

**‘A Little Heaven in Hell’:  
The Role of a Supervised Injection Facility in  
Transforming Place and Its Future**

**by**

**Ehsan Jozaghi**  
B.A., Simon Fraser University, 2010

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# Approval

**Name:** Ehsan Jozaghi  
**Degree:** Master Arts (Criminology)  
**Title of Thesis:** 'A little heaven in hell':  
The role of a supervised injection facility in  
transforming place and its future

**Examining Committee:**

**Chair:** Dr. Brian Burtch  
Professor

---

Dr. Martin A. Andresen  
Senior Supervisor  
Assistant Professor

---

Neil Boyd, LL.M.  
Supervisor  
Professor

---

Dr. J. Bryan Kinney  
Supervisor  
Associate Professor

---

Dr. Evan Wood  
External Examiner  
Professor, Faculty of Medicine  
University of British Columbia

**Date Defended/Approved:** April 05, 2012

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# Abstract

While numerous studies on InSite (North America's first and only supervised injection facility (SIF)) have been published in leading international journals, little attention has been given to the potential role that InSite has played in transforming the landscape and culture of drug use in the Downtown Eastside (DTES) of Vancouver, British Columbia (BC). The present research was conducted on the premise of assessing the transformative role of InSite in the lives of injection drug users (IDUs) who are caught in a vicious cycle of substance abuse, poverty and homelessness. Semi-structured qualitative interviews were conducted with a purposively chosen sample of IDUs in Vancouver, Surrey, and Victoria, BC. Audio recorded interviews were transcribed verbatim and analyzed thematically using NVivo 8 software.

Findings suggest attending InSite has numerous positive effects on the lives of IDUs. Furthermore, attending InSite has contributed to landscape and drug use transformation in the DTES. There is also an urgent need to expand the current facility to cities where injection drug use is prevalent. Cost-benefit and cost-effectiveness analysis conducted for this thesis suggests that funding additional SIFs in Vancouver would be an efficient and effective use of financial resources in the public health domain. Furthermore, there is a need for supervised inhalation rooms (SIRs) in Canada. Implementing a SIR could be based on the goals of prevention of infectious disease, reducing HIV and Hepatitis C risk behaviour, harm reduction education, reducing violence and improving safety.

**Keywords:** Supervised injection facility, cost-benefit and cost-effectiveness, supervised inhalation room, harm reduction, drug policy

## Dedication

*This thesis is for my beloved mother, Sarah,  
from whom I receive my inspiration...*

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## Chapter 1: Introduction

The illegal drug trade continues to fuel crime, gang violence and drug addiction. It is estimated that annually, worldwide 155 to 250 million people use illegal substances (International Centre for Science in Drug Policy, 2010). The social and health consequences of addiction, according to a 2007 report by the Health Officers Council of BC, is estimated to be around \$8.2 billion a year in Canada (Baron, 2010). And until now, the debate over addiction and illicit drugs has tended toward law enforcement and harsher penalties (Wood et al., 2001). In British Columbia (BC), Canada, for example, law enforcement accounted for 82 percent of the total direct costs associated with illicit drug use (Wood et al., 2001).

However, the war on drugs or 'getting tough on drugs', according to the Urban Health Research Initiative (2009) is expensive and does not work. In fact, according to Dr. Evan Wood, the chair of the Vienna Declaration writing committee:

the war on drugs has failed to achieve its stated objectives in terms of reducing drug supply or use. And on the contrary, if you look at all the international surveillance systems, the prices of drugs continue to go down; and the purity of drugs continue to go up. And that's despite ever increasing numbers of individuals that we're locking up (as cited in DeCapua, 2010, p. 1).

Moreover, there are indications that the war on drugs and criminalization of illicit drug users is fuelling the HIV epidemic. In effect, in countries with the most stringent law enforcement approaches toward drug users, human immunodeficiency virus (HIV) is spreading more rapidly among people who inject drugs (Vienna Declaration, 2010). For

example, in Eastern Europe and Central Asia HIV prevalence has been reported to be as high as 70 percent among injection drug users (IDUs) (Vienna Declaration, 2010).

While this HIV epidemic among IDUs seems to be most severe in Eastern Europe and Central Asia, BC has had several overdose deaths, HIV and Hepatitis C (HCV) epidemics of its own. BC has higher rates for these conditions than any other province in Canada (Miller, 1998). This higher rate of morbidity and mortality among IDUs in BC, according to BC's Health Officer Dr. John Miller (1998), may be caused by how society views IDUs "as criminals and derelicts, rather than as persons with legitimate illness" (p. 3). In essence, as he claims:

Addiction is neither a lifestyle choice nor a moral lapse ... [rather] addiction is a chronic, relapsing medical condition ... it resembles other chronic conditions such as blood pressure, diabetes and asthma ... Research on the brain shows clearly that addiction is a disease of the brain, with measurable and demonstrable changes in brain physiology, chemistry, and performance ... Making proven treatments available for injection drug users ... will help them to recover from or cope with their addiction (Miller, 1998, p. i-3).

In 1996, as a result of introducing a new drug law (the *Controlled Drugs and Substances Act*) a new approach that takes a public health appeal to the problem of drug abuse emerged aimed at reducing harm to "individuals, families, and communities from the abuse of drugs" (Hathaway & Tousaw, 2008, p. 11). This new approach, known as harm reduction is defined as "an ideology viewing drug use as not only as inevitable, but as simply a lifestyle option ... even a human right" (Hathaway & Tousaw, 2008, p. 13).

In fact, according to Beiser (2008) "if you accept the notion that people are not going to stop abusing drugs, it makes sense to try to minimize the damage they inflict on themselves and the rest of us while they're at it" (p. 63). Harm reduction reflects a paradigm shift "from punitive repression to the governance of drug use through public

health and law enforcement with the aim to regulate risk and maintain public order” (Hathaway & Tousaw, 2008, p. 14).

Harm reduction became one of the four pillar approaches to the drug problem in Vancouver. The four pillars included prevention, treatment, enforcement and harm reduction (Alkenbrack & Twiss, 2007). Out of the harm reduction goals grew a need to open a supervised injection facility (SIF) in Vancouver to reduce infectious diseases and overdoses among IDUs. SIFs or drug consumption rooms—as they are known in Europe—were first implemented in European countries, specifically Switzerland, Germany and the Netherlands (Fischer, Rehm, Kim, & Robins, 2002). Like Vancouver, the European countries were facing a rise in the spread of infectious diseases such as HIV, drug related overdoses and increasing public constraint to dismantle open drug scenes in the late 1980s (Fischer et al., 2002). SIFs were seen as a pragmatic solution to curb the spread of infectious blood borne pathogens and acute problem of drug overdose by providing safe and hygienic environments (Fischer, 1995; Dolan, Kimber, Fry, Fitzgerald & McDonald, 2000).

As of 2009, 65 SIFs have been opened in 27 cities in eight countries (Dooling & Rachlis, 2010; McKnight, 2011). However, North America’s first, and only SIF, InSite, opened as a pilot project only after recommendations from a federal task force and exceptions from some of the provisions of the *Controlled and Substances Act* by the Canadian Liberal federal government (Dooling & Rachlis, 2010). Further, faith in InSite as a medical experiment hinged on the condition that its impact be rigorously evaluated (Hathaway & Tousaw, 2008). And since its operation, there have been more than 30 peer reviewed studies conducted to evaluate InSite from various angles. The following are some of their findings:

- No evidence of increased drug trafficking or crime related to drug use (Wood, Tyndall, Montaner, & Kerr, 2006)
- Fewer risky injections (Kerr, Tyndall, Li, Montaner & Wood, 2005)
- Increased probability of initiating and maintaining addiction treatment (DeBeck et al., 2011).
- 35 percent drop in overdose death in the vicinity of InSite (Marshall et al., 2011).
- Large reductions in public drug use (Wood et al., 2004b).
- Large reductions in publicly discarded syringes and syringe sharing (Wood et al., 2004b).

Furthermore, InSite,

- Has been a key venue for obtaining care for infections (Small, Wood, Lloyd-Smith, Tyndall, & Kerr, 2008).
- Has also been a corner stone for safer injection education (Wood et al., 2005b).
- Provides safety and refuge from dangers of the street-based drug scene (Fairbairn, Small, Shannon, Wood, & Kerr, 2008).
- Successfully plays a role in managing overdose and reducing the burden on emergency services (Kerr, Tyndall, Lai, Montaner, & Wood, 2006).
- Attracts IDUs who are at increased risk of HIV infection and overdose (Wood et al., 2005a).

In addition to the positive accounts mentioned above, the facility has been shown to be cost-effective, providing a net savings to the publically funded health care system (Andresen & Boyd, 2010; Bayoumi & Zaric, 2008).

Despite the numerous peer reviewed studies and evaluations, there has been a handful of qualitative studies, none of which have considered the influence of InSite on the culture of drug use over the past eight years. Chapter two addresses this gap, seeking first to determine whether-or-not there has been a transformative role (culture of drug use and landscape) in the Downtown Eastside (DTES) of Vancouver, and second, if there has been a change, would this change be powerful enough to reduce drug related harm? Chapter three, explores the recommendations of chapter two through a

qualitative interviews. This thesis considers whether-or-not the current facility needs to be expanded not only in the DTES of Vancouver, but in cities with a significant IDU population. Chapter three will also confirm whether transformation of culture of drug use can be identified in a larger sample. In Chapter 4, the focus will turn to a cost-benefit and cost-effectiveness analysis in determining how many InSite facilities are required in the DTES of Vancouver before the net savings to the health care system disappear. Finally, chapter five, through a qualitative interviews, will consider whether there is need for supervised inhalation rooms (SIRs) in Vancouver.



## Chapter 2: The Role of a SIF in Transforming Place

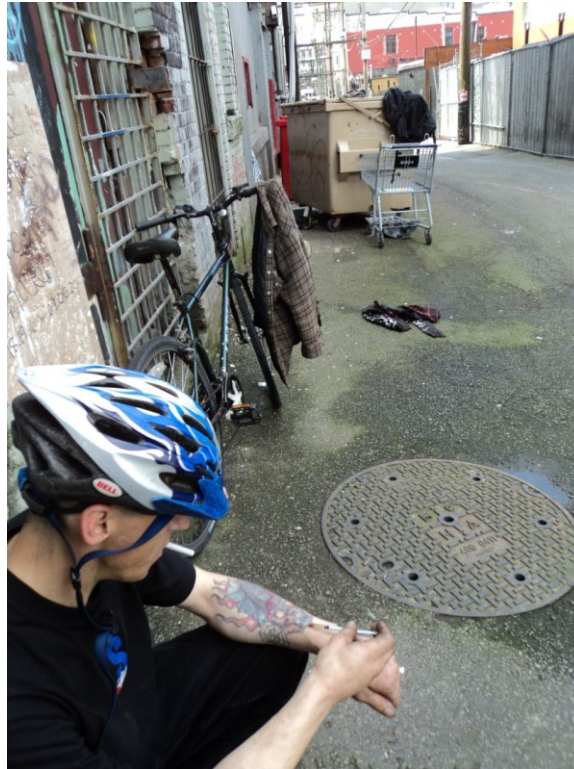
Vancouver, Canada with a population of 642, 843, is ranked as the most liveable city in the world and recently hosted the 2010 Winter Olympics (Cayne & Associates, 2006; Chai, 2011). However, the city's DTES neighbourhood was also recently highlighted in a United Nations report as the most troubled and drug infested neighbourhood in North America (Small, Palepu, & Tyndall, 2006). As Philip Owen, former mayor of Vancouver, stated:

The Downtown Eastside is ... a topsy-turvy world where needle-scarred addicts shoot up in the shadows [of the alleys] (see Figure 1). The open-air drug market flourishes mere blocks from the police station; where some homeless prefer to bunk down in a vomit-drenched doorway rather than a bug-infested room; and where people stumble and shuffle through streets, frantically picking at an imagined hole in their body or arguing with voices only they can hear" (as cited Chan, 2009, p. A5).

Many people have gone from struggling with mental illness to becoming drug addicted, very sick, and often homeless. As Larry Campbell, another former mayor of Vancouver describes:

When we deinstitutionalized, we promised [the mentally ill] ... that we would put them into the community and give them the support they needed ... We said we'd put them in the community with care and help. Instead, we gave them medication and a bus ticket, and they came to Vancouver. Then they started self-medicating with alcohol and, later, illegal drugs ... we created a "disgusting ghettoization" of the severely mentally ill in areas such as Vancouver's Downtown Eastside (Campbell, Boyd, & Culbert, 2009, p. 83).

**Figure 1. The DTES Contains Numerous Alleys Which IDUs Utilize for Their Injections (photo by Author).**



The shortcoming in the system became more severe when the Federal Government in Canada decided it could no longer support social housing programs in order to cut spiraling deficits (Campbell et al., 2009). The situation was a disaster for Vancouver where the number of units “renting at or below the welfare allowance dropped from 9,100 in 1992 to 7,800 in 1998” (Campbell et al., 2009, p. 83). As a result, with little support, many low income individuals not only became homeless, but they became the targets of “friendly” dealers when drug prices fell (Campbell et al., 2009). According to Dooling and Rachlis (2010),

other factors have also contributed to Vancouver’s concentration of people with addiction. A disproportionate number of residents are Aboriginal people, many reeling from unhappy lives on unhealthy reserves. The city’s relatively warm climate has attracted many people with addictions from other provinces. Finally, Vancouver is a major Pacific port, through which substantial quantities of illicit drugs pass (p. 1440).

The 10-block area of the DTES (see Figure 2) currently is the poorest urban area in Canada, and has become home to approximately 5000 of Vancouver's estimated 8000 IDUs whose lives are further marked by extreme poverty, mental illness, lack of housing and social support (Kerr et al., 2003; Mass et al., 2007).

**Figure 2. The Map of DTES (Map by Eric Leinberger).**



Consequently, the DTES, which has a denser population of IDUs than any other neighbourhood in Canada, compounds the risk factor for HIV and overdose deaths when individuals with similar lifestyles and activities are likely to associate with one another (Maas et al., 2007). In essence, as a result of sharing needles in shooting galleries (see Figure 3), the DTES has an HCV rate of just below 70 percent and an HIV prevalence rate of 35 percent, rivalling a third world country such as Botswana (Chan, 2009; Maas et al., 2007; Wood et al., 2004b). Consequently, the DTES neighbourhood and people who live there might account for morbidity variations not seen in any Western

community, distinguishing itself as a 'landscape of despair' (Gesler, 1992). Many IDUs are still drawn to the area because of the availability of drugs and the growing level of street level health services (Smith, 2003).

**Figure 3. Needle Return Boxes are Located in All Alleys in the DTES Containing Information About InSite and Needle Depot to Reduce Sharing in Shooting Galleries (photo by author).**



In order to reduce the community, public health and fiscal impacts of injection drug use, North America's first SIF, known as 'InSite', opened its doors on September 22<sup>nd</sup>, 2003 in Vancouver's DTES (Lightfoot et al., 2009) (see Figure 4). The opening of the SIF in Vancouver was based on the belief that "people addicted to injection drugs would have improved health and social outcomes if they could inject drugs in an environment that is clean and medically supervised" (Small et al., 2006, p. 79). Figures from all levels of government (municipal, provincial and federal) came together to

support the opening of North America's first SIF since a national task force in 2000 had already recommended to the provincial and federal government that a medical research project such as a SIF was necessary in Vancouver (Campbell et al., 2009).

**Figure 4.** InSite, North America's First SIF Located in the heart of DTES (photo by author).



InSite offers a space for IDUs to use previously obtained illicit drugs under medical supervision of health professionals in a hygienic and safe environment (Fast, Small, Wood & Kerr, 2008). Within InSite, IDUs are typically provided with sterile injection equipment (e.g., insulin syringes with attached needles, bottles of sterile water for injection, latex condoms, alcohol swabs, disposal boxes and spoons), food, and coffee. Also available is emergency care in case of overdose, and referral to addiction services (Wood et al., 2005a).

A typical day in InSite (which is open 7 days a week: 10AM-4 AM) will see 600 supervised injections within the small 12 individual booths for injections (Kerr, Small, Moore & Wood, 2007). With thousands of registered users, InSite provides an

unparalleled setting for research and evaluation (Webster, 2008). Many of the scientific evaluations of InSite have been published in leading international journals, reporting an array of positive public health benefits.

However, the majority of such studies have been quantitative in nature, and have failed to critically examine the lives, stories and circumstances of IDUs who have used and continue to use InSite. Further, we know of no studies that have accounted for the transformation of landscape for IDUs with regard to SIF as a therapeutic place, powerful enough to reshape meanings, identities and values. In fact, recent micro risk environment research has suggested that risk perception and behaviour is a product of peer group and social influences, values and the local neighbourhood and context in which IDUs live (Rhodes, 2002). In addition, according to Moore and Dieze (2005), creating enabling environments such as InSite “provide more conducive settings for the adoption of individual behaviour change to reduce drug related harm” (p. 276). The current chapter seeks to determine whether there has been a transformative role (culture<sup>1</sup> of drug use and landscape) in the DTES. And if there has been a change, would this change be powerful enough to reduce drug related harm? The specific research interests are listening to IDUs’ views of InSite, determining how InSite’s establishment has reshaped values, and considering what can be done to attract even higher percentages of IDUs to the site.

## **Methods**

Beginning in October 2009, participants living in Vancouver who had injected illicit drugs in the previous month were recruited to participate in the study. The

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<sup>1</sup> Culture in this context is defined as “the process of negotiating meaning with respect to constantly changing implicit and explicit values that underpin the moral fabric of social action” (Small et al., 2006, p. 73).

participants were eligible for the study if they had injected illicit drugs at least once in the previous month, were 19 years or older and provided informed oral consent. Written consent deemed to be impractical due to confidentiality. In effect, according Tunnell (1998), “whenever we as researchers gain entry into the world of deviants and personally learn the activities of hustlers, thieves ... we become privy to information ... that legal authorities may ... exact damning information from researchers” (p. 208). Therefore, as Esterberg (2002) warns, “in the early stages [of research, the researcher] should plan to minimize any harmful consequences to ... research participants” (p. 95). Consequently, the study and consent statement were designed based on the Wigmore’s criteria to protect confidentiality of participants and provide anonymity (Palys & Lowman, 2002, p. 5). Full confidentiality was guaranteed because according to Israel (2004) “interviewees might be reluctant to reveal secrets to social scientists if they thought that the information might be freely disseminated to third parties” (p. 717). They received CAD\$10 reimbursement for their participation at the end of the semi-structured interview. The study in this chapter was approved by Simon Fraser University’s Research Ethics Board.

