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James K. Stewart, Director

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AIDS and intravenous drug use

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Since the first cases were diagnosed in 1981, acquired immunodeficiency syndrome (AIDS) has received more media attention and been the focus of more public concern than any other disease. Human immunodeficiency virus (HIV), the virus that causes AIDS, is spread through the exchange of blood and body fluids and occurs most commonly during intimate sexual contact, through sharing injection equipment during intravenous (IV) drug use and through perinatal contact between infected mother and fetus or infant. Intravenous drug users constitute a particularly important conduit for the spread of the virus, since they may spread AIDS through all three routes.

Despite the intense media attention focused on AIDS, the role of the second method of transmission, intravenous drug use, is not well understood by the public. IV drug users represent the second largest group of AIDS cases. It is especially important for criminal justice professionals to have accurate information about AIDS and IV drug use because of their frequent contact with IV drug users. Increased awareness about AIDS and IV drug use may help those working in the field reach this user population with important educational messages. The purpose of this bulletin is to examine the relationship between IV drug use and the spread of AIDS and to describe some educational and prevention strategies currently being used with IV drug users.

HIV infection and AIDS among IV drug users

IV drug users represent the second largest group of persons to have developed AIDS in both the United States and Europe. In the U.S., 17

From the Director

Acquired Immunodeficiency Syndrome—AIDS—has been called the most serious public health problem in the United States and worldwide today. Since it first appeared in 1981, there has been an enormous amount of uncertainty and fear about this fatal disease. Because they may be in contact with intravenous drug users and others at high risk for the disease, criminal justice professionals understandably are concerned about becoming infected with the AIDS virus while carrying out their duties.

Until a vaccine or cure for AIDS is found, education is the cornerstone of society's response to this deadly disease. Accurate information can help dispel misinformation about the disease and its transmission, thus enabling criminal justice personnel to continue to perform their duties in a safe and professional manner.

Since 1985, the National Institute of Justice has worked with the Centers for Disease Control and other public health officials to provide important authoritative medical information about AIDS to criminal justice professionals.

Two special reports on AIDS—as it relates to corrections and law enforcement agency procedures—have been published and widely disseminated. This AIDS Bulletin is part of a new series designed to inform criminal justice professionals about the disease and its implications for criminal justice agencies. Future bulletins will summarize agency policies relating to AIDS, education programs, and legal and labor relations issues.

President Reagan has said that the AIDS crisis "calls for urgency, not panic... compassion, not blame... understanding, not ignorance." The National Institute of Justice is working to ensure that criminal justice professionals have the accurate information they need to understand and deal with the risks created by AIDS. Until medical science can bring this deadly disease under control, our best defense is a well-informed citizenry.

James K. Stewart
Director

percent of the over 40,000 cases have occurred among heterosexual IV drug users, and 7 percent among male homosexual/bisexual drug users.[1] In Europe, 15 percent of the 7,000 cases have been in heterosexual IV drug users, and 3 percent in male homosexual/bisexual drug users.[2] In the U.S., the highest concentration of cases has been in the Metropolitan New York City area. The three States of New York, New Jersey, and Connecticut account for almost three-quarters of the AIDS cases involving heterosexual IV drug users. In Europe, the greatest concentration is found in northern Italy, southern France, and Spain. Italy and Spain are the only two countries in the world in which heterosexual IV drug users contribute the majority of AIDS cases.[3]

In the United States, AIDS cases associated with IV drug use have been concentrated in minority communities. Fifty percent of the cases among heterosexual IV drug users have been among blacks, and 30 percent among Latinos, with only 20 percent occurring among whites. The approximate breakdown of known IV drug users in the country is very close to these percentages, suggesting that the connection between IV drug use and AIDS will continue to exacerbate many already serious health problems.

It is very difficult to determine the extent of illicit drug injection. The U.S. Public Health Service[4] estimates that there are 750,000 "regular" IV drug users and another 750,000 "occasional" IV drug users in the United States. A "regular" drug user is defined as a person who injects at a frequency of at least once per week. "Occasional" IV drug users are persons who use drugs intravenously but have never injected more than once per week. Using these figures, we can estimate that about 1,500,000 persons in the U.S. are at risk for HIV infection through the sharing of injection equipment.

