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## Use of a Medically Supervised Injection Facility Among Street Youth


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 A B S T R A C T

**Purpose:** Supervised injecting facilities (SIFs) provide a sanctioned space for injection drug users and are associated with decreased overdose mortality and HIV risk behaviors among adults. Little is known about SIF use among youth. We identified factors associated with use of the Vancouver SIF, the only such facility in North America, among street youth.

**Methods:** From September 2005 to May 2012, we collected data from the At-Risk Youth Study, a prospective cohort of street youth in Vancouver, BC, Canada. Eligible youth were aged 14–26 years. Participants reporting injection completed questionnaires at baseline and semiannually. We used generalized estimating equation logistic regression to identify factors associated with SIF use.

**Results:** During the study period, 42.3% of 414 injecting youth reported use of the SIF at least once. Of all SIF-using youth, 51.4% went to the facility at least weekly, and 44.5% used it for at least one-quarter of all injections. SIF-using youth were more likely to live or spend time in the neighborhood surrounding the SIF (adjusted odds ratio [AOR], 3.29; 95% confidence interval [CI], 2.38–4.54), to inject in public (AOR, 2.08; 95% CI, 1.53–2.84), or to engage in daily injection of heroin (AOR, 2.36; 95% CI, 1.72–3.24), cocaine (AOR, 2.44; 95% CI, 1.34–4.45), or crystal methamphetamine (AOR, 1.62; 95% CI, 1.13–2.31).

**Conclusions:** This study, the first to examine SIF use among street youth in North America, demonstrated that the facility attracted high-frequency young drug users most at risk of blood-borne infection and overdose and those who otherwise inject in public spaces.

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 IMPLICATIONS AND  
 CONTRIBUTION

Street youth who injected daily were the most likely to use North America's first supervised injection facility, and when not injecting there, injected in public places. Supervised injection facilities may prevent accidental overdose and transmission of blood-borne infection among youth while also helping communities by reducing public drug use.

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Street youth—young people living or working on the street—are a marginalized population at greatly elevated risk for morbidity and mortality relative to the general youth population [1]. Injection drug use is common among street youth in North America, with reported prevalence varying between 17% and 41% [2–6]. Accidental drug overdose is a leading cause of death among street youth [7], and among those who inject drugs, overdose is alarmingly common [8], as is infection with HIV and hepatitis C virus (HCV) [6,9,10]. Such risks may be exacerbated by particular injecting environments, such as public alleys, restrooms, parks, or “shooting galleries”, where drug users may be

rushed, lack sterile injection equipment, or be prone to sharing paraphernalia [11,12].

In 2003, North America's first supervised injection facility (SIF), Insite, was opened in Vancouver, BC, Canada, offering a government-sanctioned space for users to inject preobtained drugs under nurse supervision [13]. Similar facilities have been established in Europe and Australia, but to date, no other facility exists in the United States or Canada [14–16]. Vancouver's SIF, open for 18 hours daily (including overnight hours until 4 A.M.), 7 days per week, is staffed by nurses who can intervene in the event of an overdose [13]. Staff also issue clean injecting equipment, offer information on safe injection practices, and provide referrals to health care and addiction treatment services. Vancouver's SIF is a "low threshold" service, in that it is accessible by adolescents so long as there is evidence of active injection drug use.

Among adult drug users, overdose mortality has decreased by 35% in the neighborhood immediately surrounding the SIF since its implementation [17]. Additionally, use of the SIF among adults has been associated with entry into drug detoxification [18], decreased syringe sharing [19], and safer injection practices [20], without significantly reducing rates of drug use cessation or increasing rates of relapse [21]. At the community level, the opening of Vancouver's SIF has been associated with reductions in public drug use and unsafely discarded syringes [22].

