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The Puerto Rico–New York Airbridge for Drug Users: Description and Relationship to HIV Risk Behaviors

Sherry Deren, Sung-Yeon Kang, Hector M. Colón, and Rafaela R. Robles

ABSTRACT *This study examined mobility on the airbridge between New York (NY) and Puerto Rico (PR) for Puerto Rican drug users and its relationship to HIV risk. Over 1,200 Puerto Rican injection drug users (IDUs) and crack smokers were recruited by outreach workers in NY and PR; interview data included questions on mobility (lifetime residences and recent trips). Two-thirds of the NY sample had lived in PR; one-quarter of the PR sample had lived in NY; the most commonly sited reasons for moving were family-related. Fewer than 10% had visited the other location in the prior 3 years. Variables related to risk were number of moves, recent travel, and having used drugs in PR (all with $p<0.05$). Implications included the need to enhance risk reduction efforts for IDUs in PR and address sexual risk among mobile drug users.*

KEYWORDS *HIV risk, Injection drug users, Mobility, New York, Puerto Rican.*

INTRODUCTION

The relationship between mobility and HIV-related risk behaviors has been identified in many contexts. Migrant workers within South Africa and cross-border migrants (e.g., those traveling from Mexico to the USA) have been reported to be at increased risk for HIV.[1,2] In some cases, lowered risk behaviors have been found for migrants, compared to individuals in the country of origin. For example, the movement of high-risk drug users from a resource-poor environment (in terms of availability of risk-reduction resources such as drug treatment) to an environment with more health care resources has been related to lowered risk behaviors.[3] Other studies have found that migrants may report more sexual partners than non-migrants, but they were also more likely to use condoms.[4] Thus, migration has been found to be related to both increases and decreases in HIV-related risk behaviors.

Migration between Puerto Rico (PR) and the United States, often referred to as the "airbridge," began in large numbers after World War II, primarily due to economic reasons.[5] The migration of Puerto Ricans to the USA has primarily been to the New York (NY) area, for overall migration,[6] as well as for migrant injection drug users (IDUs).[7]

Puerto Rican drug users have been found to be at especially high risk for HIV, and higher risk behaviors have been found among Puerto Rican drug users living on the Island, compared to those in mainland USA.[8,9] Early recognition of the

Deren and Kang are with the Center for Drug Use and HIV Research, National Development & Research Institutes, Inc., New York, NY, USA; Colón and Robles are with the Universidad Central Del Caribe, Center for Addiction Studies, Bayamón, Puerto Rico.

Correspondence: Sherry Deren, PhD, Center for Drug Use and HIV Research, National Development & Research Institutes, Inc., New York, NY 10010, USA. (E-mail: deren@ndri.org)

importance of addressing HIV-related issues and migration between PR and the USA was evidenced by a conference in the early 1990s focusing on "The HIV/AIDS Epidemic in a Commuting Population: Puerto Ricans in New York City and Puerto Rico," where many of the presentations identified the need to examine this travel in terms of its relationship to HIV risk behaviors.[10]

The distinction between two types of mobility, changes in actual residence and visits from one location to another (without actually residing there), are particularly important to make within the "airbridge" concept, where both types of mobility may occur. Additionally, the frequency of mobility in itself, i.e., changes in residence within as well as across particular geographic areas, may be associated with increases in subsequent risk behaviors.

A study of Puerto Rican drug users (IDUs and crack smokers) conducted in NY and PR collected information on mobility of the samples, as well as information on sociodemographic characteristics and risk behaviors. These data were used to describe the mobility of the samples and address several questions regarding mobility and HIV risk: (1) What is the nature of the "airbridge," or travel between PR and NY for Puerto Rican drug users (i.e., changes in residence or visits to the other location)? (2) What is the frequency of travel between NY and PR and from these locations to other locations? (3) Is there a relationship between mobility on the airbridge and HIV-related risk behaviors?

