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## Syringe Access, Syringe Sharing, and Police Encounters among People Who Inject Drugs in New York City: A Community-Level Perspective

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### Abstract

**Background**—Injection drug user (IDU) experience and perceptions of police practices may alter syringe exchange program (SEP) use or influence risky behaviour. Previously, no community-level data had been collected to identify the prevalence or correlates of police encounters reported by IDUs in the United States.

**Methods**—New York City IDUs recruited through respondent-driven sampling were asked about past-year police encounters and risk behaviours, as part of the National HIV Behavioural Surveillance study. Data were analysed using multiple logistic regression.

**Results**—A majority (52%) of respondents (n=514) reported being stopped by police officers; 10% reported syringe confiscation. In multivariate modelling, IDUs reporting police stops were less likely to use SEPs consistently (adjusted odds ratio [AOR]=0.59; 95% confidence interval [CI]=0.40–0.89), and IDUs who had syringes confiscated may have been more likely to share syringes (AOR=1.76; 95% CI=0.90–3.44), though the finding did not reach statistical significance.

**Conclusions**—Findings suggest that police encounters may influence consistent SEP use. The frequency of IDU-police encounters highlights the importance of including contextual and

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structural measures in infectious disease risk surveillance, and the need to develop approaches harmonizing structural policing and public health.

### Keywords

Injection drug use; syringe exchange programs; barriers; policing; structural factors; public health surveillance

### Background

Public health and law enforcement practitioners contend with many of the same structural problems in the communities where they work, including substance abuse, poverty, domestic violence, inadequate education and social support. Despite overlapping challenges, these two sectors typically adopt divergent strategic and programmatic approaches; they are driven by different professional perspectives and, as a result, conflicting incentives and metrics of success. (Beletsky et al., 2005; Beletsky et al., 2012; Burris et al., 2004; Small, 2005; Roe v. City of New York. 2002)

Law enforcement professionals are often wary of syringe exchange programs (SEPs) because they perceive these activities as enabling criminal conduct, sending the wrong message, and presenting a threat to the occupational health of front-line officers. (Beletsky et al., 2005; Beyer et al., 2002; Gellert et al., 1994; Rhodes et al., 2006) In an effort to mitigate those perceived negative consequences, some front-line officers may confiscate and discard IDUs' injection equipment without placing formal charges against the individual (referred to as "syringe confiscation" throughout), even if the IDU is legally entitled to such possession. (Beletsky et al., 2005; Burris et al., 2004) At the time of this study, although syringe possession was authorized under public health law for individuals participating in SEPs or purchasing syringes from an authorized pharmacy, it was not concurrently decriminalized in the penal code. Community health providers, lacking a nuanced understanding of the challenges of policing, police culture, and the precedence of criminal justice law over public health law for law enforcement professionals, often perceive this group as unwilling to facilitate or promote syringe distribution programs and similar evidence-based approaches targeting IDUs. (Small, 2005)

The misalignment between these two sectors may hinder the work of SEPs and negatively impact injection-related disease risk. Syringe confiscation, uninvited appearances at programs, and specific enforcement targeting participants' access to outreach sites can interfere with program operations and deter participation. (2001; 2002; Aitken et al., 2002; Beletsky et al., 2011c; Blankenship and Koester, 2002; Blankenship et al., 2004; Cooper et al., 2004; Cooper et al., 2005; Davis et al., 2005; Friedman et al., 2006; Kerr et al., 2005; Koester, 1996; Strathdee et al., 2011) Both IDU direct experience with and perceived risk of policing encounters can decrease willingness and ability to engage in protective behaviours. (Grund et al., 1995; Kerr et al., 2005; Rhodes et al., 2002) For example, confiscation of syringes or being stopped by police when attempting to access an SEP likely erode the credibility of community health providers who advertise the legal protections afforded by public health law authorizing SEPs. (Davis et al., 2005; Martinez et al., 2007)