Although Vancouver's SIF is accessible to adolescents and young adults, the acceptability of the facility to street youth remains unstudied. Because most street youth have unstable housing and may have few safe locations to inject, the SIF may provide an alternative to injecting in public [1]. Still, some have questioned whether an SIF would attract the high-risk or hard-to-reach users most in need of the facility's services [23], even despite evidence showing that many Vancouver injection drug users are willing to use the SIF [24]. To reduce morbidity, mortality, and costly treatment associated with overdose and infectious disease transmission, it is critical for clinicians, researchers, and policymakers to understand which adolescents and young adults use the SIF, how frequently they use it, what their drug use patterns are, and where they inject when not at the SIF. In particular, high-frequency injecting youth are at greatest risk of overdose and blood-borne infection [7,9] and might therefore benefit most from on-site harm reduction and treatment services.

We therefore conducted the present study of SIF use among a cohort of actively injecting street youth in Vancouver. In building on the results of prior studies of adult drug users [25], we hypothesized that the SIF would attract high-frequency injecting adolescents and young adults at greatest risk for overdose and infectious disease transmission who also might otherwise inject in public.

## Methods

The At-Risk Youth Study (ARYS) is an ongoing prospective cohort of street youth in Vancouver, BC, Canada that began enrollment in September 2005. The study has been described in detail previously [26]. Briefly, inclusion criteria were (1) age 14–26 years and (2) use of an illicit drug other than or in addition to marijuana in the 30 days before enrollment. Participants were street-involved, defined as being absolutely or temporarily without stable housing, or having accessed street-based youth services in the past 6 months. Similar conditions have previously

been used to define street involvement among youth [3,8,27]. Participants were recruited from a range of neighborhoods throughout the city where street youth are known to congregate. Daytime and nighttime street-based outreach and snowball sampling were used.

Participants provided informed consent and completed an interviewer-administered questionnaire at a storefront location in Vancouver's Downtown South neighborhood. The questionnaire queried sociodemographic details and drug use behaviors, and was completed at baseline and then at 6-month interval follow-up visits thereafter. Participants were remunerated \$20 CAN at baseline and at each follow-up visit. ARYS was approved by the University of British Columbia and Providence Health Care Research Ethics Board.

Participants eligible for the sample used in the present analysis included adolescents and young adults reporting injection in the preceding 6 months during the period spanning from September 2005 to May 2012, either at baseline or at any semi-annual follow-up visit. Including only actively injecting participants in the sample resulted in a higher mean age (data not shown) because, as has been shown previously, injection drug users in the ARYS cohort tend to be older [28]. The broader ARYS sample from which this subsample of injection drug users was drawn included 1,019 participants for the specified enrollment window.

The primary outcome was self-reported use of the Vancouver SIF at least once in the preceding 6 months. Specifically, participants were asked, "In the last six months, have you fixed at the Insite safe injection site?" Of note, the SIF is entirely external to the ARYS study and is located in the Downtown Eastside neighborhood, 2.5 km from the ARYS study storefront site in the Downtown South neighborhood. For those who used the SIF (either at baseline or at follow-up), descriptive data were compiled regarding how often participants used the SIF, the proportion of all injections conducted at the SIF, where participants injected most of the time if not injecting at the SIF, whether participants received new information about safe injection practices they did not already know at the SIF, and whether participants felt the SIF was youth friendly. These descriptive data were reported for the first time that a participant reported using the SIF. We also obtained blood samples to determine HIV and HCV serostatus among all participants.

We examined covariates potentially associated with SIF use including age (as a continuous variable), biologic gender at birth, Aboriginal ancestry, high school education (having completed or currently being enrolled in high school), recently (specified for this and all subsequent variables as occurring within the preceding 6 months) having lived or spent time in the Downtown Eastside (the neighborhood immediately surrounding Insite), recent homelessness, recent incarceration, recent sex work (having traded sex for money, drugs, shelter, or gifts), recent daily heroin injection, recent daily cocaine injection, recent daily crystal methamphetamine injection, recent drug overdose, recently having dealt drugs, any recent drug injection in a public place (on the street, in a public bathroom, or in a park), recently having needed help injecting from someone else, recently having visited a crack house or a shooting gallery, recently having borrowed a syringe, recently having been "jacked up" by police (i.e., stopped, searched, or detained for presumed drug possession without arrest), and recently having received drug treatment [25,29].

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