
Admissions of Injection Drug Users to Drug Abuse Treatment Following HIV Counseling and Testing

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Synopsis

The outcomes of counseling and testing programs related to human immunodeficiency virus (HIV) infection and risk of infection among injection drug

users (IDUs) are not well known or understood. A counseling and testing outcome of potential public health importance is attaining admission to drug abuse treatment by those IDUs who are either infected or who are at high risk of becoming infected.

The authors investigated factors related to admission to drug abuse treatment among 519 IDUs who received HIV counseling and testing from September 1987 through December 1990 at a men's prison and at community-based testing sites in Worcester, MA. By June 1991, 123 of the 519 IDUs (24 percent) had been admitted to treatment. Variables associated with their admission included a long history of drug injection, frequent recent drug injection, cleaning injection equipment using bleach, prior drug treatment, and a positive HIV test result. Logistic regression analyses, controlling for effects of recruitment site, year, sex, and area of residence, generally confirmed the associations. IDUs in the study population who were HIV-infected sought treatment or were admitted to treatment more frequently than those who were not infected.

The results indicate that access to drug abuse treatment should be facilitated for high-risk IDUs and for those who have begun to inject drugs recently.

COUNSELING AND TESTING programs related to preventing human immunodeficiency virus (HIV) infection receive substantial funding as a widely used public health intervention in the acquired immunodeficiency syndrome (AIDS) epidemic (1).

However, little is known about the outcomes of HIV counseling and testing of injection drug users (IDUs), a population at high risk for HIV infection (2). In particular, more information is needed on the role of counseling and testing in fostering the admission of IDUs into drug abuse treatment. A question of particular interest is which category of IDUs is more likely to enter drug abuse treatment following HIV counseling and testing, those at high risk for infection or already infected, or those at low risk or not infected.

We examined factors associated with the admission to drug abuse treatment of IDUs who participated in

HIV antibody counseling and testing at a men's prison and several community-based sites that were part of an AIDS prevention consortium in Worcester, MA (3-5).

Methods

The study population was 519 IDUs who participated in HIV counseling and testing programs at five sites from September 1987 through December 1990. The programs included two HIV and hepatitis B clinics run by the city health department, HIV counseling and testing programs at two community health centers in areas with high levels of drug use, and a counseling and testing program for inmates of a county prison for men.

At the prison site, all new inmates were expected to attend a weekly AIDS-education group meeting

that included a video presentation and a questions-and-answers period. Following the program, attendees were invited to participate in individual pretest counseling; usually about half of the attendees participated.

At other sites, there was no group education, but participants received pretest counseling, either on a walk-in or on an appointment basis. Clients were primarily self-referred, but they included some referred from clinical or human services department health care providers. Clients received no compensation for their participation at any site.

At all sites, pretest counseling followed State guidelines that included determining the reason that testing was requested, a current health assessment, HIV risk assessment, discussing plans for risk reduction and barriers to implementation, clarifying the meaning of positive and negative test results, planning partner notification, and discussing the issue of the confidentiality of test results.

At the posttest counseling sessions that followed the notification of clients of their test results, the counselors reviewed the meaning of the results and reviewed risk reduction plans. Those who had tested positive were referred to medical services. No formal referrals to drug abuse treatment were provided, but information on available programs and ways to access them was provided to those who asked. The primary programs that were identified were three satellite programs run by the drug abuse treatment agency that participated in the consortium. The programs were a 21-day inpatient detoxification program, a residential drug-free program, and an outpatient program offering both methadone and drug-free program services. During most of the study period, the treatment agency gave priority to admitting persons from the counseling and testing program, particularly those who had tested HIV positive.

Information on demographic variables and risk behaviors was obtained by the counselor during a brief standardized risk assessment interview prior to individual pretest counseling. Demographic variables included age, sex, counseling site and date, race or ethnicity, area of residence, years of schooling, marital status, prior incarceration, and prior drug abuse treatment. Lifetime drug-use behaviors included the duration of drug injecting and the specific drugs injected.

Recent risk behaviors were reported for a period of noninstitutional living, which we used as a reference period for reporting risk behaviors. The risk period was the most recent period of at least 7 days during which the person was not in an institution (jail, drug abuse treatment, or hospital). If the noninstitutional

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living period was longer than 3 months, the risk period was the most recent 3 months of that period. The risk period was defined by asking the person a series of questions about current or most recent institutional periods.

For most persons in the study (86 percent), the risk period was 3 months and was less than 1 month in only 3 percent of the sample. Among study participants who were enrolled at the community-based counseling and testing sites, 96 percent had a risk period that immediately preceded their interview. However, at the prison, the recency of the risk period depended on how long before the interview the person had been incarcerated. For 64 percent of inmates, the risk period ended during the month of the interview or during the previous month, while for 24 percent of inmates it ended more than 2 months before the interview.

The risk behaviors included frequent injection, renting injection equipment in a shooting gallery, the use of bleach in cleaning injection equipment, the number of sex partners of the same and the opposite sex, the use of condoms, and providing sex for drugs or money.