Moreover, the deterrent effects of adverse police encounters may be heightened among vulnerable and marginalized IDU populations; (Case, 1998; Iguchi et al., 2005; Lane et al., 2004) evidence demonstrates increased risk behaviour and elevated odds of HIV and other adverse health outcomes among IDUs interacting with the criminal justice sector. (Burris and Strathdee, 2006; Friedman et al., 2006; Strathdee S.A. et al., 2008; Werb et al., 2008; Booth et al., 2003; Hammett et al., 2005; Fairbairn et al., 2009; Sarin et al., 2011; Pollini et al.,

2008; Beletsky et al., 2012) Certain policing practices may also adversely impact the occupational health of front-line law enforcement professionals, contributing in particular to elevated risk of needle-stick injury, (Beletsky et al., 2005; Groseclose et al., 1995) with possible impact on job stress, personnel burn-out, and turnover.(Beletsky & Heimer, 2009; Beletsky et al., 2005; Beletsky et al., 2012; Groseclose et al., 1995)

Internationally, several large-scale studies have identified strong associations between specific policing encounters and IDU disease risk.(Beletsky et al., 2013; Booth R.E. et al., 2006; Pollini et al., 2008) However, the applicability of these studies to US law enforcement may be limited by the differences in management, professionalism, compensation, and judicial oversight in these other settings.(Beletsky et al., 2013; Grund et al., 1995; Human Rights Watch, 2003; Kerr et al., 2005; Rhodes et al., 2002; Rhodes et al., 2006; Sarang et al., 2010; Zhao et al., 2001) Research focused on IDU health and policing in the US has utilized small samples, recruited specific IDU subpopulations (e.g., SEP users), or assessed relationships through ecologic analyses, rather than from individual-level data (Beletsky et al., 2011c; Bluthenthal, 1997; Davis et al., 2005; Friedman et al., 2006; Koester, 1994; Martinez et al., 2007). Other US studies have relied on assessments of IDUs' subjective views of the risk of law enforcement encounters rather than documentation of actual contact (e.g. experience of syringe confiscation).(Bluthenthal et al., 1998; Bluthenthal et al., 1999b)

The setting for our study is New York City (NYC), where HIV incidence among IDUs reached epidemic proportions in the 1980s, with more than half the IDU population HIV-infected by the end of the decade.(Des Jarlais et al., 2005; Marmor et al., 1987) Following SEP authorization in State Public Health Law in 1992, the rapid scale-up of programs in the 1990s helped to reverse this trend, and the annualized HIV incidence is now estimated at less than 2% per year.(Des Jarlais et al., 2005) At the time of this study in 2009, 13 SEPs were operating more than 40 program sites in NYC, and syringe sales were in place at most pharmacies, also authorized by State public health law. In conflict with this law, however, the New York State penal law continued to prohibit syringe possession throughout the study period.(New York State, 2010)

In this study, the two primary study outcomes or dependent variables for which we assessed predictors were: (1) consistent SEP participation, and (2) receptive syringe sharing. Receptive syringe sharing is a well-established mode of HIV transmission, whereas consistent SEP participation has been associated with reducing the spread of HIV among IDUs. Our research investigated two specific questions: (1) whether police pat-downs ("police stops") were associated with decreased SEP use, and (2) whether police confiscation of syringes from IDU was associated with receptive syringe sharing.

## Methods

### Sampling and Recruitment

Data were collected as part of the National HIV Behavioural Surveillance (NHBS) survey, a US Centres for Disease Prevention-sponsored periodic cross-sectional study in 21 U.S. cities with the goal of characterizing HIV prevalence and behavioural risks among high-risk groups.(Gallagher et al., 2007) The analysis presented here is based on data from the 2009 NHBS conducted among New York City (NYC) IDUs. NHBS study design has been described in detail elsewhere; (Lansky et al., 2007) briefly, for participant recruitment we used respondent-driven sampling (RDS), a form of snowball sampling that allows for statistical weighting of results to adjust for recruitment biases common in peer-referral designs.(Heckathorn, 2007) Our study team selected initial IDU recruits (n=12) as seeds through community ethnography. Once the seeds completed the study, they were asked to recruit up to three IDU peers, then the next wave of participants were asked to recruit

additional IDU peers, and so on until we met our target sample size (n=500). In order to achieve demographic and geographic diversity, seeds were selected based on demographic characteristics, and the study locations (“storefronts”) were located in four distinct neighbourhoods across NYC.