The spread of HIV infection among IV drug users

Determining how many of this estimated population of IV drug users have already been infected with HIV is an even more difficult task. Studies of HIV antibody seroprevalence (the presence of antibody to HIV in the blood which is considered to represent infection) among IV drug users show great geographic variation in the U.S. This variation generally follows the same pattern as the cases of AIDS among IV drug users. Studies of IV drug users from the New York/northern New Jersey area typically reveal that one-half or more are seropositive.[5] Other areas have reported much lower rates: approximately 10 percent in San Francisco[6] and Chicago[7] and less than 5 percent in New Orleans[8] and Los Angeles[9]. These differences may be related to differences in needle-sharing habits in these areas or may simply represent earlier stages in the spread of the virus in these communities.

Indeed, a low seroprevalence rate among IV drug users in a geographic area should not be considered a stable situation. Studies of historically collected blood samples from IV drug users indicate the potential for very rapid spread of the virus within the group. HIV infection among IV drug users in Manhattan; Edinburgh, Scotland; and Italy had increased to 40 percent just 3 to 4 years after the virus was first introduced into the group.[10] Consequently, AIDS prevention programs are urgently needed for IV drug users even in areas where the current HIV seroprevalence rate is very low.

Drug injection and viral transmission

The AIDS virus is transmitted among IV users primarily through the exchange of blood which takes place while sharing hypodermic needles, syringes, cotton (or other material used as a filter), and "cookers," or containers in which the drug is heated and/or dissolved. Blood of the previous user(s) lodges most often in the tip of the hypodermic needle or in the syringe, but may also be found in other parts of the apparatus.

During injection, the user may draw his/her own blood into the syringe to mix with the dissolved drug and then inject the blood/drug mixture, a procedure known as "booting." This is done to make sure all traces of the drug are removed from the syringe efficiently. As a result, however, any blood from a prior user which remains in the syringe or in the tip of the needle is injected directly into subsequent users. Traditionally, any cleaning of the syringe or needle only involves rinsing them in water or blowing into them. Sterilization equipment is not readily available to users and speed of injection is often paramount in the minds of addicts. Addicts may also be fearful of damaging precious equipment through sterilization procedures such as boiling.[11] Users who "skin pop" drugs may also share unsterile equipment. "Skin popping" is a technique, common to early stages of IV drug use, in which the needle is inserted under the skin or into muscle tissue rather than directly into a vein.

While the chance of infection from an accidental puncture with an infected needle is very low, law enforcement officers are cautioned to take precautions when "patting down" or searching IV drug users who are arrested. For a complete discussion of these precautions see other NIJ Bulletins on this subject listed at the end of this paper.

Factors associated with HIV spread: Frequency of injection, shooting galleries

The spread of HIV among IV drug users has been consistently linked to two factors: frequency of drug injection and the use of "shooting galleries" or similar commercial operations.[12] It has been shown that the more often one injects drugs, the more likely one is to borrow or rent injection equipment that contains contaminated blood, thus increasing the likelihood of infection. Shooting galleries rent drug injection equipment to multiple users. After one person uses the equipment, it is returned to the proprietor for renting to the next person. Studies have shown that 90–100

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percent of IV users report sharing needles and almost three-quarters frequent shooting galleries in areas where they flourish.[13] Both needle-sharing in general and patronage of shooting galleries are most common among the most serious drug users, as increased frequency of injection predicts increased likelihood of both types of sharing.

Shooting galleries are typically found in cities with large concentrations of IV drug users and are located near the areas in which drugs are sold. In smaller cities, shooting galleries are not as prevalent but "house works," which can serve the same function of rapid spread of the virus among IV drug users, are likely to be available. A dealer who is selling illicit drugs for injection will often keep a set of "house works," injection equipment that is lent to a purchaser so the drugs can be used immediately. These works are then returned to the dealer for lending to the next customer.

Other needle-sharing behavior

It should be noted that the patronage of shooting galleries or the use of house works are not the only opportunities for needle-sharing among IV drug users. Sharing also often occurs as part of initiation into drug use and as part of important social behavior with other users. Even in areas where shooting galleries are not common, a large percentage of users report that they share injection equipment daily.[14]

Initiation into drug injection is also often the occasion of needle-sharing. New users are unlikely to purchase their own injection equipment at first. Intravenous injection or "skin popping" is often done with and by an associate or friend who is experienced in the technique and who supplies the equipment. Initiation is not likely to be a planned event, and even subsequent injection may not involve the user's purchase of his/her own equipment because steady use has usually not been established at this point.

