



## Regular articles

## Use of on-site detoxification services co-located with a supervised injection facility



Andrew Gaddis<sup>a,b</sup>, Mary Clare Kennedy<sup>b,c</sup>, Ekaterina Nosova<sup>b</sup>, M.-J. Milloy<sup>b,d</sup>, Kanna Hayashi<sup>b,e</sup>, Evan Wood<sup>b,d</sup>, Thomas Kerr<sup>b,d,\*</sup>

<sup>a</sup> Virginia Tech Carilion School of Medicine, 2 Riverside Circle, Roanoke, VA, USA, 24016

<sup>b</sup> British Columbia Centre on Substance Use, 608-1081 Burrard Street, Vancouver, BC V6Z 1Y6, Canada

<sup>c</sup> School of Population and Public Health, University of British Columbia, 2206 E Mall, Vancouver, BC V6T 1Z9, Canada

<sup>d</sup> Department of Medicine, University of British Columbia, St. Paul's Hospital, 608-1081 Burrard Street, Vancouver, BC V6Z 1Y6, Canada

<sup>e</sup> Faculty of Health Sciences, Simon Fraser University, 8888 University Drive, Burnaby, BC V5A 1S6, Canada

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## ABSTRACT

**Objectives:** Supervised injection facilities (SIFs) are increasingly being implemented worldwide in response to the harms associated with injection drug use. Although SIFs have been shown to promote engagement of people who use injection drugs (PWID) with external health services, little is known about the potential of co-locating on-site detoxification services with SIFs. The aim of this study was to characterize use of detoxification services co-located at Insite, North America's first SIF, among PWID in Vancouver, Canada.

**Methods:** Data were derived from two prospective cohorts of PWID in Vancouver, Canada between November 2010 and December 2012. Using multivariable generalized estimating equation logistic regression, we identified factors independently associated with reporting use of detoxification services at the SIF.

**Results:** Among 1316 PWID, 147 (11.2%) reported enrolling in detoxification services co-located with the SIF at least once during the two year study period. In multivariable analyses, after adjustment for other potential confounders, factors independently and positively associated with use of this service included residence < 5 blocks from the SIF (Adjusted Odds Ratio [AOR] = 1.70), enrollment in methadone maintenance therapy (AOR = 1.90), public injection (AOR = 1.53), binge injection (AOR = 1.93), recent overdose (AOR = 1.90) and frequent SIF use (AOR = 8.15) (all  $p < 0.05$ ).

**Discussion:** Use of on-site detoxification services offered at the SIF was common among PWID and associated with frequent SIF use and various markers of vulnerability and drug-related risk. These findings highlight the potential role of SIFs as a point of access to detoxification services for high-risk PWID. Future studies should examine if co-location leads to higher uptake of addiction services in comparison to services that create geographic or other obstacles.

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## 1. Introduction

People who inject drugs (PWID) contend with an array of health-related harms, including overdose (Mitra, Wood, Nguyen, Kerr, & DeBeck, 2015), HIV/AIDS (Montain et al., 2016), Hepatitis C (HCV) (Kim et al., 2009) and other infectious diseases (Lloyd-Smith et al., 2010). This population also experiences significant barriers in accessing addiction treatment and other health care and supportive services (McCoy, Metsch, Chitwood, & Miles, 2001). In response to these challenges, supervised injection facilities (SIFs) have increasingly been implemented in cities worldwide. These facilities provide PWID with sterile injecting

equipment and a safe and hygienic space in which to inject pre-obtained illicit drugs under the supervision of nurses or other trained staff. The goals of SIFs are to engage high-risk PWID, reduce injection-related harms and infections, facilitate access to health and social services, reduce morbidity and mortality associated with overdose, and improve public order (Wood et al., 2004; Wood et al., 2005). There are currently over 90 SIFs operating in over 60 cities across the world (EMCDDA, 2016).

