Differences in HIV risk behavior of injection drug users in New York City by health care setting

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Abstract

The purpose of this study is to examine the HIV risk behaviors and demographic characteristics of injection drug users (IDUs) by type of health care setting, which can inform development of tailored structural interventions to increase access to HIV prevention and medical treatment services. IDU syringe customers were recruited from pharmacies as part of the "Pharmacist As Resources Making Links to Community Services" (PHARM-Link) study, a randomized community-based intervention in New York City (NYC) aimed at connecting IDUs to HIV prevention, medical, and social services. An ACASI survey ascertained demographics, risk behavior, healthcare utilization, and location where health care services were received in the past year. Data were analyzed using logistic regression. Of 602 participants, 34% reported receiving health care at a community clinic, 46% a private medical office, 15% a mobile medical unit, and 59% an emergency room (ER). After adjustment, participants who attended a community clinic were significantly more likely to have health insurance, report syringe sharing, and be HIV positive. Whites, non-daily injectors, insured and higher income IDUs were more likely to attend a private medical office. Participants who recently used a case manager and had multiple sexual partners were more likely to use a mobile medical unit. ER attendees were more likely to be homeless and report recent drug treatment use. These findings show that IDU demographics and risk behaviors differ by health care setting suggesting that risk reduction interventions should be tailored to health care settings. Specifically, these data suggest that community clinics and mobile medical units serve high risk IDUs, highlighting the need for more research to develop and test innovative prevention and care programs within these settings.

Introduction

Injection drug users (IDUs) suffer disproportionate morbidity and mortality from preventable infectious diseases like HIV and Hepatitis C (Estrada, 2005; Gebo et al., 2005). As a result, IDUs are consistently identified as being in need of comprehensive services including chronic and infectious disease prevention and treatment services, but are less likely to access conventional sources of care, like primary care providers (Chitwood, Sanchez, Comerford, & McCoy, 2001; Chitwood, McBride, French, & Comerford, 1999a; French, McGeary, Chitwood, & McCoy, 2000; Barash, Hanson, Buskin, & Teshale, 2007; Cisneros, Douaihy, & Kirisci, 2009; Chitwood, McBride, French, & Comerford, 1999b; Cronquist, Edwards, Galea, Latka, & Vlahov, 2001). Studies have shown that IDUs seek treatment in emergency rooms (ER) for serious and immediate health problems which may result in over use of acute care services, particularly for conditions that could be prevented

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given better access to and utilization of prevention care services (Barash et al., 2007; Kerr et al., 2005; Cisneros et al., 2009). Health insurance has been identified as a barrier to health care access among IDUs (Riley et al., 2002; Cronquist et al., 2001), but studies have shown that IDUs have rates of health insurance coverage similar to those of non-drug users in the same community (Chitwood et al., 2001). Furthermore, studies of IDUs have reported between 44%-65% have received health care in the past year (Chitwood, Comerford, & McCoy, 2002; Heinzerling et al., 2006) and greater than 75% have a regular doctor (Kerr et al., 2005). While this evidence suggests that drug users do in fact seek out primary care services, little is known about the type of facilities other than emergency rooms utilized by illicit drug users and the HIV risk of IDUs who use these health care facilities.

HIV prevention services are still a top health care need of IDUs. (Kral et al., 2001; Des Jarlais et al., 2007; Drumright & Colfax, 2009; Strathdee & Sherman, 2003; Strathdee et al., 2001). As a result, the medical and public health community needs a better understanding of the HIV risk behaviors of IDUs by health care setting to not only help identify preferred venues, but to inform research aimed at salient and amenable characteristics of these settings (e.g., facility size and personnel type, wait time, special programs or clinics targeted to drug users) that foster continued follow-up care for prevention and treatment (Neale, Tompkins, & Sheard, 2008; Drumm, McBride, Metsch, Neufeld, & Sawatsky, 2005). Such research could inform structural-level interventions aimed at improved tailoring of health care services, particularly as it relates to IDUs who often are in need of more integrated social and medical services (Hennessy, Weisfuse, & Schlanger, 2007; Sylla, Bruce, Kamarulzaman, & Altice, 2007; Centers for Disease Control and Prevention, 2000).