This qualitative research draws on a small sample of six participants and does not claim to do the work of large quantitative studies in which representativeness and generalisability are defined. Nevertheless, themes are identified and these are recognized as meaningful whether or not they apply in all cases<sup>2</sup>. In fact, according to Small (2009) “there is a place for a small interview study to make meaningful contribution to knowledge ... [since] rare situations are often precisely what the researcher wants” (p. 18). In effect, the purpose in qualitative studies such as this one is to understand the

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<sup>2</sup> See Grbich (1999) for discussion of these issues.

case, not to generalize from it (Burawoy et al., 2000). Further, the focus is to uncover the mechanism and the process (Small, 2009).

Interview participants were recruited along Hastings street through a key informant, as no permission was granted to recruit participants inside InSite. The key informant was an Iranian IDU whom I met accidentally when I saw him arguing in Farsi with another IDU. Since Farsi is my first language, I was able to talk to him and establish the trust and rapport necessary to launch my interviews. Over the next two weeks he was not only the gatekeeper into the world of IDUs, but he agreed to help me to recruit IDUs that he knew. In other words, I used him as my key informant and guide during selection of participants and referrals.

Interviews took place where the participants felt comfortable. The key informant helped me establish a rapport and trust among IDUs. In fact, all IDUs not only revealed their HIV/HCV status, but they spent between 15-20 minutes during the interviews answering my questions. There were no refusals of invitations to participate in the study. All participants were only interviewed once. In order to maintain confidentiality, all names used in this thesis are pseudonyms. The key informant also proved to be instrumental in guiding the sampling selection based on participants' drug of choice, years of injection, race and gender as outlined in table 1.

**Table 1. Characteristics of the sample of IDUs of Vancouver**

<b>Name</b>	<b>Gender</b>	<b>Age</b>	<b>Ethnicity</b>	<b>Drug of choice</b>	<b>Years of injection</b>	<b>Medical condition</b>	<b>City</b>
Alex	Male	47	Caucasian	Heroin & Crack	30	HCV	Vancouver
Ayatollah	Male	50	Middle Eastern	Heroin	20	HCV	Vancouver
Dan	Male	37	First Nation	Heroin	10	HCV & Abscesses	Vancouver
Lisa	Female	39	First Nation	Cocaine & Crack	15	Bipolar Disorder	Vancouver
Niki	Female	30	Caucasian	Cocaine & Crack	14	HCV & HIV	Vancouver
Shane	Male	29	Caucasian	Heroin	13	HCV & HIV	Vancouver



The open ended, semi-structured interviews were facilitated through the use of an interview guide. The interview guide encouraged discussion about SIF, the impact of SIF upon their behaviour, and elicited suggestions related to the ways it can be improved. The questions were chosen based on the ideas and suggestions of numerous peer reviewed journals.

The themes that I followed throughout the interview in Vancouver followed four dimensions: 1-experience at InSite; 2-their relationship to staff; 3-changes that they have noticed in their behaviour and the DTES; and 4-an open discussion about anything raised during the interview. Their responses were audio recorded and later transcribed verbatim. The content of interviews was reviewed, and all text segments were subsequently subjected to a thematic analysis using NVivo 8 software. Initially an open coding method of searching for similar words or repeated phrases was employed. Twenty-five coding categories emerged. Silverman and Marvasti (2008) warn of the tendency for coding schemes to become “powerful conceptual grid[s] from which it is difficult to escape” (p. 225). Therefore, each coding category was reviewed again at a later date, this time using the key themes as coding categories. Each coding category was reviewed independently for latent meanings and common ideas. The main thematic analysis focused on the social processes and experiences that were reported to influence broader and more long-term behavioural changes within IDUs.

Validity is an important concept in both quantitative and qualitative research that was considered in this analysis. Validity is defined by Hammersley (1990) as, “truth: interpreted as the extent to which an account accurately represents the social phenomena to which it refers” (p. 57). In order to maintain validity in this research and

avoid “anecdotalism”<sup>3</sup>, quotes were considered both in the context of the interview and as a stand alone representation of a theme.

## Findings

The results below are based on the sample of qualitative interviews conducted with six purposively chosen participants. Excerpts from the qualitative interviews are presented below in order to illustrate the central themes that emerged in the cross case analysis. These themes included provisions such as: saving lives, changes in sharing behaviour, improved access to care and a unique micro-environment. Although data were analyzed from each participant independently, considerable overlap was observed across these thematic areas after using NVivo 8 software, indicating overall positive changes in the lives of those who use InSite.

### Saving lives

The most common narrative offered by the study participants was that InSite is saving lives. In fact, all the participants have experienced overdose or have seen people overdose at InSite. In the case of the first participant, Niki, the overdose experience is a recent one:

*InSite is safe. I overdosed not long ago, maybe a few weeks ago. And they saved my life. I have seen others overdose there and they saved their lives too. There've been no deaths. Overdose is really painful. You don't know you're overdosing till you come to it, that's when they Narcan<sup>4</sup> you to get your heart going again. It's fucking painful. Y'know ... scary<sup>5</sup>.*

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<sup>3</sup> Anecdotalism is defined as taking lone entertaining instances to be representative of a consistent theme (Silverman & Marvasti, 2008).

<sup>4</sup> Narcan or Naloxone is a drug used to counter the effects of opioid overdose (Old & Swagerty, 2007).

<sup>5</sup> All quotes in this paper are verbatim to accurately reflect language usage by IDUs.

This sense of fear and uncertainty associated with overdosing was also present in the narratives of other IDUs. In effect, IDUs who used InSite have come to associate outside injection with a substantial risk of death and arrest possibilities which they are simply not willing to take. Again, the common underlying theme was staying alive. For example, as Ayatollah stated:

*When junkies like me want to inject, we need to find a secluded corner like a bathroom or behind a coffee shop. We're always trying to hide from cops ... In the alley, I might even do a bigger whack because I might lose it if cops come around. Sometimes I used to do it behind a dumpster. Nobody is going to know you're there ... So this is a big issue for me because once you OD, you're done.*

In addition, many participants noted that injecting at InSite reduced their anxiety because they did not have to inject under the watchful eyes of the public. Participants associated public injection with unpleasant past experiences such as theft and unhealthy behaviour. In light of their memories, InSite was described as a safe and trusting environment that saves lives. In fact, as Alex described:

*Seeing people using the rain pot holes on the street for their injection or sharing, or being robbed had a big influence on me. Big time really. Think about it, I've seen it by my own eyes, they're gonna wait' til you drop; then you'll get 'duged' [robbed] ... But at least at InSite I feel like someone would dial 911 and help me ... Since then, I decided to always do it here ... at least I'm safe here.*

Furthermore, the knowledge and the rapid response of the staff and nurses to overdose was another potential reason for many IDUs to rely on InSite for all of their injection needs. The urgency of the responding nurse and the care during the overdose conveyed the message that their lives are valuable. This, in turn, affected their self evaluation. In addition, InSite has contributed to changes in values of IDUs. Many of the IDUs asserted that they feel safe and secure, and appreciate that their lives are valued

at InSite. Although such values are hard to quantify, the immediate and long term consequences may serve to better their lives. Hence, according to Ayatollah:

*When you see how nurses are running to save lives, you can imagine yourself being saved if you ODeD too. In fact, I can remember the last overdose. The guy suddenly dropped. Boom, right away, the nurses Narcaned him. One nurse was holding his hand, telling him that he was going to be Ok ... Or how they treat you as human beings; it does make you feel good. When I come to InSite, I don't feel that I'm a junkie anymore.*

It is situations such as the ones described above that suggest InSite may play a substantial role in managing and reducing overdose within the streets of the DTES (Kerr et al., 2007). Also, it is situations like these that have conditioned the growing empowerment and enhanced self image of participants over the past six years.

## **Changes in sharing behaviour**

The previous discussion has outlined, albeit implicitly, some of the ways that InSite has contributed to reducing incidence of mortality due to overdose and increased the sense of security during an injection. However, according to Alex, InSite has done more than save lives; it has modified the drug-using environment of the DTES, including the social dynamics within it:

*Before InSite opening, I can remember that IV dope [intra-venous drug] was everywhere. Ok, its start to being an epidemic ... And you could walk the streets and see people fixing [injecting] ... They were leaving their rigs [needles] everywhere. The HIV was growing rapidly as people were sharing rigs ... There were people ODing [overdosing] everywhere ... Junkies were dropping like flies. And all of the sudden we heard about InSite ... all of us are going wow; this is too fucking good to be true. So over the long run, this place has fixed the Eastside. It has cut down on people fixing [outside], ODing, or getting diseases.*

For instance, Tyndall et al. (2006b) and Wood et al. (2004b) have found that the opening of InSite was independently associated with improvements in several measures of public

order including reduced public injection, drug use, public syringe disposal, and enhanced HIV prevention. The accounts of these interviewees help explain why this is the case.

The participants reported that the provisions of sterile syringes, the ancillary injecting equipment, and safer injecting advice by nurses has served to reinforce permanent adoption of safer injecting practices. As Ayatollah insisted:

*Why would I share? Nurses have taught me so much about disease transmission that I'm scared to share again. Also, there is so much supply of rigs and stuff like that; sharing is the last thing on my mind. I can even take a box of needles if I wanted.*

As a result, most of those who described injecting at InSite with clean needles would not be willing to share again. In other words, once safer injecting habits are established within InSite, it becomes more likely that this safer injecting technique will be extended beyond the facility as well. For example, as Alex noted:

*Everyone that I know comes to InSite. I have used rigs outside, only because they were full and I was fucking dope sick. But that's rare. I tend to wait. I do feel strong about disease and all of that stuff. So I've not shared with anyone since coming here. It's a habit of being safe everywhere.*

Importantly, HIV positive IDUs who have been coming to InSite also tend to follow safe injecting habits outside of the facility. For example, as Niki asserted:

*Let me put it to you this way, I got HIV by sharing needles. I don't want to give it to somebody else. But when you are high you don't realize it. But I wouldn't share again. [Interviewer: Really? Even if you were low in cash?] Of course not [angry]. I already told you that I'm HIV positive. I do not want to give it to someone else.*

Another factor that appeared to signify the direct influence of InSite on those who rely on its services was an awareness of 'having something to lose'. In effect, these individuals view themselves as people who are healthy and hopeful of the future. As Ayatollah stated:

*InSite also has a social effect too. Because people that [don't] come here have a different mentality ... They're more fucked. They just wanna get high. They don't give a fuck. They want to be wasted. If that means using somebody else's needle fucking right they'll do it ... Most of them have got Hep C and that, so they think they're done anyways ... I mean they can catch HIV too ... That's the thinking of those people that I call 'alley junkies'. That's what you're dealing with ... At least I am not catching diseases.*

The reassurance of health seems to act as a positive reinforcement for relying on InSite. This change of behaviour outside of InSite—in accordance with the theory of Planned Behaviour<sup>6</sup>—is thought to be determined by the intention of not reusing another IDU's syringes or the difficulty one perceives towards adopting or maintaining a given behaviour (Côté, Godin, Mercure, Noël & Alary, 2006). It appears IDUs who visit InSite perceive themselves as being in control of situations where high risk sharing is likely outside of SIFs (Côté et al., 2006). Comparing themselves to those who do not come to InSite reinforces their differences from 'alley junkies'. In other words, many of the IDUs' accounts seem to indicate that InSite plays an important role in initiating labelling, membership, and shared values, a critical step toward a collective identity and changing the culture of drug use.

## **Improved access to care**

In addition to the improved changes in behaviour and shared collective identities described above, InSite is often a client's first point of contact with the health care system. Most participants described having accessed a variety of services at InSite. These primary care activities, according to participants, include immunization, screening, diagnosis and treatment. Many participants also reported that they were able to access

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<sup>6</sup> Theory of planned behaviour states that "the proximal determinant of behaviour is the intention to act. The intention, in turn, is influenced by the attitude towards the behaviour, subjective norm, and perceived behavioural control" (Hardeman, 2002, p. 124). See Ajzen (1991) for more information regarding the theory of planned behaviour.

much needed support at InSite for chronic wound care. Health care staff and nurses at InSite are familiar with various injection-related infections. In addition to care, staff at InSite provide funding and referrals, facilitating further medical attention. For instance, according to Dan:

*Here at InSite, we are checked every six months for HIV and Hep C. They also have the same day result HIV testing at InSite. I've got both my H1N1 shot and a regular flu shot there. Also for the past five years I had serious abscesses on my lower leg, and they changed my bandaging for five years ... And when I needed my antibiotics shots, they actually provided the funding for me to get to and from the hospital.*

These findings are very similar to an earlier study by Small et al. (2008) that reported that InSite “enables contact with the healthcare system and thereby helps to facilitate the management of injection-related infections” (p. 159).

Many participants' accounts seem to suggest that they were able to get much needed help for their complex needs, which often included mental illness, homelessness, and detoxification. Counselors and support staff are regarded as providing critical social support at a time of crisis. The provision of health care and support are seen by participants to be highly effective models of care for IDUs. For example, one of the participants referred to it as the 'clinic for junkies'. Participants also appreciated that they are able to access various forms of care at one location calling it a 'supermarket for junkies'. Participants' perspectives indicate that the facility's integrated health Model (where addicts have access to detox (withdrawal management), counselors, primary care and Support) is particularly effective in creating an atmosphere of support. Moreover, most participants felt that InSite was like a family. As Niki described:

*Well, I come to InSite for few reasons. First you don't catch disease. Second if you OD you aren't going to die. Third everything is available. You might not have alcohol, water or rig; but when you go there you can*

*get whatever you need for free. It's like a 'supermarket' for junkies ... I also like the fact that you can talk to counsellors and nurses for support. They've helped me to get rooms at shelters before ... They've always been there for support ... When I found out I was positive few months ago [crying] ... they were there for me ... InSite is like a family to me ... I've gone through detox upstairs ... It's like a clinic for junkies.*

Similarly, Wood et al.'s (2006b) study reported that “contact with addiction counsellor[s] was among the strongest independent predictors of more rapid entry into a detoxification program” (p. 2513). For many InSite users, “the availability of immediate and easily accessible care translates into receiving health care services they would otherwise do without” (Vancouver Coastal Health, 2007, p. 4).

Participants also described InSite as a unique educational and life-changing setting that has impacted their injecting practice and reduced occurrence of injection-related overdose or disease. In addition, according to Dan, staff at InSite were relied on for social support and educational advice:

*They teach us how to properly inject ... It's changed my way of thinking, the way I use drugs, the amount I use ... Before InSite, I didn't care whether I OD[ed] or not. I didn't care whether I died. Now I am starting to care about myself more, I have more self respect. Just because of InSite. Now that I've somewhere to go and someone to talk to about it, I don't use as much.*

The IDUs' narratives here provide reassurance that InSite's services and staff may be extremely effective not only in improving medical access for treating injection-related infections, but they are equipped to provide education and counselling. Fast et al. (2008) also reported that InSite “has been particularly effective in transmitting educational messages targeting unsafe and unhygienic injection practices to a population of active IDU” (p. 1). InSite represents a unique micro-environment that can facilitate the reduction of numerous drug related harms through education, counselling and access to care.



Further, participants' accounts seem to indicate that staff and nurses at InSite have gained awareness of holistic strategies and approaches that go beyond simply providing care. In effect, the staff have been able to create dignified, caring and trusting bonds that build foundations for change through personal empowerment. For instance, according to Lisa:

*I think the way they treat us is great. I personally think their act of kindness is changing lives down here ... They always talk to me and respect me ... They're like my family ... The staff at InSite tell us that we are not losers. There is no judgment there. I'm not judged or mocked for what I am. They help us to build character.*

The close bond and relationship that exists between the staff and IDUs at InSite has facilitated more than 2,000 referrals to addiction services, with 800 of these referrals to addiction counselling (Vancouver Coastal Health, 2007). Small et al. (2008) suggest that further benefits may be gained by expanding the contact and relationship between IDUs and staff through increased nursing and counselling care using outreach services. In essence, InSite is a 'therapeutic landscape' in which "environmental, individual, and societal factors ... come together in the healing process" (Gesler, 1992, p. 735). As Conradson (2005) suggests "it is possible that the emotional contours of their visit may have been shaped less by surroundings, and a little more by the relations" and close bonds to the staff at InSite, enabling better health services (p. 113).

## **Unique Microenvironment**

InSite gives IDUs access to primary care, counselling, syringes, and ancillary injecting equipment. However, research participants also viewed it as something of a 'refugee camp' where distressed IDUs could seek relief and support because it provided a place for many participants to relax, socialize and unwind, thereby enabling them to maintain control over their lives. According to Alex:

*After injecting at InSite, I don't want to leave. This place is great. It's clean ... When I leave the site, it's again back to the same shit hole ... The air is fucking filthy. You can smell death and diseases down here ... InSite is like a little heaven in hell. Also ... I go there to meet my friends and socialize.*

As these quotations illustrate, InSite is not simply an injection site. Rather, it is an integral part of a comprehensive continuum of addiction service that tries to alleviate their misery and pain. For people with prolonged drug addiction, InSite is “the first rung on the ladder from chronic drug addiction to recovery; from being ill to becoming well” (Vancouver Coastal Health, 2007, p. 1). Consistent with those intentions, many IDUs view InSite as their community center. For them, InSite is a place where all IDUs gather for support and acknowledgment. It is a place that gives IDUs a collective voice and identity. In other words, InSite is a place where IDUs show the rest of the society that they exist. As Dan suggests:

*InSite is more than a place to get a fix. They've [the staff] built relationships with everyone. It's like a home away from home. It's like a support center for junkies. The staff listen to you; they actually hear you and feel what you're going through. And I think an increasingly large number of people are coming there to get acknowledged.*

Duff (2009) also suggests that enhancing local networks, increases belonging and “connection to place” and reinforces the “culture of care”. Participants who have been coming to InSite for a few years felt empowered to help others, having seen the transformative power of InSite (either through counselling, social support, or overdose emergency care) and craving for change within their own community. Many participants had become counsellors for their own peers, advocating and encouraging InSite use at every opportunity. For example, Dan stated:

*I can socialize with other drug users and help them ... We try to get in touch with junkies that never come [to InSite]. In fact, I've convinced a few people this year to come. Because the first thing we say is: Hey! You're going to do some dope, if you OD out here we're gonna take your shoes*

*and steal all your money. But if you OD at InSite, you've got nurses that can bring you back to life, guaranteed ... We are promoting InSite every chance we get.*

Zapka et al. (1993) also found that social support, social net works and social influence of IDUs with their peers and friends improved drug use behaviour. This dramatic advocacy for InSite by other users (by participants who once injected and shared outside) can be better understood through symbolic interactionism (Sandstorm & Martin & Fin, 2006). Symbolic interactionism, associated with George Herbert Mead and Robert E. Park is an approach that dominates social science by emphasizing interaction, meaning and human behaviour at the center of our understanding (Sandstorm et al., 2006). The most important aspect of this approach in the realm of InSite is related to the notion that “people are conscious, self-reflexive beings who shape their own behaviour when interacting with others” (Sandstorm et al., 2006, p. 9). An implication of this perspective is that participants' involvement through interaction and role-taking at InSite can contribute to IDUs' understanding of their roles within their own community. And indeed, many participants identified themselves as safety and education ambassadors within the DTES. In fact, as Alex described:

*I always carry extra rigs and shit like that to give to other junkies. When I see a few of them doing it in the alley, I'd tell 'em about InSite. In my experience, they tend to be shy. I tend to call them 'closet users' [laughs] ... I can recall, few years back, that I convinced one of the junkies from the street to come here. I walked with her and helped her to register. She was very scared. Now she is a regular user.*

Their new roles as a result of self-empowerment have the potential to mediate patterns of infectious disease and mortality, and eventually change the lives of the most marginalized IDUs.

