EFFECTS OF AN EDUCATION-ORIENTED INTERVENTION PROGRAM ON HIGH-RISK BEHAVIOR AMONG INTRAVENOUS DRUG USERS AND THEIR SEX PARTNERS

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Previous studies (Stevens et al., 1991) and (Roberts et al., 1988) suggest that intravenous drug users (IDUs) conform to a model of rational choice when provided with accurate information about the relationship of their behavior and exposure to the human immunodeficiency virus (HIV). Stevens et al. found an impressive reduction in high-risk drug related behavior following exposure to a relatively modest set of high intensity, educationally oriented interventions. Given the economic and social cost associated with the dramatic spread of HIV, and the limited resources available for prevention and control, it is important that the most efficient means of control be chosen. If the success of the education programs reported by Stevens et al. can be replicated in other settings, it would provide support for the marshaling of resources in this direction. The National Institute of Drug Abuse (NIDA) and the U.S. Department of Housing and Urban Development (HUD) jointly sponsored a similar research project in Buffalo, New York and Tampa, Florida designed to evaluate the effectiveness of education related interventions at modifying high risk behavior with an expanded target population of IDUs and their sex partners. There was no necessary linkage between members of each group. The high-risk behavior examined included both needle use and sexual activity.

While Stevens et al. make no claims about the impact of education related interventions on sero-positivity rates, they conclude that educational interventions were associated with reductions in needle usage and needle sharing of 23.5 percent and 63.9 percent, respectively. Similarly, the Buffalo-Tampa study showed post-intervention reductions in high-risk needle behavior, though substantially smaller in magnitude[1]. Though not as encouraging about the impact of education programs on the level of high-risk needle use behavior, the Buffalo-Tampa study reveals substantial reductions in high-risk sexual behavior for IDUs and their sex partners. This study measures the impact of a set of educational interventions on high-risk behavior, controlling for enrollment in other formal drug treatment programs. This analysis allows for the assessment of the effectiveness of the interventions by the age, gender and educational background of the participants.

With approximately 900,000 people living with HIV in the United States, 300,000 of them with AIDS, and an annual cost of HIV care per individual estimated to be $19,250 in 1999 (Levi and Kates, 2000), the potential impact on the health care system is enormous. HUD and NIDA embarked upon this project looking for a cost effective program to reduce the economic and social costs of the proliferation of HIV and AIDS related to the high risk behavior of IDUs and their sex partners. A number of factors have to be determined before the cost effectiveness of the program can be evaluated. The first issue to be determined is the change in high-risk behavior of the targeted population that results from the programmatic intervention. Once established, the effect the behavior modification has on the probability of an individual becoming HIV positive needs to be determined. From that information a cost-benefit

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analysis can be conducted to determine if the programmatic cost associated with the education related interventions are outweighed by the benefits associated with the reduced treatment costs due to the behavior modification. This paper addresses the issue of the impact of a set of education related interventions on the behavior of intravenous drug users and their sex partners.

The next section identifies the targeted population, the high-risk behavior of that population, as well as the pre- and post-intervention instruments that were used to assess the level of and changes in high-risk behavior. Following the methodology section the data analysis shows the level of pre- and post-intervention knowledge of HIV risk associated with an assortment of needle and sex related activities. It also presents the estimated impact of the education-related interventions on the knowledge base about high-risk behavior and the pre- and post-intervention levels of these high-risk behaviors.

The final sections present the study limitations and conclusions that can be drawn from the empirical analysis that precedes it.

METHODOLOGY

This study focuses on IDUs and the sex partners of IDUs who lived in or near public housing projects in Buffalo and Tampa between November 1989 and June 1991. Separate interventions were designed for and directed at IDUs and the sex partners of IDUs. The interventions were delivered over a six-month period with a follow-up post-intervention interview. As in Stevens et. al., subjects who voluntarily participated in pre- and post-intervention interviews were paid a nominal fee.

The intent of the interventions was to modify a number of dimensions of high-risk activity with the goals of:

1) eliminating intravenous drug use, measured by the absence of intravenous drug use at the end of the six-month intervention period;
2) reducing injection frequency for continuing IDUs, measured by the change in the frequency of injections per month over the six-month intervention period;
3) modifying high risk needle use behavior for continuing IDUs, needle use measures include the change in the proportion of the time the interviewee: a) rented or borrowed used needles, b) shared non-needle paraphernalia (rinse water, cooker or cotton), c) used a sterile needle, d) cleaned drug implements with bleach, and e) used drugs alone; and
4) reducing high-risk sexual behavior for IDUs and their sex partners, measured as the change in the number of sex partners over the six month period and the proportion of time condoms were used during sex.