Insite, North America's first legally sanctioned SIF, was opened in 2003 in Vancouver, Canada. To date, numerous peer-reviewed studies have demonstrated the various health and community benefits of this facility. For example, overdose mortality decreased by 35% in the neighbourhood surrounding Insite in the two years after the facility opened (Marshall, Milloy, Wood, Montaner, & Kerr, 2011). In addition, use of the SIF has been associated with reductions in syringe sharing

\* Corresponding author at: B.C Centre on Substance Use, University of British Columbia, St. Paul's Hospital, 608-1081 Burrard Street, Vancouver, B.C. V6Z 1Y6, Canada.

E-mail addresses: [uhri-ew@cfenet.ubc.ca](mailto:uhri-ew@cfenet.ubc.ca) (A. Gaddis), [uhri-tk@cfenet.ubc.ca](mailto:uhri-tk@cfenet.ubc.ca) (T. Kerr).

and injection-related injuries (Kerr, Small, Moore, & Wood, 2007; Marshall et al., 2011; Milloy, Kerr, Tyndall, Montaner, & Wood, 2008; Milloy et al., 2008; Wood, Tyndall, Montaner, & Kerr, 2006) without increasing either the number of local PWID (Kerr et al., 2007) or rates of relapse (Kerr et al., 2006). At the community level, the establishment of the facility has contributed to improvements in public order through reductions in public injection and publicly-discarded injection-related litter (Wood et al., 2004), and has not been associated with increases in drug-related crime (Wood, Tyndall, Lai, Montaner, & Kerr, 2006).

SIFs such as Insite have also been shown to serve as important entry points to external drug treatment and other health and social services for PWID (Kimber, Dolan, van Beek, Hedrich, & Zurhold, 2003; Wood, Tyndall, Zhang, Montaner, & Kerr, 2007; Wood, Zettel, & Stewart, 2003; Wood et al., 2006; Wood et al., 2006). Indeed, an earlier study of PWID in Vancouver found that frequent Insite use and contact with addictions counselors within the facility were independently associated with more rapid entry into external residential detoxification services (Wood et al., 2006). Subsequent analyses demonstrated a 30% increase in the uptake of external detoxification services in the year after Insite opened compared to the year prior to the establishment of the facility (Wood et al., 2007). This study also found that such entry into detoxification services was associated with an increased likelihood of enrollment in other addiction treatment programs, such as methadone maintenance therapy (MMT) and residential treatment, as well as subsequent declines in use of the SIF (Wood et al., 2007). Further, regular use of the facility has also been directly associated with increased uptake of addiction treatment and, in turn, an increased likelihood of injection drug use cessation (DeBeck et al., 2011). Similarly, a study of a SIF in Sydney, Australia found that frequent users of the facility were more likely to receive referrals to addiction treatment (Kimber et al., 2008).

Despite this evidence demonstrating the role of SIFs in connecting high-risk PWID with external detoxification and addiction treatment services, little is known about the uptake of on-site detoxification services co-located with SIFs. An on-site detoxification facility, known as “Onsite”, has been co-located with Insite since 2007, offering 12 beds of detoxification services. There are no restrictions on the types of substances used by clients prior to enrollment in this program. Average length of stay ranges from one to two weeks, and residents can also access 18 beds of transitional housing post-detoxification (PHS, 2017). Since opening, this detoxification service has seen over 2800 intakes (PHS, 2017). However, use of this service among PWID has not yet been characterized. Identifying relevant factors affecting uptake of this service could provide important information to guide the development of SIFs in other regions, particularly given that a number of municipalities across Canada and elsewhere are presently conducting planning and feasibility work to establish SIFs, many of which are considering integrating these facilities within existing health services for PWID (Jozaghi, Reid, & Andresen, 2013). The present study was therefore undertaken to characterize use of an on-site detoxification facility at a SIF among a community-recruited prospective cohort of PWID in Vancouver, Canada.