## Discussion

This chapter initially set out to examine the transformative role of InSite in the lives of IDUs. The findings revealed a positive change in many respects: InSite prevents drug overdose deaths, reduces HIV risk behaviour (e.g., sharing needles), and increases access to nursing and other primary health services. Furthermore, many of InSite's clients in this case study have come to view InSite as their family and rely on the social support provided at InSite. Moreover, InSite provides a space of dignity that was otherwise unavailable. Although geographers have rarely thought of a sense of place as important in studying health care (Gesler, 1992), it is easy to see how InSite has been a therapeutic place for many IDUs who are increasingly relying on its services. In effect, InSite is a 'therapeutic landscape' in which "environmental, individual, and societal factors ... come together in the healing process" and behavioural change that reinforce the culture of care (Gesler, 1992, p. 735). InSite, as a therapeutic place, has also become a community center where enhanced local networks increase belonging and "connection to place".

These positive outcomes are consistent with results of previous research, despite the different methodologies employed. For example, Milloy, Kerr, Tyndall, Montaner and Wood's (2008) study concluded that InSite has prevented 12 deaths per year despite over 1000 overdose events. In addition to overdose, Petrar et al.'s (2007) evaluation documented numerous positive behavioural changes very similar to the current study. For instance, it reported that clients have fewer rushed injections, fewer outdoor injections, and fewer incidents of unsafe syringe disposals. Similarly, keeping with this study's findings in regard to established support, the study by Lightfoot et al. (2009) reported that nurses, peer workers and staff at InSite have been successful in developing dignified, caring and trusting relationships. These relationships in most cases

have led to increased referrals to detoxification programs and long term health services (Vancouver Coastal Health, 2007). The qualitative methods used in the current study offer a glimpse into some of the social dynamics InSite has created among IDUs that lie beyond those aggregate findings.

This chapter further reveals that the impact of InSite as a therapeutic place goes beyond bottom-line reductions in deaths and dirty needles to having effected significant transformations in participants' roles and behaviours. In effect, the same way that Smith and Easterlow (2005) used the qualitative approaches to understand and protect public health, the current study examines the various positive therapeutic accounts of IDUs to demonstrate a cultural change in drug use and behavioural change that ultimately reduces drug related harm. In other words, the establishment of InSite was culturally momentous, shaped by many unique micro-environmental factors that have conditioned the growing empowerment and enhanced self image of participants over the past six years. IDUs' self-efficacy and empowerment is built upon their enhanced access to health care, social services, counselling and support.

This new self image, in turn, has helped participants to alter the structural and cultural dimensions of power relations that manifest a disproportionate suffering (Fairbairn et al., 2008). Further, there are indications that the DTES is beginning to be transformed as those participants who increasingly rely on InSite have gradually become active within their community, trying to alleviate misery and improve lives in the DTES. This paper identifies participants who strive to better their peers' health and their communities' self image as educational and safety ambassadors. In effect, those who increasingly rely on InSite have gradually become active within their own community, trying to alleviate misery and improve lives in the DTES. The cultural shift in drug use reported here is a new phenomenon, something that has not been reported by previous

research. However, it seems that the DTES is still 'hell' and more data is required to determine how far the DTES has been transformed.

Despite the noted findings, the current study has several limitations that should be acknowledged. The most significant can be attributed to data limitations. While many provisions related to perspectives, experiences and values of IDUs are reported, triangulation was limited due to access and the time spent in the field. For example, I would have preferred to supplement many of the interviews with more observations, specifically in regard to interactions within the facility and at night. Although I would have liked to conduct a few interviews at night and conduct observations, due to safety reasons I had to rely on daytime interviews only. This could have ultimately hindered the range of variations within the study because very little is known about perspectives and demographics of those who inject at night.

Secondly, although purposive sampling combined with snowball sampling has shown to be instrumental, additional participants would ultimately be required. In essence, according to Esterberg (2002), "one of the risks of snowball sampling is that participants may be too similar to one another to give ... [us] the diverse perspective ... [we] want" (p. 94). While the key informant was the person who made this study possible, he is nonetheless the keeper of only one gate into a diverse DTES community that contains 4700 IDUs (Mass et al., 2007). Therefore, under no statistical definition of 'generalizability' could the responses of the six participants be considered to reflect reliably the condition of IDUs of the DTES despite their varied characteristics.

Thirdly, studying transient populations such as the IDUs in this study is very challenging. This is particularly true when there is a need to return to the setting later for additional follow ups or clarifications. According to McGregor, Darke, Ali & Christie (1998) locations such as the DTES are usually not associated with easily ascertained

addresses or access to telephones. Similarly, five out of the six participants were homeless and the remaining participant had no cell phone or internet access. Although I gave participants my phone number and encouraged them to contact me for follow ups, I never received any calls.

Finally, despite my attempts to reduce the social desirability effect—by avoiding leading questions and reminding the participants that there are no right or wrong answers—its influence on participants is unavoidable. Subsequently, some positive responses in regard to InSite can be attributed to the social desirability effect. In addition, recognizing my own subjective bias as an outsider with ‘neo-liberal’ views<sup>7</sup> about drug use and order—studying a severely marginalized group, with the power to determine what should be recorded—is an important part of recognizing power relationships that are embodied in research. Consequently, the way I directed the conversation, asked the questions, determined what constituted a correct or complete answer, closed the conversation, or paid the participants may have had an influence on what is reflected in this chapter. This is particularly troubling because according to Fraser and Moore (2008) this “may serve to obscure and stigmatize rather than to illuminate drug users and their lives” (p. 748). Therefore, it is possible that social desirability effect on participants and the researcher may have influenced the results.

Based on the findings and limitations of the study as discussed in this chapter, some recommendations for practice can be made. Interestingly, the IDUs themselves raised many of these recommendations during the interview. First, IDUs recommended that InSite should be expanded. In fact, the most widely stated reason for not using InSite was related to the long waiting time. For instance, as Shane suggested:

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<sup>7</sup> See Fraser and Moore (2008) and Fischer, Turnbull, Poland, & Haydon (2004).

*Personally, the main reason is the line-up. Because people go in and they take forever to find their rigs [veins]. Then you got folks who won't leave the table. For God sake, the place only has 12 booths. Hurry the fuck up! And then lots of girls do their make-up or change their clothes. All of these add-up to the line-up.*

This finding is very similar to an earlier study by Petrar et al. (2007) that reported 'waiting for an injection' as the most commonly anticipated barrier to access. Further, other IDUs suggested that operating hours of InSite should be expanded to 24hrs since, in their opinion, most of the injections take place in the morning when InSite is closed. As Niki argued:

*It is even worse in the morning 'cause you're trying to stay up so you don't get robbed. They should keep this place open 24hrs. Many times I had to go to the alley after they closed. The door is closed at around 3 [in the morning]. Especially if you were working girl like me and had to do whatever you could to get that dope.*

Second, any future expansion proposal of the current site should consider mobile SIFs. Wood et al. (2003) state that IDUs at most risk (such as those who do not attend InSite) can be better targeted. Indeed, according to participant's accounts, IDUs at most risk prefer the first available needle as opposed to the first available clean needle provided at the nearby SIFs located a few kilometres down the alley; this is particularly true if they are 'dope sick'. As Shane explained:

*I think people tend to share when they don't have a rig or they're high ... You can share when you're dope sick too ... When you're 'dope sick', you lose your bowel movement, you start puking ... It hurts. So you will do anything to get the fix, even if you have to share, sometimes you've got no choice. I think that's how I got HIV.*

In other words, to reduce physical discomfort, IDUs will sometimes use drug residue from other users' equipment ignoring the users' HCV/HIV status (Stein, Dubyak, Herman & Anderson, 2007). Through a good site selection, the most marginalized IDUs (those who are HIV positive, homeless, and most likely to share needles rather than travel to



the SIFs) are targeted so that the program would prevent an even greater number of HIV cases. The need to expand the current SIF is further discussed in Chapters 3 and 4.

Finally, based on participants' accounts there appears to be a need for some kind of safe inhalation facilities. In fact, according to IDUs' narratives, many users are still sharing their non-injection drug paraphernalia equipment such as crack pipes. For example, as Niki stated:

*And I think they should open a place where you can smoke your crack too. Because it's not going to stop down here ... They tend to smoke a lot of crack after they're finished with their dates ... You can't catch any disease from this [crack pipe]. In fact, I sometimes share it with my friends when they're low in cash.*

Sharing behaviour and lack of knowledge demonstrated above can be a significant risk factor since, as DeBeck et al. (2009) found, sharing crack pipes is an independent risk factor for HIV infection among IDUs. Celentano and Sherman (2009) also suggested that “wounds in and around the mouth from using metal or glass pipes may make people who smoke crack cocaine more vulnerable to HIV transmission during activities such as oral sex or sharing crack pipes” (p. 571). Moreover, their findings indicate that the use of crack cocaine “compromises the ability to make healthy decisions because of its short-term high, its highly addictive nature and its effects on neurocognitive functioning” (Celentano and Sherman, 2009, p. 571). Consequently, incorporating safe inhalation facilities in the existing SIF or as part of the future expansion—where addicts can have access to syringes/crack pipes— would certainly further reduce the transmission risk of HIV and HCV. The need for a SIR is further discussed in Chapter 5.

In summary, this chapter of the thesis illustrates that SIFs may hold multiple meanings, as many IDUs pointed out earlier. In their eyes, Vancouver's SIF is a unique micro-environmental intervention that not only saves lives or reduces the social suffering

IDUs encounter on a daily basis, but it also offers a glimpse of hope at the end of the tunnel. As Alex stated, “InSite is like a little heaven in hell.” The findings in this study are in sync with more than 25 peer reviewed studies that have shown that InSite has numerous positive provisions. Furthermore, this study’s qualitative data also indicates that InSite’s positive health and social effects for the participants over the past seven years may have contributed to a cultural transformation where IDUs—who have attended InSite— have become safety and educational ambassadors within their own communities.

## Chapter 3: The Rationale for Expanding InSite

The number of annual cases of HIV-AIDS in Canada has increased to over 3000 new cases, a level first seen in the 1980s when the epidemic started devastating the gay community (Picard, 2010). But those infected today are increasingly intravenous drug users (IDUs) who are involved in sharing injection equipment (Picard, 2010). In Canada for example, one in four new cases of HIV is attributed to sharing needles (Wood et al., 2008). The situation has been particularly bad in Vancouver, BC with one of the highest outbreaks of HIV in the developed world (Urban Health Research Initiative, 2009). It is now estimated that 25 to 35 percent of the city's IDU population has HIV and 85 to 90 percent are HCV positive (Mass et al., 2007; O'Connor, 2009; Urban Health Research Initiative, 2009; Webster, 2008).

In addition to the spread of infectious diseases, BC has a drug overdose epidemic, with up to one death per day being documented in recent years (Miller, 1998; Urban Health Research Initiative, 2009). In effect, overdose from injection drug use is the leading cause of death for adults between the ages of 30 and 49 in BC (Miller, 1998). Though mortality (overdose) and blood borne pathogen (such as HIV and HCV) epidemics are centered in the DTES of Vancouver, they are national and provincial problems requiring immediate action.

Conservative estimates suggest that there are now more than 125,000 people who inject illicit drugs in Canada (Fischer et al., 2002; Remis et al., 1998). In BC, it is estimated that there are approximately 20,000 injection drug users whose lives are

further challenged by extreme poverty, mental illness and homelessness (Kerr et al., 2003; Martin et al., 2005; Mass et al., 2007).

In order to reduce the community, public health and fiscal impacts of injection drug use, 'InSite', opened its doors eight years ago in Vancouver's DTES (Kerr et al., 2003). To date, there have been 1.5 million visits to InSite with 700 to 800 injections per day (Andresen & Boyd, 2009; Hunter, 2011; Kerr et al., 2007; Smith 2008). More than 12,000 people have registered to use the site, with the average user visiting 11 times per month (Hunter, 2011). The first several years of evaluation have yielded an array of scientific output, including more than 30 peer-reviewed studies.

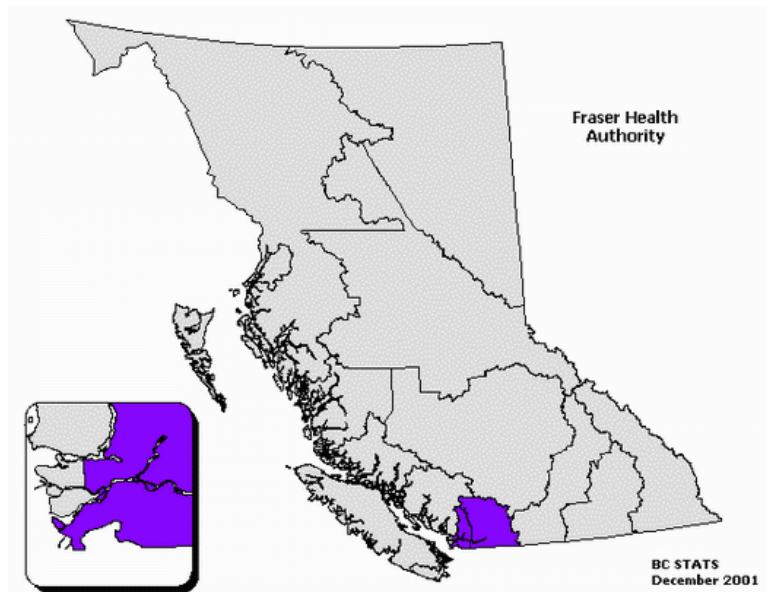
Therefore, as discussed in the previous chapter, if North America's only SIF is effective in reducing disease and overdose (operating at full capacity with potentially a few thousand injection drug users who reside in the vicinity of the facility alone), the question of whether or not the program should be expanded is topical (Health Canada, 2008). In fact, HIV, HCV infections, and illicit drug overdose deaths are documented in virtually all settings in BC where injection drug use is prevalent, including Prince George, Victoria, Surrey, Kelowna, Nanaimo and elsewhere (Hogg, Strathdee, Kerr, Wood & Remis, 2005). Furthermore, McKnight et al. (2007) and Marshall et al. (2011) suggest that improving access to, and availability of supervised injection through expansion may help reduce persistent risk behaviour among IDUs. As a result, this chapter explores the potential of expanding InSite to more locations throughout BC through an examination of the transformative role of InSite in the lives of IDUs. In addition, this chapter explores the current status of injection drug users who reside in cities that have no access to SIFs such as, Surrey and Victoria, BC.

## Methods

Beginning in June 2011, participants living in Surrey, Vancouver and Victoria, who had injected illicit drugs in the previous month were recruited to participate in the study. The participants were eligible for the study if they had injected illicit drugs at least once in the previous month, were 19 years or older and provided informed oral consent. They received CAD\$10 reimbursement for their participation at the end of a semi-structured interview. The study in this chapter was approved by Simon Fraser University's Research Ethics Board.

The city of Vancouver's DTES neighborhood was chosen as one of the recruitment locations because it is home to North America's only SIF. The city of Surrey's Whalley/City Centre neighborhood was chosen as another recruitment location because the neighborhood is home to a needle exchange depot, a health center and a homeless shelter that attract a large number of IDUs. Surrey is a member municipality of Metro Vancouver. It is the province's second largest city by population (Census, 2006). It is also estimated that the Fraser health authority region that includes Surrey has the second highest population of IDUs in BC with approximately 16,000 (McKnight, 2009) (See Figure 5). The city's proximity to Vancouver's DTES is unique because many IDUs can access InSite by travelling on the train for 45-60 minutes.

**Figure 5. Map of Fraser Health Authority (Ministry of Health, 2012).**



Finally, Victoria is a small city located on the southern tip of Vancouver Island. It is estimated that the city is home to 1500-2000 IDUs, many of whom are at elevated risk of drug overdose deaths (BC Ministry of Health, 1999). A 1999 study of IDUs has shown that IDUs in Victoria are at an elevated risk of HIV transmission with 21 percent testing positive for the virus (Stajduhar et al., 2004). The city's Downtown neighborhood was chosen as a recruitment location because the city's fixed needle exchange depot was recently forced to shut down.

In Vancouver, 10 interview participants were recruited through a key informant as no permission was granted to recruit participants inside or around InSite's vicinity. Half of the interview recruitment took place in the morning and the remainder took place at night to target the greatest variety of participants. The key informant helped establish rapport and trust among IDUs. In fact, all IDUs not only revealed their HIV/HCV status, but they spent between 20-30 minutes during the in depth interviews answering questions. There were no refusals of invitations to participate in the study. All the participants were only interviewed once. The key informant also proved to be instrumental in guiding the

sampling selection based on participants' drug of choice, years of injection, ethnicity and gender as outlined in Table 2.