Eligibility criteria for the study were: past-year injection of any drugs not prescribed to the participant, at least 18 years of age, NYC residence, and English or Spanish comprehension. Eligible participants were paid \$20 for completing the survey, \$10 for taking an HIV test, \$10 for taking an HCV test, and \$10 for each eligible participant (up to 3) whom they recruited. Study procedures were approved by the institutional review boards of the participating organizations.

## Measures

In a structured survey administered in private by a trained interviewer, participants were asked about socio-demographics, sexual activity, injection and noninjection drug use, and encounters with HIV testing and prevention services. The survey included questions about two kinds of encounters with law enforcement in the past year: police stops (“In the past 12 months, have you been stopped and frisked, or searched by the police?”) and confiscation of injection equipment (“In the past 12 months, have the police taken, confiscated, or destroyed your needles or supplies without arresting or citing you?”).

Based on prior studies that find that police may target SEP clients and influence the likelihood for risky injecting practices,(Bluthenthal et al., 1999a; Davis et al., 2005; Martinez et al., 2007) we hypothesized that the experience of police stops would influence IDUs to access SEPs less consistently and that syringe confiscation would be associated with increased receptive syringe sharing. We measured all sources of syringes in the past year reported by participants, and categorized participants as consistent SEP users if they obtained all past-year syringes from SEPs. Receptive syringe sharing was defined as injecting with a syringe that someone else has already used. We also examined obtaining syringes from pharmacies and potentially unsterile sources (e.g., friends, sex partners, drug dealers, and other street sources) as an alternative outcome of syringe confiscation. As potential confounders, our analysis also considered socio-demographics (gender, race/ethnicity, age, borough of residence, past-year homelessness and income) and drug injection patterns (years since initiating injection drug use and, in the past year, at least daily injection, speedball injection, having at least 100 syringes available on average, and public or semi-public drug injection).

## Statistical Analysis

All study data were weighted with the RDS Analysis Tool 6.0 (Cornell University, Ithaca, NY), which adjusted estimates for selection biases of large network overrepresentation and homophily (preferential in-group recruitment).(Heckathorn, 2007) RDS weights were generated and applied for each bivariate statistic, and weighted survey data were analysed in SAS 9.2 (SAS Institutes, Cary, NC) and R 2.12.(R Development, 2011)

Pearson chi-square tests were used to investigate differences in the two outcomes (consistent SEP use and receptive syringe sharing) by demographics, drug injection patterns, and the two law enforcement measures. Student’s t tests with unequal variance were used to examine differences by years of injection (continuous). Subgroups comprising <1% of the weighted sample (transgender, ‘other’ race, and Staten Island IDU) were excluded from comparisons because of unstable errors. To determine the unbiased association between the two hypothesized associations (police stops with SEP use, and syringe confiscation with syringe sharing), we separately entered each potential confounder (socio-demographic,

injection patterns, and syringe sources) into a multiple logistic regression model with each hypothesized law enforcement exposure variable. Covariates that changed the main exposure coefficient by >10% were retained in the final multiple logistic regression models. (Hosmer & Lemeshow, 2002) Adjusted odds ratios and 95% confidence intervals based on maximum likelihood estimation are presented. The multivariate models were weighted with the RDS weight for the outcome variable. (Johnston et al., 2010)

