

# Supervised Consumption Services Literature Review

November 2016



Region of Waterloo  
PUBLIC HEALTH

**Authors**

Taheera Walji

**Editors**

Grace Bermingham, Chris Harold, Bhairavi Sivaramalingam

**Suggested Citation**

Region of Waterloo Public Health and Emergency Services. (2016). *A Review of the Impact of Safe Injection Sites as an Effective Harm Reduction Strategy: What does the literature suggest?* Waterloo, ON: Authors.

For more information about this report please contact:

Information and Planning Program

Infectious Diseases, Dental and Sexual Health Division

Region of Waterloo Public Health

99 Regina Street South, 2<sup>nd</sup> floor

Waterloo, Ontario N2J 4V3

Phone: 519-575-4400 ext.5322

Email: [gbermingham@regionofwaterloo.ca](mailto:gbermingham@regionofwaterloo.ca)

## Executive Summary

Region of Waterloo Public Health and Emergency Services (ROWPHE) delivers a variety of harm reduction programs to the residents of Waterloo Region, with the goal of reducing the adverse health, social and economic consequences of illicit substance use, without requiring cessation or prescribing abstinence. Generally, harm reduction strategies aim to minimize the risk of contracting infectious diseases (including blood borne infection), overdose morbidity and mortality, and other consequences related to illicit substance use (46).

Safe injection sites (SISs) are a harm reduction strategy that is being explored and have been implemented in some jurisdictions in Canada. SISs provide a safe and hygienic environment for people to use pre-obtained substances in the presence of health care professionals, without the fear of arrest or accidental overdose (12). Despite the evidence citing the multiple benefits of SISs, resistance remains regarding their implementation.

This report summarizes the literature assessing the impact and effectiveness of SISs as a harm reduction strategy. The literature review was supplemented by the following questions:

- What is the landscape of safe injection sites in Canada?
- Are safe injection sites an effective harm reduction strategy to improve health outcomes for people who use substances?
- What impact, if any, do safe injection sites have on reducing barriers to accessing health and social services among people who use substances?
- What impact, if any, do safe injection sites have on the public?
- What are the perceptions of safe injection sites held by the public, police services and people who use substances?
- How cost effective are safe injection sites as a harm reduction strategy?

Key findings from International and Canadian literature suggest:

- SISs are successful in engaging high-risk and marginalized individuals who use substances, including regular and long-time users, individuals experiencing homelessness and those who were previously incarcerated (1, 12, 21, 29)
- SISs facilitate access to health and social services, reduce syringe sharing and public syringe disposal, as well as prevent on-site fatal overdoses (12, 27)
- People who use substances perceive SISs as a secure location in which to escape from many risks associated with public substance use, including fears of being caught by police, being physically assaulted or robbed (11, 14, 39, 40)
- The implementation of safe injection sites does not come without challenges. The application process to establish safe injection sites is lengthy and resource

intensive; and requires consultation of a wide range of stakeholders (e.g. the public, police, health and social services, and people who use substances) throughout the process.

## Abbreviations

<b>Name:</b>	
<b>BBI</b>	Blood-borne infection
<b>CDSA</b>	Controlled Drugs and Substances Act
<b>DTEs</b>	Downtown Eastside
<b>HIV</b>	Human immunodeficiency virus
<b>IDS</b>	Infectious Diseases, Dental and Sexual Health
<b>PWUS</b>	People who use substances
<b>MOHLTC</b>	Ministry of Health and Long-Term Care
<b>MSIC</b>	Medically Supervised Injection Centre
<b>NSP</b>	Needle Syringe Program
<b>OPHS</b>	Ontario Public Health Standards
<b>SHHR</b>	Sexual Health and Harm Reduction
<b>STI</b>	Sexually transmitted infection
<b>SIS</b>	Safe injection site
<b>SIF</b>	Supervised injection facility
<b>SSR</b>	Safe smoking rooms
<b>TOSCA</b>	Toronto Ottawa Supervised Injection Assessment
<b>WRIDS</b>	Waterloo Region Integrated Drug Strategy

