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Willingness to access an in-hospital supervised injection facility among hospitalized people who use illicit drugs

Lianping Ti[1,2], **Jane Buxton**[2,3], **Scott Harrison**[4], **Sabina Dobrer**[1], **Julio Montaner**[1,5], **Evan Wood**[1,5], and **Thomas Kerr**[1,5]

[1]British Columbia Centre for Excellence in HIV/AIDS, St. Paul's Hospital, 1081 Burrard Street, Vancouver, BC, Canada V6Z 1Y6

[2]School of Population and Public Health, University of British Columbia, 2206 East Mall, Vancouver, BC, Canada V6T 1Z3

[3]British Columbia Centre for Disease Control, 655 West 12th Avenue, Vancouver, BC, Canada V5Z 4R4

[4]Providence Health Care, 1081 Burrard Street, Vancouver, BC, Canada V6Z 1Y6

[5]Department of Medicine, University of British Columbia, 2775 Laurel Street, Vancouver, BC, Canada V5Z 1M9

Abstract

Background—Despite the reliance on abstinence-based drug policies within hospital settings, illicit drug use is common among hospitalized patients with severe drug addiction. Hospitalized people who use illicit drugs (PWUD) have been known to resort to high-risk behaviours to conceal their drug use from healthcare providers. Novel interventions with potential to reduce high-risk behaviours among PWUD in hospital settings have not been well studied.

Objective—The objective of the study was to examine factors associated with willingness to access an in-hospital supervised injection facility (SIF).

Design—Data were derived from participants enrolled in two Canadian prospective cohort studies involving PWUD between June 2013 and November 2013. A cross-sectional study surveying various socio-demographic characteristics, drug use patterns and experiences was conducted.

Setting—Vancouver, Canada

Measurements—Bivariable and multivariable logistic regression analyses were used to explore factors significantly associated with willingness to access an in-hospital SIF.

Results—Among 732 participants, 499 (68.2%) would be willing to access an in-hospital SIF. In multivariable analyses, factors positively and significantly associated with willingness to access an in-hospital SIF included: daily heroin injection (adjusted odds ratio [AOR] = 1.90; 95%

Send correspondence to: Thomas Kerr, PhD, Director, Urban Health Research Initiative, BC Centre for Excellence in HIV/AIDS, 608 - 1081 Burrard Street, Vancouver BC V6Z 1Y6, Canada, Tel: 604-806-9116, Fax: 604-806-9044, uhri-tk@cfenet.ubc.ca.

confidence interval [CI]: 1.20 – 3.11); having used illicit drugs in hospital (AOR = 1.63; 95%CI: 1.18 – 2.26); and having recently used a SIF (AOR = 1.53; 95%CI: 1.10 – 2.15).

Conclusions—Our findings highlight the potential of in-hospital SIFs to complement existing harm reduction programs that serve PWUD. Moreover, an in-hospital SIF may minimize the harms associated with high-risk illicit drug use in hospital.

Keywords

hospital; people who use illicit drugs; addiction; supervised injection facility

INTRODUCTION

People who use illicit drugs (PWUD) experience a wide range of health-related harms and consequently often rely on acute and emergency services for care.[1,2] Specifically, the poor health status of many PWUD is often attributable to infectious diseases such as HIV and hepatitis C virus.[3,4] Soft-tissue infections associated with injection drug use are also common, and have increasingly accounted for the majority of hospitalizations among this population.[5] Many of these adverse health outcomes may require lengthy in-patient hospital admissions and constitute a substantial financial burden for the healthcare system.[6]