Generally, studies have shown that IDUs' access of health care is influenced by a myriad of factors including fear of being discriminated or mistreated by medical providers and staff (Merrill, Rhodes, Deyo, Marlatt, & Bradley, 2002), lifestyle disorganization, and drug related behaviors, such as time spent consuming drugs, and not showing up to appointments because of drug use (Drumm et al., 2005; McCoy, Metsch, Chitwood, & Miles, 2001; Neale et al., 2008). Furthermore, the presence of setting-specific structural barriers to primary care use (e.g. type of health insurance accepted or accessibility of the facility) and the demographic and HIV risk profile of IDUs may vary by health care setting. This analysis aims to fill this gap in the literature by examining demographic characteristics and HIV risk behaviors among IDUs associated with use of a specific type of health care setting including a community clinic, a private medical office, a mobile medical unit, and an emergency room.

Methods

Study Design

IDUs who participated in the Pharmacists As Resources Making Links to Community Services (PHARM-Link) study were included in this analysis. PHARM-Link was a pharmacy-randomized intervention study among New York City (NYC) pharmacies registered with the New York State Expanded Syringe Access Program (ESAP) which permits syringes to be purchased without a prescription. Detailed methods have been described elsewhere (Rivera et al., 2010). In brief, of 325 pharmacies screened over the phone using a randomly ordered ESAP-registered list of NYC pharmacies in Brooklyn, Queens, Manhattan, and the Bronx, 142 pharmacies were eligible (i.e., those reporting active syringe sales without additional requirements) and 62% agreed to participate. Research staff consented participants and administered a baseline 30-minute Audio Computer Assisted Self-Interview (ACASI) on a touchscreen laptop with privacy filters and headphones in a private space in the pharmacy or nearby restaurant or park. All IDU syringe customers 18 years or older who reported injecting illicit drugs in the past 6 months were considered

eligible for the study (n=602). After completing the ACASI, participants received $20 and a $4 Metrocard for transportation. Baseline IDU data collected between March 2009 and November 2010 was used for this analysis. This study was approved by the Institutional Review Boards of Columbia University and the New York Academy of Medicine.

Measures

Socio-demographic characteristics included age, race/ethnicity (Black, Hispanic, vs. White/ Asian/Native American/Other), sexual orientation (straight vs. gay/bisexual), high school graduate or GED (yes/no), income ($5,000 vs. >$5,000), past 6 month homelessness (yes/ no), history of incarceration (yes/no), and current health insurance coverage (yes/no). Due to small cell sizes, dummy variables were created for race/ethnicity to compare Hispanic and Black categories with White/Other (reference).

Risk behaviors included sexual risk variables including number of sexual partners in the past 2 months (1 vs >2) based on the median number of sexual partners. Frequency of condom use was assessed (100% of the time vs. <100%) for those reporting sexual activity in the past 30 days. Participants also self-reported their current HIV status (negative vs. positive). Injection risk variables included past 3 month receptive syringe sharing (yes/no), use of a potentially contaminated syringe (yes/no), and injection frequency (<daily vs. daily)

Health care utilization characteristics included date of most recent health care visit and type of health care setting where services were received (community clinic, private medical office, mobile medical unit, or ER). Based on the date of the last health care visit, a separate variable for each setting was created for past year use of a community clinic (yes/no), private medical office (yes/no), ER (yes/no), and mobile medical unit (yes/no) and were the outcome variables used in the analysis.

Other service utilization variables included past 3 month syringe exchange program participation (yes/no); recent drug treatment participation including methadone maintenance, detox, and a residential therapeutic community (yes/no); and past 3 month use of a case manager, social worker, or counselor (yes/no).

Analysis

Bivariate and multivariable analyses were done separately for each health care setting outcome (dependent variables) using STATA version 11.2 (StataCorp, 2009). Bivariate logistic regression was used to calculate unadjusted associations between use of each healthcare setting and independent variables. Adjusted analysis was performed using multivariable logistic regression that examined the association between independent and dependent variables when controlling for variables that were significant at p .05 in bivariate analysis. Final model results were reported as adjusted odds ratios and significance determined at p<.05.