Sharing "works" with a partner, friend, or lover on a regular basis is also a common part of the drug world. Those who share are often "running partners." They commit crimes together and buy and use drugs together. Only one of the pair may carry "works" and share it with the other, as both a convenience and a token of friendship. Injecting together may also be a way of splitting an amount of drugs or a mutual protection mechanism—partners watch out for signs of overdose. Sharing equipment in this fashion is an important social bond in the addict world, and refusal to share may be seen as a serious sign of mistrust or disloyalty among partners.[15] Some sharing may also simply be a response to a scarcity of needles. Users not necessarily as close as those described above may also share simply out of convenience.

Heterosexual and perinatal transmission of HIV

Thus far, IV drug users have been the predominant source of heterosexual and perinatal (from mother to newborn child) transmission of HIV. In New York City, almost 90 percent of the heterosexually transmitted cases of AIDS have occurred from IV drug users to persons who did not inject drugs but were regular sexual partners of drug injectors; and over 80 percent of the perinatal transmission cases have been in children of IV drug users.[16] This pattern may be repeated elsewhere as more IV drug users become infected with HIV.

Since approximately 75 percent of IV drug users in the U.S. are male and about 95 percent of those males are predominantly heterosexual, there simply are not enough female IV drug users for the majority of the group to have their primary sexual relationships with other IV drug users. The number of females who do not inject drugs themselves but are regular sexual partners of IV drug users has been estimated to be at least half as large as the number of IV drug users.[17] These figures indicate that a large number of persons may become infected with the AIDS virus through the IV user without involvement with IV drugs themselves.

Similarly, children born to HIV-infected women are at an increased risk of contracting the virus. Of the almost 600 cases of pediatric AIDS reported to CDC to date, almost half involve transmission from an IV-drug-using mother.

Prostitution and HIV infection

A large number of female and male IV drug users at least occasionally engage in prostitution as a means of obtaining money for drugs.[18] This creates the possibility that IV-drug-using prostitutes may spread HIV to their customers. At present, there seems to have been relatively little spread of the virus from HIV-infected prostitutes to their customers in the United States.[19] This is in contrast to Africa, where heterosexual transmission from prostitutes to others is a major mode of HIV spread. Differences between the U.S. and African situation include much higher rates of other sexually transmitted diseases in Africa (including a high incidence of genital lesions), which are believed to facilitate transmission of HIV, and higher rates of "safer sex" practices among U.S. prostitutes which would reduce the transmission of HIV. Research indicates[20] that U.S. prostitutes began using "safer sex" practices in the early to mid-1970's in response to the spread of herpes. In general, the rate of female-to-male transmission is much lower in the United States than in Africa, where it appears to be almost equal to the male-to-female transmission rate. There still is much to be learned, however, about potential spread of HIV by IV-drug-using prostitutes in the U.S., and this must be considered a potential source for viral spread in the future, particularly if "safer sex" practices are not utilized.

Education and counseling programs for IV drug users

The potentially explosive spread of HIV among IV drug users and the association of IV drug use with heterosexual and perinatal transmission of HIV requires that all geographic areas with any IV drug users respond with education and outreach efforts. A variety of AIDS prevention programs for IV drug users are currently in operation in the United States and Europe. The mass media coverage of AIDS *does* reach many IV drug users and combines with the oral communication networks within the drug-use subculture to spread information about AIDS. Studies conducted in New York City between 1983 and 1985 showed that essentially all IV drug users knew about AIDS, and that

over 90 percent knew that the AIDS virus was spread through the sharing of drug injection equipment.[21] These studies also showed that over half of the subjects were actively engaging in some risk reduction activities to reduce their chances of developing AIDS. The increased use of (illicit) sterile injection equipment and a reduction in the number of persons with whom the subject shared equipment were the two most common forms of risk reduction. In addition, the black market for illicit sterile needles had increased, with some New York City drug dealers even offering free "clean" needles as part of their sales package.[22] It is important to note that this risk reduction and changes in needle sales were occurring in the city before there were any official efforts to educate IV drug users about AIDS.