**Table 2. Characteristics of the Samples of IDUs of Vancouver**

Name	Gender	Age	Ethnicity	Drug of choice	Years of injection	Medical condition	City
George	Man	53	White	Cocaine & Crack	2	HCV & Diabetic	Vancouver
Tania	Woman	46	White	Heroin & Crack	27	HCV & HIV	Vancouver
Joe	Man	60	White	Heroin	45	HCV	Vancouver
Maxim	Man	50	White	Heroin & Crack	35	HCV & HIV	Vancouver
Michelle	Woman	30	White	Heroin & Crack	12	HCV	Vancouver
Ashley	Woman	43	First Nation	Cocaine, Heroin & Crack	20	HCV	Vancouver
Martin	Man	46	White	Cocaine & Heroin	10	Bipolar Disorder	Vancouver
Jack	Man	46	First Nation	Heroin & Crack	30	HCV & HIV	Vancouver
Catherine	Woman	53	White	Heroin & Crack	23	HCV	Vancouver
Sam	Man	37	First Nation	Heroin	10	HCV & Abscesses	Vancouver

In Surrey, nine participants were recruited in areas where most IDUs congregate. Recruiting participants was more challenging than Vancouver, because I knew no one and I could not recruit participants in the vicinity of the needle exchange depot. Nevertheless snowball sampling proved to be instrumental in guiding the selection process. In effect, after recruiting the first participant who was injecting in public, subsequent referrals were easily made as I asked each participant to refer me to a person they knew. There were no refusals of invitations to participate in the study. Each participant was interviewed once. A variety of participants were selected based on their drug of choice, years of injection, ethnicity and gender (Table 3).

**Table 3. Characteristics of the Samples of IDUs of Surrey**

Name	Gender	Age	Ethnicity	Drug of choice	Years of injection	Medical condition	City
Cindy	Woman	42	White	Cocaine & Crack	18	Nil	Surrey
Gary	Man	56	White	Cocaine, Heroin & Crack	44	HCV & Abscesses	Surrey
Brian	Man	47	White	Cocaine & Crack	7	HCV & HIV	Surrey
Scott	Man	42	White	Cocaine, Heroin & Crack	30	HCV	Surrey
Chris	Man	49	White	Speed, Heroin & Crack	15	HCV	Surrey
Daniel	Man	41	First Nation	Cocaine, Heroin & Crack	15	HCV	Surrey
Holly	Woman	50	White	Speed & Crack	20	Bipolar & Cancer	Surrey
Jenny	Woman	47	White	Cocaine & Heroin	30	HCV	Surrey

Kayleigh	Woman	28	White	Heroin & Crack	10	HCV	Surrey
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In Victoria, six participants were recruited in neighborhoods where most IDUs are known to congregate. Recruitment of participants was facilitated by a key informant and snowball sampling (Table 4).

**Table 4. Characteristics of the sample of IDUs of Victoria**

Name	Gender	Age	Ethnicity	Drug of choice	Years of injection	Medical condition	City
Henri	Man	50	White	Heroin & Crack	33	HCV, HIV, Cancer & Diabetes	Victoria
Fraser	Man	49	White	Heroin & Crack	35	HCV & HIV	Victoria
Kila	Woman	30	White	Cocaine, Heroin & Crack	10	Abscesses & MRSA	Victoria
Loren	Woman	29	White	Heroin & Meth	12	HCV	Victoria
Melanie	Woman	44	White	Heroin	2	Bipolar & HCV	Victoria
Thomas	Man	35	White	Heroin & Meth	18	HCV	Victoria

The open ended, semi-structured interviews were facilitated through the use of an interview guide. The interview guide encouraged discussion about SIF, the impact of SIF upon their behaviour, and elicited suggestions related to the ways in which it can be improved.

As discussed, the themes that I followed throughout the interview in Vancouver were consistent with four dimensions: 1-experience prior to opening of InSite, 2-experience after opening of InSite, 3-changes that they have noticed in their behaviour and 4-an open discussion about anything raised during the interview. However, the themes followed in Surrey and Victoria was based on three paradigms: 1-experience on the street 2-what is the difference between injecting at InSite or on the street (if they have attended a SIF) 3-should InSite be expanded in their community. Their responses were audio recorded and later transcribed verbatim. The content of interviews was reviewed, and all text segments were subsequently subjected to a thematic analysis using NVivo 8 software. 20 coding categories emerged. Each coding category was



reviewed again at a later date, this time using the key themes as coding categories. In order to maintain validity in this research, quotes were considered both in the context of the interview and as stand alone representations of a theme.

## Findings

The results below are based on the sample of qualitative interviews conducted with 25 purposefully chosen participants. Excerpts from the qualitative interviews are presented below in order to illustrate the central themes that emerged in the cross case analysis. These themes included provisions such as: overdose, sharing, safety, services, changes in behaviour and access. Although data are analyzed from each participant independently, considerable overlap is observed across these thematic areas after using NVivo 8 software.

### Overdose

The most common narrative offered by the study participants was that InSite and the services it offers saves lives. Most participants such as George, can recall the dire situation of the DTES prior to the opening of InSite:

*After they opened InSite, It was like a warm hug from God. We felt like somebody finally gave a fuck about what happens to us ... I mean people used to die here from overdose almost every day, especially when the bad dope was going around ... Almost everyday people were hauled out of an alley, behind dumpsters by paramedics after they went blue. In most cases they were too late. It was scary.*

This notion of fear and death associated with overdose when injecting outside reinforces the safety and security that many participants have come to associate with InSite. All the participants who have used InSite have seen or experienced an overdose at InSite and all of them agree that InSite has reduced overdose deaths. Many IDUs asserted that

they feel safe and secure, and appreciate that their lives are valued at InSite.

Furthermore, they acknowledged the rapid response of nurses to overdose. In essence, the urgency of the responding nurse and the care during the overdose conveyed the message that their lives are valuable. For example, according to Tania:

*Now that we have InSite we feel safe. They've saved my life more than once. I collapsed, actually couple of weeks ago, and they saved my life then. I've seen they saved others too. There hasn't been a single death at InSite 'cause nurses are really good, they will Narcan you right away and use oxygen masks. If I haven't gone there, I wouldn't believe I would be here now. So InSite saves lives. They actually give a shit about our lives.*

The notion that InSite saves lives is echoed by other InSite users who have seen a reduction in overdose in the alleys in the vicinity of InSite because most IDUs prefer to come to InSite. In effect, IDUs who used InSite have come to associate outside injection with a substantial risk of death that they are simply not willing to take. As a result of InSite, it appears that there are fewer public injections. InSite has also reduced public syringe disposal and substantially reduced the use of various medical resources such as ambulances and hospital emergency care. In essence, according to Joe:

*If it wasn't for InSite you would see 150 people sitting down in the alley with rigs [needles] sticking out of their arms, flagging blood in their needle, Y'know, ODing left and right every day and leaving their rigs around. I used to fix in one of these alleys when I was homeless 10 years ago. They needed ambulances up in the alleys constantly ... Today you rarely see people fixing outside, especially in and around InSite. You don't see ambulances parked in the alleys anymore.*

However, in cities that have no access to a safe injection site, such as Surrey, regular overdose death is the reality. All the participants in Surrey have known a person who has died of overdose. For example according to Kayleigh:

*I know of at least three to four people a year that I knew personally that ODeD and eventually died as a result. You see ambulances coming to the front room [homeless shelter] all the time. At least twice a week people are ODing down here.*

In most cases, an overdose in both Surrey and Victoria is accompanied by theft and death. Many IDUs do not have the knowledge or expertise to help someone in an overdose case. Further, IDUs typically do not have access to a cell phone or a public phone to call 911. For instance, according to Jenny:

*It is really scary when you OD down here 'cause you could die and nobody cares. I ODED few months ago. The lady at needle exchange is the one that saw me and called 911, otherwise junkies don't have cell phones, and nobody is gonna care, they're gonna rob you when you're lying there, especially if they know you got money. They will go through your pockets and walk away. They'll just walk over you ... If we had a safe injection place this sort of stuff would never happen.*

Marshall et al.'s (2011) study has shown that overdose mortality was reduced after the opening of InSite. The overdose reductions are most notable in the vicinity of the facility with over 35 percent reduction within 500 meters of InSite.

## **Sharing**

The previous coding scheme outlined, albeit implicitly, the important role that InSite plays in reducing overdose related deaths in the DTES. The previous discussion also highlights the overdose epidemic that plagues communities that do not have access to a SIF. However, not having access to a SIF can do more damage than a simple overdose; it can aid in spreading infectious diseases such as HIV and HCV. According to Ashley,

*Before InSite, people would've been fixing everywhere in public. You wouldn't even want to walk here because you'd be scared of stepping on a rig. Or getting poked or attacked by a needle. HIV and Hep C was everywhere 'cause junkies were sharing rigs or didn't have access to clean ones.*

But the opening of InSite has changed sharing behaviour and public injection scenes in the DTES of Vancouver where IDUs would not share again or inject outside. Moreover, because they perform most of their injections at InSite, they curb the spread of infectious

diseases like HIV/HCV and injection related illnesses such as abscesses. Furthermore, the participants report that the provision of sterile syringes, the ancillary injecting equipment and safer injecting advice by nurses serve to reinforce the permanent adoption of safer injecting practices. As Maxim explained,

*Because of InSite, I don't like to do it outside anymore, I don't want people seeing me fixing ... But before InSite we were fixing in the shooting galleries. It was so unhealthy, Y'know, I ended up with HIV because of the area. And now the only reason I come to InSite is to slow down the spread. Not only that, InSite is such a clean experience ... You don't have to use puddle water for injection. There are nurses on staff there that have taught us about diseases and shit like that we'd be scared not to use a clean needle. Now that I do it at InSite, I don't have to ever worry about diseases and abscesses ... Also, I have taken upon myself to give shit to junkies who are fixing outside, I usually tell them: have little respect for people for God's sake. We have a place, why don't you do it at InSite. And I've convinced few people to do it at InSite.*

This dramatic advocacy for InSite and on behalf of other users by participants who once injected and shared outside is something unique to the DTES community. Unfortunately, no such advocacy or health consciousness was observed in Victoria or Surrey. In fact, sharing needles is still prevalent in cities that do not have access to a SIF. For example, as Gary explained:

*I have seen people picking needles off the ground and using them. My wife picked one up down here couple of years ago and she wanted to return it to the needle exchange depot so she could get a credit. The rig was full of blood, and this junkie bug her so he could try what was in there. He didn't know what was in there or who has used it, but he wanted that rig so bad so he could get high. And that happens all the time.*

Gary's statement is consistent with Stein et al. (2007), who report that in order to reduce physical discomfort, IDUs may use drug residue from other users' equipment regardless of the risk of HCV/HIV. In effect, sharing behaviours within the IDU population is an established factor that is thought to lead to a substantially higher risk of HIV infection, even if practiced relatively infrequently (Des Jarlais & Semaan, 2002). Participants in

Surrey and Victoria attribute needle sharing and reusing to inaccessibility. According to participants such as Loren, closing the recent needle exchange depot in Victoria has resulted in more sharing within the IDU population:

*Access to clean rigs is big issue here in Victoria ... there was needle exchange in the Downtown Victoria which got shut down ... And because of that there is more sharing of needles or reusing ... Two nights ago I was passing by ... and I saw two junkies using the same fucking rig.*

A recent study by the Centre for Addiction Research of BC also indicates an increase in unsafe injection practices since the closure of the fixed site needle exchange in Victoria (Ivsins et al., 2010). In effect, rates of needle sharing increased from 10 percent before the closure of the needle exchange depot to 23 percent (Ivsins et al., 2010). According to Ivsins et al. (2010), needle sharing and reusing is now more common in Victoria than Vancouver.

## **Safety**

In addition to the improved changes in behaviour and shared health concerns described above, InSite has helped to bring safety and security to participants who use the facility. Before the opening of InSite, according to Catherine, fixing outside was accompanied by various risks including the risk of theft:

*When I was going to the alley to do my fix, I got robbed so many times. For example, you do your fix, and somebody takes off with your purse, Y'know. Hands are busy and you can't run after them. I lost my welfare cheque more than once. But after InSite, people are not fixing in the alleys as much as they used too ... At least at InSite you know you're not getting robbed.*

In addition to risk of theft, participants who have used InSite have come to associate outside injection use with significant risk of bodily harm or even death. As a result, most of those who describe injecting at InSite are not willing to inject outside. In other words, once safer injecting habits and feelings of safety are established within InSite, it

becomes more likely that IDUs will come to InSite for every injection, reducing the risk of sharing or getting attacked. For instance, according to Martin:

*Junkies would do anything for the money, they will fucking stab you for it. That's why fixing outside is not safe. I saw somebody getting stabbed in one of these alleys few years ago. He was trying to fix, then somebody jump on him, trying to steal his bag. The poor guy tried to fight the mob and they fucking killed him. They stabbed him in the neck. No fucking lie, I think about that every single day, that's why I always try to fix at InSite.*

Furthermore, IDUs who come to InSite escape police arrest because they will not be questioned by police for having an illegal substance. Injecting in public brings a significant risk of arrest and questioning by police if they are caught in the act. According to Joe, InSite has become a refugee camp for IDUs of the DTES who want to escape, disease, theft, arrest and death:

*First of all you've got a clean, safe place; nobody is gonna bother you or you don't have people trying to steal from you. You don't have police coming and hassling you ... That's why people are always hiding from cops and fixing in washrooms or behind dumpsters. But then you're facing overdose 'cause you might do a bigger whack. But InSite is such a stress free, cop free, disease free, OD free environment that I call it the refugee camp for junkies.*

Although InSite mitigates the risk of violence and arrest for IDUs who are using the facility and many may describe it as a 'refugee camp for junkies', the daily reality for IDUs who do not have access to the site is formidable. IDUs that live in Surrey, according to Scott, have to endure risk of violence and theft everyday when they fix:

*Everyday there are a few fights. You can bump into the wrong person and have three guys jump on you and rob you. You don't even have to do anything down here to get into a fight or a confrontation. A lot of girls get robbed. They just walk up and take their money when they have the chance, and the best fucking time to rob someone is when they're fixing.*

In addition to the risk of violence and theft that seems to be the daily reality of street life for many IDUs who do not have access to InSite, the risk of police arrest is another factor in their daily lives. For example, according to Chris:

*The worse thing is when you're trying to fix and the cops comes around the corner. One time I was fixing ... and this police car came around. It was just a big hassle. I haven't had hit for a day: I was very dope sick. The fucking cop searched me and took the dope. He also smashed my crack pipe ... I've seen people getting pepper sprayed and fucking kicked around too.*

Two studies in Russia and Ukraine (countries with one of the most severe epidemic of HIV/AIDS in Europe) demonstrated that police practices violated health and rights directly and also indirectly through reproduction of social suffering of the most marginalized IDUs (Mimiaga et al., 2010; Sarang, Rhodes, Sheon & Page, 2010). Such IDUs who are fixing outside tend to be daily heroin users, homeless or living in unstable housing, and tend to be HIV or HCV positive with high viral load (Bravo et al., 2009; Wood et al., 2005a; Wood et al., 2006c).

## **Services**

Participants' accounts indicate that availability of services and equipment at InSite has made a huge difference in their lives. In effect, according to Tania, accessibility of injection equipment and ancillary services provided at InSite reduces sharing behaviour in the vicinity of InSite:

*There used be a lot of sharing down here before InSite. Today, you don't see that anymore. People seem to understand the risk. There are enough clean rigs going around. I used to see people using water from drain pipes and things. But at InSite you can get all your supplies ... There is always clean equipment, there is clean rigs, water, there is alcohol swaps, there is band-aids, there is ties for your arms, you name it.*

In addition to accessibility of injection equipment, ancillary services, and available nurses, counselors and staff, InSite helps transform the public injection scene of the

greater Vancouver area. This is particularly true for those who are the most marginalized, such as Maxim:

*The staff are so helpful, anything you need, all you have to do is ask, if you need housing, or you need to get off the street, Y'know. For example, when I was first diagnosed at VGH [Vancouver General Hospital], the Dr said: you have Hep C and you're HIV positive and he walked out of the room. I wasn't told where to go ... It wasn't till I came to InSite for my injection that one of the counselors told me about going to St. Paul's and he set up the appointment. Now because of them I'm able to see the best Aids specialist ... They also keep a tab on my health issues 'cause they know that I have HIV ... The staffs genuinely do care about us.*

Moreover, participants' accounts indicate that staff and nurses at InSite are exposed to holistic strategies and training that go beyond simply providing care. In effect, the staff has been able to create dignified, caring and trusting bonds that build foundations for change through personal empowerment. According to Ashley:

*I've had the chance to talk to nurses, in fact, I had a skin rash from a spider bite or a bed bug few months ago and they changed my bandages ... they also paid for my transportation so I could see a doctor ... Also when my son died I was really hurting and I was gonna OD myself, and when I got there, I talked to one of the staff and they gave me hope to stay alive ... Just because of the programs at InSite, my drug use is now the third of what it was. They gave me positive thinking and stuff, and I realized I can do it. Now I'm going back to school to finish high school.*

The relationship that exists between the staff and IDUs at InSite facilitated more than 2,000 referrals to addiction services, with 800 of these referrals to addiction counselling (Vancouver Coastal Health, 2007). Furthermore, the services provided by nurses at InSite, such as changing bandages for bites or abscesses reduces emergency care utilization significantly. However, IDUs in municipalities with no SIF are having difficulty meeting their most basic need: finding a clean needle. This is a serious problem in both Surrey and Victoria where the most common narrative was associated with inaccessibility of clean needles. According to Daniel:



*It's hard to get a needle down here, [the needle depot] closes at six o'clock and they don't open till noon. So a lot of people go without a clean one. And that happens all the time. ... I remember ... this fellow asking me if I had a syringe. I looked in my bag: All I had was a used one. And I told him that I don't want to sell you a used one ... But he still insisted ... So I told him again that I don't have bleach and I have Hep C. But ... he didn't care. He bought the syringe.*

Clean needle accessibility is a major problem in Victoria with the number of clean needles distributed in Victoria falling by 15,000 per month since the closure of the needle exchange office in the Downtown Victoria (Ivsins et al., 2010).