Results

Sample description

As shown in Table 1, the median age of participants (n=602) was 44 years (IQR: 36-50). The study sample was 73% male, 53% Hispanic, 26% Black, 63% had at least a high school diploma or GED, and 35% reported recent homelessness. Most participants had health insurance (82%) and had received health care services in the past year from at least one of the four health care settings (85%), with 34% of all participants reporting going to a community clinic (n=201), 46% reporting going to a private medical office (n=267), 15% reporting going to mobile medical unit (n=90), and 59% reporting going to an ER (n=349).

Bivariate/multivariable analyses

Community clinic—Bivariate results are shown in Table 1 and 2 and multivariable results are shown in Table 3. In bivariate analysis, reporting receipt of health care at a community clinic in the past year was significantly associated with Black race (OR:2.07, 95%CI: 1.26-3.42), older age (OR:1.03, 95%CI:1.01-1.05), health insurance coverage (OR:1.93, 95%CI:1.18-3.15), HIV-positive status (OR:1.82, 95%CI:1.11-2.98), and receptive syringe sharing (OR:1.49, 95%CI:0.99-2.23). After adjustment, participants who attended a community clinic were significantly more likely to be insured (AOR:1.99, 95%CI: 1.16-3.42), HIV positive (AOR:1.76, 95%CI:1.05-2.95), and engage in receptive syringe sharing (AOR:1.56, 95%CI:1.01-2.41) compared to those who did not report a community clinic visit.

Private medical office—Participants receiving heath care at a private medical office in the past year were significantly less likely to be Latino/a (OR:0.36, 95%CI:0.23-0.55), Black (OR:0.62, 95%CI:0.38-1.00), and inject daily (OR:0.52, 95%CI:0.36-0.73) and more likely to have yearly income greater than $5,000 (OR:2.03, 95%CI:1.41-2.91), health insurance coverage (OR:3.67, 95%CI:2.23-6.02), and utilized drug treatment (OR:2.14, 95%CI: 1.37-3.35). After adjustment, Latinos (AOR:0.38, 95%CI:0.23-0.61), Blacks (AOR:0.53, 95%CI:0.30-0.92) and daily injectors (AOR:0.59, 95%CI:0.39-0.87) were less likely to attend a private medical office. Participants with greater than $5,000 of yearly income (AOR:1.91, 95%CI:1.29-2.83) and health insurance (AOR:3.72, 95%CI:2.16-6.39) were significantly more likely to attend a private medical office compared to those who did not.

Mobile medical unit—Participants receiving heath care at a mobile medical unit in the past year were more likely to report gay or bisexual orientation (OR:2.16, 95%CI: 1.19-3.90), multiple sex partners (OR:2.16, 95%CI:1.37-3.42), case manager use (OR:3.09, 95%CI:1.72-5.54), and syringe exchange use (OR:1.57, 95%CI:0.99-2.49) and less likely to report annual income greater than $5,000 (OR:0.51, 95%CI:0.29-0.90) compared to those who did not utilize a mobile medical unit. After adjustment participants that used a mobile medical unit were significantly more likely to have used a case manager (AOR:3.08, 95%CI: 1.66-5.73) and report multiple sex partners (AOR:1.96, 95%CI:1.19-3.22).

ER—Participants reporting use of the ER were more likely to report homelessness (OR: 1.72, 95%CI:1.21-2.45) and utilization of drug treatment services (OR:1.99, 95%CI: 1.31-3.03). After adjustment, homelessness (AOR:1.85, 95%CI:1.28-2.69) and drug treatment utilization (AOR: 1.77, 95%CI:1.14-2.75) were significantly associated with ER use.

Discussion

This study highlights the differences in demographic and risk behavior characteristics of IDUs by type of setting utilized for health care. Specifically, highest risk IDUs tended to report past year use of a community clinic and mobile medical unit. On the other hand, those attending a private medical office tended to be lower risk. Furthermore, this pharmacy-recruited IDU population was characterized by a relatively high level of health insurance coverage and medical and social service use in the past year.