## Table of Contents

<b>1.0 Background .....</b>	<b>9</b>
<b>2.0 Introduction .....</b>	<b>10</b>
<b>3.0 Methods .....</b>	<b>11</b>
<b>4.0 Results .....</b>	<b>14</b>
4.0.1 Summary of Findings .....	14
4.1 The Landscape of Safe Injection Sites in Canada .....	15
4.1.1. Insite, Vancouver, British Columbia .....	15
4.1.2 Dr. Peter Centre, Vancouver, British Columbia.....	16
4.1.3 Toronto, Ontario.....	17
4.1.4 Ottawa, Ontario.....	17
4.1.5 Montreal, Quebec .....	18
4.1.6 Additional Jurisdictions across Canada .....	18
4.2 Impact of safe injection sites on engaging high-risk drug users and improving health outcomes.....	19
4.2.2 Reduction in overdose fatalities .....	20
4.2.3 Reduction of high-risk behaviours that lead to HIV and hepatitis C infection .	21
4.2.4 Reduction of HIV and Hepatitis C cases.....	22
4.3 Impact of safe injection sites on reducing barriers to accessing health and social services.....	22
4.3.1 Access to General Health and Social Services.....	23
4.3.2 Access to Addiction Treatment and Detoxification Programs .....	23
4.4 Impact of safe injection sites on the public.....	24
4.4.1 Reduction of public drug use .....	25
4.4.2 Reduction in public disposal of injection equipment.....	25
4.4.3 Public Nuisance and Crime in areas surrounding the SIS .....	26
4.5 Perceptions of SIS among public, people who use drugs, and police services....	26
4.5.1 Public Perceptions of SIS .....	27
4.5.2 Police perceptions of safe injection sites .....	28
4.5.3 People Who Use Drugs' Perception of Safe Injection Sites.....	29
4.6 Cost Effectiveness of Safe Injection Sites.....	31

<b>5.0 Limitations .....</b>	<b>33</b>
<b>6.0 Summary .....</b>	<b>34</b>
<b>References .....</b>	<b>37</b>
<b>APPENDICES .....</b>	<b>42</b>
APPENDIX A: PICO (Person, Intervention, Comparison, Outcome) Search Strategy .....	42
APPENDIX B: Literature Review Critical Appraisal Tool .....	43
APPENDIX C: Literature review article summary sheet .....	45
APPENDIX D: Topics addressed by academic literature review articles .....	46

## Figures and Tables

Figure 1: Systematic selection process of academic articles ..... 12

Table 1: Grey literature search terms and results.....12

## 1.0 Background

Broadly defined, harm reduction refers to programs, policies and practices that aim to reduce the potentially adverse health, social and economic consequences of illicit drug use, without requiring cessation or prescribing abstinence (46). These approaches aim to minimize the risk of contracting blood-borne infections such as Hepatitis C and Human Immunodeficiency Virus (HIV), and to reduce the risk of overdose morbidity and mortality among people who use substances (33, 35). Requirements 11 and 12 of the Sexual Health, Sexually Transmitted Infections, and Blood-Borne Infections (including HIV) Standard of the Ontario Public Health Standards (OPHS) requires Public Health Units (PHUs) in Ontario to plan and implement harm reduction strategies, and to specifically:

- Engage community partners and priority populations in the planning, development, and implementation of harm reduction programming
- 1.
- Ensure access to a variety of harm reduction program delivery models which shall include the provision of sterile needles and syringes and may include other evidence-informed harm reduction strategies in response to local surveillance.

In order to meet the above requirements, the Sexual Health and Harm Reduction (SHHR) program in the Infectious Diseases, Dental and Sexual Health Division at ROWPHE offers a number of evidence-informed, harm reduction services to residents in the Waterloo Region in conjunction with community partners, including

- The Needle Syringe Program;
- The Naloxone Distribution Program;
- Condom distribution;
- Leading the Harm Reduction Coordinating Committee as part of the Waterloo Region Integrated Drugs Strategy;
- Participating on the Central West Hepatitis Network; and the
- Addition of a Social Determinants of Health Public Health Nurse with work focusing primarily on supporting harm reduction strategies.

Region of Waterloo Public Health is also a member of the Waterloo Region Integrated Drugs Strategy (WRIDS). The strategy is built on a four-pillared framework with harm reduction, along with prevention, treatment and enforcement as the four pillars. The collaborative work of WRIDS is considered key to managing drug-related issues in Waterloo Region (46).

## 2.0 Introduction

Illicit substance use is a growing public health concern both for people who use substances, as well as for their social and physical environments (32). It is associated with a number of health effects and the concern is amplified if one engages in unsafe practices, including sharing of drug paraphernalia or reusing equipment, which may lead to an increased risk for contracting blood-borne infections (BBI), such as Hepatitis C and HIV (1, 3, 24). Unsafe practices may also occur as a result of impaired judgment associated with substance use and may place people who use drugs at a higher risk for contracting sexually transmitted infections.

In addition to the numerous health effects associated with illicit drug use, people who use drugs are often stigmatized, isolated, and have difficulty accessing services or affordable housing. It is for this reason, often times, illicit drug use occurs in public settings, including alleys, streets, and parks. Using illicit drugs in public settings is said to further discourage safe and hygienic practices, and places users at increased risk of overdose and for contracting infection. Illicit drug use in public settings may also present problems for citizens who reside in areas where public drug use occurs, including unsafe disposal of drug use paraphernalia and increased social consequences such as violence, trafficking and crime (7, 12, 15, 32).