METHODS

Sample

Data for these analyses were collected as part of the Alliance for Research in El Barrio and Bayamón study, a dual-site study of Puerto Rican IDUs and crack smokers in PR and NY. Participants were recruited in Bayamón, PR, and East Harlem, NY, in 1998–1999 (cohort 1) and 2002–2003 (cohort 2), for a study of determinants of HIV risk behaviors. Cohort 1 was interviewed at multiple time points (baseline, 6, 36, and 42 months after baseline). Cohort 2 was interviewed at two time points: baseline and 6-month follow-up. Criteria for inclusion in the study were that the individual self-identified as Puerto Rican, was at least 18 years of age, and reported injecting drugs or using crack/cocaine in the prior 30 days. In addition, urinalysis was conducted, and participants had to test positive for opiates or cocaine.

Detailed information regarding lifetime changes in residence (residence defined as a location in which participant resided for at least 6 months) and recent (prior 3 years) trips or visits (defined as stays of at least one night) were asked of both cohorts of Puerto Rican drug users. For the cohort recruited in 1998–1999, these questions were included in a 36-month follow-up questionnaire ($n = 698$); for the cohort recruited in 2002–2003, the questions were included in the baseline questionnaire ($n = 600$). Thus, all subjects were administered these questions in 2001–2003.

Procedures

Participants were recruited by outreach workers using targeted sampling (see Deren et al.[9] and Colón et al.[11] for details regarding the recruitment process). They were brought to field locations in each study site, where informed consent (at baseline) was obtained, the interview was administered, and HIV testing was offered.

Follow-up interviews involved sending letters to all participants, based on extensive locator information collected at baseline, and tracking those who did not respond to letters.

Variables and Analyses

Variables included as predictors were all based on when the mobility data were collected, e.g., age for cohort 1 members was based on age at the 36-month follow-up interview (rather than baseline age). Predictor variables included gender, age, homelessness (residing on the street or in a shelter), HIV status, and cohort. Two categories of mobility measures were collected: (1) lifetime residences: ever lived in the other location (i.e., PR for those recruited in NY and NY for those recruited in PR), ever lived in the other location since starting the use of drugs on a regular basis, total number of lifetime moves (move defined as moving to a new location for at least 6 months: for those in NY City, moves to a new borough, city, or state of country were included; for those recruited in PR, moves to a new town, city, state, or country were included); and (2) recent (prior 3 years) trips: any overnight trips; trips to the other airbridge location (i.e., NY or PR). Dependent variables were examined for two categories of HIV-related risk (all based on prior 30-day behaviors): (1) sex risk: engaging in sex, percent of sex acts that were unprotected, and number of sex partners; and (2) injection-related risks: engaging in injection drug use, using shooting gallery, injection frequency, sharing syringes, and sharing injection paraphernalia (including sharing of cookers, cotton, rinse water, and backloading). Because the distribution of injection frequency was highly skewed, the logarithmic transformation was used.

Chi-square tests, *t* tests, and correlation coefficients were used for bivariate analyses. Multiple logistic regression was used for dichotomous dependent variables and multiple regression used for a continuous dependent variable (injection frequency). All regression models included the same predictor variables, entering background characteristics first and mobility variables next. All analyses were conducted by site.

RESULTS

Table 1 presents sociodemographic characteristics of the samples, by site and by recruitment cohort. Within each site, differences between cohorts were found. In NY, cohort 1 was less likely to be male (69 vs 77%, $p < 0.01$), older (41.4 vs 36.6, $p < 0.001$), less likely to be homeless (12 vs 37%, $p < 0.001$), and more likely to be HIV+ (27 vs 12%, $p < 0.001$). In the sample recruited in PR, similar to the differences found in the NY sample, cohort 1 participants were older (36.1 vs 33.1, $p < 0.001$), less likely to be homeless (12 vs 19%, $p < 0.05$), and more likely to be HIV+ (25 vs 15%, $p < 0.01$).

