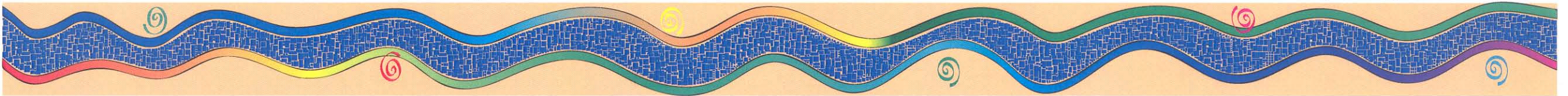


# Predictors of Consistent Condom Use among HIV+ and HIV- Injection Drug Users in Puerto Rico

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## Introduction:

HIV-infected injection drug users (IDUs) are at risk of transmitting HIV through injection and sexual practices. Sexual transmission of HIV is particularly critical in Puerto Rico where the prevalence of HIV infection among IDUs is considerably higher

compared to the US mainland (1). Intervention studies suggest that, among IDUs, high-risk sexual behaviors are more resistant to change than drug injection behaviors (2). This study examined the predictors of consistent condom use among IDUs who participated in a prevention trial in Puerto Rico.

## Methods:

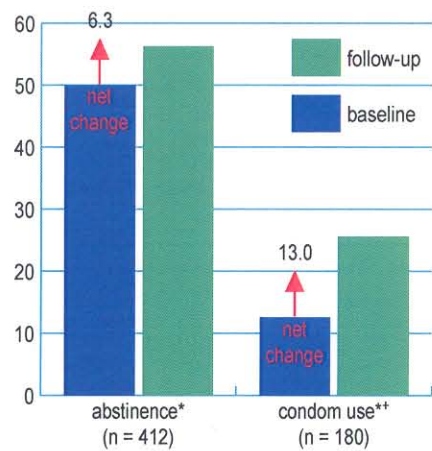
A community-based sample of 556 IDUs was recruited and randomly assigned to either a standard HIV testing and counseling intervention (50.3%) or to an enhanced intervention (49.7%) using motivational interviewing strategies. Eligibility criteria included drug injection during 30 days prior to study recruitment, being 18 years of age or older and not having drug treatment experience during last month. Verification of injection drug use included visual examination for signs of recent venipuncture and urinalysis using Abuscreen ONTRACK to confirm recent use of cocaine and/or morphine. Almost 98% of the 556 IDUs were tested for HIV at baseline and offered HIV counseling two weeks later. The majority of the sample was male (89.4%) with a mean age of 29.5 years (S.D. =9.5) and 12.6% were HIV seropositive at baseline. Six months later, 440 (79.1%) of the participants were

re-assessed and interviewed. Interview protocols collected detailed information about sociodemographics, drug use patterns, HIV risk and protective behaviors, perception of health, history of STDs and use of health care services, including substance abuse treatment. The Beck Depression Inventory Scale was also administered. The respondents' perception of their self-efficacy to practice protected sex was measured with a five Likert-type item. The responses to the five items corresponding to each interview wave were subtracted from the follow-up scores. A positive value resulting from the difference was considered an increase in self-efficacy between baseline and follow-up. For the purpose of these analyses we used two sex behavior outcome variables: (1) abstinence, defined as no vaginal, oral or anal sex during the 30 days previous to the follow-up interview; and (2) consistent use of condoms during the 30 days

previous to the follow-up interview. Due to missing information in the HIV serostatus variable, the analyses were limited to 412 study participants.

Descriptive statistics were used to summarize participant characteristics. McNemar's chi-square test was used to assess differences in the outcome measures between baseline and follow-up. Multivariate analyses included two logistic regression models that were fitted corresponding to each outcome. The following baseline factors were examined at the multivariate level in their capacity to predict consistent condom use at follow-up: gender, age, HIV status, STDs frequency of drug injection, and participation in the enhanced intervention. The numeric difference in self-efficacy between baseline and follow-up, and having a casual or commercial partner was also included. Statistical analyses were performed using SPSS (version 10).

**Figure 1. Protective Sex Behaviors at Baseline and Follow-Up**



\* McNemar's chi square test (p < 0.05)  
\*\* Among those who reported sexual activity 30 days previous to the follow-up interview

## Results:

Figure 1 shows significant changes on each protective behavior from baseline to follow-up. At follow-up, 56.3% of the participants reported abstinence and 25.6% of the 180 that engaged in any sexual activity reported consistent use of condoms. The results of the multivariate logistic regression analysis are shown on Table 1. Gender was the only significant predictor of abstinence. Males were two times more likely to report abstinence than females (O.R. = 2.2; 95% C.I. = 1.10, 4.46). Being HIV-positive, having a casual or commercial partner and increasing the perception of self-efficacy from baseline were each independently associated with increased probability of consistent use of condoms.

**Table 1. Predictors of Sex Protective Behaviors\***

	Abstinence (n = 412)		Protected Sex (n = 180)	
	OR	95% CI	OR	95% CI
Male gender	2.21	1.10 - 4.46	0.82	0.28 - 2.47
Age	1.02	0.99 - 1.04	0.99	0.94 - 1.04
HIV- positive test result	1.32	0.67 - 2.59	7.84	2.23-27.52
Self-reported STDs	0.49	0.08 - 2.98	2.61	0.25-26.88
Frequency of drug injection	0.99	0.99 - 1.00	1.00	0.99 - 1.01
Change in perceived self-efficacy to engage in protective sex	---	---	1.04	1.02 - 1.08
Casual/commercial sex partner at follow-up	---	---	3.20	1.35 - 7.60
Enhanced intervention	1.04	0.69 - 1.58	0.639	0.27 - 1.50

\* Adjusted by drug treatment, depression symptoms and perception of health.

## Conclusions:

The results suggest that HIV prevention programs targeting IDUs should include strategies specific to each type of sex partner and should identify strategies effective in strengthening perceptions of self-efficacy. In a previous study we found that drug users who received

a positive HIV test result were more likely to decrease sex risk behavior by increasing the use of condoms (3). This finding highlights the importance of promoting HIV continuous testing of IDUs as a mean of promoting consistent condom use among those who receive a positive test result.

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