As a result, safe injection sites (SISs) have been integrated as part of broader harm reduction strategies in Europe, Australia, and recently, Canada to help reduce the harms associated with illicit and public drug use (1, 3, 12, 32, 40, 43). SISs aim to provide a safe and hygienic environment where people can utilize pre-obtained drugs in the presence of health-care professionals, without the fear of arrest or accidental overdose (1, 12, 32). While the type of drug utilized (i.e. injection or inhalation) within a SIS can vary, the most common type of SIS is a supervised injection facility (SIF), which is a controlled health care setting where drug users can inject personally acquired drugs under supervision (12). Similarly, supervised inhalation sites or safe smoking rooms (SSR) accommodate smoking of personally acquired drugs under medical supervision (7, 48).

While SIS are known by a number of names worldwide, including 'drug injection room', 'safe injection site', 'safe injection facility', 'supervised injection site', 'supervised injection facility', 'supervised injection service' and 'medically supervised injection centre' (32), for the purpose of this report, the term SIS will be utilized, unless referring to a specific type of site (i.e. SIF will be utilized when referring to supervised injection facilities, and SSRs will be utilized when referring to supervised smoking rooms or safe inhalation sites).

In addition to providing a supervised and secure place to utilize pre-obtained drugs, SIS may offer a range of services, including the provision of sterile injection/inhalation

supplies, education, overdose prevention and intervention, medical and counselling services and referral to social, health, and drug use treatment services (1, 12, 17, 21, 32). Typically, the main goals of safe injection sites include:

- To reduce the spread of infectious disease (i.e. HIV and Hepatitis C) (1,12, 48)
- To reduce overdose-related morbidities and mortalities (1,12, 48)
- To bring people who use drugs in contact with health and social services (1,12, 48)
- To reducing public/community issues (e.g. inappropriate disposal of injection-related equipment and public injection) (1,12, 48)

With over ninety SISs worldwide, numerous findings in International and Canadian literature to support their benefits and challenges (32, 48), as well as the mandate across Ontario Boards of Health to implement harm reduction activities, SISs continue to encounter significant resistance and controversy.

This literature review seeks to assess the effectiveness of SISs as a harm reduction strategy. The findings from the literature may help inform preliminary discussions regarding the positive and negative health and societal outcomes, if any, that would result from the implementation of a SIS in Waterloo Region.

The objective of this literature review was to consult academic and grey literature to answer the following research questions:

- What is the landscape of safe injection sites in Canada?
- Are safe injection sites an effective harm reduction strategy to improve health outcomes for people who use drugs?
- What impact, if any, do safe injection sites have on reducing barriers to accessing health and social services among people who use drugs?
- What do impact, if any, do safe injection sites have on the public?
- What are the perceptions of safe injection sites held by the public, police services and people who use drugs?
- How cost effective are safe injection sites as a harm reduction strategy?

### **3.0 Methods**

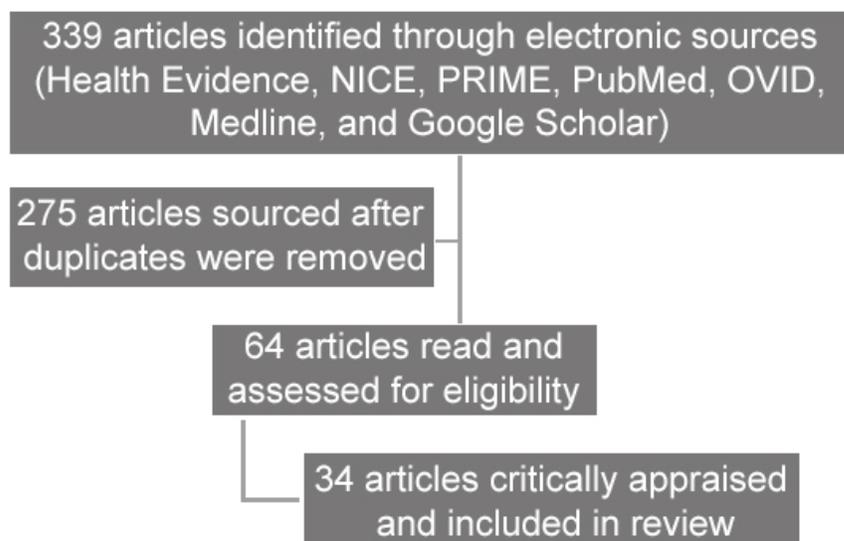
A search for relevant academic articles was conducted using the PICO (Person, Intervention, Comparison, Outcome) searching strategy in April 2016 (See Appendix A for the PICO tool). Research databases were searched according to the 6S Pyramid (National Collaborating Centre for Methods and Tools). Articles were identified using HealthEvidence, NICE, PRIME, PubMed, OVID Medline and Google Scholar.

