

Rationale for evaluating North America's first medically supervised safer-injecting facility

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Many cities throughout the world are experiencing ongoing infectious disease and overdose epidemics among illicit injection drug users (IDUs). In particular, HIV and hepatitis C virus (HCV) have become endemic in many settings and bacterial infections, such as endocarditis, have become extremely common among this population. In an effort to reduce these public health concerns, in September 2003, Vancouver, Canada, opened a pilot medically supervised safer-injecting facility (SIF), where IDUs can inject pre-obtained illicit drugs under the supervision of medical staff. Before and since the facility's opening, there has been a substantial misunderstanding about the rationale for evaluating SIF as a public-health strategy. This article outlines the evidence and rationale in support of the Canadian initiative. This rationale involves limitations in conventionally applied drug-control efforts, and gaps in current public-health policies in controlling the spread of infectious diseases, and the incidence of overdose among IDUs.

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Many cities throughout the world are currently experiencing HIV and hepatitis C virus (HCV) epidemics as a result of illicit injection drug use.^{1,2} Other costly infectious diseases that can be easily acquired from non-sterile injection practices, such as endocarditis and cellulitis, are also common.³ The health of injection drug users (IDUs) is further compromised by avoidance and erratic use of primary-care services, costly emergency-room visits, and acute-care hospitalisations.^{3–6} In addition, illicit drug overdose deaths and community concerns, such as public drug use, continue to plague many North American cities.^{7,8}

In response, in over two dozen European cities and more recently in Sydney, Australia, medically supervised safer injecting facilities (SIFs), where IDUs can inject pre-obtained illicit drugs under medical supervision, have been implemented in order to reduce community and public health impacts of illicit injection-drug use.^{9–12} Due to the ongoing health crisis among IDUs in many Canadian cities,¹³ a federal task force was established to examine the feasibility



Figure 1. Vancouver's safer-injecting facility, which opened September 2003.

Photograph courtesy of Dr Mark Tyndall.

of a pilot study of SIF. Following the task force's recommendation that pilot SIF projects proceed, in December 2002 Health Canada released guidelines that can be used to sanction SIF pilot studies and evaluations. In June 2003 Health Canada approved Vancouver's application to initiate a SIF evaluation,¹⁴ and in September 2003 the doors of North America's first sanctioned SIF were opened (figure 1). The SIF pilot study is part of the Vancouver's

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“Four Pillar” drug strategy, which emphasises the equal importance of prevention, treatment, enforcement, and harm reduction.¹⁵

The SIF evaluation has recently received international attention,¹⁶⁻¹⁹ and during the past year, policy-makers from the United States’ Office of National Drug Control Policy (ONDCP) have made several visits to Vancouver to express their concerns regarding the SIF evaluation.²⁰ For instance, during a meeting with Vancouver business and civic leaders, ONDCP Director, John Walters, suggested that SIFs may lead to increased HIV transmission among IDUs, and warned businesses that the evaluation could lead to a migration of IDUs to the city.²⁰ However, these suggestions are not substantiated by the scientific literature, with previous studies having shown that IDUs are generally unwilling to travel even short distances to use a SIF or other medical services,^{9,21,22} and no study has attributed higher rates of infectious disease transmission to attendance at SIFs. Nevertheless, since this time, several editorials in local newspapers have echoed the concerns raised by ONDCP officials.^{23,24} Since previous studies have demonstrated that unchallenged misinformation can hinder the success of controversial public-health trials,²⁵ we wish to explain the rationale behind the Canadian SIFs evaluation, and the reasons why the evaluation of SIF is a critical public-health priority in the North American context.

Safer-injecting facilities

SIFs typically have several primary objectives including: the reduction of public drug use, fatal and non-fatal overdose, and infectious disease risk; improving contact between a highly marginalised “at-risk” population and the health-care system; and enhancing recruitment into medical care and addiction treatment.^{9,10,22} Within SIFs, IDUs are provided with sterile injecting equipment, medical attention in the event of an overdose, as well as access to or referral to primary health care and other services including addiction treatment. SIFs now operate in over 26 European cities, and an interim evaluation of a SIF in Sydney, Australia, has recently reported substantial public-health benefits.¹² European cities with SIFs include: Frankfurt, Hamburg, Zurich, Bern, Rotterdam, Amsterdam, and Arnhem, to name a few, and many of these have multiple SIFs. For instance, it was recently reported that Zurich now has five SIFs.¹⁰

While it must be stressed that limited quantitative data are presently available, as will be outlined below, reports have credited SIFs with a number of public-health and community benefits including improving the health and social functioning of their clients,⁹ while reducing overdose deaths,¹¹ risk behaviours known to transmit infectious diseases,²⁶ improperly discarded syringes,²⁷ and public drug use.²⁸ In addition, improved access to medical care and drug treatment has been attributed to SIF attendance.^{10,12}

Problems with conventional North American drug strategies

In public-health circles, it is well recognised that conventional enforcement-based drug-control strategies

have not been sufficient to reduce the spread of infectious diseases, the incidence of overdoses, and the prevalence of other community harms of injection drug use.²⁹⁻³¹ The limitations and problems stemming from conventional North American drug strategies provide the first rationale to support SIF evaluations.