## **Changes in Behaviour**

Those IDUs who use InSite have come to associate InSite as their 'community center'. Many feel right at home at InSite because staff and nurses are non-judgmental and respectful toward everyone who uses the facility. InSite is a place where all IDUs gather for support and acknowledgment. For example, as Sam describes:

*InSite has helped junkies to feel a sense of belonging, I call it the community center for junkies 'cause we are welcomed there, we can stay in for a coffee or juice, see our buddies, watch TV in the chill room or talk to counsellors. We are not judged for who we are, or what we do. Staff gives us respect and they don't judge us. At InSite we actually feel like that we exists 'cause these days nobody gives the fuck about junkies. But at InSite, they've given us positive outlook in life.*

The influence of InSite goes beyond changing sharing behaviour and reducing overdose death; it also enhances safety and helps in enhancing a positive self image within IDUs. Services provided by nurses and staff at InSite inspire many IDUs to become safety and educational ambassadors within their own community. According to Sam:

*I always carry extra rigs in my pocket to give out to other junkies. We try to promote InSite at every chance we get. Nowadays I think most people know about InSite in Vancouver. So, if we see somebody new in town, we try to take him to InSite. We are tired of seeing people OD in alleys; we are tired of seeing rigs on the ground. I also go around in alleys and pick up rigs and bring em back to InSite or the needle depot.*

Furthermore, participants who have been coming to InSite for a few years felt empowered to help others. Many of them had seen the transformative power of InSite (either through counselling, social support, or overdose emergency care) and craved for change within their own community. This empowering change is even observed in people who travelled from surrounding municipalities such as Surrey. For example, according to Brian:

*I travel to InSite at least twice a week ... Every time I come here I grab few boxes of needles, water, alcohol wipes to take it to Surrey. I give those out to other junkies. It's harsh when you need a rig and you can't find one. The needle depot in here has limited hours ... I've also told about InSite to few people ... But most people won't travel 'cause when they get their dope they want to do it right away.*

Their new roles, as a result of self-empowerment, have the potential to mediate patterns of infectious disease and mortality, and eventually change the lives amongst the most marginalized IDUs.

## **Access**

The most common problem associated with InSite according to participants is related to the lineup and access to the site. In essence, participants such as George believe that the 12 booths that are currently in operation should be expanded so fewer users would have to substitute InSite for the alleys:

*There are only so many people that can be allowed in there individually. And when they do their drugs in there, they take too much time to find their fucking rigs. I waited this morning for about 35 minutes; it is too fucking long ... Sometimes you're so fucking dope sick that you can't wait ... they've got to expand the fucking place so people don't have to leave for the alleys. Let's be realistic: InSite is simply not big enough.*

InSite seems to be inaccessible during welfare week in particular when IDUs are issued their disability or social assistance cheques. During that week, the only alternative for many IDUs is to use the alleys that involve risking arrest, theft, violence or overdose. If

they are not homeless, they still risk overdose if they inject at their single occupancy units. This is particularly true according to Martin, if they are 'dope sick':

*There are times when there is long waiting list in there, such as welfare week. You basically have 60 people ahead of you ... Long waiting list at InSite isn't like waiting for a hockey game, but when you're waiting to put a needle in your arm and you haven't had a hit for a day and a half, even five minutes is too fucking long ... Being dope sick is like being sick with a flu, but five times worse. And all you need to do is just go behind one of these alleys.*

The underlying message that InSite needs to be expanded is echoed by other users who believe that inaccessibility is acutely felt during morning hours when InSite is closed. In essence, IDUs such as Michelle believe the risk of sharing or violence is greatest when InSite is closed, and that InSite hours should be expanded to 24hrs:

*I think they should be open 24 hours. [Interviewer: Why?] 'Cause between those hours they're closed—between 4-10 am—you have to risk getting robbed if you fix outside or there is a risk of sharing or overdose especially in the morning. Also if cops catch you fixing, they take your dope from you. Some people that are homeless have no choice but to do it on the street.*

Wood et al. (2003) show that difficulty in accessing needles at night to be a risk factor for HIV transmission among IDUs of the DTES of Vancouver. IDUs who live in Surrey and Victoria indicate they would use a SIF if such a site ever opened. Many participants stated they would use a SIF for safety reasons; others emphasized the need to avoid hazards of the street, while many stated they would use a safe injection site to stay alive. For instance, according to Jenny:

*I know for a fact that if they open an InSite, a lot people would go and use it. Right now people are fixing in alleys, crack shacks or drug houses. These places are so unhealthy and there is risk of contamination and disease. Also, if you OD nobody is gonna care ... they'll take you and throw you outside. That's ... why an injection site would be good 'cause there would be people there that can help you. You would feel safe in there. There is no risk of contamination or sharing. There'd be enough rigs for everyone.*

## Discussion

The present study in this chapter was conducted on the premise of assessing the transformative role of InSite in the lives of IDUs. In addition, this chapter explored the current status of injection drug users who reside in cities that have no access to safe injection facilities such as Surrey and Victoria, BC. The ultimate objective was to determine whether the current SIF needs to be expanded to other cities. The results reveal a positive change in many aspects of IDUs who are increasingly relying on the services offered at InSite. In fact, the findings of the present study suggest that InSite prevents drug overdose deaths and reduces overdose deaths in surrounding areas. InSite has also reduced HIV and HCV risk behaviour (e.g., sharing needles), reduces injection related illnesses such as abscesses, decreases injection in public, reduces public syringe disposal and substantially reduces use of various medical resources such as ambulances and hospital emergency care. In addition, InSite has increased access to nursing and other primary health services crucial for curbing the spread of infectious disease and injection-related illnesses.

Aside from the numerous positive accounts of InSite reinforced by peer reviewed studies, this chapter reports four new findings not previously discussed. First, InSite has created a 'refugee camp' for IDUs by allowing them to escape the theft, violence, and murder they would normally face on the streets. Furthermore, IDUs who come to InSite escape police arrest and questioning. The new sense of safety that many IDUs have come to associate with InSite reinforces their reliance on the facility for all their injection needs.

Second, similar to chapter two, the most prominent finding in this chapter is related to the significant transformation in IDUs' roles and behaviours. InSite's positive

changes mentioned above (such as not sharing again, improved health, less overdose, plus changes in enhanced safety, helping others and collective identity) have contributed to a cultural transformation within the DTES and neighbouring communities. Those who increasingly rely on InSite have gradually become active within their community, trying to alleviate misery and improve lives in the DTES.

Third, there is a need to expand the program in the DTES of Vancouver to reduce the waiting time. This finding is not surprising because it is estimated that the pilot program with only 12 injection seats is located in a neighborhood that contains 5000 IDUs (Marshall et al., 2011). Similar to Petrar et al.'s (2007) study, the findings here suggest waiting times and travel distance to the facility are significant barriers to InSite use. Expanding the operation hours of the facility from 18 to 24 hours should be seriously considered because the most marginalized IDUs face high risk of overdose, sharing and violence when the facility is closed.

Finally, results in this chapter depict the lives, stories and circumstances of IDUs who live in municipalities that do not have access to a SIF. InSite is the only SIF in North America, so their stories and circumstances have relevance to other Canadian and American cities. Based on the results, IDUs in such cities are faced by overdose death, disease, violence, theft and arrest on a daily basis. As a result, there is an urgent need to open similar SIFs in cities with significant IDU populations. Further, the results suggest that a high proportion of IDUs in Surrey and Victoria would attend a SIF if one were available.

In summary, the SIF in Vancouver not only saves lives and reduces HIV and HCV transmission, but is a life raft in a sea of misery for the people in the DTES. The findings in this chapter are in line with the previous chapter's findings in that they show InSite has numerous positive developments. Furthermore, similar to chapter two, this

chapter's qualitative data indicate that InSite operation over the past 8 years has created a transformation in drug use culture. Moreover, InSite has become a refugee camp for many of its users who escape death, violence and theft. This chapter suggests that there is an urgent need to expand InSite not only in the DTES, but in other cities that have significant IDU populations as well.

## Chapter 4: How Many InSites Do We Need?

As discussed in the previous chapter, InSite's operation over the past eight years has been clearly positive in at least two ways: 1- scholarly assessment (chapter 1) and 2-users' narratives (chapter 2 & 3). Furthermore, the results of economic evaluation of InSite, such as cost-benefit and cost-effectiveness studies suggest that the net benefits and cost saving measures are arguably significant (Bayoumi & Zaric, 2008; Andresen & Boyd, 2009). Therefore, if this fairly small and simple public-health program is economically viable, supported by numerous published studies, and is currently operating at near full capacity (Health Canada, 2008), the question of whether or not the program should be expanded comes to mind. In fact, the previous chapters demonstrated that expanding InSite may improve the societal benefits since the most commonly anticipated barriers to the use of SIFs are having to wait for an injection or being distanced from home. This would suggest that expanding the hours of operation with shorter waiting times may be financially desirable for society. In addition, according to Kerr et al. (2003), Bravo et al. (2009) and Wood et al. (2005a), SIFs if expanded or made more accessible, can attract highly disadvantaged drug users who would be at a higher risk of HIV infections.

Consequently, to determine whether any expansion of InSite is an efficient and effective use of financial resources, this chapter will conduct cost-effectiveness and a cost-benefit analysis by calculating the number of new HIV infections prevented as a result of expanding InSite to more locations with extended hours, using mathematical

modelling and secondary data. The dollar costs of illness avoided can be compared to the operational cost of an additional InSite. As long as the marginal benefits outweigh the cost of additional InSite hours and locations, the expansion of InSite is recommended. At some point, however, I expect the additional cost of expansion will exceed the additional benefits. In this case, the point of diminishing return will be calculated.

## **Methods**

The cost-benefit and the cost-effectiveness analysis of this study only relied on the number of HIV infections prevented; nevertheless, there were a handful of methodological issues for deliberation such as the life time costs of treating HIV infections, the operational costs per additional facility, new HIV cases prevented based on each additional facility and subsequently, the desirable number of facilities. Any evaluation of the above mentioned factors such as new HIV infections averted based on actual data must wait a number of years before any reliable inferences can be made. In most cases, the government funding will not be allocated unless the perceived economic benefits are known in advance. Therefore, mathematical models can be extremely useful since they can simulate the impact of a policy initiative before its implementation. In effect, very little time needs to pass in order to justify or evaluate an expenditure based on mathematical models.

With respect to this research, it was necessary to rely on a model that could mitigate the provision of clean injection equipment and safer injecting behaviours within its scope of calculation. For example, in the case of InSite expansion, we can safely presume that InSite is able to prevent the risk of new HIV cases since there will be a



certain number of known “clean” injections as opposed to “dirty” injections outside of the facility.

Accordingly, it is safe to assume that extending the operational capacity of InSite will have unintended positive consequences in the needle sharing behaviour of IDUs since based on the Kerr et al. (2005) study, IDUs who use InSite will share needles only at a 30 percent rate of their non-InSite counterparts. In effect, sharing behaviours within the IDU population is an established factor that is thought to lead to a substantially higher risk of HIV infection, even if practiced relatively infrequently (Des Jarlais & Semaan, 2002). Consequently, any mathematical modeling used ought to incorporate the impact of behavioural changes in injection activities once outside of InSite, impacting the overall viability of InSite expansion.

This change in behaviour outside of SIFs, in accordance with the theory of planned behaviour, is thought to be determined by the intention of not reusing another IDU’s syringes or the difficulty one perceives towards adopting or maintaining a given behaviour (Côté et al., 2006) such as the preference for the first available needle to the first available clean needle (Stein et al., 2007). In essence, IDUs who visit InSite perceive themselves as being in control of situations where high risk sharing is likely outside of SIFs (Côté et al., 2006). Therefore, to account for this further change in sharing behaviour outside of the facility as a consequence of expanding InSite, I followed the goodness of fit test reported by Kerr et al. (2005) as additional benchmark odds-ratio of 0.60 (half of their reported estimate in their logistic analysis). To err on the side of caution however, despite the perceived reduction in injection risk behaviour (reported in MSIC Evaluation Committee (2003) of Sydney’s (Australia) medically supervised injection centre, and Kerr et al.’s (2005) logistic Analysis), I perceived any additional behavioural change after the 2<sup>nd</sup> InSite with great scepticism. Hence, the

odds-ratio of 0.60 will only be considered twice; once for the current InSite (operating at 18hrs), and later for the expansion of InSite's hours of operation.

Therefore, as mentioned earlier, rather than using an unrealistic linear trend to incorporate the impact of behavioural change and the number of other provisions such as clean injection, and HIV prevalence rates within the scope of calculation, I relied upon Jacobs et al.'s (1999) mathematical model. Jacobs et al.'s (1999) model is based on the evaluation of Edmonton's (Canada) needle exchange program (NEP). I used this model to estimate the number of HIV infections that could be prevented through the expansion of InSite in Vancouver. The number of new HIV infections avoided, (*A*), is calculated as follows:

$$A=INsd [1-(1-qt)^m],$$

where (*I*) is the IDU population that is HIV-negative, (*N*) is the number of needles in circulation, (*s*) is the rates of needle sharing, (*d*) is the percentage of needles not cleaned before use, (*q*) is the HIV prevalence in the IDU population, (*t*) is the probability of HIV transmission when using an HIV infected needles and (*m*) is the number of sharing partners when injections are shared. The values of these variables were derived from Vancouver-specific estimates—including published and unpublished data; however, when city-specific data were not available, the study only relied on medical and scientific literature. For example, I had to rely on the Jacobs et al.'s (1999) value of 1.38 for the number of sharing partners as no other study was found to have calculated it. In addition, when several estimates were available, the emphasis was given to lower bound benefits, making the estimates conservative. For instance, although Jacobs et al. (1999) had calculated (*d*)—the percentage of needles not cleaned before use—to be 50 percent, I use 17 percent to make the estimates conservative. Also, when I could not find values for my calculations, such as total injections within the DTES as a whole, I

combined several values to estimates that there are 4.5 million injections (e.g., 5000 IDUs times 913 injections) (Holtgrave, Pinkerton, Jones, Lurie & Vlahov, 1998; Jacobs et al., 1999; Laufer, 2001; McClean, 2002). Furthermore, I used a one-year time frame to calculate the lifetime medical cost of HIV infection. Therefore, the values for the above variables are not likely to be subject to substantial errors as they are well-documented in the public health literature, as outlined in Table 5.

**Table 5. Sources for Variables Used in Mathematical Modeling**

Variable	Source
Number and rate of shared injections per year	Kaplan and O'Keefe (1993); Laufer (2001); Jacobs et al. (1999); Des Jarlais et al. (1996); Siegel, Weinstein & Fineberg (1991); Holtgrave et al. (1998); Kerr et al. (2005); and Wood et al. (2001).
HIV prevalence rate	Petrar et al. (2007); Tyndall et al. (2006b)
Number of needles in circulation	McClean (2002); Buxton (2008)
Percentage of needles not cleaned	Kaplan and O'Keefe (1993); Jacobs et al. (1999)
Probability of HIV infections from a single injection	Kaplan and O'Keefe (1993)
Number of sharing partners	Jacobs et al. (1999)
Percentage of HIV infected needles	Kaplan and O'Keefe (1993)

In order to operationalize the model by utilizing arrays of variables and sources, certain assumptions ultimately had to be made. For example, I assumed that illegal drug injection occurs in groups of two or more, which often involves sharing the same syringe. In fact, according to Neaigus et al. (1994), 70 percent of IDUs share syringes with a spouse, a sex partner, or others whom they know. This particular assumption ignores 15 percent of IDUs who, according to Hagan et al.'s (2007) study, always inject alone. Second, the model assumed that IDU population would not have any growth; however, according to Bayoumi & Zaric's (2008) paper, the population of IDUs grows at a rate of 13 percent on an annual basis. In addition, the model fails to account for aging,

migration, and death. Third, not included in my estimates were the indirect costs of secondary HIV infections averted as a result of expanding InSite. In essence, according to Lurie and Drucker's (1997) estimates, the indirect costs of secondary HIV infections could have been substantial since every 100 primary HIV infections among IDUs results in 13 secondary infections within IDUs' sex partners and offspring. Furthermore, not included in my estimates were transformative changes in IDU behaviour in regards to safer sex where according to Marshall et al. (2009), those IDUs who use InSite are more likely to practice safer sex. The safer sex practice as a result of condom use was more frequent amongst those IDUs who were HIV positive or those who had casual sex partners. And given the estimated lifetime cost of treating HIV infection, InSite would still produce significant savings over time. Finally, expanding InSite is also likely to reduce other harms associated with unhygienic injections such as cellulitis, subcutaneous, abscesses, endocarditis, and the incidence of soft-tissue infections (Lurie, Gorsky, Jones & Shomphe, 1998). Including the combination of these factors in the analysis may have been significant in terms of increasing the benefit-to-cost ratios, further justifying the expansion of InSite.

Subsequently, despite the noted assumptions (e.g., rate of secondary infections among sex partners, rate of IDUs who tend to inject alone, and incorporating other harms associated with unhygienic Injections), the relationship between needle sharing and HIV incidence still is inherently difficult to model with many compounding factors that may be too complex to operationalize; nevertheless, the mathematical model in this paper provides the most realistic depiction of future HIV infections. For example, similarly to Des Jarlais et al.'s (2008) *commentary* where it was predicted that Vancouver's SIF would prevent approximately 20 to 30 new HIV infections, the mathematical model used in this paper also predicted that the number of new HIV users

would fall from 164 to 137 with the establishment of InSite, a reduction of 27 new HIV cases per year. In effect, although Jacobs et al.'s (1999) mathematical model may be simpler than other more complex mathematical models such as, Kaplan & O'Keefe's (1993) or Laufer's (2001)-complex model; according to Andresen & Boyd's (2009) analysis, Jacobs et al.'s (1999) model is still far more realistic in its predictions. For instance, Laufer's (2001)-complex model predicts 19 prevented cases (under reporting HIV averted) and Kaplan and O'Keefe's (1993) model predicts 57 prevented HIV cases (overstating HIV cases averted) (as cited in Andresen & Boyd, 2009). In addition, despite the model's shortcomings by not accounting for dynamic transmission in an epidemic model, and focusing solely on cases of HIV, my estimates of 350 to 400 averted infections over 10 years (with consideration for growth in IDUs population) is far more realistic than a previous cost-effectiveness analysis of Vancouver's SIF, which estimated 1191 cases averted over the next 10 years (Bayoumi & Zaric, 2008).

## **The operational costs of additional SIFs**

Determining the operational costs of implementing any program is an instrumental part of any cost-effective analysis since resources must be allocated based on the economic efficiency. As Hanley, Shogren and White (2001) point out, ignoring costs of any proposed projects can lead to inefficient and wasteful decision making. For example, questions related to hospital closures, or determining the monetary allocation amongst different health preventative initiatives are directly influenced by cost-effective analysis. An individual or government confronting any of the above questions would, quite reasonably, wish to assess the consequences of both action and inaction, and assuming that the outcomes are the same for each program, the program with the least cost should be considered (Townley, 1998). Therefore, in this case, given the choices

between expanding or not expanding InSite, the costs of expanding InSite should first be determined in order to evaluate whether additional InSites are warranted.