There are now a variety of AIDS education programs aimed at IV drug users throughout the country. The least intensive programs simply provide for the distribution of pamphlets and posters to supplement the mass media and oral communication networks; others involve individual counseling/education of drug users. Some of the prevention efforts are based in drug treatment programs, with the expectation that the information will flow out from the treatment program to drug users not currently in treatment. Studies from San Francisco indicate that this flow of information does occur, and that AIDS information from the programs is generally seen as legitimate by drug users not in treatment.[23] Whether the addict actually acts on this information is a question for continuing research. The National Institute on Drug Abuse currently sponsors evaluations of many of these programs, and data concerning their efficacy are forthcoming.

In addition to the AIDS education programs based on mass media and in treatment programs, there are also outreach programs that provide face-to-face contact to drug users not currently in treatment. Face-to-face programs have several advantages over mass media programs and in-treatment programs. They provide the recipient of the education with the opportunity to ask questions to clarify any uncertainties, and provide the persons communicating the information with the opportunity to control the amount of anxiety or fear raised. For example, too little anxiety or fear might lead the recipient to ignore the message, while too much may provoke psychological defenses against following the message. These outreach programs typically use ex-addicts who have been trained as AIDS educators. The ex-addicts frequent high-drug-use areas and provide AIDS education/prevention to drug users they encounter on the street. Outreach programs to IV drug users not in treatment are currently operating in New York, New Jersey, Chicago, San Francisco, Baltimore, Washington, D.C., and other cities.

Outreach workers are usually able to refer drug users to treatment, except in those cities with long waiting lists for treatment, and are often also able to make referrals for other types of services needed by drug users. Outreach workers emphasize that the best method of protection against developing AIDS is to stop injecting drugs, but do not assume that all current IV drug users will adopt this prevention strategy. Information is provided on how to sterilize drug injection equipment with household bleach, high concentrations of alcohol, and through boiling. Drug users are advised to sterilize any equipment they might use, and not to share equipment with anyone.

Expansion of drug treatment

Providing IV drug users with thorough AIDS information is a necessary part of AIDS prevention, but may not lead to successful risk reduction among many IV drug users. In addition to knowing that they are at risk for developing AIDS if they continue to share drug injection equipment, drug users need to have the means for changing their behavior. For those who wish to reduce their drug injection, this usually means access to drug abuse treatment. Both New York and New Jersey have increased their drug abuse treatment capabilities as a means of preventing AIDS. In addition, New Jersey has developed a successful "voucher" system. Ex-addict outreach workers distribute vouchers that can be redeemed for free detoxification treatment. (Normally an IV drug user must pay $50 for detoxification in New Jersey.) Over 75 percent of the vouchers distributed have been redeemed,[24] suggesting a high demand for treatment. New York has added 3,000 new treatment slots to its drug abuse treatment network, and plans to add an additional 5,000 new treatment slots as part of its AIDS prevention efforts.

There have also been various proposals to utilize Federal moneys to augment drug abuse treatment systems throughout the country as a way of reducing AIDS, although none of these has yet been implemented.

Safer drug injection practices: Some experiments and the debate

While expansion of treatment programs will be a necessary strategy for reducing AIDS in the U.S., many experts believe that it is not likely to be a sufficient one. It will take a relatively long time to open enough new treatment programs to accommodate those IV drug users who want to enter treatment. Treatment may also not be successful for all who enter, and there will still be a significant number of IV drug users who do not want to enter treatment. Consequently, many health and treatment experts have suggested that if the spread of HIV is to be controlled, those IV drug users who continue injecting must adopt "safer" drug injection practices. Actually promoting safer injection practices is a controversial measure. Critics contend it may encourage continuation of an illegal activity rather than stopping it. Those who advocate it, however, see it as necessary to reduce HIV transmission among users unwilling or unable to stop IV drug use regardless of the threat of AIDS.

Some European countries have provided for legal access to sterile injection equipment as part of their programs for preventing AIDS among IV drug users. IV drug users may either purchase sterile needles and syringes at pharmacies or may participate in "needle exchange" programs. In the needle exchange programs, the IV drug users return their used injection equipment and it is replaced with new,

sterile equipment. These needle exchanges provide for potential therapeutic contact between health officials and the drug users as well as for the safe disposal of potentially contaminated equipment.