The limitations of supply reduction

Although, in principal, Canada’s drug strategy aims to balance supply and demand reduction, an Auditor General’s report recently estimated that of the CAN\$ 454 million spent annually on illicit-drug-control efforts in Canada in 2000, \$426 million (93.8%) was devoted to supply reduction.³² Despite this allocation of resources, illicit drugs remain readily available as reflected by low prices and high purity of street drugs.³³ Consequently, high infectious disease incidence rates persist in many Canadian cities,² and illicit drug overdoses have been a leading cause of death.⁷

Results have been similar in many US cities. In Baltimore, for example, overdose deaths increased by more than 425% between 1990 and 1997.⁸ This increase may be due to the fact that heroin availability estimates for the USA suggest that, whereas purity of American heroin has increased, the price of heroin has decreased three-fold between 1988 and 2000.³⁴ In fact, despite the tens of billions spent on supply reduction in the USA,³¹ a recent report by the World Customs Organization, noted that even post-September 11 security measures have had a “negligible” impact on the influx of illicit drugs into the USA.³⁵ In Canada, we recently published a comprehensive evaluation of the largest heroin seizure in Canadian history, and were unable to detect measurable beneficial impacts in the community.³³ Whereas the failure of supply reduction does not have direct implications for SIFs, the fact that large quantities of illicit drugs continue to stream through our nation’s defences, with little evidence that this will change in the near future,^{33,35} programmes must be implemented to make drug use safer among those who are inevitably going to inject illicit drugs.

Over reliance on incarceration

An additional concern, that also stems from over-reliance on criminal justice-based approaches to reducing drug-related harm, is the rate of incarceration of drug offenders in North America. In particular, it is now estimated that there are almost a half a million non-violent drug offenders in American prisons. In fact, there are 100 000 more drug offenders behind bars in the USA than the entire incarcerated population of the European Union (EU), despite the fact that the EU has 100 million more citizens.³⁶ The growing rates of incarceration in the USA and increasingly in Canada have major public-health implications.³⁷⁻³⁹

For instance, a recent study suggested that the number of known HIV cases in Canadian prisons has risen by 35% in the past 5 years, and it is suspected that HIV may be rapidly spreading in this setting.^{40,41} Locally, a recent study of Vancouver IDUs demonstrated that incarceration was independently associated with a greater than 2.5-fold risk

of HIV seroconversion.⁴² An external evaluation of the Vancouver data suggested that 21% of HIV infections among IDUs in the community may have been acquired in prison.⁴³

Incarcerating large numbers of IDUs also has the potential to exacerbate infectious disease spread because of the high rates of initiation into injection drug use in prison.⁴⁴ While not directly relevant to the evaluation of SIFs, the unsustainable growth in the number of incarcerated drug offenders, the high risk of infectious disease transmission in prison, and increasing evidence of initiation into injection within prisons, all demonstrate the urgent need for community-based strategies to reduce the societal and health-related harms of illicit drug use.

Displacement of drug users into unsafe environments

A third concern, that provides further rationale for SIF evaluations, stems from their potential to attenuate some of the unintended, but potentially harmful, public-health consequences of criminal sanctions for IDUs that occur in the community.⁴⁵ For instance, previous studies have demonstrated that, as a result of the risk of criminal sanctions, those addicted to illicit drugs are often driven physically and socially into environments, such as abandoned buildings or other areas, where overdose, infectious disease spread, and other risks may be exacerbated.^{46,47}

The classic example of physical displacement into risky environments is the shooting gallery, where IDUs congregate in hidden locations.⁴⁸ Whereas various forms of shooting galleries have been described, generally they are settings where IDUs share syringes with their peers, store syringes for future use, or receive injections from professional injectors who use the same syringe to inject several customers.^{48,49} When IDUs are displaced into such locations, equipment needed for sterile injection is often not readily available, whereas discarded (used) syringes and unclean sources of water are often present to serve as substitutes. Not surprisingly, shooting gallery attendance has been independently associated with HIV and HCV infection.^{1,50}

