

ORIGINAL RESEARCH

Willingness to Access an In-hospital Supervised Injection Facility Among Hospitalized People Who Use Illicit Drugs

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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 patients who use illicit drugs (PWUDs) have been known to resort to high-risk behavior to conceal their drug use from healthcare providers. Novel interventions with the potential to reduce high-risk behavior among PWUDs 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 2 Canadian prospective cohort studies involving PWUDs between June 2013 and November 2013. A cross-sectional study surveying various sociodemographic 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% 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 an 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 the hospital. *Journal of Hospital Medicine* 2015;10:301-306. © 2015 Society of Hospital Medicine

People who use illicit drugs (PWUDs) 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 PWUDs is often attributable to infectious diseases such as human immunodeficiency virus (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

PWUDs frequently experience barriers to conventional healthcare services. For example, negative experiences with healthcare providers and the healthcare system have often deterred PWUDs from accessing these services.^{7,8} Given that most hospitals operate under an abstinence-based policy, PWUDs 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 PWUDs may resort to high-risk drug-using practices (eg, syringe sharing, injecting alone) in the hospital that may lead to further adverse health outcomes, such as infectious disease transmission and overdose, respectively.⁹ Past studies have also shown that many PWUDs do not complete hospital-based treatments.^{10,11} Specifically, many PWUDs 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 the hospital AMA,^{12,14} and these individuals have shown to be as high as 4 times more likely to leave the hospital AMA compared to their non-drug-using counterparts.¹¹

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Supervised injection facilities (SIFs) are sanctioned environments where PWUDs can inject preobtained 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 neighborhood was attributed to the implementation of a SIF in the area.¹⁵ Changes in risk-injecting behavior have also been observed among individuals who access SIFs.¹⁸ Although 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 PWUDs in Vancouver. These data may be crucial for planning appropriate programs and services to reduce health-related harms and leaving the hospital AMA among PWUDs in hospital settings.

METHODS

The Vancouver Injection Drug Users Study (VIDUS) and the AIDS Care Cohort to Evaluate Exposure to Survival Services (ACCESS) are 2 prospective cohort studies of PWUDs 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 (ie, participants in the VIDUS and ACCESS studies completed an identical questionnaire) and provide blood samples for HIV and hepatitis C virus testing, and HIV disease monitoring. At the conclusion of each visit, study participants receive Can\$20 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 2 SIFs in the local environment, PWUDs in Vancouver are familiar with the design and operation of such programs. We compared PWUDs 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, participants who completed the survey between June 2013 and November 2013 were eligible for inclusion regardless of their current injection drug use behavior. 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 (\geq daily vs < daily); cocaine injection (\geq daily vs < daily); crystal methamphetamine injection (\geq daily vs < daily); prescription opioid injection, defined as injection of either OxyNeo, OxyContin, Percocet, Tylenol 3, Morphine, Dilaudid, Demerol, Methadone, Fentanyl, Hydrocodone, or Talwin (\geq 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 the hospital (yes vs no); previously used an 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 6 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 2 sided. As a subanalysis, we asked participants who would be willing to access an 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 PWUDs 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,

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)