## 2. Material and methods

Data for this study were derived from two ongoing prospective cohort studies of people who use illicit drugs: The Vancouver Injection Drug Users Study (VIDUS) and the AIDS Care Cohort to evaluate Exposure to Survival Services (ACCESS). These cohorts have been described in detail previously (Strathdee et al., 1999; Tyndall, Currie, Spittal, Li, Wood, O’Shaughnessy, & Schechter, 2003). Briefly, since May 1996, participants have been recruited through self-referral, word-of-mouth and street outreach. Eligibility criteria included residing in the Greater Vancouver region and being at least 18 years of age at the time of recruitment, with the primary distinction being that HIV-positive individuals who use illicit drugs other than cannabis in the month prior to enrollment are followed in ACCESS whereas HIV-negative individuals who

injected drugs in the month prior to enrollment are followed in VIDUS. The recruitment and follow-up procedures for the two cohorts are largely identical, allowing for combined analyses. At baseline and semi-annually thereafter, participants complete a harmonized interviewer-administered questionnaire and provide blood samples for serological testing. All participants provide written informed consent and are provided with a \$30 CAD stipend at each study visit.

All participants who completed a study visit between November 1, 2010 and December 31, 2012, and who reported injecting drugs in the previous six months at baseline were included in the present analyses. The primary outcome of interest was reporting enrollment in on-site detoxification services at the SIF in the previous six months. Based on existing literature, we selected explanatory variables that we hypothesized might be associated with access to addiction treatment services, including detoxification services (DeBeck et al., 2011; Milloy et al., 2010; Rapp et al., 2006). These included sociodemographic and behavioural variables, including: age (per year older); gender (male vs. female); ancestry (White vs. Non-White); unstable housing (yes vs. no); sex work involvement (yes vs. no); and residence within five blocks of the SIF (<5 blocks vs. ≥5 blocks). Drug use variables considered included: ≥ daily injection cocaine use (yes vs. no); ≥ daily injection heroin use (yes vs. no); ≥ daily injection crystal methamphetamine use (yes vs. no); ≥ daily injection prescription opioid use (yes vs. no); ≥ daily crack smoking (yes vs. no); binge injection drug use (yes vs. no); non-fatal overdose (yes vs. no); participation in MMT (yes vs. no); public injecting (yes vs. no); syringe sharing (yes vs. no); requiring help injecting (yes vs. no); difficulty accessing needles (yes vs. no) and frequent SIF use (≥ weekly vs. < weekly). Other variables assessed included being HCV antibody positive (yes vs. no) and HIV seropositive status (yes vs. no). All variables were treated as time-updated and refer to the six-month period prior to the interview unless otherwise indicated.

### 2.1. Statistical analyses

We first examined the baseline sample characteristics stratified by reporting accessing on-site detoxification services, using the Pearson’s Chi-squared test (for binary variables) and Mann-Whitney test (for continuous variables). Fisher’s exact test was used for binary variables when one or more of the cells contained expected values less than or equal to five. Since analyses of factors potentially associated with accessing on-site detoxification included serial measures for each participant, we used generalized estimating equations (GEE) with logit link. This method provides standard errors adjusted by multiple observations per person using an exchangeable correlation structure and therefore considers data from every participant follow-up visit. As a first step, we used bivariable GEE analyses to determine factors associated with use of on-site detoxification services at the SIF. Next, we constructed an explanatory multivariable model using an a priori-defined backward model selection procedure based on examination of quasiliikelihood under the independence model criterion statistic (QIC) and Type-III *p*-values. In brief, we first fit a full model that included all explanatory variables that were significantly associated with the outcome at the level of  $p < 0.20$  in bivariable analyses. After examining the QIC of the model, the variable with the largest *p*-value was removed sequentially. We continued this iterative process to build a final multivariable model that included the set of explanatory variables associated with the lowest QIC (Pan, 2001).

We also recognized that the factors associated with use of detoxification services at the SIF use might differ for SIF users specifically compared to the larger sample of PWID. Therefore, as a subanalysis, we restricted the sample to participants who reported use of the SIF in the previous six months at each interview and examined bivariable and multivariable associations for this subsample using the same approach outlined above. All *p*-values were two-sided. All statistical analyses were performed using RStudio, version 0.99.892.

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