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Pharmacy-randomized intervention delivering HIV prevention services during the syringe sale to people who inject drugs in New York City

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ABSTRACT

Background: Pharmacy syringe access may be an opportunity to provide HIV prevention resources to persons who inject drugs (PWID). We examined the impact of a pharmacy-randomized intervention to reduce injection risk among PWID in New York City.
Methods: Pharmacies ($n = 88$) were randomized into intervention, primary control, and secondary control arms. Intervention pharmacies received in-depth harm reduction training, recruited syringe customers who inject drugs into the study, and provided additional services (i.e., HIV prevention/medical/social service referrals, syringe disposal containers, and harm reduction print materials). Primary control pharmacies recruited syringe customers who inject drugs and did not offer additional services, and secondary control pharmacies did not recruit syringe customers (and are not included in this analysis) but participated in a pharmacy staff survey to evaluate intervention impact on pharmacy staff. Recruited syringe customers underwent a baseline and 3-month follow-up ACASI. The intervention effect on injection risk/protective behavior of PWID was examined.
Results: A total of 482 PWID completed baseline and follow-up surveys. PWID were mostly Hispanic/Latino, male, and mean age of 43.6 years. After adjustment, PWID in the intervention arm were more likely to report always using a sterile syringe vs. not (PR = 1.24; 95% CI: 1.04–1.48) at 3-month follow-up.
Conclusions: These findings present evidence that expanded pharmacy services for PWID can encourage sterile syringe use which may decrease injection risk in high HIV burdened Black and Latino communities.

1. Introduction

One of the most successful HIV prevention efforts to date has been increased access to sterile syringes for the purposes of injecting drugs when cessation of drug use is unattainable (Des Jarlais et al., 2009; Institute of Medicine, 2006). Despite the successes of syringe access through syringe exchange programs, racial disparities in HIV have persisted with Black and Latino individuals who inject drugs carrying a disproportionately higher burden of HIV than their White counterparts (Des Jarlais et al., 2009; Kottiri et al., 2002; Williams et al., 2013). In 2001, the Expanded Syringe Access Program (ESAP) allowed the legal sale of syringes without a prescription in pharmacies in New York State to help reduce blood-borne disease transmission among persons who inject drugs

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(PWID). Racial/ethnic disparities in ESAP participation has been observed with Black and Latino PWID reporting lower rates of pharmacy use as a syringe source than whites when the law was initially passed (Cooper et al., 2009; Fuller et al., 2002).

To address this disparity, multilevel-targeted interventions in New York City (NYC) aimed at improving pharmacy use were implemented and showed positive intervention effects. For example, targeting PWID, pharmacy staff, pharmacy practice, and community norms revealed increased pharmacy use, particularly among Black PWID (Fuller et al., 2007; Rudolph et al., 2010). Building upon these successes, a large-scale pharmacy-randomized trial was implemented with the goal of expanding pharmacy services to PWID by offering HIV prevention, medical, and social services information during the syringe sale transaction (Pharmacy As Resources Making Links to Community Services "PHARM-Link" study). The overall goal of PHARM-Link was to evaluate the impact of training pharmacy staff in HIV prevention and harm reduction such that pharmacy practice extended into HIV prevention during the syringe sale transaction with PWID and examining this new pharmacy training and practice on two outcome categories: (1) pharmacy staff and practice, and (2) injection behaviors among PWID. An intervention effect was observed among pharmacy staff in the intervention pharmacies compared to those in the control pharmacies, namely increased ESAP support (Crawford et al., 2013) and decreased belief that selling syringes to PWID causes community loitering (Crawford et al., 2014). In this paper, we will present the PHARM-Link intervention impact on the second outcome category, injection behaviors among PWID.

2. Methods

2.1. Study design

ESAP-registered pharmacies were selected from disadvantaged neighborhoods in Upper Manhattan, Lower Manhattan, Bronx, Brooklyn, and Queens. Neighborhood selection, ESAP-pharmacy eligibility, and recruitment have been described elsewhere (Rivera et al., 2010). In brief, 325 pharmacies were screened, 172 were eligible (i.e., willingness to sell nonprescription syringes without additional requirements, at least one new syringe customer per month, and at least one new syringe customer who becomes a regular customer), 31 did not maintain eligibility, and 11 declined to participate following the screener yielding 130 pharmacies with all pharmacy staff interacting with syringe customers agreeing to undergo a baseline survey. A total of 42 pharmacies declined to participate resulting in 88 ESAP-pharmacies randomized into three arms: intervention arm ($n=26$), primary control arm ($n=29$), and secondary control arm ($n=33$). Intervention pharmacies received in-depth harm reduction training and training on how to engage their syringe customers who inject drugs for study enrollment. In addition, they provided these customers with needle/syringe disposal Fitpacks® and print materials on HIV prevention and other medical/social services specific to their community. Primary control pharmacies received training on how to engage their syringe customers who inject drugs to schedule appointments for study enrollment but did not provide these customers with any additional services. Secondary control pharmacies underwent surveys only and did not engage any customers for enrollment or receive training of any sort. While there were slightly fewer pharmacies in the intervention arm, pharmacy and pharmacy staff characteristics did not differ by attrition (e.g., race gender, position, and pharmacy location).