This social and physical displacement also severely complicates the delivery of HIV-prevention and drug-treatment services. In particular, IDUs may become vulnerable to syringe sharing if they are reluctant to obtain or carry sterile injection equipment when police are active in areas where sterile injection equipment is provided.⁵¹⁻⁵³ In addition, the displacement of injection drug use and drug dealers into neighbourhoods where injection drug use was not previously prevalent has the potential to result in raised rates of injection

initiation.⁵⁴ The unintended consequence of displacement resulting from criminal sanctions against drug addicts is directly relevant to the evaluation of SIFs, since it offers the opportunity to couple enforcement and public-health efforts.⁵⁵ In particular, IDUs who have historically been displaced into risky environments,^{46,47} may instead be motivated to access SIFs by police officers working in collaboration with public health systems.²²

Limitations of conventional public-health strategies for injection drug use

Along with the problems stemming from the over-reliance on criminal justice-based interventions, the limitations of conventional public-health strategies for IDUs are also increasingly being recognised. The limitations of conventional public health strategies provide the second rationale to support SIF evaluations.

Public injection drug use

Although independent evaluations of needle exchange have led to endorsements by the US National Institutes of Health Consensus Panel, US National Research Council, the American Public Health Association, and the American Medical Association among others,⁵⁶ needle exchanges may not suffice to overcome all drug-related harms.⁴⁶ In particular, needle exchanges and other services for IDUs are limited in their ability to reduce the community and health-related harms of public injection drug use (figure 2).⁴⁶

Public drug use may result in major health risks for IDUs for several reasons. Since public use exposes users to a raised risk of being assaulted by street criminals or arrested by police, injectors may be prone to rush, which may exacerbate infectious disease risk if a sterile syringe is not used.⁴⁶ The risks associated with rushing are compounded by the fact that public spaces are unhygienic, and the fact that



Figure 2. Jugular injection in one of the remote alleyways of Vancouver's Downtown Eastside.

The Vancouver Sun

public injectors may be more likely to inject without cleaning their hands and injection sites. Finally, research indicates public use may increase the risk of fatal overdose, since there are frequently no telephones to call for help, and since many spaces, such as alleys, have no real address which to guide emergency workers.¹⁰

SIFs may have a direct impact on this concern, and there are several reports of public drug use declining after the implementation of SIFs in western European cities.^{26,27} In Frankfurt, the number of public drug users dropped from approximately 800 in 1992 to 150 in 1993, and public complaints about drug use also dropped substantially during this period.²⁷ Reports from Switzerland also indicate that the creation of SIFs has led to reductions in the number of discarded syringes found on city streets where SIFs are located.⁵⁷ Whereas feasibility studies have suggested that public injectors may be highly willing to use SIFs, the extent to which SIFs may reduce public-order problems, and the health risks of public-drug use remain important public health questions.^{22,28}

Overdose mortality rates

Drug overdosing has been a leading cause of death in many North American cities.^{8,13} For instance, in New York City rates of death from overdose have outstripped deaths from homicide in recent years,⁵⁸ and overdose was recently a leading cause of death in the Canadian province of British Columbia where one overdose death per day was recorded in the late 1990s.¹³ Although the provision of methadone-maintenance therapy and needle-exchange attendance has been associated with a reduction in overdose incidence,^{59,60} ongoing high overdose rates in settings where these interventions are available demonstrate that additional public-health measures are needed.^{8,13,58}

Indeed, several cities have witnessed substantial reductions in overdose deaths following the establishment of SIFs. For example, in Frankfurt the number of overdose deaths has declined from 147 in 1991 to 22 in 1997.⁶¹ Whereas this improvement can be attributed in part to an array of harm-reduction services, the data show a substantial decline in the overdose rate in the year following the establishment of SIFs, and these reductions occurred while overdose rates remained stable in other parts of Germany.⁶¹

Since a primary function of SIFs is to supervise injectors and respond in the event of an overdose, SIFs have the potential to fill this serious gap in presently applied public-health interventions.¹¹ During the first 18 months of Sydney's SIF evaluation, 419 drug overdoses that may have otherwise occurred in an unsupervised setting, were reportedly managed without brain injuries or fatalities.¹²

Ongoing infectious disease transmission

Similarly, although it is recognised that methadone-maintenance therapy, syringe exchange, and other public-health services for IDUs may reduce the incidence of viral and bacterial infections and associated risk behaviours,^{56,60,62} additional measures may be required to prevent syringe sharing and re-use that arises due to intoxication, binge use of drugs, or other factors.⁶³

Although limited quantitative data are presently available on reduced infectious disease risk, it is noteworthy that SIF clients in Switzerland reported substantial increases in safe injecting and safe sex practices,^{26,57} and data collected in Arnhem indicate that clients took fewer health risks following the establishment of SIFs.⁶⁴ Again, since one of the primary functions of SIFs is to supervise IDUs to prevent unsafe injection practices, the evaluation will provide data on the potential of a SIF to reduce syringe sharing and re-use among IDUs, and consequent infectious disease incidence.