In order to estimate the additional cost of InSite expansion, I needed to utilize the flat and fixed operating cost of InSite per hour to estimate how much it would be if expanded. The annual operational cost of InSite only in terms of space rental, and SIF provisions such as injectable kits (e.g., insulin syringes with attached needles, bottles of sterile water for injection, latex condoms, alcohol swaps, cost of disposal of used syringes), staff salaries, and equipment purchases, beyond injectable kits or office supplies, is estimated to be CDN \$1.53 million (2009 dollars) (CTV News, 2008). This cost (2009 dollars) estimation could reach CDN \$3.06 million (Health Canada, 2008) or CDN \$ 2.948 million (Bayoumi & Zaric, 2008) if any ancillary services such as treatment referrals, addiction or HIV counselling/testing, case management, education and housing were to be included in the estimate (Wood et al., 2006c).

On the other hand, this study used the lower bound estimate of CDN \$1.53 million, since I only considered the provision of clean injecting equipment and safer injecting behaviours. Therefore, based on this lower bound estimate, expanding InSite from 18 to 24 hours on a flat and fixed variable rate would increase the cost an extra 33 percent, to CDN \$2.04 million. This is a conservative estimate since it takes into account the cost of rent and equipment for the extra six additional hours, where realistically it should only account for overtime staff salaries.

## **The medical cost of a new HIV case**

Vancouver, like many cities around the world has experienced an HIV epidemic within its IDU population (Wood et al., 2004a). In fact, the prevalence of HIV infections amongst the IDU population residing in the DTES neighbourhood of Vancouver has

been estimated to be as high as 31 percent, arguably the highest in the Western world (Kuyper, Hogg, Montaner, Schechter & Wood, 2004; Maas et al., 2007). Subsequently, determining the cost of infected individuals for the local health care system could be substantial in any cost-effectiveness and cost-benefit analysis since people are now living longer thanks to the introduction of expensive highly active antiretroviral therapy (HAART) (Hogg et al., 2001; Picard, 2009). In effect, the multidrug combinations of HAART have improved HIV-related morbidity and mortality rates for those who undergo its intensive treatment regimens (Tyndall et al., 2007; Hogg et al., 2001). Since its introduction in the mid-1990s, HAART has proven effective in improving CD4 cell counts and decreasing plasma HIV viral load, transforming HIV from a death sentence to a life sentence (Wood et al., 2004c; Picard, 2009; Hogg et al., 2001). In effect, HAART has transformed HIV infection into a chronic and manageable condition for those who undergo treatment (Werb, 2009).

However, this success has not been replicated amongst injection drug users (IDUs) due to the fact that the treatment is associated with substantial side-effects (Heath et al., 2001), and high rates of treatment discontinuation (Wood et al., 2004c). For example, the study by Druyts et al. (2009) found a threefold increase in the risk of death among HIV-infected individuals on HAART in a neighbourhood with a high concentration of IDUs relative to a neighbourhood with a high concentration of gay men. Consequently, since treatment uptake and adherence tends to be poorer among IDUs (Lert & Kazatchkine, 2007), based on a 10 year survival rate, the life time cost of HAART per patient was calculated in U.S. dollars in 2001 to be \$160,000 (Chen et al., 2006) and by Dr. Montaner as part of the *Stop HIV/AIDS* proposal (which aims to expand HAART treatment access from 4,000 people to 6,000) to be CDN\$250,000—based on lifetime treatment in 2005 (as cited in Werb, 2009).

As expected, the above estimates may not be appropriate since access to HAART among IDUs is impeded by a range of structural, social, and psychological factors (Tyndall et al., 2007) making it less likely for an IDU to take full advantage of the medical system (Laufer, 2001). Therefore, it is appropriate to consider lower medical estimates for new HIV infection. In Canada, for example, Gold, Gafni, Nelligan, and Millson's (1997) cost-benefit analysis used CDN \$100,167 (1991 dollars) with the survival expectation of just over 10 years and Jacobs et al.'s (1999) cost-effectiveness used CDN \$150,000 (1998 dollars) assuming a 17-year survival rate.

Converting figures from the above studies into 2009 Canadian dollars, the following lifetime medical costs are derived: \$265,000 (Chen et al., 2006), \$271,000 (Werb, 2009), \$190,000 (Jacobs et al., 1999), and \$163,000 (Gold et al., 1997). However, since I anticipated a lower cost treatment for HIV infections among IDUs (recognizing that IDUs may experience certain self-imposed barriers or otherwise societal limitations) I chose a lower bound value of CDN\$153,000, making the anticipated benefits from InSite expansion conservative. In fact, my conservative estimate is similar to the CDN\$150,000 estimate suggested by Kuyper et al.'s (2004) study examining the lifetime medical cost of each HIV infection case in Vancouver. Hence, if I had used a more expensive treatment option such as the HAART programme, the anticipated benefit-to-cost ratio reported in this study should have been simply multiplied by 1.67.

## **Results**

This chapter set out to assess whether establishing more SIFs and extending the operating hours of the current site has a net positive effect on Canadian society, in particular, whether or not this policy initiative saves public health care funds in averting



new HIV infections. Moreover, upon completion of the economic evaluation of InSite, the desired number of expanded SIFs was expected to be determined based on marginal cost savings, cost-effective and benefit-to-cost ratio. Therefore, in order to justify expenditures of InSite, evaluation of its impact was determined using Jacobs et al.'s (1999) mathematical model. This model predicted the number of new HIV prevented cases based on a sharing rate which included the impact of behavioural changes in injection activities once outside of InSite and these behavioural changes, according to Table 6, were only considered twice (once for the first InSite and later for the expanded hours of operation). Once again, I would like to stress that my calculation of behavioural impact is based on a conservative odds ratio that falls within Kerr et al.'s (2005) limit.

**Table 6. Sources Annual HIV Cases Averted Based on Predicted level of InSite Expansion**

Variable	Moderate Behaviour $\Delta$											
	No InSite	Post InSite	InSite $\Delta$	24hrs	Behav iour $\Delta$	2nd InSite	3rd Insite	4th Insite	5th Insite	6th Insite	7th Insite	
Jacobs et al. (1999)												
<i>I</i> : proportion (%) IDUs HIV-	77.46	77.46	77.46	77.46	77.46	77.46	77.46	77.46	77.46	77.46	77.46	77.46
<i>N</i> : number of needles in circulating	2E+6	2E+6	2E+6	2E+6	2E+6	2E+6	2E+6	2E+6	2E+6	2E+6	2E+6	2E+6
<i>S</i> : rate of needle sharing	30%	28%	25%	25%	25%	23%	22%	21%	20%	18%	17%	
<i>d</i> : percent needles not cleaned	17.0	17.00	17.00	17.00	17.00	17.00	17.00	17.00	17.00	17.00	17.00	17.00
<i>q</i> : proportion (%) IDUs HIV+	22.45	22.45	22.45	22.45	22.45	22.45	22.45	22.45	22.45	22.45	22.45	22.45
<i>t</i> : probability of HIV infection from single injection	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67
<i>m</i> : number of sharing partners	1.38	1.38	1.38	1.38	1.38	1.38	1.38	1.38	1.38	1.38	1.38	1.38
$A = \text{INSD}(1-(1-qt)^m)$	163.9	155.5	136.6	134.9	134.9	128.1	121.3	114.5	107.7	100.9	94.8	
Total cumulative HIV infections averted			27	29	29	36	43	50	56	63	69	
Marginal HIV infections averted		8.5	19	1.7	1.7	7	7	7	6	7	6	

As expected, according to the data in Table 6, increasing the scope of InSite through site expansion would decrease the HIV infection cases. However, as the data shows in Table 6, there is a substantial range in the number of new HIV infections prevented: 29 to 69, with the marginal range being much smaller: 6 to 19. This range disparity, as outlined in

Table 7 and Table 8, translates into substantial differences between the economic evaluation of InSite when it comes to the cumulative versus marginal estimates.

**Table 7. The Cumulative Annual Cost Saving, Cost - Effectiveness and Cost – Benefit of InSite Expansion**

<b>Variables</b>	<b>Annual cost of operation</b>	<b>#of HIV averted</b>	<b>HIV Saved</b>	<b>Cost \$ Saved</b>	<b>Cost-effectiveness ratio</b>	<b>Cost-benefit ratio</b>
Post InSite*	\$2,040,000	29	\$4,437,000	\$2,397,000	\$70,345	2.18
Two InSites	\$4,080,000	36	\$5,508,000	\$1,428,000	\$113,333	1.35
Three InSites	\$6,120,000	43	\$6,579,000	\$459,000	\$142,326	1.08
Four InSites	\$8,160,000	50	\$7,071,000	-\$1,089,000	\$163,200	0.87
Five InSites	\$10,200,000	56	\$8,568,000	-\$1,632,000	\$182,143	0.84
Six InSites	\$12,240,000	63	\$9,639,000	-\$2,601,000	\$194,286	0.79
Seven InSites	\$14,280,000	69	\$10,557,000	-\$3,723,000	\$206,957	0.74
Average	\$8,160,000	49	\$7,479,857	-\$680,143	\$153,227	1.12

\*This also includes the calculation for the 18-24 hours extension.

For example, according to data in Table 7, the cumulative annual estimates of new HIV cases averted translate into a cumulative cost savings for society ranging from \$2.4 million benefits (for the 1<sup>st</sup> InSite) to -\$3.7 million loss (for the 7<sup>th</sup> InSite), benefit-cost ratios ranging from 2.18 to 0.74, and cost-effectiveness value ranging from \$70,345 to \$206,957. In contrast, the marginal estimates of InSite expansion translate into a much smaller return, specifically in terms of its benefit-cost and cost-effectiveness ratios.

**Table 8. The Marginal Annual Cost Saving, Cost - Effectiveness and Cost – Benefit of InSite Expansion**

<b>Variable</b>	<b>Annual cost \$ of operation</b>	<b>Marginal #of HIV averted</b>	<b>Marginal HIV \$ Saved</b>	<b>Marginal Cost \$ Saved</b>	<b>Marginal Cost-effectiveness ratio</b>	<b>Marginal Cost-benefit ratio</b>
1st InSite*	2,040,000	29	4,437,000	2,397,000	\$70,345	2.18
2nd InSite	2,040,000	7	1,071,000	-969,000	\$291,429	0.53
3rd InSite	2,040,000	7	1,071,000	-969,000	\$291,429	0.53
4th InSite	2,040,000	7	1,071,000	-969,000	\$291,429	0.53
5th InSite	2,040,000	6	918,000	-1,122,000	\$340,000	0.45
6th InSite	2,040,000	7	1,071,000	-969,000	\$291,429	0.53

7th InSite	2,040,000	6	918,000	-1,122,000	\$340,000	0.45
Average	2,040,000	10	1,508,143	-531,857	\$273,723	0.74

\*This also includes the calculation for the 18-24 hours extension.

For instance, the marginal benefit-cost ratio varies from 2.18 to 0.45, and the marginal cost-effectiveness value ranges from \$70,345 to \$340,000. On the other hand, once the average marginal values are estimated, this substantial disparity between marginal and cumulative results diminishes.

**Table 9. The Average (Annual) Marginal Cost Saving, Cost – Effectiveness and Cost – Benefit of InSite Expansion**

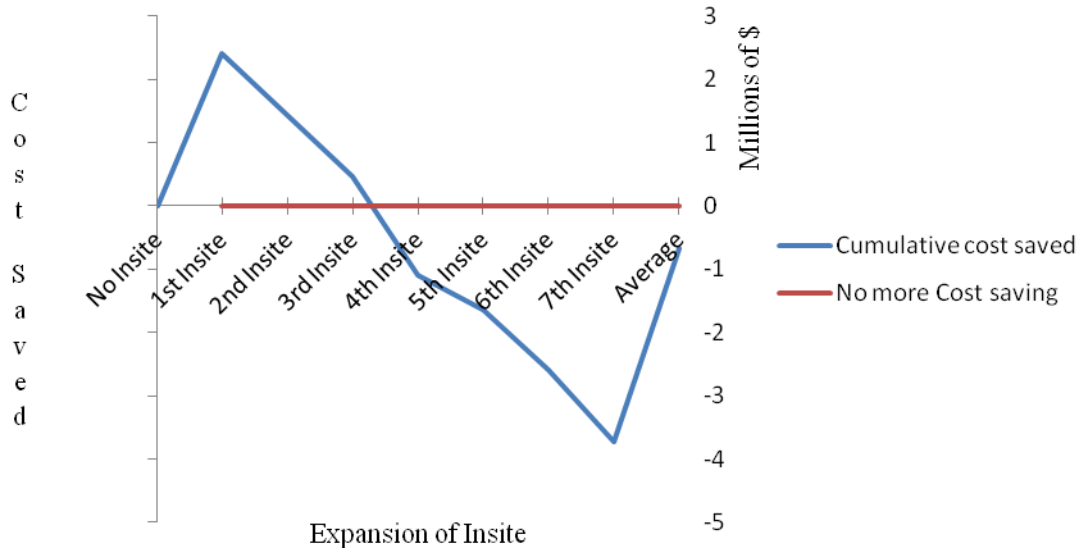
Variable	Marginal cost of operation	#of HIV averted	HIV Saved	Average Marginal cost saved	Average Marginal cost-effectiveness	Average Marginal cost-benefit ratio
1st InSite*	\$2,040,000	29	\$4,437,000	\$2,397,000	\$70,345	2.18
2nd InSite	\$2,040,000	7	\$1,071,000	\$714,000	\$180,887	1.35
3rd InSite	\$2,040,000	7	\$1,071,000	\$153,000	\$884,401	1.08
4th InSite	\$2,040,000	7	\$1,071,000	-\$127,500	\$736,158	0.94
5th InSite	\$2,040,000	6	\$918,000	-\$326,400	\$656,926	0.84
6th InSite	\$2,040,000	7	\$1,071,000	-\$433,500	\$596,010	0.79
7th InSite	\$2,040,000	6	\$918,000	-\$531,857	\$559,437	0.74
Average	\$2,040,000	10	\$1,508,143	\$263,535	\$526,309	1.13

\*This also includes the calculation for the 18-24 hours extension.

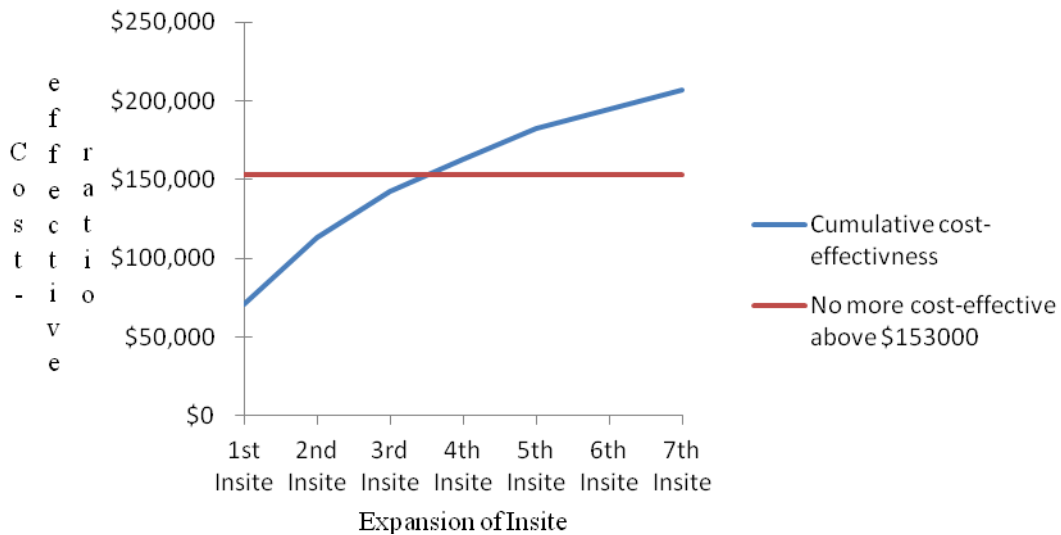
As outlined in Table 9, the marginal benefit-cost ratio now varies from 2.18 to 0.74 and the marginal cost saving now falls closer to the cumulative results. In contrast, the cost-effective ratio does not change and still remains within the marginal estimates, ranging from \$70,345 to \$559,437. Furthermore, according to data shown in Table 7 and Table 9, both cumulative and average-marginal cost-savings, and benefit-cost ratios seem to dwindle after the third InSite. For example, according to Table 7, a cost savings of \$459,000 for the third InSite becomes a \$1.089 million loss for the fourth InSite. The same loss as a result of InSite expansion (from 3<sup>rd</sup> to 4<sup>th</sup>) can be distinguished in benefit-cost (from 1.08 to 0.87) and cost-effectiveness ratios (from \$142,326 to \$163,200) as outlined in Table 8. In effect, the decline in terms of cumulative effectiveness of dollars

spent, cost saving and benefit-to-cost ratio can be better conceptualized in the following figures: Figure 6, Figure 7 and Figure 8.