Because the cohort 1 data were based only on those followed up, we examined the baseline characteristics of the total cohort 1 sample by site, comparing those followed up at T3 and those not followed up (not shown in tabular form). The results showed that follow-up status was not related to most baseline characteristics, including homelessness, age, birthplace, HIV status, recent injection or risk behaviors (i.e., using shooting galleries, sharing injection paraphernalia, having sex, and having unprotected sex). The only significant difference found, in NY, was that

TABLE 1 Sociodemographic characteristics by site and recruitment cohort

	Recruitment site			
	NY ($n = 828$)		PR ($n = 470$)	
	Cohort 1	Cohort 2	Cohort 1	Cohort 2
n	428	400	270	200
% male	69%	77%**	79%	84%
$\bar{x}$ age (SD)	41.4 (7.0)	36.6(8.1)***	36.1(8.3)	33.1(8.1)***
Homelessness	12%	37%***	12%	19%*
HIV+	27%	12%***	25%	15%**
Born in				
NY	47%	46%	10%	11%
PR	50	50	87	84
Other	3	4	3	5
Ever been in				
NY	–	–	53%	56%
PR	89%	89%	–	–

For cohort 1, data are based on 36-month follow-up interview; for cohort 2, baseline data were used
*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$

females were more likely to be followed up (i.e., 70% of the follow-up sample was female compared with 77% of the initial cohort, $p < 0.05$).

The decline in HIV+ participants from cohort 1 to cohort 2 in both sites is consonant with the overall trend in NY and PR of declines in seroincidence beginning in the early 1990s.[12,13] The differences in age between cohorts within site were primarily due to the aging of cohort 1 [for example, mean age at recruitment of cohort 1 was 3 years younger (approximately 38), and thus not significantly different, at recruitment, from cohort 2 age at recruitment]. The lower rate of homelessness found in the cohort 1 sample may be due to a lower follow-up rate among those who became homeless in cohort 1 (although follow-up status was not related to homelessness status at baseline).

Half of the samples recruited in NY had been born in PR, whereas the great majority of those recruited in PR had been born there (87% of cohort 1 and 84% of cohort 2). Most of the NY sample reported ever being in PR (89% for both cohorts) and about half of the PR sample reported ever being in NY (53% of cohort 1 and 56% of cohort 2).

Injection and Sex Risk Behaviors

Injection and sex-related risk behaviors, as reported in prior publications on these cohorts, were higher in PR,[9,11,14,15] and access to services was lower.[16] As shown in Table 2, for the total sample, a smaller percentage of those recruited in PR reported engaging in sex in the prior 30 days (48 vs 56%, $p < 0.01$). Among those engaging in sex, however, the sample recruited in PR reported a greater number of sex partners (39% reported at least two partners compared with 33% of the NY sample, $p < 0.05$). The IDUs recruited in PR injected at a higher frequency (58% injected at least 150 times/month compared with 21% of those in NY, $p < 0.001$). A higher percentage of IDUs recruited in PR reported using shooting galleries (29 vs 4%), sharing syringes (37 vs 15%), and sharing paraphernalia (67 vs 29%, all $p < 0.001$).

TABLE 2 Risk behaviors by site (prior 30 days)

	NY ($n = 828$)	PR ($n = 470$)
Engaged in sex	56% ($n = 467$)	48% ($n = 225$)**
Had unprotected sex[a]	57%	63%
% of sex acts unprotected[a]	52%	58%
# of sex partners[a]		
1	77%	71%*
2–5	19	21
6+	14	18
Engaged in injection drug use	45% ($n = 370$)	71% ($n = 333$)***
Injection frequency[b]		
<30	41%	11%***
30–89	19	12
90–149	19	19
150+	21	58
Used shooting gallery[b]	4%	29%***
Shared syringes[b]	15%	37%***
Shared paraphernalia[b,c]	29%	67%***

*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$
[a]Of those who were sexually active
[b]Of those who injected in the prior 30 days
[c]Includes sharing cookers, cotton, or rinse water and backloading

Mobility: Travels on the Airbridge and to Other Locations

Two types of mobility were examined: changes in lifetime residence [on the airbridge locations (NY and PR) and other moves] and recent (prior 3 years) overnight trips (on the airbridge and other locations) (Table 3). Almost two-thirds of those who were recruited in NY had ever lived in PR (62%), and about one-quarter (24%) of those recruited in PR had ever lived in NY (having "ever lived" in a location includes those who were born there and those who moved there). About 25% of each sample had lived in locations other than the airbridge sites: for NY, New Jersey and Florida were the most frequently mentioned locations; for those recruited in PR, the same two states were most frequently mentioned, with Florida most often mentioned.

