

BEHAVIORAL EFFECTS OF RECEIVING HIV TEST RESULTS AMONG INJECTION DRUG USERS IN PUERTO RICO

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INTRODUCTION

Injection drug users (IDUs) play a critical role in the spread of the Human Immunodeficiency Virus (HIV). IDUs comprise more than 50% of all AIDS cases among Puerto Ricans (1, 2). Moreover, through sexual contact IDUs transmit the virus to non-drug injecting individuals, thus placing a larger population at risk. To date, more than 60% of all heterosexual AIDS cases in Puerto Rico have reported sexual contact with an IDU. Moreover, the largest percentage increases in AIDS cases are currently taking place among heterosexual non-IDU individuals, especially women (1).

In the absence of an immunization vaccine, behavioral risk-reduction remains the most important strategy for the reduction of HIV infection. Knowledge of HIV serostatus has been suggested as potentially effective in influencing changes in behavioral risks (3, 4). This study examines the influence of knowledge of HIV serostatus on changes in risk behaviors among out-of-treatment IDUs.

METHODS

The study catchment area comprised the six core municipalities of the San Juan metropolitan area (San Juan, Carolina, Trujillo Alto, Guaynabo, Bayamón, Cataño). Within the catchment area, a stratified cluster design was developed with copping areas (street settings where illicit drugs are sold) as the primary sampling units. The specific procedures used to sample drug users from the street copping areas have been detailed elsewhere (5). In brief, two copping areas were selected at random on each month and recruitment time blocks were randomly assigned to each area. Selected individuals were invited to participate and offered transportation to the field site. Consenting participants were interviewed and offered HIV testing and counseling. To date, recruitment, HIV testing and follow-up assessments have been completed in 16 copping areas with a total intervention group of 519 IDUs and crack users. This report is limited to the analyses of the 374 IDUs recruited in the 16 copping areas.

Table 2. Current drug injection and sexual risk behaviors by previous self-reported receipt of an HIV test result.

Risk Measure	Previous Test Experience			p
	No Previous Result n = 157	Previous HIV- Result n = 176	Previous HIV+ Result n = 41	
	%	%	%	
Drug Injection Domain				
injected with borrowed needle	43.9	36.4	41.5	.364
lent own needle	35.3	39.8	34.1	.633
used borrowed needle in a shooting gallery	24.2	22.7	29.3	.677
shared a cooker	45.9	55.7	61.0	.098
Sex Risk Domain				
sexually active	36.3	51.7	22.0	<.001
multiple partners†	29.8	31.9	11.1	.431
condom use in vaginal sex**	24.1	36.0	55.6	.112
condom use in oral sex**	2.4	16.1	28.6	.036
condom use in anal sex**	30.0	35.7	50.0	.856

† Excludes those reporting no sexual activity.

** For each type of sexual behavior, excludes subjects not reporting that behavior.

We then proceeded to compare previous knowledge of serostatus with the baseline reports of recent high risk injection and sexual practices (last 30 days). The comparison groups were composed of those with no previous knowledge of their serostatus, those who reported previously receiving a seronegative result, and the 41 participants who had previously received a seropositive result. Table 2 shows the results of the cross-sectional comparisons. In the injection risk domain, none of the analyses showed a statistically significant difference. In contrast, in the sex risk domain, those who had self-reported being HIV seropositive were consistently less likely to report risk behaviors and more likely to report protective measures.

DISCUSSION

Two relevant findings can be derived from our results. First, a substantial number of the IDUs who received an HIV seropositive test result in the study had reported prior receipt of a seronegative result (29 out of 145, 20.0%). This finding shows the critical importance of making HIV testing and counseling continuously available and accessible to IDUs and of encouraging IDUs to undergo periodic re-testing and ensuring they receive the results, especially in high prevalence areas such as Puerto Rico. Without periodic re-testing, individuals could be falsely assuming that they are not placing others at risk believing they are not infected.

Second, IDUs who received a seropositive test result at baseline were significantly more likely than those receiving a negative result to report decreased sex risk behaviors and increased sex protective practices at follow-up. This was true in all measures of sex risk, except in reports of multiple partners. These results are consistent with the few published studies that have examined the association between HIV testing and sexual risk reduction among IDUs (3, 6-9). However, the majority of the published literature on the effects of HIV testing have examined drug using populations while in drug treatment. Our sample comprises 'street drug users' not undergoing treatment. Our results, obtained from an out-of-treatment cohort, thus suggest that the association between receiving an HIV seropositive and reducing sex risk behaviors among IDUs is independent of drug treatment effects. This finding is especially relevant in light of the fact that most studies of behavioral changes among IDUs have found substantial reductions in drug injection risk practices (10) and little or no changes in sexual high risk behaviors (8, 11).

RESULTS

The sample of IDUs in the study was young (< 35 years old, 57.1%), mostly male (84.2%) and nearly two-thirds had not completed High School (63.9%). At baseline, 92.5% reported injecting drugs on a daily basis. Sexual activity within the previous 30 days was reported by 42.0% of study participants. Commercial sex (i.e., in exchange of money) was reported by 25 individuals (6.7%) and same gender sexual practices were reported by 21 IDUs (5.6%). The overall HIV seropositivity rate of the study sample was 43.8%.