## Results

As Table 1 shows, this sample of IDUs was predominantly male (78%) and 30 to 49 years old (71%). Half of respondents (50%) self-identified as Hispanic, more than one-third (36%) as white, and 13% as black. Participants resided in all five NYC boroughs, with most living in Brooklyn (40%), Manhattan (26%), and the Bronx (24%). In the past year, almost two-thirds had been homeless (62%) and two-thirds had an annual income of \$10,000 or less (65%). Past-year homelessness included living in shelters (23%), single-room-occupancy hotels (9%), and on the street (33%). The mean years of injection drug use were 18.2, 83% injected drugs at least daily, and 56% injected speedballs in the past year. Nearly one-third (30%) had injected drugs in a public or semi-public environment. The consistency of SEP use for obtaining syringes was evenly mixed: 30% obtained all syringes from a SEP, 42% obtained only some of their syringes there, and 28% obtained no syringes from a SEP in the past year. In addition, 56% obtained any syringes from pharmacies and 33% from potentially unsterile sources.

Half of the IDUs (52%) reported police stops in the past year, and 10% reported syringe confiscation without an arrest. Police stops were associated with a decreased likelihood of consistent SEP use ( $p < 0.001$ ), but there was no significant relationship between syringe confiscation and SEP use. Consistent SEP use was also associated with Hispanic race/ethnicity ( $p = 0.01$ ), older age ( $p = 0.04$ ), Bronx or Manhattan residence ( $p < 0.001$ ), homelessness ( $p < 0.001$ ), lower income ( $p < 0.01$ ), and greater years of injection ( $p < 0.01$ ). In multivariate logistic regression, IDUs who had been stopped by police were 40% less likely to use SEP consistently, compared to IDUs who had not been stopped (AOR: 0.59; 95% CI: 0.40–0.89). Borough of residence emerged as a confounder controlled for in the model, with Bronx and Manhattan residents more likely to report consistent SEP use.

Overall, 59% of respondents reported reusing a syringe they had already used to inject with, and 27% reported receptive syringe sharing. In addition, 41% used other injection equipment (cookers, cotton, rinse water) that someone else had already used (data not shown). Table 2 displays the factors associated with receptive syringe sharing. Experience of syringe confiscation was not significantly associated with an increased likelihood of receptive syringe sharing, but there was an observable relationship ( $p = 0.09$ ). Receptive syringe sharing was also associated with female gender ( $p < 0.001$ ), Hispanic or white race/ethnicity ( $p = 0.03$ ), younger age ( $p < 0.001$ ), Brooklyn residence ( $p < 0.01$ ), homelessness ( $p = 0.04$ ), fewer years of injection ( $p < 0.01$ ), speedball injection ( $p < 0.01$ ), public/semi-public injection ( $p < 0.01$ ), and inconsistent SEP use ( $p < 0.01$ ). Variables that were confounders included gender, age, borough of residence, and public/semi-public injection. In multivariate logistic regression, syringe confiscation remained marginally associated with receptive syringe sharing (AOR: 1.76; 95% CI: 0.90–3.44;  $p = 0.09$ ).

## Discussion

Our analysis suggests that police encounters with IDUs may have an influence on consistent sterile syringe access and syringe sharing behaviour. To our knowledge, no quantitative analysis of a community-wide survey of U.S. IDUs has previously assessed the prevalence



of law enforcement encounters. Overall, the sample captured here parallels the socio-demographic characteristics of other recent studies of IDUs in NYC and in other urban areas of the U.S.: the majority were male, people of colour, and in their thirties to forties.(Des Jarlais et al., 2000)