A needle exchange program in Holland has been operational for several years, and has increased its distribution of sterile needles and syringes from 25,000 per year to over 600,000 per year. Despite this great expansion there appears to be no increase in the number of IV drug users and no decline in the number of drug users entering treatment.[25] Early reports from Holland show that drug users are both utilizing the needle exchange system and reducing their frequency of injecting drugs as a result of concerns about AIDS. Thus, while the data are still preliminary, it appears that the AIDS prevention strategies of providing treatment for IV drug users and providing for "safer" injection procedures may be complementary rather than contradictory.

Needle exchanges (and other forms of legal access to injection equipment) have been advocated in the United States, but there is currently no program providing IV drug users in this country with sterile injection equipment. Only 12 States in the country require prescriptions for the sale of needles and syringes, but these include almost all of the States with large numbers of IV drug users. In many of the other States, drug paraphernalia laws restrict IV users from easily obtaining sterile equipment.

Some of the outreach programs discussed in previous sections provide information to IV drug users on how to sterilize drug injection equipment. In addition to this information, some of these programs are now providing small bottles of bleach or alcohol to be used for sterilizing equipment. A bleach distribution program has been in operation in San Francisco for a year and has led many IV drug users to start using bleach to sterilize their equipment.[26] Distribution of bleach and alcohol has also been initiated in New York City.

The most common objection to any type of AIDS prevention program that provides for "safer" drug injection is that it might encourage drug abuse. This is a serious objection, since IV drug use is, in fact, illegal and associated with many other problems in addition to AIDS. Moreover, a "safer" injection program that is not fully effective in preventing HIV infection and inadvertently encourages IV drug use might actually lead to more AIDS cases among IV drug users.

At present there are only preliminary data on whether or not "safer" injection programs encourage drug use, but there is consistency across all programs for which data are available. The outreach programs in New York,[27] New Jersey,[28] and San Francisco[29] all provide specific information on how to sterilize drug injection equipment. Outreach workers in these programs report that encouraging "safer" injection actually leads many IV drug users to seek treatment in order to reduce their drug use. Many of the IV drug users realize that they are unlikely to be able to follow safer injection procedures if their drug use (and lives in general) are out of control.

In summary, it is too early for full evaluation of the effectiveness of any of the programs aimed at reducing the spread of HIV by reducing the sharing of drug injection equipment. However, many studies have noted changes in the behavior of IV drug users. Undoubtedly, many individual IV drug users will protect themselves against HIV infection and eventually stop injecting drugs without ever being exposed to HIV, reducing rates of new infections and thus providing more time for additional prevention efforts. This additional time will be critical for the prevention of heterosexual and perinatal transmission of HIV.

Prevention of heterosexual transmission from IV drug users

As noted above, IV drug users have been the dominant source of heterosexual and perinatal transmission of HIV up to this point in the epidemic. All of the AIDS prevention programs for IV drug users discussed above present information about heterosexual and perinatal transmission, and some of the outreach and in-treatment programs also distribute condoms. There has been some evidence of behavioral change with respect to "safer" sex among IV drug users. Increased knowledge of AIDS has led IV drug users to reduce their number of sexual partners and increase their use of condoms.[30] However, fewer IV drug users appear to be changing their sexual behavior than are changing their drug injection behavior,[31] for reasons that are not yet well understood.

The difficulties in changing the sexual behavior of IV drug users again reinforces the need to prevent the initial HIV infection by eliminating the sharing of drug injection equipment. If the sequential problem of HIV spread through the sharing of drug injection equipment followed by heterosexual transmission from IV drug users to others is not addressed, there is a real possibility that heterosexual transmission of HIV could become self-sustaining in the U.S. and Western Europe.

In conclusion, it should be noted that the fear of death and the occurrence of the deaths of those around them are not new to intravenous drug users. Drug users have always routinely risked death from overdoses, violence, or a variety of drug-use-related ailments. However, AIDS seems to have brought a new element into this world—almost certain, lingering and painful death and a long period of uncertainty between exposure and possible development of the disease. While many IV drug users may not necessarily discontinue use in response to AIDS, many are responding to the threat by changing their needle-sharing behavior and, to a lesser extent, their sexual behavior.

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Precautionary Measures and Protective Equipment: Developing a Reasonable Response, Theodore Hammett.
NCJ 108619

Risk of Infection with the AIDS Virus Through Exposures to Blood, Theodore Hammett and Walter Bond.
NCJ 107538

The Cause, Transmission and Incidence of AIDS, Theodore Hammett, Harold Jaffe, Bruce Johnson.
NCJ 106678

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