Clients eligible for the study were those who self-reported drug injection during the risk period and who had no previous study encounters. Treatment admission through June 30, 1991, was determined by identifying a subsequent encounter at one of three drug abuse treatment programs participating in the study. More than 90 percent of those admitted to the treatment programs agreed to participate in the study. Records were linked using a confidential identifier, which was based on letters in the participant's name and on the person's birth date.

The associations of variables from the initial interview with treatment admissions were assessed using contingency table analyses and multivariate logistic regression techniques (6). Statistical analyses were performed using the SAS (7) and SYSTAT (8) statistical analysis personal computer programs.

Table 1. Characteristics of a study population of 519 injecting drug users who received HIV

Variable	Prison		Health centers		Public health clinics		P
	Number	Percent	Number	Percent	Number	Percent	
Total	400	100	30	100	89	100	...
Year interviewed:							
1987-88	246	62	11	37	44	49	0.010
1989	100	25	14	47	25	28	
1990	54	14	5	17	20	22	
Sex:							
Male	400	100	16	53	68	76	<0.001
Female	0	0	14	47	21	24	
Age (in years):							
15-24	101	25	8	27	10	11	0.031
25-34	215	54	17	57	51	57	
35 and older	84	21	5	17	28	32	
Race or ethnicity:							
Hispanic	130	33	17	57	22	25	0.008
Black	29	7	3	10	12	14	
White and other	237	60	10	33	55	62	
Residence:							
Worcester	248	62	28	93	73	82	<0.001
Other	151	38	2	7	16	18	
High school or GED:							
Completed	191	48	7	23	49	55	0.011
Not completed	205	52	23	77	40	45	
Marital status (current):							
Married	220	55	16	53	28	32	<0.001
Unmarried	179	45	14	47	61	68	
Prior drug treatment:							
No	203	51	15	50	27	30	<0.002
Yes	197	49	15	50	62	70	
Prior incarceration:							
No	63	16	10	33	35	39	<0.001
Yes	336	84	20	67	54	61	
Duration of drug injection:							
Less than 1 year	68	17	5	17	11	13	0.001
1-2 years	39	10	7	23	19	22	

¹9 persons were not tested. ²Opposite sex and male same sex.
NOTE: The risk period was the most recent period of at least 7 days

during which the person was not in an institution (jail, drug abuse treatment, or hospital).

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Results

Of the 519 IDUs in the study population, 400 were from the men's prison, 89 from health department clinics, and 30 from community health centers (table 1). Enrollment began at the prison site earlier than at other sites. The health centers enrolled a higher percentage of IDUs who were young, female, or Hispanic than did the other sites. The health

department clinics enrolled an older population, with a longer drug use history, and more prior treatment experience, than the other sites. Sexual risk behaviors differed by enrollment site, with a higher percentage of participants at the prison reporting multiple sexual partners and no condom use. However, a higher percentage of participants at the health department clinics reported providing sex for money or drugs.

A total of 123 clients (24 percent) were admitted to a participating drug abuse treatment program. While most of those entering treatment did so after participating in the prison program, their rate of entry into treatment was lower than the rates of the other testing programs, and they were not able to enter treatment until they were released. As persons interviewed early in the study had more time to enter treatment, their overall rates of entry were higher than those who were interviewed late (table 2). Of those who entered treatment, 49 (40 percent) entered

counseling and testing at 5 sites in Worcester, MA, 1987-90, by site of enrollment

Variable	Prison		Health centers		Public health clinics		P
	Number	Percent	Number	Percent	Number	Percent	
3-5 years	61	16	7	23	3	3	
More than 5 years.....	224	57	11	37	54	62	
Ever used heroin:							
No.....	36	10	4	14	7	8	0.657
Yes.....	330	90	24	86	77	92	
Ever used cocaine:							
No.....	27	7	3	10	9	10	0.486
Yes.....	358	93	26	90	77	90	
HIV status:							
Positive	104	26	11	37	24	27	0.455
Negative or unknown ¹	294	74	19	63	65	73	
<i>Risk period behaviors</i>							
Frequency of injection:							
1-3 times per month	63	16	5	17	24	27	0.145
1-6 times per week	72	18	4	13	15	17	
Daily.....	265	66	21	70	50	56	
Sharing works, using bleach:							
No sharing	63	16	5	18	14	16	0.792
Share, bleach sometimes	178	45	15	54	43	49	
Share, bleach never	156	39	8	29	31	35	
Used shooting gallery:							
No.....	285	72	23	79	66	75	0.655
Yes.....	109	28	6	21	22	25	
Sex partners: ²							
None.....	45	11	7	25	15	17	0.032
1	153	39	14	50	38	44	
2 or more.....	194	50	7	25	34	39	
Condom use:							
No.....	348	90	22	76	61	72	<0.001
Yes.....	40	10	7	24	24	28	
Sex for drugs or money:							
No.....	380	96	26	93	79	89	0.016
Yes.....	15	4	2	7	10	11	

If the noninstitutional living period was longer than 3 months, the risk period was the most recent 3 months of that period.