Community clinics can vary in size, location, and services available, but are typically smaller than a hospital and community-based with services often tailored to specifically meet the needs of the surrounding community. Higher risk IDUs may feel more comfortable attending a community clinic compared to a private medical office due to fear of discrimination by health care providers because of illicit drug use (Ahern, Stuber, & Galea,

2007). However, fear of discrimination was not explored in this study and therefore it is unknown if prior experiences of or fear of discrimination occurs differentially across healthcare settings and warrants further study. Given our finding that high risk drug users attend community clinics, it is critical that clinics and similar community health care settings consistently offer HIV testing and counseling to all patients, since HIV risk behaviors may not be disclosed during the medical visit. Community clinics also should make educational materials and/or counseling on safe injection practices available to IDU patients. Community clinic attendees were also more likely to be HIV positive highlighting community clinics as an important source of care for low-income HIV positive persons.

These data also suggest that lower risk IDUs were more likely to attend a private medical office. The decreased likelihood of receiving health care at a private medical office among more frequent injectors may also be related to insurance status, since heavier users were significantly less likely to have health insurance and community clinics may be more likely to accept uninsured patients compared to a private medical office. Additionally, higher risk IDUs including those who are daily injectors may be less likely to go to a private medical office due to being less engaged with the health care system and less knowledgeable on the location of private medical offices, since these offices tend to be less visible in the community and often located within a large hospital or medical office building.

Those reporting use of a mobile medical unit were more likely to report higher sexual risk and recent use of a case manager or social worker possibly due to case management services being integrated or co-located with mobile medical unit services (Liebman, Lamberti, & Altice, 2002). However, it is not clear if those who attended a mobile clinic were in greater need of case management services compared to other health care settings. Higher risk IDUs may be more likely to receive health care services from a mobile medical unit for the same reasons that they are more likely to attend a community clinic. In NYC, many mobile medical units are operated by local clinics and community-based organizations. Mobile medical units and community clinics are similar in that both settings are likely to be community-based and easily visible, which may reduce key barriers to health care access among high-risk drug users.

Finally, these data suggest that homelessness was associated with ER use which is consistent with previous literature (Kushel, Perry, Bangsberg, Clark, & Moss, 2002; Palepu et al., 2003). However, it is unclear if this is due to increased likelihood of having acute injuries related to violence or other social and living conditions related to being homeless and/or due to lack of insurance and access to other outpatient facilities. Also, participants reporting a past year ER visit demonstrated a higher likelihood of recent drug treatment access, however, this could be partially explained by use of the ER for detoxification. A separate analysis found that those who used an ER in the past year were significantly more likely to also report being in detox in the past year (data not shown) supporting this possible explanation. However, further research is needed to confirm or refute this assertion so that appropriate interventions can be developed. For example, if emergency departments are well-suited to connect drug users to drug treatment options including and beyond detoxification services, innovative structural interventions targeting emergency departments could follow.

Our study has limitations. The findings are generalizable to injection drug users that utilize pharmacies to purchase syringes, a study population that has recently been shown to have patterns of health care utilization similar to drug users who use syringe exchange or family/ friends to obtain syringes (Rudolph et al., 2010). These findings are also generalizable to health care sites in the NYC area and may not represent health care use in similar but less

densely populated urban areas that may have fewer health care facilities in general and less variety in the type of health care settings available (e.g. mobile medical units).

In light of the limitations, our study highlights important questions to be addressed with further research. Although not reported here, we did not find any significant differences in risk behaviors between those who attended one facility compared to those who attended multiple facilities, but this is an important area to be explored. We did not ask about what services were received at the health care setting used in the past year and so it is unknown whether settings were accessed for acute medical problems and urgent care, yearly check-ups, or STD/HIV testing. As a result, it is possible that our finding that high risk IDUs are more likely to attend a community clinic could be because community clinics often provide free HIV testing programs and target those at highest risk. Our study also did not ask about chronic health problems other than HIV infection or mental health conditions which may impact where health care services are received and should be explored further. A top research priority is to examine the social and structural factors that impact where drug users go to receive health care, including what type of health concerns lead to health care utilization and the influence of convenience and previous negative or positive experiences with health care providers and their staff on the selection of a health care setting. Research to further explore reasons for differential health care setting use among IDUs can inform interventions targeted toward IDUs and health care professionals to increase IDU utilization of primary health care services and reduce overutilization of emergency room services.