Characteristic	Willingness to Access an In-hospital SIF		Odds Ratio (95% CI)	P Value
	Yes, n (%), n = 499	No, n (%), n = 233		
<i>Age</i>				
Median	48	48	0.98 (0.97-1.00)	0.085
IQR	(41-53)	(42-54)		
<i>Gender</i>				
Male	331 (66.3)	151 (64.8)	1.07 (0.77-1.48)	0.685
Female	168 (33.7)	82 (35.2)		
<i>HIV serostatus</i>				
Positive	203 (40.7)	104 (44.6)	0.85 (0.62-1.16)	0.313
Negative	296 (59.3)	129 (55.4)		
<i>Heroin injection*</i>				
≥ Daily	106 (21.2)	26 (11.2)	2.15 (1.35-3.40)	<0.001
< Daily	393 (78.8)	207 (88.8)		
<i>Cocaine injection*</i>				
≥ Daily	46 (9.2)	19 (8.2)	1.14 (0.65-2.00)	0.637
< Daily	453 (90.8)	214 (91.8)		
<i>Crystal methamphetamine injection*</i>				
≥ Daily	46 (9.2)	16 (6.9)	1.38 (0.76-2.49)	0.287
< Daily	453 (90.8)	217 (93.1)		
<i>Prescription opioid injection*</i>				
≥ Daily	34 (6.8)	9 (3.9)	1.82 (0.86-3.86)	0.114
< Daily	465 (93.2)	224 (96.1)		
<i>Binge drug use*</i>				
Yes	141 (28.3)	61 (26.2)	1.11 (0.78-1.58)	0.558
No	358 (71.7)	172 (73.8)		
<i>Ever left hospital AMA</i>				
Yes	21 (4.2)	2 (0.9)	5.07 (1.18-21.83)	0.012
No	478 (95.8)	231 (99.1)		
<i>Ever used illicit drugs in hospital</i>				
Yes	238 (47.7)	83 (35.6)	1.65 (1.20-2.27)	0.002
No	261 (52.3)	150 (64.4)		
<i>Ever had negative experiences with healthcare providers</i>				
Yes	131 (26.3)	64 (27.5)	0.94 (0.66-1.33)	0.729
No	368 (73.7)	169 (72.5)		
<i>Ever had negative experiences with police</i>				
Yes	383 (76.8)	169 (72.5)	1.25 (0.88-1.78)	0.217
No	116 (23.2)	64 (27.5)		
<i>Used an SIF*</i>				
Yes	228 (45.7)	77 (33.0)	1.70 (1.23-2.36)	0.001
No	271 (54.3)	156 (67.0)		

NOTE: Abbreviations: AMA, against medical advice; CI, confidence interval; IQR, interquartile range; SIF, supervised injection facility. *Activities reported in the 6 months prior to interview.

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% confidence interval [CI]: 1.20-3.11), ever used illicit drugs in the hospital (AOR = 1.63; 95% CI: 1.18-2.26), and previously used an 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 the 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 PWUDs 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 PWUDs 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 PWUDs.^{22,23} For example, the Dr.

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	95% Confidence Interval	P Value
Heroin injection* (\geq 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 an SIF* (yes vs no)	1.53	1.10-2.15	0.013

NOTE: Abbreviations: AMA, against medical advice; SIF, supervised injection facility. *Activities reported in the 6 months prior to interview

Peter Centre Day Health Program provides a SIF for HIV-positive PWUDs to safely use illicit drugs under the supervision of trained nurses and was once located at St. Paul's Hospital.²⁴ Although 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 PWUDs.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 PWUDs use illicit drugs to maintain their established drug-use habits, including in locked washrooms in hospitals.⁹ We found a positive association among PWUDs who had used illicit drugs in the hospital and a 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 (eg, fatal overdose) from using drugs in the hospital.⁹ Harm reduction services within the hospital settings can play an important role in reducing this drug- and health-related harm among PWUDs.

Our study also found that high-frequency heroin injection was associated with a 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 PWUDs 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 contrib-

ute to the continued need to use opioids, as some 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 medication may be misinterpreted as "drug-seeking" behavior.^{30,31} Given the complexities arising from high-intensity heroin use, pain management, and healthcare professionals' perceptions regarding PWUDs, further research should seek to untangle the causal relationships underlying these associations.

We found an association between recent use of an SIF and willingness to access an in-hospital SIF. As mentioned previously, earlier research has shown improvements in various health outcomes and reductions in related harm in surrounding communities where SIFs were implemented.^{15,17} It is unfortunate that although progress in reducing the harm of injection drug use has been seen in community settings globally, the same cannot be said about hospitals. Given that many PWUDs 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 toward an in-hospital SIF.