The sample of 405 individuals was 56 percent male, 95 percent Black, with an average age of 36 years. Approximately 50 percent of the sample had at least 12 years of school, and 43 percent listed welfare as their primary source of income. Close to 70 percent of the sample resided in or near Buffalo public housing projects. There were 227 respondents who identified themselves as IDUs on both pre- and post-intervention interviews. An additional 176 individuals identified themselves as sex partners of IDUs, though their partners did not necessarily participate in the study.

In Buffalo, as well as Tampa, two types[2] of community based organizations delivered the interventions to the targeted population. Teams of outreach workers were formed based on the individual's familiarity with the targeted population. In many cases former IDUs were selected in an attempt to have interventions provided by individuals who were familiar with the environment and knowledgeable about street language. The outreach workers were instructed about issues concerning AIDS, HIV and substance abuse. These outreach workers identified and recruited IDUs and the sex partners of IDUs into various programs ranging from informal street discussions to formal small group

presentations about the transmission and prevention of AIDS. Interventions directed toward IDUs included discussions about the risks associated with needle use and needle sharing activities. Bleach kits were distributed at education sessions, which demonstrated the proper techniques for the cleaning of drug paraphernalia. Condoms were distributed at sessions where the sexual transmission of HIV and the proper use of condoms were discussed.

In a program aimed at the female sex partners of IDUs, the designed interventions provided accurate information about HIV and assisted the targeted population in the adoption of changes in behavior that were aimed at reducing the risk of contracting sexually transmitted HIV. At formal and informal educational sessions[3], condoms were distributed in conjunction with presentations that demonstrated their proper use. As part of the program IDUs and the sex partners of IDUs had access to clinics for HIV antibody testing, drug treatment agencies, job training programs and food distribution services, where appropriate. The interventions were voluntary and the degree of participant exposure varied.

The interventions took the form of small group meetings, one on one contacts, posters, brochures, formal seminars, referrals to clinics, and the opportunity to be tested for HIV. The intensity and number of interactions with outreach workers were not documented, and were not discussed in post-intervention interviews. These interviews were performed by independent professionals, who conducted confidential pre- and post intervention interviews to establish the level of high-risk behavior and the changes in such behavior upon the completion of the interventions.

The Aids Initial Assessment (AIA) and Aids Follow-up Assessment (AFA) were used to collect data about drug use and sex practices at the outset and conclusion of the program. These survey instruments were constructed by the National Institute of Drug Abuse and provide the information base for a number of other studies (Brown and Beschner, 1993).

The principle methodological differences between this paper and Stevens et al. reflect the intent of the Buffalo – Tampa study to incorporate members of the community in an ongoing outreach program. Thus, the interventions are not of a standard length or intensity. In the Stevens et al. study each respondent was exposed to a one-hour information session, conducted by professionally trained health educators, in conjunction with pre- and post intervention interviews. Since The Buffalo – Tampa study used community outreach workers who provided information through a wide variety of mechanisms, the target population was exposed to numerous information delivery systems. The number of and specific types of interventions to which each participant in the pre- and post intervention interviews was exposed to were not identified. Both studies used independent professional interviewers to conduct the surveys. Additionally, the timing of the Stevens et al. interviews allowed the authors to identify the duration of the behavior modification, while this study is not able to measure the duration of the effects[4].

ANALYSIS

The basic premise of the program was that people do not fully understand the risks associated with certain sexual and drug related behavior. By making intravenous drug users aware of the risks associated with using dirty needles, sharing needles and other drug paraphernalia, the assumption is that rational users would modify their behavior. Additionally, informing intravenous drug users and their sex partners of the risks associated with various sexual activities should lead to a reduction of those activities.

An initial assessment test (see appendix) was administered to determine the initial level of understanding about the transmission of HIV through intravenous drug use and sexual activity. The test consisted of sixteen true or false questions: five questions were about the transmission of HIV through

sexual activity; five were about intravenous drug use; and six were general knowledge questions related to HIV transmission.

