

# BEHAVIORAL OUTCOMES OF AIDS COMMUNITY-BASED INTERVENTION FOR DRUG USERS IN PUERTO RICO

Robles RR, Marrero CA, Colón HM, Matos TD, Muñoz A, Reyes JC.

Research Institute, Mental Health and Anti-Addiction Services Administration, San Juan, Puerto Rico.

## INTRODUCTION

This document reports the findings of a quasi-experimental study designed to assess a community-based prevention model to reduce HIV risk behaviors among drug injectors and crack users in San Juan, Puerto Rico. Different from the United States, where male homosexual contact is the main risk category, in Puerto Rico injection drug users (IDUs) constitute the largest group of persons with acquired immunodeficiency syndrome (AIDS). This group also serves as the major conduit of the human immunodeficiency virus to other groups, including non-drug using sexual partners and their children (1, 2).

In a previous quasi-experimental study, interviews with successive waves of drug injectors suggested some reduction in high risk behaviors such as the shared use of cooker (3). Although these measurements were obtained at two points in time, the absence of a control group provided researchers with no direct means of testing the efficacy of the intervention model. Furthermore, the individual-focused intervention model utilized in the previous study failed to show any effect in other drug use high risk behaviors such as the use of shooting galleries, or in sex risk practices.

In this second study we assessed the effect of a community-based intervention model in reducing HIV risk behaviors among drug injectors and crack users. Different from our first study, this new intervention study targeted not only the individual drug addict but also the structures of the addicted social context in which drug injectors and crack users practice risk behaviors (shooting galleries, coping areas, and crack network meeting places). It was assumed that a more intensive, continuous and encompassing intervention model would reduce not only needle sharing behaviors, as in our previous study, but also other drug use behaviors and sex risk practices.

## METHODS

Participants were recruited through a three-stage probability sample of crack and injection drug users buying an/or using drugs in coping areas in the San Juan metropolitan area. The coping areas were matched into pairs according to geographical location, availability of crack, new needles for sale and shooting galleries. On each month a new pair was selected for recruitment and 30 recruitment days and times were selected at random. On the designated day and time outreach workers visited the selected coping areas, estimated the number of buyers in the area, and randomly selected two drug users using standard Kish selection tables. After the recruitment period was over, each member of the matched pair was randomly assigned to either a minimal or enhanced intervention. A total of 313 participants were recruited, 71.6% of those recruited (224) were re-assessed six months after recruitment.

The two-armed intervention model comprised a minimal intervention and an enhanced intervention. The minimal intervention consisted of outreach activities for recruitment, pre-test counseling, HIV testing, post-test counseling two weeks later and passive referrals to drug treatment and health services. The enhanced intervention was a rigorously systematized intervention, strictly supervised for equity, and carried out by teams of intensively trained outreachers and drug counselors. This team of outreach workers and drug counselors worked with participants in the coping areas, shooting galleries and crack networks of the communities selected for the intervention for a period of four months (about 80 working days). Multiple individual and network intervention strategies were used to communicate the messages to participants. Condoms and needle hygiene kits were available to participants by field workers in all encounters. The content of both intervention strategies consisted of HIV prevention strategies related to needle hygiene and safe sex and well documented manuals guided both interventions.

The assessment consisted of three consecutive waves of interviews to ascertain sociodemographics, drug use patterns, needle use and sex risk behaviors, STD prevalence, and HIV status. Findings reported in this report are from the first and second assessment, as the Project is still in the field.

This is a stratified cluster sample of drug users selected within coping areas matched according to four variables (location, availability of crack, new needles for sale and shooting galleries) and grouped into five strata. Each strata is composed of one pair of communities. When completed, the intervention study will entail 16 community pairs. This study reports the preliminary results from the first 5 community pairs. SUDAAN version 6.2 was used for all calculations.

## RESULTS

The sample was predominantly young, 34.3 years old (SD = 0.66) 80.0% male and 20.0% female. Table 1 shows a significant gender difference by intervention group ( $p = 0.04$ ). The group assigned to the minimal model had a larger proportion of females (28.3%) than the group in the enhanced intervention (11.7%). So as to adjust the estimation of the intervention effects, gender was used in the final analysis. Table 2 shows HIV risk behaviors reported at both baseline and follow-up. Larger risk reductions are observed among the enhanced group in all behaviors except in reports of anal sex.

For each risk behavior a logistic regression was performed, adjusting for gender, baseline risk behavior and strata. Table 3 shows the estimated intervention coefficients. Needle sharing shows a significantly larger reduction in the enhanced intervention (OR = 1.35). Much to the surprise of investigators, shooting gallery use was also significantly reduced among participants of the enhanced intervention (OR = 1.49). Table 3 also shows statistically significant reduction of vaginal and oral sex. Enhanced intervention participants were almost three times more likely to reduce unprotected vaginal sex (OR = 2.86) and one and a half times more likely to reduce unprotected oral sex (OR = 1.58) than participants of the minimal intervention.

X International Conference on AIDS, 7-12 August, 1994.