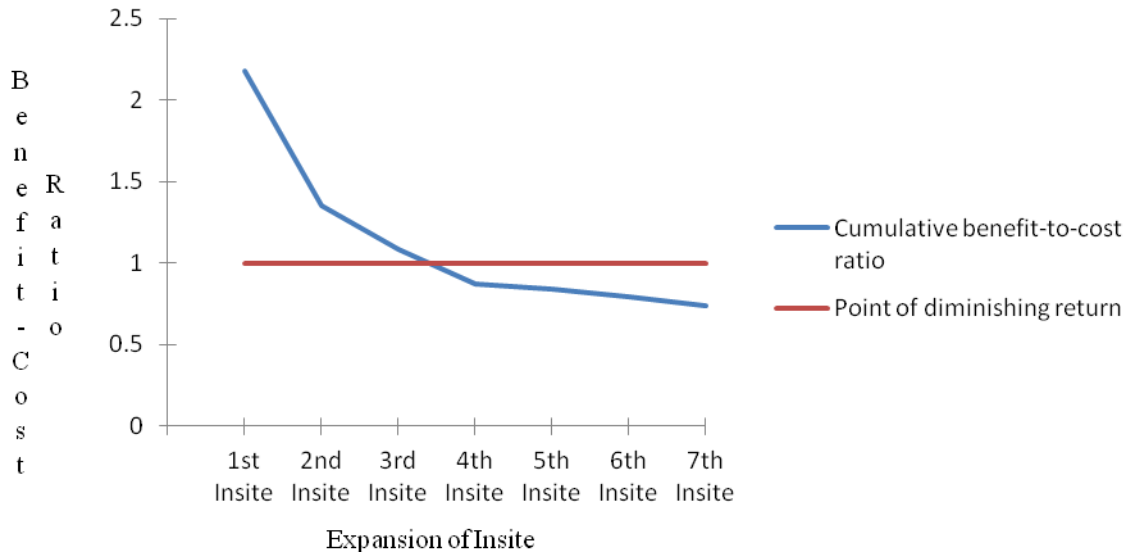
**Figure 6. Cumulative Cost-Saved as a Result of InSite Expansion**



**Figure 7. Diminishing Cumulative Cost-Effectiveness as a Result of InSite Expansion**

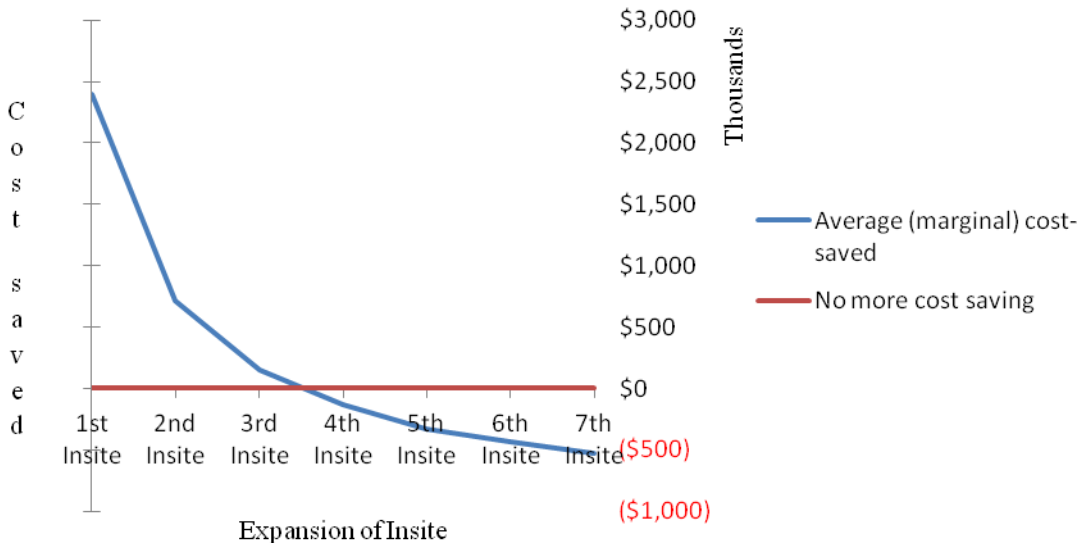


**Figure 8. Diminishing Cumulative Benefit-to-Cost Ratio When InSite is Expanded**

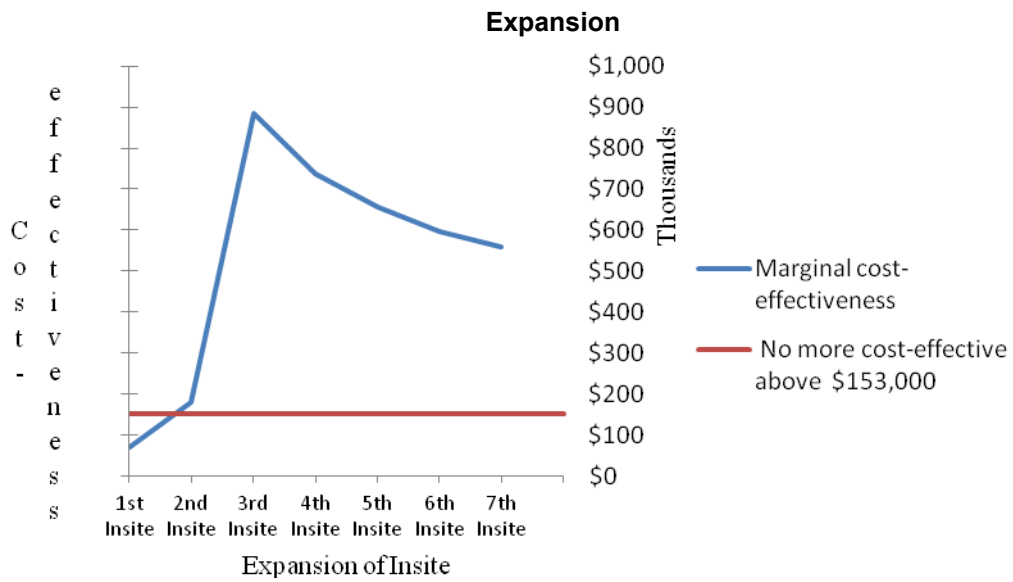


In addition, the average marginal return figures (as shown in Figures 9 to 11) seem to reinforce my earlier assumptions that benefits will decline after the 1<sup>st</sup> InSite and reach a loss after the fourth InSite (notwithstanding the cost-effectiveness results whereas after the first InSite it is no longer cost-effective).

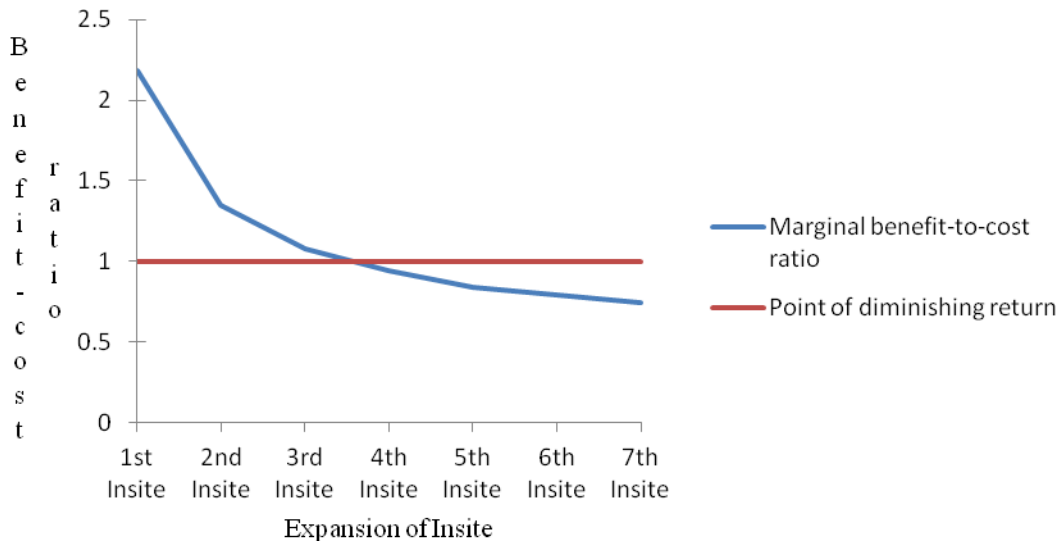
**Figure 9. Average (Marginal) Cost-Saved as a Result of InSite Expansion**



**Figure 10. Diminishing Cost-Effectiveness (Average Marginal) as a Result of InSite**



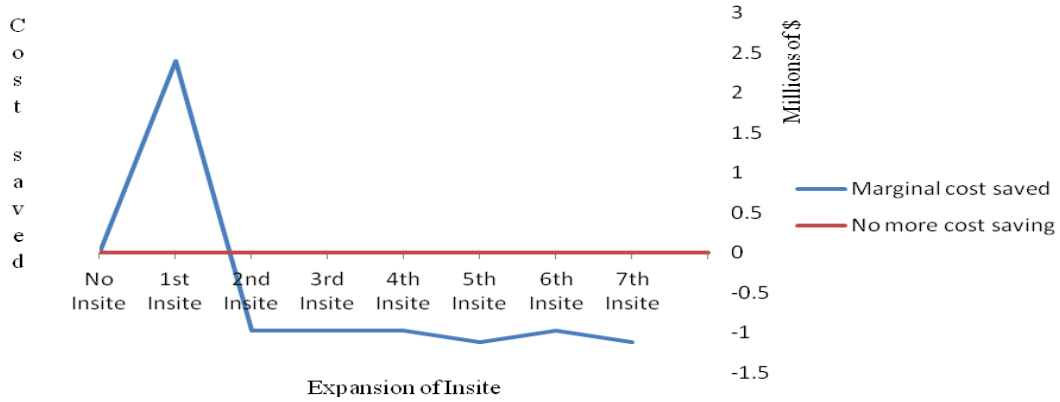
**Figure 11. Diminishing Average Benefit-to-Cost Ratio (Marginal) When InSite is Expanded**



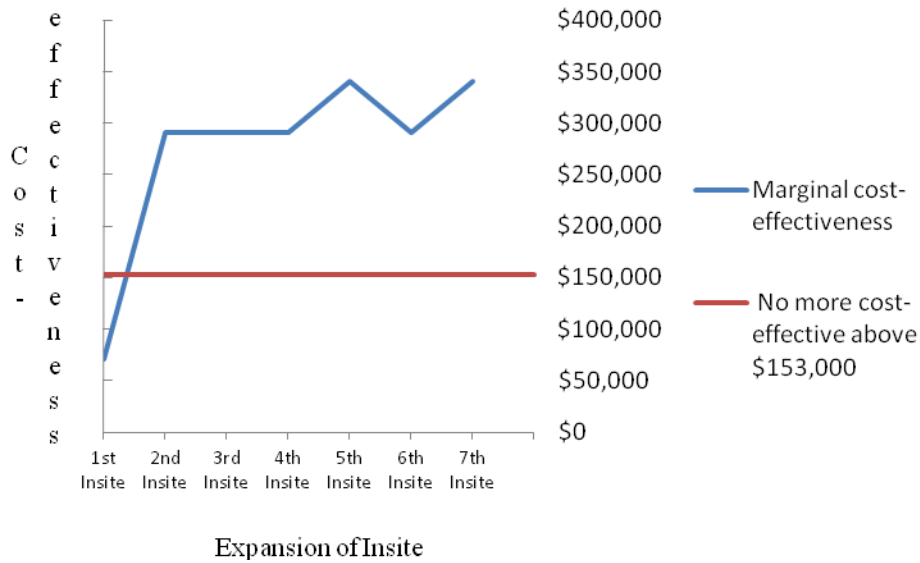
Moreover, according to marginal evaluation as outlined in Figures 12 to 14, each InSite (except the first InSite) by itself will not be economically sustainable since the cost

savings, cost-effectiveness and benefit-cost ratios will be small and insignificant when considered alone.

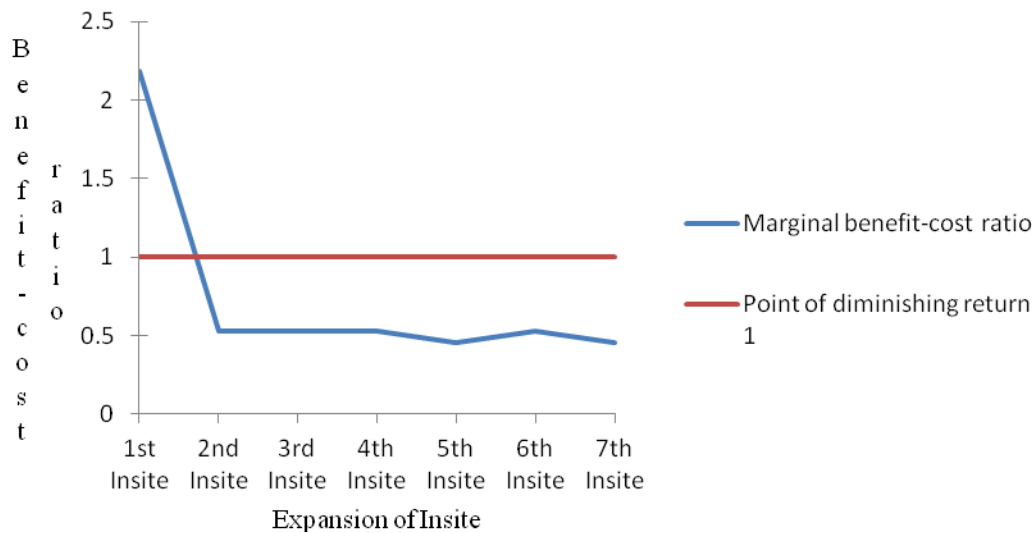
**Figure 12. Marginal Cost-Saved as a Result of InSite Expansion**



**Figure 13. Diminishing Marginal Cost-Effectiveness as a Result of InSite Expansion**



**Figure 14. Diminishing Marginal Benefit-to-Cost Ratio When InSite is Expanded**



Nevertheless, comparing the overall figures (such as cumulative or average values) seems to support my earlier assumption that expanding InSite will save society money if it prevents a modest number of HIV infections per year. However, such cost-saving measures will diminish when InSite is expanded beyond the third location (based on cumulative and average data).

## Discussion

In this analysis, I reviewed the literature on InSite and applied economic analysis in order to determine whether expanding the program and its hours of operation represents an efficient use of scarce public resources. Based on the number of HIV cases averted owing to the provision of clean injecting equipment and safer injecting behaviours, additional SIFs would be a good value for the resources they consume if more sites were to be opened. In fact, the results presented here suggest that expanding the current site will benefit the publically funded health care system if each additional InSite is able to prevent only 14 HIV infections on an annual basis. Furthermore, the addition of more InSites beyond the three locations may still be considered cost-effective



even if it is not cost saving (e.g. break-even) since I used highly conservative estimates in baseline calculations. For example, not included in my calculations was the potential cost-savings in terms of HCV virus and overdose deaths averted. Bayoumi and Zaric's (2008) paper for instance, estimated that a single InSite can prevent 54 HCV infections over 10 years and Andresen and Boyd's (2009) paper estimated that a single InSite can prevent 1.08 overdose deaths in just one year. Hence, only at very high levels of coverage is there a diminishing return in the number of new HIV infections averted for each dollar invested. Moreover, even if my calculations predicted that the expansion beyond the 4<sup>th</sup> InSite may not be economically desirable (since the benefit-to-cost ratio or cost-effectiveness ratios are not favourable), they would become so in the future since the MSIC Evaluation Committee (2003) of Australia also predicted that future benefits will outweigh the start-up cost.

In sum, regardless of the particular type of benefits, the cost savings and benefits of expanding InSite beyond its operating range falls within the range of existing cost-effectiveness/ cost-benefit studies, despite the different methodologies employed. Take Bayoumi and Zaric's (2008) economic analysis of Vancouver's SIF where HIV prevention efforts are likely to produce a cost saving of \$20 million over the next decade. In addition, another economic analysis of Vancouver's SIF by Andresen and Boyd (2009) demonstrated societal benefits in excess of \$6 million annually, translating into an average benefit-cost ratio of 5.12:1. Arguably, InSite benefits and cost savings fall within many other programs already in existence such as NEPs. For example, Gold et al.'s (1997) study predicted that NEPs similar to the one in Vancouver can provide a cost savings of \$1.3 million which translates to benefit to costs ratio of 4:1. Therefore, notwithstanding the methodological difficulties in comparing studies noted above to mine, CDN\$1.43 million cost savings and 1.54: 1 benefit-to-cost ratio of this study (when

considering three InSites) falls within the range of the previous economical evaluation, responding well to the ever growing problem of IDUs.

The conditions under which the expansion of InSite will be economically efficient and cost-saving stems from two sources: one being the provision of clean injecting equipment; and second, being the easier accessibility of services that translate into transformative changes in IDUs behaviour (e.g., injection behaviour outside InSites becomes less risky). Surely the success or failure of the program depends on the decrease or increase of HIV infection rate within the IDU population who will benefit from the targeted expansion. Even if IDUs fail to change their behaviour, the rate of new HIV infections will fall in proportion to the increased accessibility of more SIFs, lowering the level of infection in the needles circulating among IDU participants. In fact, an analogy to Malaria, similar to Kaplan & O'Keefe's (1993) circulating theory, will certainly help in conceptualizing how increased accessibility of SIFs may reduce HIV infection. For example, according to the circulating model, infected IDUs function similarly to infected mosquitoes; therefore, we can reduce the chances of transmission if an infected IDU or a mosquito were continuously removed (either through the provision of clean needles or changes in IDUs sharing behaviour), reducing the rate of blood born infection.

The current study in this chapter has several limitations that should be mentioned. First, the most significant limitation can be attributed to the lack of data. While the provision of clean injecting equipment and safer injecting behaviours were easily measurable, other potentially important health benefits were excluded such as the provision of referrals (Tyndall et al., 2006a), diagnostic (Frei, Greiner, Mehnert, & Dinkel, 2000), and the indirect cost of illness such as the loss of human capital due to premature death, or quality of life (Gold et al., 1997). Furthermore, although I would have liked to predict the benefit of expanding InSite based on the linear trend analysis focusing on

actual new cases of HIV, mathematical modeling is only as reliable as the secondary data used and assumptions related to the stability of the variables.

Second, marginal returns based on each additional InSite would be hard to justify when further expansion may create the impression that the program is less valuable because added prevention provides smaller additional benefits. However, according to Kahn (1996), the lower value of additional prevention should not be confused with the considerable benefits of establishing prevention efforts such as InSite. Furthermore, additional InSites beyond the third location may offer benefits from societal viewpoints in addition to financial ones since the purpose of a health care system is not supposed to be based on saving costs; rather, it is to maximize health resources based on humanity and sympathy for the most marginalized population who face death and serious disease (Gold et al., 1997; Des Jarlais et al., 2008; Kleinig, 2006). In essence, it is not always right to take a particular course of action just because the calculation indicates that the benefits outweigh the costs. In other words, financial considerations should not be the only measure of the best policy for the common good (Mintz, Close, & Croci, 2009). Nevertheless, greater details are needed in understanding/calculating fixed versus variable costs which would allow for a more accurate prediction of the number of feasible SIFs desired.