A large body of evidence has documented the health harms associated with leaving the hospital AMA, including readmission for a worsened illness and mortality.^{13,32} However, when faced with the abstinence-based policies that exist in most hospital settings, it is not uncommon for PWUDs to leave the hospital to maintain their active addiction or to address their drug withdrawal.⁹ Although 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 subanalysis 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 an 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 PWUDs 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 are 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 toward the end of the interview to allow rapport to be established between the interviewer and participant. Last, 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^{33,34}; 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 toward 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.^{35,36}

We found that a substantial proportion of PWUDs in our sample would be willing to access an in-hospital SIF if this service was available. Those PWUDs 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 the hospital, and were more likely to have previously used an SIF. Our findings highlight the potential of in-hospital SIFs to complement existing harm-reduction programs that serve people who inject drugs.

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References

- Fairbairn N, Milloy M-J, Zhang R, et al. Emergency department utilization among a cohort of HIV-positive injecting drug users in a Canadian setting. *J Emerg Med.* 2012;43(2):236–243.
- Kerr T, Wood E, Grafstein E, et al. High rates of primary care and emergency department use among injection drug users in Vancouver. *J Public Health (Oxf).* 2005;27(1):62–66.
- Strathdee SA, Stockman J. Epidemiology of HIV among injecting and non-injecting drug users: current trends and implications for interventions. *Curr HIV/AIDS Rep.* 2010;7(2):99–106.
- Strathdee SA, Hallett TB, Bobrova N, et al. HIV and risk environment for injecting drug users: the past, present, and future. *Lancet.* 2010;376(9737):268–284.
- Lloyd-Smith E, Wood E, Zhang R, et al. Determinants of hospitalization for a cutaneous injection-related infection among injection drug users: a cohort study. *BMC Public Health.* 2010;10:327.
- Palepu A, Tyndall MW, Leon H, et al. Hospital utilization and costs in a cohort of injection drug users. *CMAJ.* 2001;165(4):415–420.
- Sayles JN, Wong MD, Kinsler JJ, Martins D, Cunningham WE. The association of stigma with self-reported access to medical care and antiretroviral therapy adherence in persons living with HIV/AIDS. *J Gen Intern Med.* 2009;24(10):1101–1108.
- Van Boekel LC, Brouwers EPM, van Weeghel J, Garretsen HFL. Stigma among health professionals towards patients with substance use disorders and its consequences for healthcare delivery: systematic review. *Drug Alcohol Depend.* 2013;131(1-2):23–35.
- McNeil R, Small W, Wood E, Kerr T. Hospitals as a “risk environment”: an ethno-epidemiological study of voluntary and involuntary discharge from hospital against medical advice among people who inject drugs. *Soc Sci Med.* 2014;105C:59–66.
- Alfandre DJ. “I’m going home”: discharges against medical advice. *Mayo Clin Proc.* 2009;84(3):255–260.
- Anis AH, Sun H, Guh DP, Palepu A, Schechter MT, O’Shaughnessy MV. Leaving hospital against medical advice among HIV-positive patients. *CMAJ.* 2002;167(6):633–637.
- Chan AC, Palepu A, Guh DP, et al. HIV-positive injection drug users who leave the hospital against medical advice: the mitigating role of methadone and social support. *J Acquir Immune Defic Syndr.* 2004;35(1):56–59.
- Southern WN, Nahvi S, Arnsten JH. Increased risk of mortality and readmission among patients discharged against medical advice. *Am J Med.* 2012;125(6):594–602.
- Riddell C, Riddell R. Welfare checks, drug consumption, and health: evidence from Vancouver injection drug users. *J Hum Resour.* 2006;41(1):138–161.
- Marshall BD, Milloy M-J, Wood E, Montaner JS, Kerr T. Reduction in overdose mortality after the opening of North America’s first medically supervised safer injecting facility: a retrospective population-based study. *Lancet.* 2011;377(9775):1429–1437.
- Salmon AM, Van Beek I, Amin J, Kaldor J, Maher L. The impact of a supervised injecting facility on ambulance call-outs in Sydney, Australia. *Addiction.* 2010;105(4):676–683.
- Wood E, Kerr T, Small W, et al. Changes in public order after the opening of a medically supervised safer injecting facility for illicit injection drug users. *CMAJ.* 2004;171(7):731–734.
- Stoltz J-A, Wood E, Small W, et al. Changes in injecting practices associated with the use of a medically supervised safer injection facility. *J Public Health.* 2007;29(1):35–39.
- DeBeck K, Wood E, Zhang R, Tyndall M, Montaner J, Kerr T. Police and public health partnerships: Evidence from the evaluation of Vancouver’s supervised injection facility. *Subst Abuse Treat Prev Policy.* 2008;3:11.
- Strathdee SA, Palepu A, Cornelisse PG, et al. Barriers to use of free antiretroviral therapy in injection drug users. *JAMA.* 1998;280(6):547–549.
- Wood E, Tyndall MW, Spittal PM, et al. Unsafe injection practices in a cohort of injection drug users in Vancouver: could safer injecting rooms help? *CMAJ.* 2001;165(4):405–410.
- Grau LE, Arevalo S, Catchpool C, Heimer R. Expanding harm reduction services through a wound and abscess clinic. *Am J Public Health.* 2002;92(12):1915–1917.
- Krüsi A, Small W, Wood E, Kerr T. An integrated supervised injecting program within a care facility for HIV-positive individuals: a qualitative evaluation. *AIDS Care.* 2009;21(5):638–644.
- Dr. Peter AIDS Foundation. Available at: <http://www.drpetter.org>. Accessed June 19, 2014.
- Kerr T, Ti L. Drug use in hospitals: Is there a role for harm reduction? *Hospital News.* Available at: <http://hospitalnews.com/drug-use-in-hospitals-is-there-a-role-for-harm-reduction>. Published October 17, 2013. Accessed March 11, 2014.
- Rachlis BS, Kerr T, Montaner JS, Wood E. Harm reduction in hospitals: is it time? *Harm Reduct J.* 2009;6(1):19.
- Compton P, Charuvastra VC, Ling W. Pain intolerance in opioid-maintained former opiate addicts: effect of long-acting maintenance agent. *Drug Alcohol Depend.* 2001;63(2):139–146.
- Baldacchino A, Gilchrist G, Fleming R, Bannister J. Guilty until proven innocent: a qualitative study of the management of chronic non-cancer pain among patients with a history of substance abuse. *Addict Behav.* 2010;35(3):270–272.
- Berg KM, Arnsten JH, Sacajiu G, Karasz A. Providers’ experiences treating chronic pain among opioid-dependent drug users. *J Gen Intern Med.* 2009;24(4):482–488.
- Haber PS, Demirkol A, Lange K, Murnion B. Management of injecting drug users admitted to hospital. *Lancet.* 2009;374(9697):1284–1293.