Over the past fifteen years, studies from around the world, including the US,(Blankenship et al., 2003; Bluthenthal et al., 1999a; Cooper et al., 2005; Davis et al., 2005) Canada,(Shannon et al., 2008; Small et al., 2006; Werb et al., 2008) Ukraine,(Booth et al., 2003a; Booth et al., 2003b; Booth et al., 2009) Russia,(Rhodes et al., 2002; Rhodes et al., 2006) Vietnam, (Hammett et al., 2005) Thailand,(Fairbairn et al., 2009) India,(Sarin et al., 2011) and Mexico(Pollini et al., 2008; Volkmann et al., 2011) have identified links between IDU experiences with police and risky injecting behaviour. Research has also specifically identified police-generated barriers to SEP use for IDUs, (Beletsky et al., 2011c; Kerr et al., 2005) including precipitous reductions in program utilization associated with intensive policing in the geographic area local to the SEP (Davis et al., 2005) and associations between an area's background arrest rates and SEP utilization.(Cooper et al., 2012) Consistent with these data, our findings suggest that the experience of police stops may be a significant predictor of inconsistent SEP use among NYC IDUs, highlighting a possible mechanism by which policing influences IDU ability and motivation to practice protective behaviours. Though not significant, we found a possible increased likelihood of receptive syringe sharing among those who had syringes confiscated. Data suggesting that unauthorized syringe confiscation is not an uncommon occurrence in this study population highlights residual challenges in aligning practices of some police officers to public health goals, illustrating common challenges with other domestic and international settings. (Beletsky et al., 2013; Beletsky et al., 2005; Fairbairn et al., 2009; Werb et al., 2008) As strategies and activities shift towards a public health-based approach for addressing substance abuse, (Drug Control Policy, 2010) these findings add urgency to efforts to align policing and community health efforts targeting IDUs.

Although systematic disease surveillance has been established as critical to public health practice, surveillance for the relative influence and impact of structural determinants on health outcomes has not received similar attention. Given the robust evidence base on the interaction between policing encounters and IDU risk and health outcomes, it is time to consider these "structural" factors worthy of systematic public health surveillance. To our knowledge, this is the first time that items on police encounters were integrated as part of data collection for periodic surveillance among at-risk groups, in the US or elsewhere. Our findings suggest that wider monitoring is meaningful and useful to understand the prevalence of adverse encounters between police and IDU. Such monitoring could also be achieved with research studies specifically focused on the influence of criminal justice on health risk and outcomes among high-risk groups. Better sustainability and generalizability can be achieved with the relatively modest investment by integrating several key variables on police encounters in existing community-level surveys such as NHBS. Information collected by these efforts could effectively inform prevention strategies and response initiatives, including training, legal, administrative, and other approaches. Community-based programs and government entities should explore opportunities to implement monitoring and information feedback mechanisms, to articulate a shared understanding of adverse encounters between police and IDU and implement strategies and activities to prevent and reduce their prevalence.(Beletsky et al., 2011c)

Most notably, this analysis highlights opportunities for integrating policies and practices across public systems. No one benefits when resources are dedicated to providing sterile syringes to IDUs, only to be confiscated by law enforcement. Given the prevalence of police encounters reported by IDUs in this study, such interactions have the potential to serve as

moments of engagement for information-sharing and linkage to health and human services. With adequate training, resources, and cross-sectorial communication, law enforcement can promote public safety while conserving public resources by linking policing to local government and community-based programs designed to serve high-risk groups such as IDUs. By effectively aligning activities targeting these groups, public health and law enforcement sectors can realize the considerable potential for improving community health and safety (Beletsky & Heimer, 2009; DeBeck et al., 2008)—the potential that has been underscored by the emerging wide support for a “public health approach” to drug use. (National Office of Drug Control Policy, 2010)

In the months following completion of this study, a bill explicitly decriminalizing syringe possession in the State Penal Code for individuals accessing syringes through an authorized syringe access program (including both SEPs and pharmacies authorized to sell syringes) was signed into law by New York’s Governor, and took effect several months later. (New York State, 2010) This legislative change reconciles the Penal Code with the provisions of the Public Health Law, potentially changing the dynamics of the encounters between law enforcement and IDUs reported here.