From the test answers three indices were created to identify the respondents' underlying understanding of AIDS. The first index (TOTRIGHT) is the total number of questions answered correctly, taking values from 0 to 16. The second index (SEXRIGHT), taking values between 0 and 5, indicates the number of correct answers to the sexual behavior questions; and the last index (DRUGRIGHT), with values between 0 and 5, indicates the number of correct answers to the drug related questions.

Table 1 provides some understanding of the basic level of understanding of risky behavior for the participants of the interventions. Both groups appear to be fairly knowledgeable about the risks associated with intravenous drug use and having sex with intravenous drug users.

The IDUs seem to be more knowledgeable as a group than the sex partners of IDUs. These results are consistent with the findings reported by (Liebman and Mulia, 1992) as well as those reported by (Khalsa and Kowalewski, 1994) If educational interventions are to lead to the modification of behavior, they must do more than simply provide information. They must make the individual accurately perceive the risk to which he or she is being exposed when undertaking such activity. Individuals who were neither IDUs nor the sex partners of IDUs also took the initial assessment test and as a group they were generally less knowledgeable than the groups engaged in high-risk behavior.

Table 1a Intravenous Drug Users

INDEX	MEAN VALUE
TOTRIGHT	13.05
SEXRIGHT	4.38
DRUGRIGHT	4.45

Table 1b Sex Partners of Intravenous Drug Users

INDEX	MEAN VALUE
TOTRIGHT	12.58
SEXRIGHT	4.02
DRUGRIGHT	4.37

Measures of risk have been constructed from self-reported behavior. Changes in high-risk behavior were obtained by comparing post-intervention responses to identical questions concerning drug and needle use practices, as well as sexual behavior, to baseline measures derived from pre-intervention interviews. For example respondents were asked the percent of time they used dirty needles when using intravenous drugs over the preceding six months on the AIA and AFA. The average of these proportions revealed on the AIA survey instrument was 22 percent. The average response for the same question on the AFA was 14 percent. Table 2 then reports this difference as a reduction of eight percentage points. A paired t-test was performed to determine whether the difference in the response means was significant. Thus, the reported reduction in the use of dirty needles over the period of the interventions was significant at the one per cent level.

TABLE 2
HIGH RISK NEEDLE AND SEX BEHAVIOR

IDUs	PRE-INTERVENTION MEAN	POST-INTERVENTION MEAN	CHANGE
# IDUs	230	227	-3 (*)
FREQUENCY INTRAVENOUS USE PER MONTH	31.8	19.1	-12.7 (***)
% OF TIME INJECTED WITH USED NEEDLE	22%	14%	-8% (***)
% OF TIME SHARED NON-NEEDLE IMPLEMENTS	53%	41%	-12% (***)
% OF TIME INJECTED WITH STERILE NEEDLE	66%	74%	+8% (***)
% OF TIME CLEANED WITH BLEACH	65%	74%	+9% (**)
% OF TIME INJECTED ALONE	59%	64%	5%
NUMBER OF SEX PARTNERS (SIX MONTHS)	3.22	2.19	-1.03 (*)
% OF TIME USED CONDOMS	22%	32%	10% (**)
SEX PARTNERS OF IDUs ONLY:			
NUMBER OF SEX PARTNERS (SIX MONTHS)	4.42	2.01	-2.41 (***)
% OF TIME USED CONDOMS	33%	40%	7% (*)

* significant at the 10% level
** significant at the 5% level
*** significant at the 1% level

Table 2 reveals that only 3 of the 230 individuals who were classified as IDUs before the interventions, claimed they were no longer injecting drugs during the post-intervention survey. While the reduction in this type of risky behavior is modest, other aspects of high-risk behavior showed more appreciable declines. The monthly frequency of injected drug use fell, on average, by 12.7 injections per month, a change of 39.9 percent. There were also substantial changes in the high risk behavior associated with intravenous drug use, ranging from the 5 point increase in the percent of time IDUs were alone when they used intravenous drugs to the an 8 percentage point reduction in the number of times they used borrowed needles.

There were also reductions of IDU high-risk sexual behavior. The average number of sex partners over the six-month period was 31.9 percent lower than in the six-month period prior to the intervention. Condom use by IDUs increased on average 10 percentage points. The interventions have led to desirable reductions in high-risk behavior even among those who remain in the high-risk group of intravenous drug users.