About two-thirds (66%) of the NY sample that had lived in PR did so since they started using drugs on a regular basis, and 54% of the sample recruited in PR who lived in NY reported doing so since they started using drugs on a regular basis. The number of years lived in the other location since they started using drugs regularly was similar for both sites (7.3 years for those recruited in NY and 8.0 years for those recruited in PR).

Any moves of at least 6 months (including moves between NY City boroughs or between towns in PR) were reported by the majority of participants, 93% in NY and 76% in PR ($p < 0.001$), and of these, almost all reported within location (i.e., within NY City or within PR) moves (99 and 92%, respectively). About one quarter of both samples, 29 and 27%, respectively, reported moves to the other airbridge location (NY to PR or PR to NY). Similar percentages in NY and PR reported moves to other states (27 and 20%, respectively) and to other countries (2% for both). Overall, the NY sample reported more moves in their lifetime. Among those who had ever moved, those recruited in NY had moved a mean of 3.7 times,

TABLE 3 Travels on the "airbridge" and other mobility measures, by recruitment site

	Recruitment site	
	NY ($n = 828$)	PR ($n = 470$)
Lifetime residence		
Lived only where recruited (NY/PR)	27%	60%***
Lived in		
NY	–	24%
PR	62%	–
Other locations	28%	25%
If ever lived in the other airbridge location (NY or PR)		
Did so since starting using drugs on a regular basis	66%	54%**
# years of living there since starting using drugs	7.3 (SD = 5.9)	8.0 (SD = 8.7)
Moves (of 6 months or more)		
Ever moved	93%	76%***
Total # of moves[a] (SD)	3.7 (2.7)	2.8 (2.1)***
Moves within state (NY or PR)	99%	92%***
If yes, mean #, SD	2.8 (2.0)	2.2 (1.6)***
Moves to the other location (NY/PR)	29%	27%
If yes, mean #, SD	1.6 (1.0)	1.4 (0.7)
Moves to another U.S. state	27%	20%
If yes, mean #, SD	1.7 (1.2)	1.6 (0.9)
Moves to another country	2%	2%
If yes, mean #, SD	1.3 (0.6)	1.0 (0)
Last move to current location (NY or PR) $\bar{x}$ years ago (SD)	16.5 (13.8)	14.0 (9.8)**
Recent trips (prior 3 years)		
Any overnight trips	20%	12%***
If yes, to		
NY	–	36%
PR	38%	–
Other locations	68	71
If yes, number of trips	1.5 (SD = 1.4)	1.4 (SD = 1.9)
Total # of days spent	37.0 (SD = 38.3)	34.5 (SD = 47.2)

*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$

[a]Specific information about moves, presented in the reminder of this section of Table 3, is based only on those who reported having ever moved

compared with 2.8 for those in PR ($p < 0.001$), with this difference primarily accounted for by the fact that half of those recruited in NY had moved there from PR. Those who had moved to NY or PR had moved there many years ago, an average of 16.5 years for those recruited in NY and 14.0 years for those recruited in PR ($p < 0.01$).