To avoid selection bias, a wide range of terms to describe safe injection sites was utilized. The search strategy utilized the following terms/keywords: (“Safe injection” OR

supervised inject\* OR “safe injection” OR “supervised injection” OR “needle exchange” OR “syringe exchange” OR “drug injection”) AND (site\* OR facility\* OR program\* OR room\* OR service\*)) OR “needle and syringe programs” OR needle-exchange programs.

The following inclusion criteria was applied to all articles: articles in published in the English language; articles published after 2000; interventions taking place in North America, Europe and Australia; systematic reviews, meta-analyses, quasi-experimental and experimental interventions. Articles were excluded from the review if they were published before 2000; if they were opinion articles or letters to the editor; if the studies did not directly examine the effectiveness (or non-effectiveness) of safe-injection sites (i.e., needle exchange programs, methadone clinics).

In total, 275 abstracts of articles that appeared to be relevant to the research question were flagged and screened. Of those, 64 articles were read and assessed for eligibility. A remaining 34 articles were critically appraised and included in the review, using the Critical Appraisal tool. The tool contained a number of questions for the reviewer to consider when deciding whether to include or exclude the article from the literature review (See Appendix B). Articles appraised to be included in the review were summarized using the article summary sheet in Appendix C.



**Figure 1: Systematic selection process of academic articles**

Articles not published in peer-reviewed journals and reports (grey literature) related to SISs were found by searching through the Public Health Agency of Canada’s Best Practice Portal and the grey literature repository developed by the Ontario Public Health Libraries Association. Lastly, articles were hand searched through the Google search engine. Table 2 outlines the grey literature search terms and results.

**Table 1: Grey literature search terms and results**

<b>Source</b>	<b>Search terms</b>	<b>Results</b>
Google Custom Search Engine for Ontario Public Health Unit Websites (Ontario Public Health Libraries Association)	Supervised injection site, safe injection site, surprised injection site, supervised injection facility	3
Canadian Best Practices Portal (Public Health Agency of Canada)	Supervised injection site, safe injection site, surprised injection site, supervised injection facility	0
Google and Google Scholar hand search	Supervised injection site, safe injection site, surprised injection site, supervised injection facility	12
<b>Total articles found</b>		<b>15</b>
<b>Total articles appraised to be included in review</b>		<b>15</b>

## 4.0 Results

A total of 49 articles were included in the review; 34 were academic articles and 15 were grey literature sources. Appendix D lists the final selection of articles as well as the overarching themes addressed by each article. These themes include:

- The landscape of safe injection site in Canada;
- The characteristics of SIS users and ability of SIS to engage high-risk individuals;
- The impact of SIS on overdose morbidity and mortality;
- The impact of SIS on high-risk injection behaviours (including equipment sharing and unsafe injection practices);
- The impact of SIS on the public;
- The perceptions of people who use drugs on SIS;
- The perceptions of local police on SIS;
- The perception of the public on SIS; and
- The cost-effectiveness of SIS.

Of the 34 academic articles, 25 specifically discussed supervised injection facilities, six discussed safe injection sites in general, and three specifically discussed supervised inhalation sites. Approximately 43 per cent of articles were based on findings from Vancouver's Insite, 14 per cent from SIS in Australia, and 11 per cent from SIS in Europe. Three of the 28 articles were systematic reviews.

### 4.0.1 Summary of Findings

Overall, the literature suggests that the interest in SIS as a harm reduction strategy in Canada has grown since the opening of Insite in Vancouver in 2003. Many jurisdictions nationwide are in the process of exploring and assessing feasibility or in the planning stages for implementation of a SIS to address the concerns associated with illicit drug use within their communities. Furthermore, both international and Canadian research suggests that SIS are successful at engaging high-risk and marginalized individuals who use drugs, including those who are regular and long-time injectors, individuals who have experienced a recent overdose, sex workers, individuals who were previously incarcerated, and individuals experiencing homelessness or housing insecurity (1, 2, 3, 7, 12, 24, 47).

The literature consistently described additional benefits of SIS, including facilitating access to health and social services, reduction of syringe sharing and public syringe disposal, as well as prevention of fatal overdoses (24, 25, 28, 32, 41). The research also demonstrates that people who use drugs perceive SIS as secure location in which to escape from the multiple risk factors associated with public drug use, including fears of being caught by police, being physically assaulted or robbed, as well as unsafe and

unhygienic injecting practices (24, 32, 37). Conversely, police services do not seem to be as strongly in favour of implementing SIS and perceive that SIS may further encourage the use of illicit drug use, thereby increasing the rate of crime and disruption in surrounding areas (6, 13, 47). Research conducted on understanding public perceptions regarding implementation of SIS has demonstrated that in general, public knowledge is lacking regarding the benefits of both harm reduction and safe injection sites (1, 10, 33).