The group of people who were the sex partners of IDUs, but not IDUs themselves, experienced similar reductions in high-risk behavior. The number of sex partners declined by 54.5 percent and average condom use increased over the six-month period. Thus, there were across the board reductions in all measured dimensions of high-risk behavior.

However, since over 25 percent of the interviewed IDUs were concurrently participating in drug treatment programs, it is possible that some of the change in behavior is attributable to these programs. A regression model was estimated to identify the relationship between the changes in behavior and enrollment in formal drug treatment programs. Table 3 presents the ordinary least squares regression estimates of this relationship[5]. In each equation the **dependent variable**, the change in high risk behavior over the intervention period, is regressed against **TREAT**, a binary variable, which takes the value of 1 if the interviewee was enrolled in a formal drug treatment program, and 0 otherwise.

The intercept coefficient can be interpreted as an estimate of the effects of the educational interventions alone, while the **TREAT** coefficient reveals the incremental impact of participation in a formal drug treatment program[6]. From Table 3 it appears that IDUs who were exposed to the educational interventions alone, without formal drug treatment, reduced their frequency of injections, on average, 7.11 times per month. Those IDUs whose educational interventions were combined with formal drug treatment reduced their frequency of injections by an additional 20.96 times.

It is somewhat surprising that in four of the five needle use behavior equations, those IDUs who participated in formal drug treatment programs seem to have had more modest reductions in high risk behavior than those who were exposed to the educational interventions alone. The unanticipated deleterious effects of participation in formal drug treatment programs, in conjunction with educational interventions, could result if IDUs who received drug treatment are systematically different from those that did not. Since the participation in formal drug treatment programs was not randomized, the effects of **TREAT** could reflect the differences in the groups rather than the effects of treatment. It appears that failure to control for simultaneous enrollment in drug treatment programs distorts estimates of the effectiveness of educational programs alone[7].

TABLE 3
OLS REGRESSION ESTIMATES TREATMENT MODEL

DEPENDENT VARIABLE:	INTERCEPT	TREAT	R^2	Observed F - value
CHANGE IN:				
FREQUENCY OF INTRAVENOUS USE PER MONTH	-7.11 (*)	-20.96 (**)	.05	6.51 (**)
% OF TIME INJECTED WITH USED NEEDLE	-.11 (***)	.12 (**)	.03	3.86 (**)
% OF TIME SHARED NON-NEEDLE IMPLEMENTS	-.18 (***)	.24 (***)	.05	7.02 (***)
% OF TIME INJECTED WITH STERILE NEEDLE	.07	.02	.01	.09
% OF TIME CLEANED WITH BLEACH	.12	-.13 (*)	.03	2.76 (*)
% OF TIME INJECTED ALONE	.06	-.05	.01	.41

* significant at the 10% level
** significant at the 5% level
*** significant at the 1% level

Basic demographic characteristics such as age, gender, and education, as well as past behavioral practices, could also have an impact upon the effectiveness of the educational interventions. Table 4 presents regression estimates of the relationship between these characteristics and the changes in behavior presented in Table 3. The following binary variables were constructed from demographic characteristics:

GENDER which takes the value of 0 for female, and 1 for male respondents ;

EDUCATION which takes the value of 0 for those respondents with less than 12 years of education, and 1 for those with at least a high school degree;

AGE which takes the value of 0 for those individuals less than 35 years of age, and 1 for those 35 or older; and

LEVEL which takes the value 0 for those respondents whose pre-intervention behavior was in the lower half of the distribution of high risk behavior, and 1 for those respondents whose initial behavior

placed them in the upper half of the distribution of high risk behavior. A separate Level variable was constructed for each of the categories of needle use behavior[8].

The estimates presented in Table 4 suggest that differences in the changes in high-risk needle use behavior are related to participation in formal drug treatment programs and the initial level of risky behavior. The demographic characteristic parameter estimates are generally statistically insignificant, suggesting that differences in the impact of educational interventions on high-risk behavior were not related to age, education or gender. In conjunction with the results reported in Table 2, it is apparent that the educational interventions were equally successful at reducing high-risk behavior regardless of age, gender or educational background. The coefficients of the level variables indicate that the greatest reduction in high-risk behavior occurred for those individuals whose pre-intervention behavior was the most risky[9].