At the point of syringe sale, pharmacy staff in the intervention and primary control arms were trained in how to discreetly describe the study to their nonprescription syringe customers and if customers expressed interest in participating, to offer a study appointment (within one week of recruitment). At the study appointment, research staff met the participant at the pharmacy and escorted them to a nearby eatery, park, or library for study activities. If the participant was at least 18 years of age (ascertained through photo identification) the participant was considered eligible and underwent informed consent and a 45-minute Audio Computer Assisted Self-Interview (ACASI) on a study laptop using touchscreen technology in a private area of the pharmacy or a nearby café. The survey, available in both English and Spanish, ascertained socio-demographic characteristics, drug use history, HIV risk behaviors, syringe access and disposal, drug treatment history, and use of case management for social services utilization. Participants who reported injection of an illicit drug within the past 6 months were eligible for a 3-month follow-up ACASI survey. Participants were compensated $20 and a roundtrip Metrocard for completion of the baseline survey and $25 for completion of the follow-up survey. Baseline data were collected between March 2009 and October 2010. The PHARM-Link study was approved by the institutional review boards of Columbia University Medical Center and the New York Academy of Medicine.

2.2. Measures

The outcomes of interest were as follows: HIV testing uptake, pharmacy syringe purchase frequency and barriers, safe syringe disposal, and drug abuse treatment/medical care utilization reported at three-month follow-up. The main predictor of interest was pharmacy arm (intervention vs. primary control). Sociodemographic characteristics were considered as potential confounders and included sex (male vs. female), age (continuous), race/ethnicity (Black vs. White/other, Hispanic/Latino vs. White/other), education level (high school graduate or equivalent vs. less than a high school graduation/equivalent), homelessness in past three months (yes vs. no), full or part-time employment in past three months (yes vs. no), and baseline self-reported HIV status (positive vs. negative/unknown).

2.2.1. Injection risk/protective behaviors. At baseline and three-month follow-up, participants were asked their frequency of: illicit drug injection, receptive syringe sharing, non-receptive syringe sharing, and 100% sterile syringe use (i.e., always using a sterile syringe and not re-using the same syringe). Responses were asked using a Likert scale (always, more than half the time, half the time, less than half the time, never) and dichotomized as ever vs. never for sharing variables and always vs. not always for the 100% syringe use variable based on the past 3 months.

2.2.2. HIV testing uptake. Participants were asked if they were tested for HIV in the past three months (yes vs. no).

2.2.3. Syringe exchange and purchases. Participants were asked about their syringe sources in the past three months and the frequency of using each source indicated. Frequency of syringe exchange program use, pharmacy syringe purchases (at least weekly vs. less than weekly), pharmacy as the primary syringe source (most frequent syringe source vs. not), and having encountered any barriers to pharmacy syringe purchases in the past three months (yes vs. no) were examined. The following syringe purchase barriers were considered: asked to sign a logbook, asked what the syringes would be used for, declined a single syringe purchase, declined any type of syringe purchase, and charged more than $1.00 for a single syringe (yes vs. no).

2.2.4. Syringe disposal. Safe syringe disposal practices was ascertained by the question, 'In the past three months, when you finished using a needle or syringe, what did you do with it when you were ready to get rid of most of the time?' Safe syringe disposal was defined as either (1) bringing the needle or syringe to a syringe exchange program (SEP), hospital, nursing home, clinic or health department, doctor's office, or pharmacy or (2) throwing the needle or syringe away in a sharps container, Fitpacks®, soda/laundry bottle, red medical container/sharps box, or red disposal mailbox. Safe syringe disposal in the past three months was included in analyses as a dichotomous variable (yes vs. no).

2.2.5. Medical care access. In terms of medical care access, we obtained current health insurance status (insured vs. uninsured) and having a usual source of care (yes vs. no). We also ascertained drug treatment uptake (excluding detoxification), detoxification uptake, and any case management services uptake in the past three months (yes vs. no).

2.3. Statistical analysis

The analysis was restricted to those who completed both baseline and three-month follow-up surveys. Baseline differences by study arm were calculated using chi-squares for categorical variables and t tests for continuous variables. To test pre/post differences in outcomes of interest, McNemar's tests were used. In order to test whether there was an intervention effect on the outcomes of interest, unadjusted associations between study arm and outcomes of interest at three months were obtained. For associations with $p<0.10$ we used log-binomial regression to obtain prevalence ratios of non-rare study outcomes and logistic regression for rare study outcomes at three-month follow-up between study arms using generalized estimating equations (GEE) to account for clustering of participants within pharmacies while adjusting for baseline measures of the outcome and potential confounders. All statistical analyses were performed using SAS 9.3.

3. Results

Fig. 1 depicts detail on study enrollment and retention by study arm. A total of 1411 study appointments were made, of which 753 participants were enrolled and completed a baseline survey. Of those that completed the baseline survey, 78.9% ($n=592$) reported injection in the past 6 months and were eligible for the follow-up survey. There was a follow-up rate of 81.4% with a total of 482 participants completing the follow-up survey. Among those who were lost to follow-up, those from the control arm were less likely to