PWUD frequently experience barriers to conventional healthcare services. For example, negative experiences with healthcare providers and the healthcare system have often deterred PWUD from accessing these services.[7,8] Given that many hospitals operate under an abstinence-based policy, PWUD have minimal access to drug-using paraphernalia while hospitalized, making it difficult for these individuals to safely manage their active drug use. As a result, many PWUD may resort to high-risk drug-using practices (e.g., syringe sharing, injecting alone) in the hospital that may lead to further adverse health outcomes, such as infectious disease transmission.[9] Past studies have also shown that many PWUD do not complete hospital-based treatments.[10,11] Specifically, many PWUD leave the hospital against medical advice (AMA) possibly because they are unable to continue their drug use practices in this setting, [10,12] thus contributing to an increase in readmission rates and mortality among this population.[13] Past studies have indicated that approximately 30% of patients who inject drugs left hospital AMA,[12,14] and these individuals have shown to be as high as four times more likely to leave hospital AMA compared to their non-drug-using counterparts.[11]

Supervised injection facilities (SIFs) are sanctioned environments where PWUD can inject pre-obtained illicit drugs under the supervision of healthcare staff. Internationally, SIFs have been shown to improve public health and public order within surrounding communities.[15–17] For example, a dramatic decline in fatal overdoses in Vancouver's Downtown Eastside neighbourhood was attributed to the implementation of a SIF in the area.[15] Changes in risk injecting behaviour have also been observed among individuals who access SIFs.[18] While a large body of evidence supports SIFs as an effective approach for minimizing the drug- and health-related harms within street-based drug scenes,[17,19] little is known about whether there is a role for SIFs within hospital settings. Currently in Vancouver, Canada, harm reduction services are generally not being provided within hospital settings. Therefore, we sought to

conduct a needs assessment to identify the prevalence and correlates of willingness to access an in-hospital SIF among PWUD in Vancouver. These data may be crucial for planning appropriate programs and services to reduce health-related harms and leaving hospital against medical advice (AMA) among PWUD in hospital settings.

METHODS

The Vancouver Injection Drug Users Study (VIDUS) and the AIDS Care Cohort to evaluate Exposure to Survival Services (ACCESS) are two prospective cohort studies of PWUD who have been recruited through self-referral and street outreach since May 1996. These cohorts have been described in detail previously.[20,21] In brief, persons were eligible to enter the VIDUS study if they had injected illicit drugs at least once in the previous month and resided in the Greater Vancouver region at enrollment. Persons were eligible to enter the ACCESS study if they were HIV-infected and used illicit drugs other than cannabinoids in the previous month. Individuals who seroconvert following recruitment are transferred from the VIDUS study into the ACCESS study. All eligible participants provided written informed consent. At baseline and semi-annually, study participants complete a harmonized interviewer-administered questionnaire (i.e., participants in the VIDUS and ACCESS studies completed an identical questionnaire) and provide blood samples for HIV and HCV testing, and HIV disease monitoring. At the conclusion of each visit, study participants receive $20 CDN for their time. The study has received ethical approval from Providence Health Care/University of British Columbia's Research Ethics Board.

The primary outcome of interest for this analysis was willingness to access an in-hospital SIF (yes vs. no or unsure), ascertained by asking participants the following hypothetical question: "If you were admitted into a hospital, and if a supervised safe injection site was available in that hospital, would you use it?" Given the existence of two SIFs in the local environment, PWUD in Vancouver are familiar with the design and operation of such programs. We compared PWUD who were and were not willing to access an in-hospital SIF using bivariable and multivariable logistic regression analyses. Given that the variable measure was based on a hypothetical scenario, only participants who completed the survey between June 2013 and November 2013 were eligible for inclusion regardless of their current injection drug use behaviour. A complete case approach was used to analyze the data given that the extent of missingness was not significant (< 5%). Variables considered included: age (per year increase), gender (male vs. female), HIV serostatus (positive vs. negative), heroin injection (≥ daily vs. < daily), cocaine injection (≥ daily vs. < daily), crystal methamphetamine injection (≥ daily vs. < daily), prescription opioid injection, defined as injection of either OxyNeo, OxyContin, Percocet, Tylenol 3, Morphine, Dilaudid, Demerol, Methadone, Fentanyl, Hydrocodone, or Talwin (≥ daily vs. < daily), binge injection drug use, defined by having injection drugs more than usual (yes vs. no), ever left hospital AMA because they wanted or needed to use illicit drugs (yes vs. no), ever used illicit drugs in hospital (yes vs. no), previously used a SIF (yes vs. no), ever had negative experiences with healthcare providers, defined by having ever been treated poorly by a healthcare professional and/or hospital staff (yes vs. no) and ever had negative experiences with police, defined by having ever been confronted and/or assaulted by police (yes vs. no). All variables refer to the previous six months unless otherwise indicated.