TABLE 4
OLS REGRESSION ESTIMATES DEMOGRAPHICS MODEL

DEPENDENT VARIABLE	TREAT	LEVEL	GENDER	EDUCATION	AGE	R^2	Observed F -value
CHANGE IN:							
FREQUENCY OF INTRAVENOUS USE PER MONTH	-18.72 (***)	-48.35 (***)	-2.38	-7.38	10.08	.52	28.58 (***)
% OF TIME INJECTED WITH USED NEEDLE	0.12 (**)	-0.3 (***)	-0.03	0.02	0.1	.45	21.41 (***)
% OF TIME SHARED NON-NEEDLE IMPLEMENTS	0.15 (*)	-0.54 (***)	0.07	-0.08	-0.08	.34	13.91 (***)
% OF TIME INJECTED WITH STERILE NEEDLE	0.04	0.34 (***)	-0.11 (**)	0.08 (*)	-0.07	.38	16.20 (***)
% OF TIME CLEANED WITH BLEACH	-0.07	0.45 (***)	-0.14 (**)	-0.07	0.11	.42	13.16 (***)
% OF TIME INJECTED ALONE	-0.04	0.38 (***)	0.03	0.06	-0.04	.37	15.15 (***)

* significant at the 10% level
** significant at the 5% level
*** significant at the 1% level

In a similar fashion, tests for the effectiveness of the educational interventions in reducing high-risk sex behavior among individuals of different ages, educational backgrounds, gender and previous behavior patterns were performed. The statistically insignificant coefficients for the age and education binary variables in Table 5 suggest that, as in the needle use regression equations, the educational interventions were equally successful among individuals of different ages and educational backgrounds.

However, in the sex behavior questions, there are statistically significant differences in the effectiveness of the interventions by gender and patterns of previous behavior.

TABLE 5
CHANGES IN SEX HIGH RISK SEX BEHAVIOR BY CHARACTERISTICS
(OLS ESTIMATES)

DEPENDENT VARIABLE	LEVEL	GENDER	EDUCATION	AGE	R^2	Observed F-value
CHANGE IN:						
% TIME USED CONDOM (IDUs)	-0.68 (***)	0.1 (*)	-0.06	0.01	.29	11.81 (***)
NUMBER OF SEX PARTNERS (IDUs)	-0.97 (***)	1.21 (*)	-0.09	0.16	.77	165.86 (***)
% TIME USED CONDOM (IDU SEX PARTNER)	-0.67 (***)	0.04	0.03	-0.01	0.27	7.48 (***)
NUMBER OF SEX PARTNERS (IDU SEX PARTNER)	-0.95 (***)	0.79 (**)	-0.37	-0.44	0.93	529.77 (***)

* significant at the 10% level
** significant at the 5% level
*** significant at the 1% level

In both groups, IDUs and sex partners of IDUs, the reduction in the number of sex partners was greater for women than men. Additionally, condom use appeared to increase slightly more for men than for women. The greater the number of sex partners before the intervention, the greater was the reduction in the number of sex partners after exposure to the interventions. Similarly, condom use increased most for those individuals who used condoms the least frequently prior to the study. This indicates a greater degree of success among individuals with the riskiest pre-intervention behavior.

STUDY LIMITATIONS

A limitation of the analysis is its reliance on self-reported behavior. However, with the exception of the validity of self-reported HIV sero-positivity status (Latkin and Vlahov, 1998), the literature provides favorable evidence on the reliability of self-reported high-risk behavior for IDUs. (Stevens, 1972), (Maddox and Desmond, 1975) and (Amsel et al., 1976). Measurements of the change in behavior would be unaffected by a respondent bias if the degree of systematic bias was the same on both the pre- and post-intervention interview[10].

Potentially more disturbing is the existence of self-selection bias. There were 787 individuals who completed the pre-intervention interview, and 405 of them completed the post-intervention interview. The high-risk behavior of the individuals who completed the first, but not second interview, was greater than the revealed risk behavior of those who completed both interviews. This was true for behavior associated

with virtually all dimensions of drug use, as well as high-risk sexual patterns. Since those who did not complete the program were the individuals who were most at risk, the changes in reported behavior may be an overstatement of the effects of the program on the at-risk population at large.

Finally, since there was no control for the number or intensity of the interventions, it is difficult to evaluate the effectiveness of the specific interventions.