Recent overnight visits to other locations were reported more often by those recruited in NY (Table 3). About 20% of the NY participants reported any overnight trips in the prior 3 years, as compared with 12% of those recruited in PR ($p < 0.001$). Among those in NY who reported overnight trips, 38% traveled to PR and 68% traveled to other locations. For the participants recruited in PR who made overnight trips, 36% traveled to NY and 71% traveled to other locations. For both sites, the average number of trips was approximately 1.5, and the total number of days spent during all trips was approximately 35 days. Information was not collected

TABLE 4 Reasons for last move on the airbridge

Reasons for last move to current location	Recruitment site	
	NY ($n = 588$) (%)	PR ($n = 143$) (%)
Family moved or to be with family, spouse, or girlfriend/boyfriend	41	57**
For employment, training, or school	9	6
To get away from drugs	10	9
Because of legal, family, financial, or other problems	15	16
For a better life, or liked the other location	4	3
To obtain drug treatment, medical treatment, or other social or health services	7	1*
Other or unknown	15	9

*$p < 0.01$; **$p < 0.001$

on the specific locations where other visits were made. However, the majority reported that these visits were to other states in the USA. Overall, less than 10% of the total samples in both sites had visited the other airbridge location within the prior 3 years: in NY, 7% had visited PR, and of those recruited in PR, 4% had visited NY.

Reasons for Mobility

For the NY sample, the primary reasons for the last move to NY were because the family moved or to be with family, spouse, or girlfriend/boyfriend (41%); for employment (9%); to get away from drugs (10%); and to escape family, financial, or legal problems (15%) (Table 4). Whereas 4% reported moving to look for a better life or liked NY, 7% reported moving to NY to obtain drug treatment or other medical or social services. For the PR sample, 57% reported that the reason for their last move to PR was because their family moved or to be with family, 6% moved for employment or education, and 9% moved to get away from drugs. Moving because of family, financial, or legal problems was reported by 16%, moving to change environment or wanting to return to PR was reported by 3%, and 1% reported moving to PR for social or health services. Significant site differences were found for two of the reasons for moving: those moving to PR were more likely to report moving because of family reasons ($p < 0.001$), and those moving to NY were more likely to report doing so to obtain health or social services ($p < 0.01$).

Relationship Between Mobility and Risk Behaviors

The bivariate relationships between mobility indicators and risk behaviors (prior 30 days) were examined separately by site (Tables 5 and 6). Indicators analyzed were: living in the other airbridge location since starting the use of drugs on a regular basis, total number of lifetime moves, any trips (in the last 3 years), and trips to the other airbridge location. For the NY sample, no significant relationships were found between the lifetime residency variables (living in PR since starting using drugs on a regular basis and total number of lifetime moves) and sex risks. Living in PR since using drugs on a regular basis was related to ever injecting, higher injection frequency ($p < 0.001$), and higher rates of sharing injection paraphernalia ($p < 0.05$); total number of lifetime moves was significantly related to sharing paraphernalia. The mobility measures of recent trips, both any trips and trips to PR, were related to greater likelihood of engaging in sex but were not related to sex risk variables or

TABLE 5 Relationship between mobility and risk behaviors: NY

	Lifetime residence			Recent trips (prior 3 years)			
	Lived in PR since using drugs on a regular basis		Total # of moves[a]	Any trips		Trips to PR	
	No	Yes		No	Yes	No	Yes
Risk behaviors							
Any sex	59%	53%	0.02	54%	66%**	55%	71%*
Unprotected sex[b]	52	51	0.02	52	53	51	60
Multiple partners[b]	23	23	−0.05	24	18	24	16
IDU							
Any IDU	37%	54%***	0.05	45%	44%	45%	39%
Shooting gallery[c]	4	4	0.04	4	6	4	4
Injection frequency (log, SD)[c]	3.5 (1.4)	4.0 (1.3)***	0.00	3.8 (1.4)	3.8 (1.2)	3.8 (1.4)	3.7 (1.3)
Shared syringes[c]	13	16	−0.04	14	15	14	17
Shared paraphernalia[c]	23	34*	0.11*	28	32	29	25

*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$
[a]Correlation coefficients are presented
[b]Of those who were sexually active in the last 30 days
[c]Of those who injected in the last 30 days