### Limitations

This analysis is subject to several limitations. In this sample, the majority of respondents (72%) reported using a SEP in the past year, which is likely an overestimate of SEP use among NYC IDUs, and may have been influenced by recruitment in locations where the prevalence of IDU was high and where SEPs are likely to be based. Furthermore, NHBS recruitment was designed to identify IDUs most-at-risk for HIV infection, so the sample may or may not be representative of the overall NYC IDU population. The older age captured in this sample is similar to the demographic patterns found in other studies of SEP participants around the U.S. (Des Jarlais et al., 2009) It is not possible to confirm whether patterns in this sample reflect the true distribution of police encounters experienced by NYC IDUs. In addition, because the police questions were integrated via the local (NYC) survey component of the NHBS, we cannot compare encounter prevalence with those among IDUs in other NHBS cities. (Des Jarlais et al., 2000) One possible explanation for the lack of syringe confiscation in the final model is that the behavioural impact of such encounters may dissipate overtime. Generally, observed associations should not be interpreted as causal; the direction of the relationship is unknown and other, unexamined confounders may underlie the observed associations and provide alternate explanations. An alternative interpretation of the findings could suggest that consistent SEP use is protective against police stops. By establishing temporal sequences in the production of these phenomena, further longitudinal research can help clarify these relationships. No information on the context in which IDUs were stopped was collected; IDUs may engage in criminalized purchase, possession or sale of controlled substances. These activities may precipitate encounters with police that include searches. Consistent SEP use then might be a proxy for a more stable lifestyle, leading to fewer police encounters.

### Conclusion

Aligning policing practice with the goals and activities of syringe exchange programs, as well as other legal sterile syringe distribution programs, such as pharmacy distribution, represents a concrete and integral step toward addressing infectious disease risk among IDU and other high-risk groups. (Beletsky et al., 2011a; Silverman et al., 2012) As the discourse shifts towards a “public health approach to drug use,” (Drug Control Policy, 2010) various levels of government in the U.S. are enacting laws and implementing structural reform to coordinate public health and criminal justice activities targeting drug users. (State, 2009) For IDUs, improved monitoring of adverse police encounters, (Beletsky et al., 2011c) tailored

training for police.(Beletsky et al., 2011a) and cross-sectorial communication between health and criminal justice agencies at different levels of government with community-based organizations may help address arbitrary and abusive police practices (Beletsky et al., 2013; Beletsky et al., 2012; Volkman et al., 2011) and create better harmonization of law enforcement and community health efforts.(Beletsky et al., 2011b; Davis and Beletsky, 2009; Silverman et al., 2012)

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Table 1  
 Factors Associated with Consistent Syringe Exchange Program (SEP) Use in the Past Year, among New York City Injection Drug Users, 2009, n=514

	SEP Use					
	Total %	Only SEP %	Some/None %	p	OR* 95% CI**	AOR*** 95% CI
<b>Gender</b>				0.82		
Male	77.6	80.0	76.6		1.00	
Female	21.7	20.0	23.4		0.82	0.52–1.29
Transgender	0.8					
<b>Race</b>				0.01		
Black	12.6	11.4	18.5		1.00	
Hispanic	50.4	60.1	47.0		2.08	1.17–3.68
White	36.4	28.4	34.5		1.34	0.72–2.48
Other	0.5					
<b>Age</b>				0.04		
18–29	11.2	9.1	11.0		1.00	
30–39	28.4	22.9	30.6		0.90	0.45–1.82
40–49	42.9	43.7	43.7		1.20	0.62–2.32
50+	17.5	24.3	14.8		1.98	0.96–4.08
<b>Borough</b>				<0.001		
Brooklyn	40.3	21.1	43.6		1.00	1.00
Bronx	23.6	40.0	17.8		4.63	2.79–7.68
Manhattan	25.6	32.6	22.5		2.99	1.80–4.96
Queens	9.0	6.2	14.8		0.87	0.40–1.86
Staten Island	1.5	-	-		-	-
<b>Sociodemographics</b>						
Homeless	61.5	72.4	55.9	<0.001	2.08	1.39–3.11
Income < \$10,000	64.7	72.8	60.7	<0.01	1.73	1.16–2.60
<b>Drug Injection Patterns</b>						
Years of Injection (mean)	18.2	19.0	17.7	<0.01	1.02	1.01–1.04
Daily Injection (PY)	83.3	83.9	83.3	0.87	1.04	0.63–1.72
Speedball Injection	55.9	55.0	56.3	0.78	0.94	0.65–1.38
100 Syringes Available	28.4	30.9	27.2	0.38	1.20	0.80–1.80