In spite of these limitations, our exploration of differences in the risk behaviors of IDUs attending different health care settings can inform the development of individual-level and structural-level interventions to improve IDU access to HIV preventive care and treatment. Our findings suggest that community clinics and mobile medical units play an important role in serving the health care needs of high-risk drug users and highlight the need for research to develop innovative HIV prevention programs tailored to these settings. Structural HIV prevention interventions such as syringe exchange programs located in mobile medical units and the non-prescription syringe sale program in pharmacies in NYC (ESAP) (Des Jarlais, 2000; Fuller et al., 2007; Centers for Disease Control and Prevention, 2010) demonstrate how easily accessible, community-based settings can be ideal locations for effective harm reduction interventions targeting IDUs. Given increased use of community clinics and mobile medical units by high risk IDUs, co-locating drug treatment, HIV prevention and care, and mental health services in community-based settings may be an important way to meet the health care needs of the most vulnerable IDUs.

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Table 1

Demographic frequencies and unadjusted odds ratios by health care setting (n=602).

	N (%)	Community clinic (n=201)		Private medical office (n=267)		Mobile medical unit (n=90)		Emergency room (n=349)	
		N (%)	OR (95% CI)	N (%)	OR (95% CI)	N (%)	OR (95% CI)	N (%)	OR (95% CI)
Median age (IQR)	44 (36-50)	45 (39-51)	1.03 (1.01-1.05)*	45 (37-50)	1.01 (0.99-1.03)	43 (36-49)	0.98 (0.96-1.01)	44 (36-50)	1.00 (0.98-1.02)
Gender									
Male	433 (72.5)	136 (31.9)	ref	179 (42.8)	ref	59 (13.9)	ref	247 (58.2)	ref
Female	164 (27.5)	64 (39.7)	1.41 (0.97-2.05)	84 (51.5)	1.42 (0.99-2.04)	31 (19.1)	1.47 (0.91-2.37)	99 (60.7)	1.11 (0.77-1.60)
Racial/ethnicity									
White/Other	125 (20.8)	35 (28.2)	ref	75 (61.9)	ref	20 (16.3)	ref	81 (65.3)	ref
Hispanic	318 (52.9)	94 (30.4)	1.11 (0.70-1.76)	113 (36.8)	0.36 (0.23-0.55)**	44 (14.1)	0.85 (0.48-1.50)	172 (55.5)	0.66 (0.43-1.02)
Black	158 (26.3)	71 (44.9)	2.07 (1.26-3.42)*	79 (50.3)	0.62 (0.38-1.00)*	25 (16.0)	0.98 (0.52-1.87)	95 (60.5)	0.81 (0.49-1.33)
High school graduate									
No	220 (36.7)	78 (35.8)	ref	88 (40.5)	ref	30 (13.8)	ref	116 (53.9)	ref
Yes	380 (63.3)	122 (32.8)	0.88 (0.62-1.24)	178 (48.5)	1.38 (0.98-1.94)	59 (15.9)	1.18 (0.73-1.89)	232 (61.9)	1.38 (0.99-1.94)
Taxable income									
0-$5,000	421 (70.5)	147 (35.4)	ref	165 (40.5)	ref	72 (17.4)	ref	233 (56.5)	ref
>$5,000	176 (29.5)	54 (31.2)	0.83 (0.57-1.21)	101 (58.1)	2.03 (1.41-2.91)**	17 (9.8)	0.51 (0.29-0.90)*	113 (64.6)	1.40 (0.97-2.02)
Homeless									
No	393 (65.3)	132 (34.4)	ref	182 (47.8)	ref	58 (14.9)	ref	211 (54.5)	ref
Yes	209 (34.7)	69 (33.2)	0.95 (0.66-1.35)	85 (41.5)	0.77 (0.55-1.09)	32 (15.8)	1.08 (0.67-1.72)	138 (67.3)	1.72 (1.21-2.45)*
Sexual orientation									
Straight	523 (88.1)	172 (33.4)	ref	232 (45.6)	ref	71 (13.8)	ref	301 (58.7)	ref
Gay/Bisexual	71 (11.9)	27 (39.1)	1.28 (0.76-2.15)	33 (47.8)	1.09 (0.66-1.81)	18 (25.7)	2.16 (1.19- 3.90)*	45 (63.4)	1.22 (0.73-2.04)
Health insurance									
No	108 (17.9)	24 (22.9)	ref	23 (21.9)	ref	17 (15.9)	ref	60 (57.7)	ref
Yes	494 (82.1)	177 (36.3)	1.93 (1.18-3.15)*	244 (50.7)	3.67 (2.23-6.02)**	73 (15.1)	0.94 (0.53-1.67)	289 (59.2)	1.06 (0.69-1.64)