And finally, although previous studies on InSite reported no apparent increase in drug dealing, drug acquisition crime or greater rates of drug use (Kerr et al., 2006; Wood et al., 2004b; Wood et al., 2006a), the study in this chapter was not able to generate any inferences to suggest increases or decreases in community based problems as a result of expanding InSite. However, I think it is critical to examine whether expanding InSite will attract undesirable behaviours associated with cultures of street drug use, leading to

an increase in property crime and disorder in the vicinity (Lasnier, Brochu, Boyd & Fischer, 2009).

In summary, this chapter concludes that funding programs such as SIFs for IDUs are wise and cost-saving measures. This chapter has demonstrated that expanding the operation of SIFs beyond its current operational location and hours could be considered an efficient use of limited public health care resources; offering a win-win situation for taxpayers. Although the economical evaluation of this chapter may not be generalizable to other settings (since the prevalence rate of HIV and the size of the injection drug users will differ across municipalities), by conducting this evaluation, I hope to encourage other communities in making a paradigm shift towards harm reduction initiatives to reduce the devastating burden of the injection drug use on our health and social well-being.

## Chapter 5: Is it time for SIRs in Canada?

Few countries have attempted to curb the growing epidemic of oral crack and crystal methamphetamine (Haydon & Fischer, 2005). There are indications that crack use in Canada is increasing and that it is more popular among street-involved youth (DeBeck et al., 2009; Urban Health Initiative, 2009). Specifically, the rate of daily cocaine use among a cohort of drug users in Vancouver has decreased from a high of 38.1 percent in 1996 to 8.5 percent in 2007 (Urban Health Initiative, 2009). This decrease was accompanied by a large increase in crack use among this cohort (Urban Health Initiative, 2009).

This significant paradigm shift in drug use in many large cities in Canada raises concerns since a few studies have recently identified crack smoking as a risk factor for HIV, HCV and tuberculosis (DeBeck et al., 2009; Howard, Klein, Schoenbaum & Gourevitch, 2002). In effect, as chapter two demonstrated, many crack users are unaware of crack pipe sharing risks. It is hypothesized that infectious disease may be transmitted via sharing crack pipes (Haydon & Fischer, 2005; Celentano & Sherman, 2009). Programs parallel to those provided for injection drug users (IDUs) to address the risk of infection in the population of crack users have been in operation in 36 cities across four European countries (Shannon et al., 2006). SIRs or safe smoking facilities as they are called in Europe, are locations where addicts are able to smoke previously obtained illicit drugs under medical supervision of health professionals in a hygienic and safe environment (Haydon & Fischer, 2005). Within SIRs, addicts are typically provided

with a 'safer crack kit' (e.g., pyrex stem with mouth piece, metal screens, latex condoms, alcohol swabs), and nurses and staff are available in the event of overdose and to provide referrals to addiction service or healthcare (Collins et al., 2005; Haydon & Fischer, 2005).

However, the operation of such facilities in Canada would require an exemption under the *Controlled Drugs and Substances Act*, and public health and addiction officials in Ottawa and Vancouver have expressed doubts about the relevance of such facilities in reducing HCV and HIV transmission, and about the potential uptake of such facilities among non-injection drug users (NIDUs) (Collins et al., 2005; Haydon & Fischer, 2005). In addition, questions remain concerning the feasibility of SIRs. Therefore, this chapter attempts to determine the NIDUs' situation in BC and assess whether a SIR is needed to curb the spread of infectious diseases. Further, this chapter examines the prevalence of willingness to attend SIRs among NIDUs in Vancouver, Surrey and Victoria, BC and explores the factors associated with this willingness by examining their lives, stories and circumstances.

## **Methods**

Beginning in June 2011, participants living in Surrey, Vancouver and Victoria, who had smoked crack in the previous month were recruited to participate in the study. The Participants were eligible for the study if they were 19 years or older and provided informed oral consent. They received CAD\$10 reimbursement for their participation at the end of a semi-structured interview. The study in this chapter was approved by Simon Fraser University's Research Ethics Board. Participants were recruited through key informants and snowball sampling. For example, eight participants were from Vancouver, 11 participants were from Surrey and three participants came from

**Table 10. Characteristics of the sample of Crack Users**

<b>Name</b>	<b>Gender</b>	<b>Age</b>	<b>Ethnicity</b>	<b>Drug of Choice</b>	<b>Medical condition</b>	<b>City</b>
George	Male	53	Caucasian	Heroin & Crack	HCV	Vancouver
Tania	Female	46	Caucasian	Heroin & Crack	HCV & HIV	Vancouver
Maxim	Male	50	Caucasian	Heroin & Crack	HCV & HIV	Vancouver
Michelle	Female	30	Caucasian	Heroin & Crack	HCV	Vancouver
Ashley	Female	43	First Nation	Heroin & Crack	HCV	Vancouver
Jack	Male	46	First Nation	Heroin & Crack	HCV & HIV	Vancouver
Catherine	Female	53	Caucasian	Heroin & Crack	HCV	Vancouver
Alex	Male	47	Caucasian	Heroin & Crack	HCV	Vancouver
Cindy	Female	42	First Nation	Cocaine & Crack	Nil	Surrey
Gary	Male	56	Caucasian	Cocaine, Heroin & Crack	HCV & Abscesses	Surrey
Brian	Male	47	Caucasian	Cocaine & Crack	HCV & HIV	Surrey
Scott	Male	42	Caucasian	Cocaine, Heroin & Crack	HCV	Surrey
Chris	Male	49	Caucasian	Speed, Heroin & Crack	HCV	Surrey
Daniel	Male	41	First Nation	Cocaine, Heroin & Crack	HCV	Surrey
Holly	Female	42	Caucasian	Speed & Crack	Bipolar & Cancer	Surrey
Keyleigh	Female	28	Caucasian	Heroin & Crack	HCV	Surrey
Sabrina	Female	43	Caucasian	Speed & Crack	HCV & HIV	Surrey
Neil	Male	66	Caucasian	Heroin & Crack	HCV	Surrey
Brendon	Male	53	Caucasian	Crack	HCV	Surrey
Henri	Male	50	Caucasian	Heroin & Crack	HCV, HIV & Cancer	Victoria
Fraser	Male	49	Caucasian	Heroin & Crack	HCV & HIV	Victoria
Kila	Female	30	Caucasian	Cocaine, Heroin & Crack	Abscesses	Victoria

Victoria. The semi-structured interviews allowed for the collection of various information regarding participants' age, ethnicity, gender, drug of choice and medical condition as outlined in Table 10.

The qualitative data were reviewed, and all text segments were subjected to a thematic analysis using NVivo 8 software. Ten coding categories emerged. Each coding category was reviewed again at a later date, this time using the key themes as coding categories. Each coding category was reviewed independently for latent meanings and common ideas. The main thematic analysis focused on the social processes and experiences of smoking crack at crack shacks or on the street. In order to maintain

validity in this research, quotes were considered both in the context of the interview and as standalone representations of a theme.

## Findings

### Epidemic

The most common narrative offered by study participants was that everyone they knew smoked crack. In effect, participants suggested that crack use is so common in their communities that they label it as an epidemic. According to Cindy, who lives in Vancouver, crack smoking is everywhere:

*Crack is insane, it's everywhere, and I think it is starting to be an epidemic. It's growing so strong that it is carrying into the streets. And you could walk the streets and see people smoking in doorways, sitting on the sidewalks, behind cars, parking lots, alleys, everywhere. Even close to parks where kids play.*

The proportion of drug users who smoke crack cocaine in Vancouver has been reported to be as high as 86.6 percent (DeBeck et al., 2009). Even in neighbouring municipalities such as Surrey, smoking crack is highly prevalent. Many participants report that smoking crack is widespread due to its accessibility and low prices compared to heroin and cocaine. For example, as stated by Holly,

*There are a lot of crack dealers, too much crack. You can't get anything but crack most of the time. It's all there is. It's everywhere ... You can even get a hit for five dollars, some people can even get it for two or three if they're lucky.*

Many researchers attribute recent increases in crack usage among drug users in Canada to crack being more affordable and more accessible than many other street drugs (Leonard et al., 2008)



## Risk behaviour

In addition to the widespread use of crack, all the participants in this study reported sharing their crack pipes with other users. In most cases, participants such as Daniel were unaware of the risk associated with sharing:

*You kidding me, there is no risk in sharing crack pipes. No fucking way. Smoking crack is being heated hot, so it can kill any germ, that's for sure. Also Sharing crack pipe isn't like sharing rigs [needles], there is no risk of contamination 'cause your only smoking it, not fixing, there is no blood.*

This lack of knowledge about risk behaviour is a significant risk factor for HIV and HCV because “crack smokers have a high prevalence of oral lesions including sores, blisters and cuts on their lips and oral cavities ... caused by contact of the mouth and lips with hot glass, hot smoke, the sharp edges of glass pipe stems or metal pipe stems” (Celenta & Sherman, 2009, p. 345). While some users were unaware of the risk of disease transmission, others, according to Jack, simply do not care about HCV risk behaviours:

*Most of them share crack pipes 'cause they just wanna get high. They don't give a fuck. They want to be wasted. If that means using somebody else's crack pipe fucking right they'll do it. They're hoping that there is a little bit of it still left in the pipe so they could get a kick. They don't care; most of them have got Hep C and they don't have the slightest clue that you can catch AIDs by sharing pipes.*

In fact, a new study reported that 70 percent of users in Victoria and 60 percent of users in Vancouver reported sharing their crack pipes (Center for Addiction Research in British Columbia, 2011). The HIV prevalence rate among crack smokers is more than three times as high as the non-crack user population (Fischer et al., 2010). Participants also reported seeing people or sometimes being involved in risky sexual behaviours themselves after smoking crack. According to Sabrina:

*They have girls that work for little bit of cracks, they're selling their ass for a hoot [certain amount of crack, generally about \$5-10]. A lot of girls do whatever they have to do without condoms because they're so eager to get that hoot, they don't really care. I used to do that, I was sleeping with*

*people for a hoot ... Guys are sleeping with these girls without using condoms. It is very unhealthy ... And this happen not only shacks, but everywhere.*

The use of crack cocaine compromises the ability to make healthy decisions because of its effects on neurocognitive functioning, its highly addictive nature and its short-term high (Celenta and Sherman, 2009). A number of studies also report crack users to be at an elevated risk of sexually transmitted disease such as syphilis, gonorrhoea, or chlamydia, all of which can be easily prevented by using condoms (Maranda, Han, & Rainone, 2004; Ross et al., 2002). Crack users in comparison to non crack users have double the prevalence of sexually transmitted diseases (Fischer et al., 2010).

## **Violence**

In addition to risk of disease, based on the participants' narratives, crack users are more likely to be victims of violence. Crack users are also more likely to initiate a violent confrontation due to the psychological effects of crack usage. For instance according to Brendon:

*People that smoke crack usually go psycho and paranoid. I started getting psychosis when I started smoking crack and I was seeing things and couple of times got into few fights because I thought people were stealing my stuff ... People are always on edge because they're always thinking somebody is going to come around the corner and beat the crap out of them. People snap so easy on crack and get into fights because they think somebody ripped them off.*

Illicit drug intoxication is associated with various psychiatric and behavioural symptoms, including induced psychosis and a group of transient psychotic symptoms, such as paranoia, hallucinations, violence and aggression (Tang et al., 2009). At times, this violence and aggression induced by smoking crack leads to a deadly confrontation that may cause death or serious bodily harm. For example, according to Keyleigh:

*Crack makes people crazy; it makes them snap and nuts. It makes them psychotic and violent. I have seen people die here from violent fights over crack. Like one guy was a drinker and they were trying to sell him crack. He told them: You guys leave me alone. And some guy beat him to death. And once he was lying there bleeding to death, they stole all his money and left him there.*

It is situations like this that suggest that a SIR would benefit users, reduce violence and perhaps reduce crime. The opening of Vancouver's SIF has not resulted in an increase in drug acquisition crime or drug dealing in the facility's vicinity (Wood et al., 2006a). One would expect a similar result for a SIR.

## **Willingness to Use**

All the participants in this study reported a willingness to use a SIR if such a site opened. In fact, users like George believe that a SIR would reduce sharing because it would disintegrate the complex process of sharing:

*Even the process of smoking crack requires a lot of stuff: You got a lighter, you got a pipe, got some Brillo, got some rock, next thing you know, there is eight people involved. And trust me, they won't leave until they get a poke of it. But if we have safe place to do our drugs this sort of stuff could never happen.*

Others, such as Brian, believe that having a SIR would reduce sharing through availability of equipment because he believes the main reason people are currently sharing is due to inaccessibility of clean crack pipes:

*A lot people don't have pipes, so they come up to you for example, and tell you: Can I use your pipe and I give a you a poke or two. And if you have one you share your pipe with them. Right now it is really hard to find crack pipes, the needle depot in here doesn't have them so if we have a place to smoke our pipe[s] we never have to worry about sharing our pipe[s].*

While reducing sharing and availability, provision of equipment is a critical role that a SIR could play. Many users also believe that a potential SIR site could help users escape the violence they would face in crack shacks or on the street. As Neil describes:

*Having a safe inhalation, where we could smoke our cracks is a really good idea because people need protection. It'd give people a safe place to go rather than going to these crack shacks where they get robbed and beat up in closed environment. Having a government controlled environment is better than having a few dealers running a place. Also you can monitor people in terms of how they're doing medically and psychologically.*

If SIRs are going to have the same positive influence as SIFs, their range of benefits would far exceed reduction in violence or sharing rate. In effect, as Neil suggested above, opening a SIR may help addicts to get much needed medical help and facilitate their detoxification.

## **Discussion**

This chapter explored the current status of NIDUs who reside in cities in North America that have no access to SIRs such as, Vancouver, Surrey and Victoria, BC. The ultimate objective of the study in this chapter was to determine whether there is a need for SIRs in large—and medium— sized Canadian cities. The findings reveal that crack cocaine not only remains cheap and easily accessible, but its usage has reached epidemic proportions. Many participants reported being addicted to crack only after a few times of using. Moreover, the addictive nature of crack cocaine compromises the ability to make healthy decisions such that many addicts are at risk of HIV and HCV transmission. In fact, they are involved in sharing their non injectable drug paraphernalia and engaging in unprotected sexual activity. Most of the participants displayed a lack of knowledge in regard to the risk of sharing crack pipes. Many addicts in this study are risking violence and bodily harm when they smoke their drugs in crack shacks or on the

street. As a result, there is an urgent need to open SIRs in Vancouver and other Canadian cities with a significant crack using population to curb the spread of disease, reduce violence and increase safety. All of the participants in this study viewed SIRs positively and indicated they would use such a facility if one were to open.

Though not discussed above, there are many other benefits that may be achieved by opening a SIR. One benefit is the risk of overdose which has been shown to be a significant risk factor for those smoking heroin and methamphetamine (Smith, 2004). In BC alone, 14 deaths have been attributed to heroin smoking (Collins et al., 2005). As in the case of Vancouver's SIF, numerous studies show reductions in overdose deaths<sup>8</sup>, given the medical supervision of NIDUs which has the potential to mitigate the risk of overdose deaths.

Also consistent with the benefits of opening a SIR is the potential to increase detoxification and reduce risk behaviour through education. According to Collins et al. (2005), there is significant research indicating that NIDUs will change their risk behaviour when provided with appropriate education and engaged in care. Moreover, IDUs that regularly use Vancouver's SIFs have an increased probability of initiating and maintaining addiction treatment (DeBeck et al., 2011). Hence, through attending a SIR, addicts may utilize various health related services, mental health, counselling and ultimately detoxification service.

In summary, there is an urgent need to open a SIR in Vancouver and other Canadian cities with a significant NIDU population. Implementing a SIR could be based on the goals of prevention of infectious disease, reducing risk behaviour, harm reduction education, reducing violence and improving safety. The high reported willingness to use

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<sup>8</sup> See Marshall et al. (2011).

a SIR in this study highlights an important opportunity to connect with a known high-risk drug user population.

## Chapter 6: Conclusion

During the 1980s, 1990s, and early 2000s, Vancouver was best known as the home of the fastest growing HIV and HCV epidemic and as Canada's capital for drug related crime (Belluz, 2011). In essence, Vancouver's DTES has a HCV and HIV prevalence rate rivalling those in third world countries such as Botswana (Wood et al., 2004b; Chan, 2009). Furthermore, it is estimated that the 10-block area of the DTES contains a few thousand IDUs whose lives are further marked by extreme poverty, mental illness, lack of housing and social support (Kerr et al., 2003a; Mass et al., 2007). However, as the research in this thesis has demonstrated, there are indications that the DTES may be transforming as a result of opening North America's first and only SIF. In fact, as research participants in this thesis reported, there are fewer overdose deaths, decreased public injections, reduced public syringe disposal and increased safety. Furthermore, InSite has become the community centre for IDUs who utilize the facility.

In addition to the physical transformation of Vancouver's DTES, this thesis discussed the change in the culture of drug use. Participants in this research reported that they are less likely to be involved in risky behaviour, more likely to use medical resources and more likely to use social support. Moreover, there are indications that those who increasingly rely on InSite have gradually become active within their community, trying to alleviate misery and improve lives in the DTES. This thesis identifies IDUs who strive to better their peers' health and their communities' self image as educational and safety ambassadors.

This thesis further demonstrated the need for expansion of the current SIF to at least three more locations in the Vancouver area alone in order to save tax payers' money. Furthermore, expansion of InSite to more locations will reduce waiting time and the travel distance to the facility. In addition, this thesis highlighted the urgent need for expansion of more SIFs in large and medium sized North American jurisdictions with significant IDU populations. The results of this thesis further demonstrate that IDUs in large and medium sized cities in North America with no access to SIF such as, Surrey and Victoria are faced by overdose death, disease, violence, theft and arrest on a daily basis.

Finally, this thesis highlighted the growing epidemic of oral crack and crystal methamphetamine in large and medium size Canadian cities such as Vancouver, Surrey and Victoria. In fact, addicts are at risk of HIV and HCV transmission when they are involved in sharing their non-injectable drug paraphernalia and engaging in unprotected sexual activity. In addition, addicts are risking violence and bodily harm when they smoke their drugs in crack shacks or on the street. As a result, there is an urgent need to open SIRs in Vancouver.

The operation and scientific evaluation of the Vancouver's SIF, has been challenged by Canada's conservative federal government publically in media and in courts. Nevertheless, demonstrating that InSite's positive impacts contribute to a politically and socially charged discussion, and encouraging other communities to take a bold step towards protecting their most marginalized and vulnerable people is the ultimate goal of the thesis. In fact, as Niki proposed, "there should be one InSite opened in every large city".



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