CONCLUSIONS

When information about the consequences of their behavior was presented to intravenous drug users and the sex partners of drug users, they reduced their high-risk behavior. Although there was a minimal reduction in the number of intravenous drug users, there were substantial reductions in the frequency of injections, sharing of paraphernalia and improvements in the observance of proper cleaning techniques.

There were also substantial reductions in high-risk sexual behavior for both IDUs and their sex partners, in the form of decreases in the number of sex partners and increases in condom use. The educationally oriented interventions were effective regardless of the age, sex or educational background of the participants. Thus a program of educational interventions could be a cost-effective mechanism for reducing high-risk behavior. We estimate the cost of the presence of three outreach workers and a project director to provide information to the residents of a public housing project and its surrounding community to be less than $200,000 per year. At approximately $20,000 per year in health care costs, with a life expectancy of ten years, if only one person per year is saved from contracting HIV as a result of the program it might justify the expense.

These conclusions should be tempered by the limitations inherent in the nature of the interventions performed and the data generated. Since the participants of the program were self-selected, they may differ systematically from those who refused to participate in the program, making inferences about the general population problematic. Additionally, further study is required to determine the linkage between the change in high-risk behavior and the probability of contracting HIV.

ENDNOTES

1. The study, jointly sponsored by HUD and NIDA interviewed 787 IDUs and sex partners of IDUs. From this group 405 completed the post-intervention interview. All constructed risk measures reported here reflect the complete information supplied by the 405 respondents.
2. Alternative models were developed in each city. One approach, derived from the precept that community based organizations, working in conjunction with residents, can implement an effective AIDS prevention and intervention program. The second was based on the belief that with minimum financial and technical aid public housing tenant associations could provide effective AIDS outreach and education programs.
3. The formal presentations were comprised of four 90-minute sessions. These sessions focused on: 1) modes of HIV transmission, high risk behaviors and the importance of antibody testing; 2) high risk sexual behavior; 3) male-female relationships as they relate to the risk of contracting HIV; 4) self-esteem and self-confidence for self-protection.
4. Steven's et al. analyzed a sample of post intervention interviews that spanned a period of 1 to 15 months after exposure to the intervention.
5. Formal drug treatment programs include drug detoxification, residential therapeutic communities, prison programs, methadone maintenance and outpatient drug-free programs.

6. The effect of drug treatment is a measure of the impact of treatment added to educational interventions. There is no measure here of the effect of drug treatment alone.
7. Failure to control for concurrent enrollment in formal drug treatment programs may have affected the estimated impacts found by Stevens et al. and Robertson et al.
8. Binary variables were constructed for ease of interpretation. Many of the variables were reported in sub-groups during the interviewing process.
9. While only individuals with high levels of risky activity could have high reductions in behavior, there was no guarantee of any reduction due to educational interventions.
10. Direct statements of behavior changes were compared to indirect measures of behavior changes taken from the pre- and post-intervention interviews. The measures showed high positive correlations.

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APPENDIX
AIDS QUESTIONAIRE

Possible responses are: true, false, unsure or refused to answer.

Drug Related:

1. A person cannot gets the AIDS virus from works/rigs bought on the street in a sealed wrapper.
2. Cleaning works/rigs with just water is enough to kill the AIDS virus.
3. Cleaning works/rigs with bleach is thought to be an effective way of killing the AIDS virus
4. A person can get the AIDS virus from sharing dirty works/rigs with someone who has AIDS.
5. A person can get the AIDS virus from sharing works/rigs with someone who has shared them with others.

Sex Related:

1. Anyone having sex with only one other person cannot get the AIDS virus.
2. Using a latex condom is thought to be an effective way to keep from getting the AIDS virus during sex.
3. A person can avoid getting the AIDS virus by just having oral sex.
4. A person can get the AIDS virus from having sex with a man who has had sex with other men.
5. A person can get the AIDS virus from having unprotected sex with someone who has AIDS.

General:

If a person is positive on the blood test for the HIV virus that means the person has AIDS.

1. A person cannot get the AIDS virus by shaking hands or touching someone who has AIDS.
2. A person can get the AIDS virus from donating blood and plasma.
3. A woman with AIDS virus can give her unborn child AIDS.
4. A person can get the AIDS virus from eating in a restaurant where the cook has AIDS.
5. A person can get the AIDS virus by using public toilets.