*
p .05

**
p .001

Table 2

Frequencies and unadjusted odds ratios for HIV status, service use, and risk behaviors by health care setting (n=602).

	Total	Community clinic (n=201)		Private medical office (n=267)		Mobile medical unit (n=90)		Emergency room (n=349)	
	N (%)	N (%)	OR (95% CI)	N (%)	OR (95% CI)	N (%)	OR (95% CI)	N (%)	OR (95% CI)
HIV Status									
Negative	507 (86.8)	156 (31.3)	ref	217 (43.9)	ref	77 (15.4)	ref	296 (59.2)	ref
Positive	77 (13.2)	34 (45.3)	1.82 (1.11-2.98) *	39 (52.7)	1.42 (0.87-2.32)	9 (12.2)	0.76 (0.36-1.59)	44 (59.5)	1.01 (0.61-1.66)
SEP[a] use									
No	297 (49.2)	87 (30.8)	ref	125 (44.9)	ref	35 (12.4)	ref	159 (56.6)	ref
Yes	307 (50.8)	111 (36.6)	1.29 (0.92-1.83)	139 (46.2)	1.05 (0.76-1.46)	55 (18.1)	1.57 (0.99-2.49) *	184 (60.5)	1.18 (0.85-1.63)
Drug treatment use									
No	110 (18.3)	35 (31.8)	ref	33 (30.8)	ref	13 (11.8)	ref	49 (44.9)	ref
Yes	490 (81.7)	166 (34.6)	1.13 (0.73-1.76)	233 (48.9)	2.14 (1.37-3.35) **	77 (16.0)	1.43 (0.76-2.67)	298 (61.9)	1.99 (1.31- 3.03) **
Case manager use									
No	199 (34.3)	58 (29.4)	ref	81 (40.0)	ref	15 (7.5)	ref	107 (54.0)	ref
Yes	382 (65.8)	136 (36.2)	1.36 (0.94-1.97)	176 (47.4)	1.30 (0.92-1.85)	75 (20.1)	3.09 (1.72-5.54) **	225 (60.3)	1.29 (0.91-1.83)
Injection frequency									
Less than daily	397 (65.9)	140 (35.8)	ref	197 (51.0)	ref	65 (16.8)	ref	226 (57.8)	ref
Daily	205 (34.1)	61 (30.3)	0.78 (0.54-1.12)	70 (35.0)	0.52 (0.36-0.73) **	25 (12.2)	0.69 (0.42-1.14)	123 (61.2)	1.15 (0.81-1.63)
Syringe sharing									
No	459 (77.7)	144 (31.9)	ref	202 (45.2)	ref	67 (14.9)	ref	261 (57.9)	ref
Yes	132 (22.3)	53 (41.1)	1.49 (0.99-2.23) *	61 (47.7)	1.10 (0.74-1.64)	22 (16.8)	1.16 (0.68-1.96)	78 (60.0)	1.09 (0.73-1.62)
Unsterile syringe use									
No	438 (74.1)	137 (31.8)	ref	191 (44.8)	ref	64 (14.8)	ref	247 (57.3)	ref
Yes	153 (25.9)	60 (40.0)	1.43 (0.97-2.10)	72 (48.3)	1.15 (0.79-1.67)	25 (16.6)	1.14 (0.69-1.88)	93 (62.0)	1.21 (0.83-1.78)
Condom use									
100% condom use	116 (32.1)	44 (39.3)	ref	55 (49.1)	ref	16 (14.3)	ref	66 (57.9)	ref
<100% condom use	245 (67.9)	78 (32.2)	0.73 (0.46-1.17)	112 (46.3)	0.89 (0.57-1.39)	41 (17.0)	1.23 (0.66-2.30)	149 (61.6)	1.16 (0.74-1.83)
# of sexual partners [b]									
1	413 (69.1)	136 (33.6)	ref	189 (47.4)	ref	49 (12.0)	ref	234 (57.8)	ref