While the benefits are well-cited, the literature also suggests that the implementation of SIS does not come without limitations or challenges. Firstly, the legislative barriers to implementing a SIS in Canada provide challenges for jurisdictions to move forward with the planning process. Furthermore, planning for a SIS includes ensuring that a wide range of stakeholders, including the public, police services, health and social services, community organizations and illicit drug users themselves, are consulted throughout every stage, including feasibility assessments and design considerations (38, 40, 47, 48). Lastly, local context must be accounted for and understood prior to applying research findings and considering implementation in one's jurisdiction (1, 32).

#### **4.1 The Landscape of Safe Injection Sites in Canada**

To operate legally in Canada, SIS require an exemption under Section 56 of the *Controlled Drugs and Substances Act (CDSA)*. These exemptions are granted by the federal Minister of Health. For jurisdictions interested in seeking a *Section 56* exemption, the *Respect for Communities Act*, passed in 2015, outlines the process and criteria for applicants (12, 13, 43). Currently, in Canada, there are two supervised injection sites in Vancouver and additional supervised injection sites being planned in Toronto and proposed in Montreal and Ottawa. To date, there are no sanctioned SIS in Canada where clients can consume inhalation drugs (i.e. supervised inhalation sites or safe smoking rooms) (1, 7, 40).

##### **4.1.1. Insite, Vancouver, British Columbia**

Insite was the first supervised injection site in Vancouver and began as a pilot project in 2003 when permission was granted to the Vancouver Coastal Health Authority, under Section 56 of the CDSA to serve injection drug users who reside in or frequently use the Downtown Eastside (DTES) neighborhood. Similar to the Waterloo Region Integrated Drug Strategy, harm reduction is one component of the City of Vancouver's "four pillars" approach to drug use, with Insite addressing the harm reduction pillar. Insite's objectives include (12):

- To increase access to health and addiction care;
- To reduce overdose fatalities;

- To reduce transmission of blood-borne viral infections like HIV and hepatitis C;
- Reduce other-injection related infections such as skin abscesses; and
- Improving public order.

The Downtown Eastside is an area characterized by low-to-moderate-income residents and is home to many vulnerable groups, including drug users, homeless, and sex workers (5). Public self-injection, open drug dealing and prostitution are commonly observed in the area (11). In addition, the prevalence of HIV and hepatitis C infection is amongst the highest for injection drug users in Canada (17 per cent to 31 per cent and 63 to 92 percent, respectively) (12).

With thirteen injection booths, Insite operates as a SIS that provides people who use drugs an area to inject pre-obtained drugs under the supervision of registered nurses and health care staff. Insite also provides clients with sterile injection equipment, including syringes, cookers, filters, water and tourniquets (12). In addition to this, Insite provides clients with access to social workers, doctors, and an onsite detoxification centre which is located directly above the facility (44). Insite has been rigorously evaluated since it opened to assess impact on overdose fatalities, health outcomes, appropriate use of health and social services, and costs for health, social, legal and incarceration associated with injection drug use (44, 45). More than 60 peer-reviewed studies report on the aforementioned outcomes (44), thus, many of the findings reported in this literature review reflect findings from Insite.

To date, Vancouver Coastal Health reports there have been over 18,000 registrants at Insite with more than 3.4 million visits. There have been over 40,200 clinical treatment visits and more than 4,900 overdose interventions without any deaths. In 2015, Insite received an average of 722 visits per day, with an average of 440 injection room visits per day and over 5,300 referrals to social and health services (45).

#### **4.1.2 Dr. Peter Centre, Vancouver, British Columbia**

The Dr. Peter Centre, a HIV/AIDS day health program, which also provides 24-hour nursing care residence in Vancouver, is the second of two supervised injection sites in Canada. The Dr. Peter Centre has been operating an unsanctioned safe injection since 2002, with harm reduction being a key component of its' operational model (9, 10). In 2014, the Dr. Peter Centre, in partnership with Vancouver Coastal Health applied for an exemption under the CDSA and received approval from the federal government in 2016 (9). The Dr. Peter Centre provides a wide array of harm reduction services in addition to the SIS, including needle exchange, distribution of condoms, sexual health education, and safe money storage for clients who feel triggered by carrying cash with them. According to the Dr. Peter Centre, since its opening, there have been no fatal overdoses and over 15,000 injections on site (10).

### **4.1.3 Toronto, Ontario**

Toronto, Ontario is said to have the largest number of people who use drugs in Ontario, but unlike Vancouver, drug use is dispersed and not concentrated in one area (1). Using multiple research methods, including interviews and focus groups, survey data, geographic analysis and mathematical modelling, the 2012 Toronto and Ottawa Supervised Injection Assessment (TOSCA) study recommended that Toronto would benefit from the implementation of three SISs, integrated into existing health services that serve people who use drugs. These recommendations and projections were based on a number of considerations, including the number of people who use drugs in Toronto, their geographic location, the projected use of SIS, the demonstrated outcomes of other supervised injection facilities, and the projected long-term costs and health benefits including the prevention of HIV and Hepatitis C infections (1).