Uptake of primary health care and addiction treatment services

Finally, although previous studies have demonstrated that services for IDUs, such as syringe exchange, may have potential to engage IDUs and refer them to ancillary services such as drug treatment,^{65,66} other reports have suggested that contact with exchange clients is often fleeting in nature and offers only limited opportunity to engage IDUs and offer them additional services.¹⁰ With regards to infectious disease treatment, we have recently demonstrated high rates of death among HIV-infected IDUs who have never received antiretroviral therapy.⁶ This has occurred despite an environment with free access to medical care and HIV/AIDS treatment, and one of North America's largest needle-exchange programmes.

SIFs may address these concerns since SIFs have been shown to reach a population that is often extremely difficult to reach with HIV prevention, medical care, and addiction treatment services.^{6,51,63,67} For instance, it has been reported that about 40% of SIF users in Rotterdam and in Frankfurt are homeless.²⁷ With regards to the provision of primary care, more than 3000 abscesses were treated in three SIFs in a 1-year period in Switzerland.⁹ SIFs also have the potential to act as gateways to other systems of care and treatment through various referral schemes.²²

The potential for SIFs to enable sustained contact between the health-care system and IDUs, engage them in blood-borne disease and overdose-prevention education, and facilitate entry into infectious disease care, detoxification and drug treatment programmes constitutes a critical public-health function that can only be assessed through appropriate evaluation.

The Vancouver SIF evaluation

In light of the lack of existing quantitative data addressing the efficacy of SIFs, the existence of ethical concerns,⁶⁸ and an awareness that a non-randomised study may be vulnerable to substantial selection biases,⁶⁹ the Vancouver SIF evaluation is structured around a prospective cohort design. In brief, the study involves random recruitment from within the SIF, and prospective serial measures of risk behaviour and venous blood samples to assess HCV and HIV incidence. Due to concerns around socially desirable reporting regarding HIV-prevention-service use,⁷⁰ exposure to the site is based on both self-reporting and a confidential record linkage. In addition, external service use, such as detoxification programme use and the incidence of HIV treatment, will be assessed through confidential record

linkages. IDUs who do not use the site will also be followed on a semi-annual basis. The evaluation has been ethically approved by the University of British Columbia/Providence Health care Research Ethics Board.

Conclusion

A pilot study of a SIF in Canada will provide an opportunity to evaluate the efficacy of SIFs to address ongoing public-health and community harms resulting from illicit injection drug use, including their potential for infectious disease prevention. A rigorous review of the literature suggests that these harms stem from the limitations and problems relating to the over-reliance on conventional enforcement-based drug strategies including: the failure of supply reduction,³³ unsustainable levels of incarceration of illicit drug users and the resulting public health concerns^{36,71} and the public-health impacts of displacement into unsafe environments.⁴⁷ In addition, these harms persist as a result of the limitations of conventional public-health programmes including their inability to completely address: public injection drug use,⁴⁶ overdose fatalities,³³ and infectious disease incidence,^{1,2} and their limited potential to engage IDUs and provide primary healthcare and facilitate entry into infectious disease and addiction treatment.^{10,67}

Furthermore, although harms from SIF attendance have not been reported, the evaluation will enable rigorous evaluation of the potential harms suggested by US policy-makers.¹⁶ In Vancouver, local officials have recognised the need for scaling up other interventions to reduce the harms of illicit drug use including expanding addiction treatment,

Search strategy and selection criteria

PubMed databases were searched for published reports on the health impacts of illicit injection drug use and/or supervised injecting facilities (under their various names: "consumption rooms", "alley rooms", etc.) with no language or date specified, and by examining references from relevant articles. In addition, key abstracts presented at international meetings were reviewed as long as the findings provided novel insights into issues not covered in peer-reviewed papers. Articles and presentations focusing on the impact of injection drug use on health status, with a focus on infectious diseases and related issues, were critically reviewed.

prevention, and enforcement.¹⁵ If the Vancouver SIF study is able to show public-health and/or community benefits from the implementation of SIF, it may provide a public-health model with the potential to address many of these outstanding drug-related harms that continue to plague many North American cities.

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Conflicts of interest

We have no conflict of interest.

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