## TABLES

Table 1: Baseline Characteristics by Intervention Model

|                                       | Minimal Intervention |      |      | Enhanced Intervention |      |      | p    |
|---------------------------------------|----------------------|------|------|-----------------------|------|------|------|
|                                       | N                    | %    | S.E. | N                     | %    | S.E. |      |
| <b>Overall</b>                        | 113                  | 50.4 |      | 111                   | 49.6 |      |      |
| <b>Gender</b>                         |                      |      |      |                       |      |      |      |
| male                                  | 81                   | 71.7 | 3.4  | 98                    | 88.3 | 1.9  | 0.04 |
| female                                | 32                   | 28.3 | 3.4  | 13                    | 11.7 | 1.9  |      |
| <b>Age</b>                            |                      |      |      |                       |      |      |      |
| < 25                                  | 10                   | 8.9  | 3.2  | 8                     | 7.3  | 2.0  | 0.87 |
| 25-34                                 | 59                   | 52.2 | 6.4  | 52                    | 47.3 | 3.8  |      |
| 35 or more                            | 44                   | 38.9 | 7.9  | 50                    | 45.5 | 4.6  |      |
| <b>Target Population</b>              |                      |      |      |                       |      |      |      |
| IDU                                   | 71                   | 62.8 | 10.1 | 85                    | 76.6 | 10.4 | 0.48 |
| crack user                            | 42                   | 37.2 | 10.1 | 26                    | 23.4 | 10.4 |      |
| <b>Sexual Activity (last 30 days)</b> |                      |      |      |                       |      |      |      |
| no                                    | 52                   | 46.0 | 3.5  | 66                    | 59.5 | 7.5  | 0.06 |
| yes                                   | 61                   | 54.0 | 3.5  | 45                    | 40.5 | 7.5  |      |
| <b>HIV Test Results</b>               |                      |      |      |                       |      |      |      |
| negative                              | 78                   | 70.3 | 4.5  | 63                    | 58.9 | 7.1  | 0.13 |
| positive                              | 33                   | 29.7 | 4.5  | 44                    | 41.1 | 7.1  |      |

Table 2: HIV Risk Behaviors at Baseline and Follow-Up by Intervention Model

|                         | Minimal Intervention<br>N = 113 |      |           |      | Enhanced Intervention<br>N = 111 |      |           |      |
|-------------------------|---------------------------------|------|-----------|------|----------------------------------|------|-----------|------|
|                         | Baseline                        |      | Follow-Up |      | Baseline                         |      | Follow-Up |      |
|                         | %                               | S.E. | %         | S.E. | %                                | S.E. | %         | S.E. |
| <b>Needle Risk</b>      |                                 |      |           |      |                                  |      |           |      |
| shared needles          | 22.1                            | 3.4  | 15.9      | 3.8  | 36.0                             | 8.6  | 18.0      | 4.3  |
| shared cooker           | 28.3                            | 5.4  | 21.2      | 6.3  | 35.1                             | 8.3  | 25.2      | 7.7  |
| used shooting galleries | 13.3                            | 2.3  | 10.6      | 2.2  | 22.5                             | 7.7  | 10.8      | 4.2  |
| <b>Unprotected Sex</b>  |                                 |      |           |      |                                  |      |           |      |
| vaginal                 | 43.4                            | 3.1  | 38.9      | 3.8  | 31.5                             | 5.9  | 17.1      | 4.5  |
| oral                    | 35.4                            | 4.4  | 25.7      | 3.2  | 27.9                             | 6.7  | 16.2      | 3.7  |
| anal                    | 6.2                             | 2.0  | 4.4       | 1.6  | 5.4                              | 3.9  | 4.5       | 2.4  |

Table 3: Adjusted† Odds Ratios for Change in HIV Risk Behaviors by Intervention Model

| HIV Risk Behavior Variables †† | O.R. | 95% C.I.     |
|--------------------------------|------|--------------|
| <b>Needle Risk</b>             |      |              |
| shared needles                 | 1.35 | 1.09 - 1.67* |
| shared cooker                  | 1.06 | 0.96 - 1.17  |
| used shooting galleries        | 1.49 | 1.16 - 1.92* |
| <b>Unprotected Sex</b>         |      |              |
| vaginal                        | 2.86 | 2.09 - 3.91* |
| oral                           | 1.58 | 1.38 - 1.82* |
| anal                           | 0.80 | 0.49 - 1.31  |

† gender, baseline risk behaviors, and matching strata were included in all regressions to adjust.

†† Risk behaviors coded 0 = reported, 1 = not reported

\*  $p < 0.05$

## CONCLUSIONS

Findings related to reduction of sexual behaviors and shooting gallery use among the participants of this study are different from findings of other studies among similar populations on the island. Previous intervention studies in Puerto Rico failed to show significant effects in reducing sexual behaviors or shooting gallery use although reporting reductions in other drug use risk behaviors (3). It may very well be the case that the enhanced intervention model was effective in changing more resistant behaviors such as sex practices and shooting gallery use because it was continuous, intensive, and strictly supervised for equity. Continuous availability and demonstrations of condoms and needle hygiene equipment in almost daily encounters might have not only helped in accessing this important equipment but also the demonstrations helped to get participants directly acquainted with ways to use rightly the equipment. The continuous face to face social support of the field team within the addicted social context where participants were embedded might have helped in dealing with social context impediments in the pathways to risk reduction.

## REFERENCES

1. Puerto Rico Department of Health. Puerto Rico AIDS Surveillance Report, 1994; June.
2. Centers for Disease Control and Prevention. HIV/AIDS Surveillance Report, 1993; 5: 1-19.
3. Colón HM, Sahai H, Robles RR, Matos TD. Effects of a community outreach program in HIV risk behaviors among injection drug users in San Juan, Puerto Rico; An analysis of trends. Aids Education and Prevention (in press).