In 2013, following the release of the TOSCA report, the City of Toronto Board of Health approved a recommendation from the Medical Officer of Health regarding the implementation of the integrated safe injection facility model in Toronto (42). In July 2016, the Toronto City Council provided support to the Board of Health recommendations for opening three SISs (43). As a result, three health service organizations are in the planning stages to integrate small scale safe injection services into their clinical services. The selected organizations serve large volumes of clients who inject drugs and engage in associated risky behaviors, including frequent and public injection, with high incidences of overdose. They are well known in their communities for delivering harm reduction programs and services to people who use drugs. The three organizations, Toronto Public Health, Queen West-Central Community Health Centre, and South Riverdale Community Health Centre are dispersed across the city to accommodate the diffused concentration of drug use (42).

### **4.1.4 Ottawa, Ontario**

Ottawa, Ontario has the highest incidence of HIV infections among people who inject drugs in Ontario (1). In addition to Toronto, the TOSCA study (2012) assessed whether Ottawa was in need of a SIS. Through the study, researchers found that in Ottawa, 14 per cent of people who inject drugs reported using needles that had already been used by someone else. Sharing used inhalation equipment was also common, with 71 per cent of people who use drugs reporting sharing (1, 19). Researchers projected that Ottawa would benefit from the implementation of two SISs, located in different locations to address concentrated drug use in a few distinct neighborhoods in Ottawa. Further, the TOSCA study recommended that the optimal model for the SIS in Ottawa is one which is integrated within an existing organization, which offers health and social services to people who use drugs (1). A cost effectiveness analysis of the proposed

SISs conducted after the TOSCA study found that SISs are a cost-effective harm reduction strategy when considering the prevention of new HIV and Hepatitis C infections (19).

Following the release of the TOSCA report, the Sandy Hill Community Health Centre explored its first motion regarding the integration of SIS services at its centre. The Sandy Hill Community Health Centre has an existing and extensive harm reduction supply distribution service, providing over 95,000 syringes to 700 people who inject drugs and approximately 22,000 glass stems to over 1,100 people who smoke crack, annually (37). The Sandy Hill Community Health Centre would therefore be an appropriate setting in which to integrate a SIS facility in Ottawa. Following numerous consultations, the Sandy Hill Community Health Centre brought forward an application for a *Section 56* exemption, which was approved by the Ottawa Board of Health in June 2016 (37). Ottawa is still awaiting approval from the Federal Government regarding implementation.

#### **4.1.5 Montreal, Quebec**

The city of Montreal conducted a feasibility study regarding SIS beginning in 2011 due to the growing number of HIV and Hepatitis C infections and fatal overdoses among injection drug users in the city (23). Based on the findings of the feasibility assessment, the Director of Public Health in Montreal proposed an integrated model for SISs, which would involve adding SISs to existing community services that work with injection drug users (23). The proposal also recommended three fixed services, which would be implemented across three specified neighbourhoods, as well as one mobile unit over three years (23, 38). Lastly, the recommendations included the development of an integrated SIS network, a regional team dedicated solely to SIS planning, comprised of physicians and nurses, as well as that community organizations being instrumental in SIF implementation (23). This led to an application for a *Section 56* exemption, but similar to Toronto, Montreal has yet to receive approval from the federal government (38).

#### **4.1.6 Additional Jurisdictions across Canada**

Additional cities across Canada, including Hamilton, Thunder Bay, London, Alberta and Victoria are said to be exploring the need and feasibility for safe injection sites in their jurisdictions.

## **4.2 Impact of safe injection sites on engaging high-risk drug users and improving health outcomes**

When searching academic and grey literature for the impact of safe injection sites on improving health outcomes, three specific themes were uncovered: the impact of SIS on engaging high risk drug users; the impact of SIS on reducing overdose fatalities; and the impact of SIS on reducing risk-taking behaviours. The following section describes the findings from the literature, incorporating examples from both Canadian and International studies to support the aforementioned themes.

### **4.2.1 The ability of SIS to engage high-risk drug users**

A total of nine articles described the potential for safe injection sites to engage high-risk individuals (1, 2, 12, 21, 22, 26, 50). Both Canadian and International studies report that SIS have the ability to attract and engage high-risk drug users, including:

- the most marginalized people who use drugs (2, 26),
- those who experience frequent housing insecurity and/or unemployment,
- And individuals who are lacking care or who do not access the health care system (31).

Clients of SIS have been cited as regular injection drug users, as well as having greater susceptibility for being infected with HIV or other blood-borne viruses, included hepatitis C (2, 12, 21, 29, 51). Additional user characteristics of SIS include previous overdose, previous incarceration and involvement in sex trade (12, 21, 29).