To identify factors independently associated with willingness to access an in-hospital SIF, a multivariable logistic regression model was constructed using an a priori-defined statistical protocol based on examination of the Akaike Information Criterion (AIC) and *p* values. First, we constructed a full model that included all variables significant at $p < 0.10$ in bivariable analyses. After noting the AIC of the model, we removed the variable with the largest *p* value and built a reduced model. We continued this iterative process until no variables remained. We selected the multivariable model with the lowest AIC score. All *p* values were two sided. As a sub-analysis, we asked participants who would be willing to access and in-hospital SIF to indicate reasons why they would be willing to access such a facility.

RESULTS

Of the total 769 participants who were eligible for inclusion in the study, 732 PWUD provided complete data and participated in the study; 37 (4.8%) were excluded due to missing data. In our study sample, 250 (34.2%) were female, the median age was 48 years (interquartile range: 41 – 53 years), and 307 (41.5%) were HIV-positive. Among our study sample, 499 (68.2%) participants would be willing to access an in-hospital SIF if it were available. Bivariable analyses of factors associated with willingness to access an in-hospital SIF are presented in Table 1.

As indicated in Table 2, in multivariable analyses, factors that remained significantly and positively associated with willingness to access an in-hospital SIF included: daily heroin injection (adjusted odds ratio [AOR] = 1.90; 95%CI: 1.20 – 3.11); ever used illicit drugs in hospital (AOR = 1.63; 95%CI: 1.18 – 2.26); and previously used a SIF (AOR = 1.53; 95%CI: 1.10 – 2.15).

Among participants who would be willing to access an in-hospital SIF, the most common reasons included: to be able to stay in hospital (229/499 = 45.9%); to reduce their drug-related risks (189/499 = 37.9%); and to reduce stress associated with being kicked out of the hospital because they were using drugs (97/499 = 19.4%).

DISCUSSION

We found that over two-thirds of PWUD participating in our study would be willing to access an in-hospital SIF if such a service was available. This finding is encouraging given that a large proportion of PWUD are hospitalized annually for acute and chronic diseases.[5,6] Previous studies have documented the positive impact of incorporating a harm reduction model within hospital settings, resulting in more comprehensive care for PWUD.[22,23] For example, the Dr. Peter Centre Day Health Program provides a SIF for HIV-positive PWUD to safely use illicit drugs under the supervision of trained nurses and was at one time located at St. Paul's Hospital.[24] While the Dr. Peter Centre currently operates outside of St. Paul's Hospital, it may be advantageous to model an in-hospital SIF after the Dr. Peter Centre's harm reduction room given their success in facilitating access and delivery of comprehensive care for PWUD.[23] Specifically, nurses at the Dr. Peter Centre directly observe injections of pre-obtained illicit drugs for the purposes of preventing illness and

promoting health. Our findings support recent calls to implement harm reduction services within hospital settings in an effort to minimize the harms associated with illicit drug use.[25,26]

Previous studies have identified various high-risk locations where PWUD use illicit drugs to maintain their established drug-using habits, including in locked washrooms in hospitals.[9] We found a positive association among PWUD who had used illicit drugs in the hospital and willingness to use an in-hospital SIF. Our finding is reassuring given that studies have shown that these individuals are at a higher risk of negative health consequences (e.g., fatal overdose) from using drugs in hospital.[9] Harm reduction services within hospital settings can play an important role in reducing these drug- and health-related harms among PWUD.

