time).

Over this four year period, 50.8 percent (230 men) were in the “stable low risk” category, 29.8 percent were in the “changed to low risk” category, 15.7 percent were in the “relapse” category and 3.8% were in the “stable high risk” category. In other words, the relapse rate is four times higher than the rate of consistent high-risk sex. Given the very high background rates of HIV infection within this community during this period, it is clear that relapses from safe sex, however occasional, constitute a threat to the health of gay men in San Francisco, and likely in other cities.

Preventing Relapse
Gay men in San Francisco and in other urban centers have reduced their risk of HIV infection in significant ways. Nonetheless, as seen in all health behavior change programs, a minority of individuals are resistant to prevention education and to reducing risk of infection. Still others have occasional high-risk sexual relapses. Both patterns of engaging in high-risk sexual activity constitute a serious risk for continued HIV infection in this population.

For the men in one representative sample, the predominant risk for further HIV transmission is related to relapses from the practice of safe sex. Whether this same situation exists outside of the large coastal gay communities remains unanswered.

Educators must distinguish between the motivations for initial risk reduction and those associated with the long-term maintenance of risk reduction.

This review of study data suggests changes for future AIDS education programs. Educators must distinguish between the motivations for initial risk reduction and those associated with long-term maintenance of risk reduction. For example, it may be expected that variables such as understanding health education guidelines would be associated with initial risk reduction, while factors such as social support for low-risk sex and changing community norms would be correlated with the maintenance of low-risk behavior over time. Strategies to prevent relapse should be based on an understanding of this distinction and should be derived from predictors of maintenance rather than predictors of initial change. An analysis of these predictors is forthcoming.

To be truly effective, interventions must include the proper mix of techniques to encourage both the adoption of safe sex practices and the continued adherence to these practices. Both of these messages will be necessary, even in the large coastal gay communities, where some men continue to have unsafe sex consistently, and other men join the gay community, as new arrivals or as recently acknowledged gay men.

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Recent Reports

Effect of Treatment on the Abuse of Various Drugs. Drug treatment for more than six months contributes to a significant decline in the use of heroin and prescription psychotherapeutic drugs, but not in the use of cocaine and marijuana or the heavy consumption of alcohol, according to researchers from the Research Triangle Institute in North Carolina and the National Institute for Drug Abuse (Reviews of Infectious Diseases, March-April 1988).

This data is particularly important in terms of HIV infection, not only because of the risk of transmission while sharing needles during heroin, cocaine and amphetamine use, but also because of the immune system damage that occurs during non-intravenous cocaine, alcohol and marijuana use.

Between 1980 and 1986, the researchers interviewed 4,184 clients from 12 outpatient methadone treatment programs, 2,891 clients from 14 residential programs, and 2,914 clients from 11 outpatient drug-free programs for the Treatment Outcome Prospective Study (TOPS). They reported on the data developed from 1-year follow-up interviews of 1,310 clients admitted to the TOPS in 1979 and 2,300 clients admitted to TOPS in 1980.

The length of time spent in a particular program was crucial to lasting results. The most effective treatment programs for heroin use were methadone maintenance and residential programs. For prescription psychotherapeutic drug treatment, residential and outpatient drug-free programs were most effective. For cocaine, alcohol and marijuana, none of the programs was particularly effective in decreasing use. The researchers warn that since cocaine has become cheaper, it will be used more often than heroin among TOPS clients and that effective programs must be developed to treat its use.

Finally, the authors note that treatment of marijuana and alcohol has not been a priority for the programs studied in TOPS, and few have specific regimens for these substances. Unlike earlier studies, TOPS found that, “Former clients do not replace heroin, cocaine or prescription therapies with marijuana and alcohol after treatment, but, rather, appear to resume their pretreatment levels of alcohol and marijuana use.” They conclude, “Additional treatment, perhaps focusing on alcohol and/or marijuana, may be necessary to prevent relapse to other drugs or to move the client toward long-term abstinence.”

Antibody Testing among I.V. Drug Users in Methadone Programs. Both patients and staff at four methadone maintenance clinics at Harlem Hospital Center in New York support the institution of on-site, voluntary, confidential HIV antibody testing, according to researchers at the hospital (Journal of the American Medical Association, January 13, 1989).

Forty-six of 58 staff members and 868 of 1292 patients responded to the study questionnaire. Seventy-two percent of the patients and 98 percent of the staff supported voluntary testing for patients. Eighty-four percent of patients felt that sexual partners should be told about positive test results and 80 percent felt that needle sharing partners should be told about positive test results; 76 percent of patients felt that physicians should know the test results of their patients, but only 53 percent and 50 percent respectively felt that nurses or counselors should have access to this information.

Both patients and staff supported the distribution of free condoms. While over 60 percent of the patients also supported the distribution of intravenous needles and of bleach for cleaning needles, less than a third of the staff supported these practices.

Intravenous Cocaine Use and HIV Infection. Use of intravenous cocaine, rather than other injected drugs, is correlated to a higher incidence of HIV infection among I.V. drug users and may explain the disproportionate rates of HIV infection among Blacks, according to researchers from the University of California San Francisco (Journal of the American Medical Association, January 27, 1989).

Between May 1986 and July 1987, 633 heterosexual I.V. drug users were interviewed and tested for HIV antibody. Of the subjects who injected cocaine daily, 35 percent were seropositive compared to 19 percent among subjects who injected heroin daily. While the frequency of I.V. cocaine use was strongly associated with seropositivity, the frequency of heroin use was only weakly associated with seropositivity.

The study showed clear differences in cocaine use among racial groups: seroprevalence rates were 26 percent for Blacks, 10 percent for Hispanics and 6 percent for Whites. Cocaine use was most common among Black I.V. drug users, who were also more likely to use cocaine more frequently than White subjects. Among those users who entered methadone treatment programs, the majority of cocaine users decreased cocaine injection but a large number failed despite their success in dramatically reducing heroin injection. Overall, 24 percent of cocaine users began or increased cocaine injection following entry into methadone treatment programs.

The authors conclude: “The association of cocaine use and [HIV infection] may be explained by the tendency of cocaine users to inject more frequently, to draw more blood into the hypodermic while injecting, to share injection paraphernalia and to use drugs in shooting galleries.”

Next Month

As knowledge of the HIV epidemic becomes more accessible to children, both as a result of their exposure to the media and their experiences knowing people with AIDS, counselors, physicians and teachers will need to be prepared to educate them about HIV disease. In the March issue of FOCUS, Marcia Quackenbush, MS, Director of Training at the AIDS Health Project, and Sylvia Villarreal, MD, Assistant Clinical Professor of Pediatrics at the University of California San Francisco, explore what children need to know about AIDS, the questions they ask about the disease, and the issues that arise for professionals working with children themselves and with parents who are trying to answer these questions for their children.

For adolescents, many of whom experiment with sexuality and drug-use, mental health practitioners face the challenge not only of providing support, but also of intervening in ways that will lead to prevention. In the March issue, Ken Dunnigan, MD, MPH, Medical Director of the Larkin Street Youth Center in San Francisco, discusses counseling adolescents about HIV disease.

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The amount of research information now appearing in the medical and lay press staggers most AIDS health-care and service providers. The goal of FOCUS is to place the data and medical reports in a context that is meaningful and useful to its readers.

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