31. McCreaddie M, Lyons I, Watt D, et al. Routines and rituals: a grounded theory of the pain management of drug users in acute care settings. *J Clin Nurs*. 2010;19(19-20):2730–2740.
32. Glasgow JM, Vaughn-Sarrazin M, Kaboli PJ. Leaving against medical advice (AMA): risk of 30-day mortality and hospital readmission. *J Gen Intern Med*. 2010;25(9):926–929.
33. Potier C, Lapr evote V, Dubois-Arber F, Cottencin O, Rolland B. Supervised injection services: What has been demonstrated? A systematic literature review. *Drug Alcohol Depend*. 2014;145:48–68.
34. Dolan K, Kimber J, Fry C, Fitzgerald J, McDonald D, Trautmann F. Drug consumption facilities in Europe and the establishment of supervised injecting centres in Australia. *Drug Alcohol Rev*. 2000;19(3):337–346.
35. Kral AH, Wenger L, Carpenter L, Wood E, Kerr T, Bourgeois P. Acceptability of a safer injection facility among injection drug users in San Francisco. *Drug Alcohol Depend*. 2010;110(1-2):160–163.
36. Broadhead R, Borch C, van Hulst Y, Farrell J, Villemez W, Altice F. Safer injection sites in New York City: a utilization survey of injection drug users. *J Drug Issues*. 2003;33(3):733–750.