GED = General Educational Development certificate.
HIV = human immunodeficiency virus.

the detoxification or residential drug-free program, while 74 (60 percent) entered an outpatient methadone or drug free program (data not shown).

Those variables that were associated with admission to drug abuse treatment were early year of interview, older age, residence in Worcester, prior drug abuse treatment, duration of drug injecting, having used heroin, and positive HIV status (table 2). Risk period behaviors associated with admission to treatment were frequency of injection, sharing injection equipment with use of bleach, and use of shooting galleries. Having few sexual partners was of borderline statistical significance compared with having many partners.

Table 3 shows odds ratios and 95 percent confidence intervals from a logistic regression model predicting entry into treatment. Variables were selected for the model based on statistically significant univariate associations ($P < 0.05$) or theoretical

importance. When controlled for area of residence and for year and site of the initial interview, statistically significant predictors of entry into treatment were a history of more than 5 years of injection drug use, daily injection during the risk period, and cleaning injection equipment using bleach. Two variables were of borderline statistical significance for likelihood of entering treatment, having previously been in drug treatment and testing HIV positive. The variables found not independently predictive of entry into drug treatment in the presence of the variables in the model shown in table 3 were age, race or ethnicity, heroin use, use of shooting galleries, and number of sexual partners.

Discussion

Drug abuse treatment can be viewed as a method of AIDS prevention (9-12). Long-term outpatient

methadone maintenance or drug-free residential treatment appear to be more effective than either outpatient drug-free treatment or detoxification alone. However, much of the research supporting that assertion has serious methodologic flaws (11). High priority should be placed on further studies of the comparative effectiveness of different modalities of drug abuse treatment on HIV-risk behaviors and subsequent drug use.

To be effective in that regard, drug abuse treatment programs need to attract HIV-infected and high-risk drug abusers. Our finding of higher rates of admission for HIV-infected IDUs indicates an encouraging trend. We cannot determine the extent to which this association is a result of effects of awareness of HIV status on treatment-seeking behavior or to greater efforts by the treatment programs to admit persons with HIV-positive test results. We noted that persons who reported use of bleach entered treatment more often than those who had never used bleach or shared injection equipment. Use of bleach indicates exposure to AIDS information or education (5), and treatment may be perceived as another strategy for risk reduction. However, that those at greatest risk were least likely to enter treatment is a major concern.

The results indicate that the IDUs with the most severe and longest duration injection drug use were most likely to enter treatment, as others have found (13-14). The association of prior drug treatment with admission to treatment may indicate fewer barriers to treatment among those with prior experience in negotiating the treatment system.

Limitations. The main limitation of this study is incomplete data on treatment of IDUs admitted to programs other than those participating in the study. However, we believe that most admissions to treatment for this population have been captured, particularly those IDUs who were Worcester residents. We lacked information on when prisoners were released. We may have failed to identify all participants who were admitted to the participating treatment programs, either because of the lack of participants' consent or failure to match participant records if there were errors in obtaining the participant identifier. In spite of those problems, which undoubtedly resulted in undercounting admissions, our treatment entry rate is within the range found by several outreach demonstrations (15).

Implications for AIDS prevention. HIV counseling and testing programs need to facilitate the admission of high-risk, injecting drug users to treatment. Those

Table 3. Odds ratios and 95 percent confidence intervals from a logistic regression model predicting entry into treatment for 510 injecting drug users who received HIV counseling and testing at 5 sites in Worcester, MA, 1987-90

Predictor variables	Odds ratio	95 percent CI	
		Lower limit	Upper limit
Year interviewed:			
1987-88	1.00
1989	0.39	0.22	0.68
1990	0.27	0.12	0.58
Site and sex:			
Prison, male	1.00
Clinic, male	1.88	1.01	3.48
Clinic, female	1.75	0.77	3.99
Worcester resident	1.37	0.80	2.34
Prior drug treatment	1.46	0.88	2.54
Duration drug injection:			
Less than 1 year	1.00
1-5 years	1.72	0.70	4.19
More than 5 years	2.77	1.19	6.46
HIV positive	1.56	0.95	1.05
Daily injection	1.82	1.07	3.11
Sharing works, using bleach:			
No sharing	1.00
Share, bleach sometimes	2.12	1.05	4.29
Share, never bleach	0.80	0.38	1.69

NOTE: Hosmer-Lemeshow goodness-of-fit statistic = 3.434, $P = 0.904$. CI = confidence interval. HIV = human immunodeficiency virus.

who recently began injecting and have never been treated need to be encouraged to enter treatment. There is evidence that risks of HIV infection are higher in the early portion of the injection period than later and that the early portion may be critical for intervention (16).

Barriers to access to drug abuse treatment have been described and include a perceived lack of personal need (17) and waiting lists, indicating inadequate treatment program capacity (18, 19). HIV counseling and testing programs need to provide their clients with information on the types of drug abuse treatment that are available and on how to access the programs.

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