Our study also found that high frequency heroin injection was associated with willingness to access an in-hospital SIF. This relationship may be a result of the complex nature of treating opioid-dependent patients for pain. For instance, some opioid-dependent PWUD may have already established a high tolerance for opioids due to the concomitant use of opioid substitution therapies and ongoing drug use, making it difficult to appropriately prescribe pain medication to these individuals.[27] High frequency heroin users may also face severe withdrawal given the unavailability of illicit opioids in hospital settings, resulting in their increased willingness to access an in-hospital SIF. Furthermore, inadequate pain management may contribute to the continued need to use opioids, as many healthcare providers may be reluctant to provide pain medication out of fear that they would contribute to an existing addiction or relapse.[28,29] Further, requests for pain mediation may be misinterpreted as ‘drug-seeking’ behaviour.[30,31] Given the complexities arising from high intensity heroin use, pain management, and healthcare professionals’ perceptions regarding PWUD, further research should seek to untangle the causal relationships underlying these associations.

We found an association between recent use of a SIF and willingness to access an in-hospital SIF. As mentioned previously, previous research has shown improvements in various health outcomes and reductions in related harms in surrounding communities where SIFs were implemented.[15,17] It is unfortunate that while progress in reducing the harms of injection drug use has been seen in community settings globally, the same cannot be said about hospitals. Given that many PWUD often present to emergency care late in the course of illness and require admission to a hospital bed,[2] it is important to ensure that harm reduction services that are available in the community are also made available in hospitals. However, given the lack of knowledge on in-hospital SIFs, future research should seek to understand the benefits and consequences of implementing such a facility in a hospital from different perspectives. For example, it may be of interest to assess the attitudes and perceptions of healthcare providers towards an in-hospital SIF.

A large body of evidence has documented the health harms associated with leaving hospital AMA, including readmission for a worsened illness and mortality.[13,32] However, when faced with abstinence-based policies that exist in most hospital settings, it is not uncommon for PWUD to leave the hospital to maintain their active addiction or to address their drug withdrawal.[9] While we failed to find a statistically significant association between being

discharged AMA and willingness to access an in-hospital SIF, it is noteworthy that in our sub-analysis we found that PWUD who were more likely to access an in-hospital SIF reported doing so because they wanted to stay in the hospital and reduce their drug-related risks. Given that we observed low counts of reported AMA discharge events, further exploration of this topic is warranted.

Our study suggests that in-hospital SIFs have the potential to minimize health harms among patients who use illicit drugs in hospitals; however, there are some legal issues that warrant consideration. Specifically, for the successful operation of SIFs, there is a need for changes to regulatory frameworks, including drug laws, to allow for the possession of illicit drugs by individuals accessing a SIF. Such frameworks have been developed in a range of settings, and in a manner that is consistent with international drug control treaties. In hospitals, additional regulatory changes may be needed to address issues unique to these settings, such as the use of opioids among PWUD being treated for pain.

There are several limitations to this study. First, the cross-sectional design of the study limited our ability to determine a temporal or causal relationship between the explanatory and outcome variables. Second, it is noteworthy that the chosen mode of interviewer-based questionnaire administration may have influenced our results by relying on self-reported data that is susceptible to reporting biases, including socially desirable reporting and recall bias. However, we believe we have minimized response bias and maximized reliability in our data by placing sensitive questions towards the end of the interview to allow rapport to be established between the interviewer and participant. Lastly, given that the participants in the present study were not randomly selected, the interpretation of these results may not be representative or generalizable to other PWUD populations outside of Vancouver. However, it is noteworthy that over the past few decades, community-based SIFs have been successfully operating in international settings such as Europe and Australia;[34,35] thus, the concept of an in-hospital SIF may not be far from actual inpatient practice in these settings. It is also important to acknowledge the progress made towards the implementation of community-based SIFs in other settings, including the United States. For example, feasibility studies have been conducted in San Francisco and New York and have shown increasing support for the implementation of SIFs in these areas.[36,37]

We found that a substantial proportion of PWUD in our sample would be willing to access an in-hospital SIF if this service was available. Those PWUD who expressed a willingness to use an in-hospital SIF were more likely to be high-intensity heroin users, to have previously used illicit drugs in hospital, and were more likely to have previously used a SIF. Our findings highlight the potential of in-hospital SIFs to complement existing harm reduction programs that serve IDU.