Table 1 shows that a large fraction reported a prior HIV test. Of the 374 IDUs, 274 (73.3%) indicated that they had been tested before, 217 (58.0%) reported receiving a test result at least once, and 41 individuals (11.0%) had received a seropositive result. Table 1 also compares reports of prior testing with the results of the testing conducted in the current study. In the study 358 IDUs (95.7%) agreed to be tested, 332 (88.8%) received their test result, and 145 IDUs received seropositive test results (38.8%). Of the 145 IDUs who received a seropositive result in the current study, 109 new cases were seropositive, including 29 IDUs who had reportedly received seronegative results in prior tests. IDUs who had not been tested before or who had not previously received a test result were more likely to receive a seropositive result (80 out of 157, 51.0%) than those who reported prior receipt of a positive or negative result (65 out of 217, 30.0%).

Table 1. Self-reported previous experience in HIV testing by HIV testing results in current study.

Previous HIV Test Experience	n	HIV Testing in Current Study			
		Not Tested	Did Not Receive Results	Received a HIV- Result	Received a HIV+ Result
Not Tested	100	4	9	42	45
Did Not Receive Results	57	2	2	18	35
Received a HIV- Result	176	5	15	127	29
Received a HIV+ Result	41	5			36
TOTAL	374	16	26	187	145

Risk behaviors of IDUs who at baseline received a seropositive HIV test result and those who received a seronegative result were compared prospectively. Results are summarized in Table 3. As observed in Table 2, knowledge of HIV seropositivity was not statistically associated with drug injection risk behaviors at follow-up, with the exception of the shared use of cookers. In the sex risk domain, IDUs who had received a seropositive result were significantly less likely to report any sexual activity (unadjusted OR = 0.38). Among those sexually active, HIV seropositives were also significantly more likely to report the use of condoms in vaginal and oral sex. HIV seropositives were more than four and six times more likely to use condoms in vaginal and oral sex, respectively, than their HIV seronegative counterparts.

Table 3. Unadjusted and adjusted odds ratios of HIV seropositives reporting risk behaviors at follow-up (Reference group = HIV seronegatives), N = 262.

Risk Measure at Follow-Up	Unadjusted Odds Ratios	95% C I		Adjusted* Odds Ratios	95% C I	
		Lower	Upper		Lower	Upper
Drug Injection Domain						
injected with borrowed needle	1.37	0.76	2.48	1.28	0.68	2.40
lent own needle	0.98	0.55	1.73	1.04	0.56	1.94
used borrowed needle in a shooting gallery	1.89	0.89	4.00	2.18	0.99	4.83
shared a cooker	1.86	1.03	3.34	1.97	1.05	3.71
Sex Risk Domain						
sexually active	0.38	0.22	0.66	0.41	0.22	0.75
multiple partners†	0.35	0.04	3.11	0.35	0.04	3.15
condom use in vaginal sex**	4.88	1.66	14.32	4.43	1.48	13.29
condom use in oral sex**	6.75	1.44	31.60	6.67	1.42	31.33
condom use in anal sex**	4.67	0.53	40.89	6.93	0.39	123.05

* After adjusting for the risk measure at baseline and a dummy variable representing experimental intervention assignment.

† Excludes those reporting no sexual activity.

** For each type of sexual behavior, excludes subjects not reporting that behavior.

REFERENCES

- Puerto Rico Department of Health. Puerto Rico AIDS Surveillance Report. San Juan, Puerto Rico: Puerto Rico AIDS Surveillance System, 1994.
- Diaz T, Buerler JW, Castro KD, Ward JW. AIDS trends among Hispanics in the United States. *Am J Public Health* 1993; 83:504-508.
- Vandenberg S, Chongsang-nguan K, Des Jarles DC, et al. HIV testing and sexual behavior among intravenous drug users in Bangkok, Thailand. *J Acq Immune Def Syndr* 1992; 5:1119-1123.
- van den Hoek JAR, van Hesterde HJA, Courinho RA. Little change in sexual behavior in injecting drug users in Amsterdam. *J Acq Immune Def Syndr* 1992; 5:518-522.
- Robles RR, Colón HM, Freeman DM. Copping areas as sampling and recruitment sites for out-of-treatment crack and crack-cocaine drug users. *Drugs & Society* 1993; 7:91-106.
- Megraw S, Gilead Q, Shapiro J, et al. Outcomes of an AIDS prevention program for methadone patients. *Int J Addict* 1991; 26:529-535.
- Cassarella PP, Des Jarles DC, Friedman SR, Patterson JF. Psychological and behavioral impact among IDUs of learning HIV test results. *Int J Addict* 1993; 28:259-270.
- Cahoon DA, Saxon AJ, Wyles EA, Overberg DM. Longitudinal sexual behavior changes in injecting drug users. *AIDS* 1992; 6:1207-1211.
- Waters KE, Metzger D, Woody G, Mendenhall AT. Determinants of condom use among intravenous drug users. *AIDS* 1993; 7:719-723.
- Colón HM, Robles RR, Saha H, Matos TD. Changes in HIV risk behaviors among intravenous drug users in San Juan, Puerto Rico. *Br J Addict* 1992; 87:585-590.
- Colón HM, Saha H, Robles RR, Matos TD. Effects of a community outreach program in HIV risk behaviors among IDUs in San Juan, PR. An abstract of the 1995 AIDS Educ and Prev 1995; 7:195-2-9.