According to a cohort study conducted by Wood and colleagues (2005), Insite users were more likely to be male, less than 30 years of age (OR = 1.6, 95% CI = 1.0-2.7), public injection drug users (OR =2.6, 95% CI = 1.7-3.9,  $p < 0.001$ ), homeless or unstably housed (OR = 1.7, 95% CI = 1.2-2.7,  $p = 0.0008$ ), daily users of cocaine (OR=1.6, 95% CI = 1.1-2.5,  $p = 0.0025$ ) or heroin (OR=2.1, 95%CI= 1.3-3.2,  $p = 0.001$ ), and those who had recently experienced a nonfatal overdose (OR=2.7, 95%CI = 1.2-6.1,  $p = 0.0016$ ). A study examining the characteristics of clients who regularly visited the Medically Supervised Injecting Centre in Kings Cross, Australia found similar findings in that that clients were mostly male (73 per cent), an average age of 31 years, and had been injecting for 12 years. Almost half of the clients (44 per cent) reported a previous non-fatal heroin overdose (29).

McNeil and colleagues (2015) conducted an ethnographic study to assess the role of safe smoking rooms (SSR) on crack smoking practices and exposure to harm. Similar to the SIS findings, the researchers found that SSRs have the potential to engage those who are socially marginalized, those who engage in high-risk behaviours, including

crack pipe sharing and groups vulnerable to poor health outcomes, including sex workers and those experiencing housing insecurity or homelessness (26).

#### **4.2.2 Reduction in overdose fatalities**

Four articles evaluated whether SIS reduced the risk of overdose fatalities among clients. Across all studies, no overdose fatalities were reported within the SIS being evaluated (12, 20 25, 29). Similar findings were echoed across the systematic review conducted by Potier and colleagues (32). A review conducted by Ritter and Camber (2006) reported that SISs were successfully able to manage a number of non-fatal overdoses globally (35). Likewise, an evaluation commissioned by the Expert Advisory Committee assessing the impacts of Insite found that Insite staff had successfully intervened in over 336 overdose events over a two year study period, with zero overdose deaths occurring at the site (12).

A retrospective, population-based study published in *The Lancet*, which sought to assess drug-related overdose mortality rates before and after the establishment of Insite found a 35 per cent reduction in fatal overdose rates within a 500 metre radius of Insite, after the opening of Insite. This 35 per cent reduction of overdose in the SIS area was considered significant, compared to the 9 per cent decline in the remainder of the city. Utilizing objective outcomes as opposed to self-report data, this study was unique at the time of publishing (24). According to Marshall and colleagues (2011), these findings were also consistent with studies conducted on international SIFs in Germany and Australia.

On an international scale, Kimber and colleagues (2005) conducted 60-item survey of SISs across Netherlands, Spain, Switzerland and Germany to understand service delivery and perceived impacts of SISs. According to survey respondents, majority felt that their SISs had contributed to a reduction in overdose deaths. While there is no evidence to suggest that there was a reduction in overdose deaths, no fatal overdoses were reported at any of the surveyed SISs (21).

Similarly, an evaluation of the Medically Supervised Injection Centre (MSIC) in Sydney, Australia found that the number of opioid-overdose related ambulance calls decreased in the Kings Cross area and across New South Wales, following the opening of the MSIC (28). The evaluation also estimated that the MSIC staff prevented at least four deaths per year through clinical intervention and management of overdoses within the centre (29). Limitations associated with the evaluation suggest that it is not possible to distinguish the role of the MSIC in reducing ambulance calls, as the availability of heroin at the time of the evaluation had also notably decreased, thereby potentially influencing the number of over-dose related phone calls.

### **4.2.3 Reduction of high-risk behaviours that lead to HIV and hepatitis C infection**

Engaging in syringe sharing and other unsafe injecting practices is cited as a risk factor for contracting blood borne infections (BBI), such as human immunodeficiency virus (HIV) and Hepatitis C (24, 36). Canadian and International evaluations have demonstrated that SIS contribute to the reduction of high-risk behaviours that accompany drug use, such as needle sharing and unhygienic injection practices (1, 12, 24, 36, 41).

#### **a) Syringe sharing**

Overall, the research suggests that frequent and regular users of a SIS results in the reduction of syringe sharing behaviours (2, 22, 32). A systematic review conducted by Potier and colleagues (2014) uncovered eight studies which addressed the reduction of sharing needles during injection. The systematic review reported that regular use of SIS is associated with decreased syringe sharing, syringe reuse and public injection. This was supported by a study conducted by Kerr et al. (2005) which found that regular use of SIS in Vancouver was associated with decreased syringe sharing (AOR = 0.30, 95% CI = 0.11-0.82) and a study conducted by Milloy & Wood (2009), which suggested that the frequent use of SIS was associated with a 69 per cent reduction in the likelihood of syringe sharing.