TABLE 6 Relationship between mobility and risk behaviors: PR

	Lifetime residence			Recent trips (prior 3 years)			
	Lived in NY since using drugs on a regular basis		Total # of moves[a]	Any trips		Trips to NY	
	No	Yes		No	Yes	No	Yes
Risk behaviors							
Any sex	49%	45%	0.04	47%	55%	47%	76%**
Unprotected sex[b]	57	60	0.04	58	58	58	60
Multiple partners[b]	31	22	0.07	29	31	30	25
IDU							
Any IDU	70%	73%	−0.06	70%	78%	71%	67%
Shooting gallery[c]	28	30	−0.07	29	27	29	14
Injection frequency (log, SD)[c]	4.9 (1.3)	5.0 (1.2)	−0.09	4.9 (1.2)	4.8 (1.3)	4.9 (1.2)	4.6 (1.3)
Shared syringes[c]	37	36	0.13*	36	40	37	36
Shared paraphernalia[c]	67	69	0.10	67	67	67	71

*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$
[a]Correlation coefficients are presented
[b]Of those who were sexually active in the last 30 days
[c]Of those who injected in the last 30 days

TABLE 7 Multivariate analysis for injection risk behaviors: NY

	Injection frequency[a]	Shared syringes		Shared paraphernalia	
	Standardized coeff	AOR	(95% CI)	AOR	(95% CI)
Gender	−0.01	0.99	(0.42–2.36)	0.86	(0.43–1.72)
Age	−0.28***	0.97	(0.94–1.01)	0.96*	(0.93–0.99)
Homelessness	−0.00	1.04	(0.52–2.07)	1.49	(0.87–2.55)
HIV status	−0.09	0.10*	(0.01–0.75)	0.36*	(0.16–0.86)
Cohort	0.02	0.83	(0.40–1.70)	0.79	(0.45–1.39)
Lived in PR since using drugs on a regular basis	0.13*	1.30	(0.67–2.55)	1.49	(0.88–2.50)
Total number of moves	0.07	0.97	(0.86–1.09)	1.11**	(1.02–1.21)
Trips to PR	−0.04	1.21	(0.37–3.90)	0.80	(0.29–2.18)

CI = confidence interval
AOR = adjusted odds ratio
*$p < 0.05$; **$p < 0.01$; *** $p < 0.001$
[a]Logarithmic transformations were used

to IDU-related risks. For the sample recruited in PR (Table 6), no significant relationships were found between the lifetime residency variables and sex risks. Living in NY since using drugs on a regular basis was not related to current injection risks. However, total moves was related to sharing syringes ($r = 0.13$, $p < 0.05$). In terms of recent trips, those who had made recent trips to NY were more likely to report having sex in the prior 30 days (76 vs 47%, $p < 0.01$), and there was no significant relationship found between recent trips and injection-related risks.

Multivariate analyses were conducted, by site, for injection-related risk behaviors (because neither any of the sex-related risks nor shooting gallery use were significant in bivariate analyses, they were excluded). In the NY sample, those who were younger and had lived in PR since they started using drugs regularly reported higher injection frequencies, and younger participants were more likely to report sharing paraphernalia (Table 7) and lower injection frequencies. HIV status was significantly related to sharing syringes and other injection paraphernalia, with those who were HIV+ less likely to report sharing equipment. The total number of

TABLE 8 Multivariate analysis for injection risk behaviors: PR

	Injection frequency[a]	Shared syringes		Shared paraphernalia	
	Standardized coeff	AOR	(95% CI)	AOR	(95% CI)
Gender	−0.05	1.26	(0.67–2.38)	0.70	(0.36–1.36)
Age	−0.10	0.96*	(0.93–1.00)	0.98	(0.95–1.02)
Homelessness	0.34***	1.12	(0.63–2.00)	1.85	(0.96–3.58)
HIV status	0.00	1.29	(0.72–2.31)	2.24*	(1.17–4.28)
Cohort	0.17***	1.71*	(1.06–2.76)	2.55***	(1.55–4.20)
Lived in NY since using drugs on a regular basis	0.09	1.00	(0.55–1.82)	0.95	(0.50–1.78)
Total number of moves	−0.04**	1.17**	(1.04–1.31)	1.14*	(1.00–1.30)
Trips to NY	−0.04	0.71	(0.22–2.36)	1.17	(0.33–4.13)