	Total %	SEP Use			p	OR*	95% CI**	AOR***	95% CI
		Only SEP %	Some/None %						
Public/Semi-Public Injection	29.9	28.2	31.3	0.47	0.86	0.57-1.29			
<b>Law Enforcement</b>									
Stopped & Frisked	52.3	40.9	59.6	<0.001	0.47	0.32-0.68	0.59	0.40-0.89	
Syringes Confiscated	10.0	7.3	11.4	0.15	0.61	0.31-1.20			

\* Odds Ratio;

\*\* Confidence Interval;

\*\*\* Adjusted Odds Ratio



**Table 2**  
 Factors Associated with Receptive Syringe Sharing in the Past Year, among New York City Injection Drug Users, 2009, n=514

	Receptive Syringe Sharing							
	Total %	Yes %	No %	P	OR*	95% CI**	AOR***	95% CI
<b>Gender</b>				<0.001				
Male	77.6	66.7	81.6		1.00		1.00	
Female	21.7	33.4	18.4		2.22	1.44–3.44	2.12	1.34–3.34
Transgender	0.8							
<b>Race</b>				0.03				
Black	12.6	9.3	18.8		1.00			
Hispanic	50.4	55.5	49.7		2.25	1.18–4.28		
White	36.4	35.2	31.6		2.25	1.14–4.41		
Other	0.5							
<b>Age</b>				<0.001				
18–29	11.2	15.7	8.5		1.00		1.00	
30–39	28.4	37.5	24.8		0.82	0.43–1.55	1.01	0.50–2.05
40–49	42.9	39.8	45.1		0.48	0.26–0.86	0.70	0.35–1.39
50+	17.5	7.0	21.6		0.18	0.08–0.41	0.25	0.10–0.61
<b>Borough</b>				<0.01				
Brooklyn	40.3	43.8	33.8		1.00		1.00	
Bronx	23.6	29.7	23.2		0.99	0.62–1.60	0.86	0.51–1.43
Manhattan	25.6	13.6	30.0		0.35	0.20–0.62	0.27	0.15–0.51
Queens	9.0	12.7	11.9		0.82	0.44–1.54	0.65	0.33–1.28
Staten Island	1.5							
<b>Sociodemographics</b>								
Homeless	61.5	68.6	58.5	0.04	1.55	1.03–2.33		
Income < \$10,000	64.7	70.5	62.4	0.09	1.43	0.95–2.18		
<b>Drug Injection Patterns</b>								
Years of Injection (mean)	18.2	16.0	19.1	<0.01	0.95	0.93–0.97		
Daily Injection (PY)	83.3	83.2	83.5	0.83	0.98	0.58–1.64		
Speedball Injection	55.9	65.7	52.4	<0.01	1.74	1.16–2.60		
100 Syringes Available	28.4	27.0	28.8	0.68	0.91	0.59–1.41		

Receptive Syringe Sharing								
	Total %	Yes %	No %	P	OR*	95% CI**	AOR***	95% CI
Public/Semi-Public Injection	29.9	39.4	27.1	<0.01	1.75	1.17-2.63	2.23	1.36-3.67
<b>Syringe Sources</b>								
Syringe Exchange				<0.01				
None	28.3	29.3	25.3		1.00			
Some	42.0	51.4	38.8		1.15	0.72-1.81		
All	29.7	19.3	35.8		0.47	0.27-0.81		
Pharmacy (Any)	55.6	62.9	52.8	0.04	1.51	1.02-2.25		
Unsterile Sources (Any)	32.8	49.5	26.8	<0.001	2.68	1.80-4.00		
<b>Law Enforcement</b>								
Stopped & Frisked	52.3	46.5	56.2	0.05	0.68	0.46-1.00		
Syringes Confiscated	10.0	13.8	8.7	0.09	1.67	0.92-3.04	1.76	0.90-3.44

\* Odds Ratio;

\*\* Confidence Interval;

\*\*\* Adjusted Odds Ratio