	Total	Community clinic (n=201)		Private medical office (n=267)		Mobile medical unit (n=90)		Emergency room (n=349)	
		N (%)	OR (95% CI)	N (%)	OR (95% CI)	N (%)	OR (95% CI)	N (%)	OR (95% CI)
2 or more	185 (30.9)	64 (34.9)	1.06 (0.74-1.53)	76 (41.5)	0.79 (0.55-1.12)	41 (22.8)	2.16 (1.37-3.42) [**]	112 (61.2)	1.15 (0.81-1.65)

[a] Syringe Exchange Program

[b] In past 2 months

[*] p .05

[**] p .001

Table 3

Adjusted[a] odds ratios by health care setting (n=602).

	Community clinic	Private medical office	Mobile medical unit	Emergency room
	AOR (95% CI)	**AOR (95% CI)**	**AOR (95% CI)**	**AOR (95% CI)**
Age	1.02 (0.99-1.04)	0.99 (0.97-1.02)	0.99 (0.96-1.01)	1.00 (0.98-1.02)
Gender				
Male				
Female	1.22 (0.81-1.84)	1.24 (0.83-1.85)	1.19 (0.68-2.08)	1.08 (0.73-1.60)
Racial/ethnicity				
White/Other				
Hispanic	1.09 (0.65-1.81)	0.38 (0.23-0.61)[**]	0.81 (0.42-1.54)	0.83 (0.52-1.31)
Black	1.53 (0.87-2.70)	0.53 (0.30-0.92)[*]	1.31 (0.62-2.75)	0.94 (0.55-1.61)
High school graduate				
No				
Yes	0.93 (0.63-1.38)	1.23 (0.83-1.85)	1.21 (0.72-2.03)	1.39 (0.97-2.01)
Taxable income				
0-$5,000				
>$5,000	0.71 (0.47-1.08)	1.91 (1.29-2.83)[*]	0.62 (0.34-1.12)	1.42 (0.97-2.09)
Health insurance	---	---	---	---
No	---	---	---	---
Yes	1.99 (1.16-3.42)[*]	3.72 (2.16-6.39)[**]	1.15 (0.61-2.18)	1.03 (0.65-1.62)
Sexual orientation	---	---	---	---
Straight	---	---	---	---
Gay/bisexual	---	---	1.20 (0.59-2.46)	---
Homeless	---	---	---	---
No	---	---	---	---
Yes	---	---	---	1.85 (1.28-2.69)[*]
HIV Status	---	---	---	---
Negative	---	---	---	---
Positive	1.76 (1.05-2.95)[*]	---	---	---
SEP Use	---	---	---	
No	---	---	---	
Yes	---	---	1.41 (0.86-2.29)	
Drug treatment use	---	---	---	---
No	---	---	---	---
Yes	---	1.58 (0.98-2.57)	---	1.77 (1.14-2.75)[*]
Case manager use	---	---	---	---
No	---	---	3.08 (1.66-5.73)[**]	---
Yes	---	---	---	---
Injection frequency	---	---	---	---
Less than daily	---	---	---	---

	Community clinic AOR (95% CI)	Private medical office AOR (95% CI)	Mobile medical unit AOR (95% CI)	Emergency room AOR (95% CI)
Daily	---	0.59 (0.39-0.87) [*]	---	---
Syringe sharing	---	---	---	---
No	---	---	---	---
Yes	1.56 (1.01-2.41) [*]	---	---	---
# of sexual partners	---	---	---	---
1	---	---	---	---
2 or more	---	---	1.96 (1.19-3.22) [*]	---

[a]Final model adjusted for covariates with p .05 in bivariate analysis

[*] p<.05

[**] p<.001