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Table 1

Factors associated with willingness to access an in-hospital supervised injection facility among people who use illicit drugs in Vancouver, Canada (n = 732)

	Willingness to access an in-hospital SIF			
Characteristic	**Yes n (%) n = 499**	**No n (%) n = 233**	**Odds Ratio (95% CI)**	***p* - value**
Age				
median	48	48	0.98 (0.97 – 1.00)	0.085
IQR	(41 – 53)	(42 – 54)		
Gender				
male	331 (66.3)	151 (64.8)	1.07 (0.77 – 1.48)	0.685
female	168 (33.7)	82 (35.2)		
HIV serostatus				
positive	203 (40.7)	104 (44.6)	0.85 (0.62 – 1.16)	0.313
negative	296 (59.3)	129 (55.4)		
Heroin injection*				
≥ daily	106 (21.2)	26 (11.2)	2.15 (1.35 – 3.40)	<0.001
< daily	393 (78.8)	207 (88.8)		
Cocaine injection*				
≥ daily	46 (9.2)	19 (8.2)	1.14 (0.65 – 2.00)	0.637
< daily	453 (90.8)	214 (91.8)		
Crystal methamphetamine injection*				
≥ daily	46 (9.2)	16 (6.9)	1.38 (0.76 – 2.49)	0.287
< daily	453 (90.8)	217 (93.1)		
Prescription opioid injection*				
≥ daily	34 (6.8)	9 (3.9)	1.82 (0.86 – 3.86)	0.114
< daily	465 (93.2)	224 (96.1)		
Binge drug use*				
yes	141 (28.3)	61 (26.2)	1.11 (0.78 – 1.58)	0.558
no	358 (71.7)	172 (73.8)		
Ever left hospital AMA				
yes	21 (4.2)	2 (0.9)	5.07 (1.18 – 21.83)	0.012
no	478 (95.8)	231 (99.1)		
Ever used illicit drugs in hospital				
yes	238 (47.7)	83 (35.6)	1.65 (1.20 – 2.27)	0.002
no	261 (52.3)	150 (64.4)		
Ever had negative experiences with healthcare providers				
yes	131 (26.3)	64 (27.5)	0.94 (0.66 – 1.33)	0.729
no	368 (73.7)	169 (72.5)		
Ever had negative experiences with police				
yes	383 (76.8)	169 (72.5)	1.25 (0.88 – 1.78)	0.217

	Willingness to access an in-hospital SIF			
Characteristic	**Yes n (%) n = 499**	**No n (%) n = 233**	**Odds Ratio (95% CI)**	***p* - value**
no	116 (23.2)	64 (27.5)		
Used a SIF*				
yes	228 (45.7)	77 (33.0)	1.70 (1.23 – 2.36)	0.001
no	271 (54.3)	156 (67.0)		

SIF: supervised injection facility; CI: confidence interval; IQR: interquartile range; AMA: against medical advice

*Activities reported in the six months prior to interview

Table 2

Multivariable logistic regression analysis of factors associated with willingness to access an in-hospital supervised injection facility among people who use illicit drugs in Vancouver, Canada (n = 732)

Variable	Adjusted Odds Ratio (AOR)	95% Confidence Interval (CI)	*p* - value
Heroin injection*			
(≥ daily vs. < daily)	1.90	(1.20 – 3.11)	0.008
Ever left hospital AMA			
(yes vs. no)	3.74	(1.06 – 23.72)	0.079
Ever used illicit drugs in hospital			
(yes vs. no)	1.63	(1.18 – 2.26)	0.003
Used a SIF*			
(yes vs. no)	1.53	(1.10 – 2.15)	0.013

AMA: against medical advice

*Activities reported in the six months prior to interview