CI = confidence interval
AOR = adjusted odds ratio
*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$
[a]Logarithmic transformations were used

moves was related to sharing paraphernalia. In the PR sample, homelessness was related to a higher frequency of injection, and cohort 2 was more likely to report higher injection frequency (Table 8). The total number of moves was negatively related to injection frequency. In terms of sharing behaviors, younger IDUs were more likely to report sharing syringes and cohort 2 reported higher sharing of syringes and other paraphernalia. In addition, in PR, the total number of moves was positively related to both sharing behaviors. Those who were HIV+ were more likely to report paraphernalia sharing.

DISCUSSION

There were several limitations to the data used in these analyses. The samples may not be representative of all drug users in the two locations. This may especially be the case for the NY sample; individuals who are migrants may be difficult to locate for participation in research projects.[17] In terms of visits to the other airbridge location, only data for the prior 3 years were collected, and this limitation on the time period may have influenced the relationships identified. Despite these limitations, several conclusions emerged from the analysis.

Overall, ongoing airbridge mobility appears relatively low among this sample. Moves to the current location (NY or PR) generally occurred many years ago, about 15 years. Although almost two-thirds of the NY sample had lived in PR at some point in their lives, recent visits to the other airbridge location were not frequent; in the last 3 years, less than 10% of the participants in each site visited the other location. Among those who made overnight trips, about twice as many participants, for both sites, went to other locations in the U.S.

The reasons given for their most recent move to NY or PR varied, with family-related reasons being the most frequent for participants in both locations. This importance of the family indicates that efforts to engage families, as an important source for development of social support for reductions in drug use and HIV risks, may be a helpful strategy. In both sites, seeking employment or education, or attempts at getting away from drugs, were the reasons for moves for at least 15% of the sample. This indicates a potential opportunity in providing assistance for prosocial activities for drug users who may recently arrive in NY or PR. Efforts to engage them in services at this point, when motivations for change may be high, have the potential for positive behavior change. It is also interesting to note that although moving to obtain health or social services was not reported by a large percentage of participants, it was much more likely to be a reason for moving from PR to NY than from NY to PR, heightening the opportunities that may be provided by efforts to extend services to migrants in NY.

The examination of the relationship between mobility and risk indicated several important findings. For those IDUs recruited in NY, if they had used drugs regularly in PR before coming to NY, they were more likely to be risky in IDU behaviors, as previously reported.[3] This finding is likely related to the reduced access to risk reduction services in PR (e.g., drug treatment and needle exchange), resulting in riskier behaviors (evidenced when they migrate to NY). For those recruited in PR, having used drugs in NY was not related to risk in PR; although the risk reduction service network is greater in NY, because tools for risk reduction are not available in PR, lower-risk behaviors may be difficult to maintain.

Taking recent overnight trips was not related to risks, although, in both locations, it was related to greater likelihood for recently engaging in sex. Those

who are more likely to travel thus should be targeted for enhanced sexual-risk reduction/condom-promotion efforts.

The multivariate analyses indicated that demographic variables also played a role in risk levels. Younger IDUs, in particular, should be targeted for risk reduction, especially given reports of high HCV seroconversion early in injection careers.[18] The total number of moves was related to higher risk, indicating that the results of frequent relocations may merit further study as a factor in risk behaviors. The impact of HIV status seemed to operate differently in the two locations, associated with a reduced risk in NY and a higher risk in PR, especially in terms of sharing injection equipment. This also requires further study and may be related to the lack of access to sufficient services in PR. Finally, as indicated in prior studies, the higher risk behaviors found in PR should be addressed through the enhancement of drug treatment, access to clean needles, and other related health and social service programs. This is particularly important given the cohort effect found in PR, in that those recruited in cohort 2 (recruited about 4 years later) reported higher sharing behaviors. Ongoing surveillance is needed to determine if this disturbing finding indicates an increasing trend toward greater risk among injectors in PR. This is particularly important to investigate given the declines in drug treatment services in PR from 1998 to 2002.[19]

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