Internationally, Kinnard and colleagues (2014) conducted a study with people who use drugs (n = 41) to assess self-reported changes in drug use behaviours, including unsafe injection practices, following the opening of a SIS in Copenhagen, Denmark. The cross-sectional study found that 75.6 per cent of participants reported reductions in high-risk injection behaviours since the opening of the SIS, including injecting in a less rushed manner (65.9 per cent), fewer public injections (56.1 per cent), reduced syringe sharing (53.7 per cent) and cleaning injection sites more frequently (43.9 per cent). While this study only assessed the short term effect of the SIS, these preliminary findings suggest that initial uptake of the SIS in Denmark had positive effects on unsafe injection practices (22).

#### **b) Other unsafe injection practices**

Injection drug users are vulnerable to injecting-related harms, which can be caused by the process of injecting, frequency of injecting, type of substance injected and the setting in which the injection occurs (36). Public settings increase the likelihood of sharing injection equipment, the risk of contamination, and can result in reduction of hygiene practices due to the fear of being persecuted (36). Furthermore, research shows that drug users who inject in public regularly are at an increased risk for injection-related vein damage and abscesses (35, 38). Injecting-related problems include difficulties finding a vein, scarring or bruising and swelling of hands and feet. Injecting-

related injury and disease includes abscess or skin infection, thrombo, septicaemia and endocarditis (36).

The predictors of injecting-related problems or injuries/diseases include frequency and duration of injecting, sharing of needles and syringes and location of injection (35). Salmon and colleagues (2009) found in a sample of 10,000 individuals, who inject drugs, 29 per cent reported a life time history of injecting-related problems or injecting-related injury and disease. It was found that females, drug users who injected heroin and those who reported a history of drug treatment, overdose and/or sex work were more likely to report a lifetime of injury.

SIS contribute to a reduction in injecting-related problems and injection-related injuries/mortality, as they provide access to sanitary injection equipment, medical treatment and education/awareness raising (12, 32, 36). SIS have also been cited as a facilitator of safer injection practices as it reduces the risks of rushed drug injection due to fears of prosecution (41). Stoltz and colleagues (2007) reported that people who use Insite were 3 times more likely to use sterile water, 2.8 times more likely to clean their injection site before injecting and 2.8 times more likely not to rush through the injection practices (41).

#### **4.2.4 Reduction of HIV and Hepatitis C cases**

The evidence pertaining to the reduction or prevention of HIV/hepatitis C cases due to safe injection sites is limited with no findings that directly attribute the use of SIS to reduced viral transmission (12, 24, 32). A systematic review assessing the effectiveness of harm reduction interventions to prevent HIV and hepatitis C in people who inject drugs found insufficient evidence on the impact of SISs on hepatitis C /HIV incidence (23). Instead, MacArthur and colleagues (2014) found that needle exchange programs, rather than SIS can help reduce the prevalence of hepatitis C. There is a need for more research on SISs and HIV/hepatitis C transmission in people who inject drugs.

#### **4.3 Impact of safe injection sites on reducing barriers to accessing health and social services**

When considering the implementation of harm reduction initiatives, specifically SIS, one area to consider is whether the implementation would impact or improve illicit drug users' access to health care services. Illicit drug users often experience barriers to accessing health care and social services due to stigma and discrimination and lack of personal support, coordination, and competencies of health care providers when providing care to people who use drugs (16, 41). This combined with long wait times, limited hours of operation and lack of knowledge regarding available services can further impact access to care. Drug dependency can contribute to delays in seeking

treatment, as acquiring or consuming drugs may be seen as a greater priority (41). As a result, many illicit drug users may end up relying on emergency or other acute services (27, 41).

#### **4.3.1 Access to General Health and Social Services**

Findings from the literature suggest that SIS attendance is associated with an increase in access to a variety of health and social services, including referrals to addiction treatment centres, initiation of detoxification programs or methadone therapy (32, 41). However, the literature presents mixed findings regarding reducing barriers to services among the most vulnerable or marginalized groups. That is, while SIS have the ability to connect people who use drugs to health and social services, the most vulnerable or marginalized groups may still be excluded (27). Furthermore, access to services is often associated with wait times, which often present barriers to acquiring care when needed (12, 27).

Small and colleagues (2009) conducted semi-structured qualitative interviews with 50 injection drug users accessing Insite to understand their perspectives on SIF use and access to health and social services. The interviews suggested that Insite facilitates access to health care services by providing non-judgmental treatment during service provision, access to integrated services in one location, availability to on-site care for abscesses and other injection-related infections and referrals for external services. Furthermore, Insite was said to improve access to counselling and social services onsite and offsite (41). According to Health Canada (2008), Insite also helped to facilitate the immunization of injection drug users in the DTES during an outbreak of pneumococcal pneumonia in 2006, a group which would otherwise be hard to engage, reach and immunize (12).

A rapid review conducted by the Ontario HIV Treatment Network found that SIS clients accessed other services provided at the SIS, including care for abscesses and injection-related wounds and that SISs assisted with access to transportation to off-site health and social services and psychosocial support (34). This was echoed internationally with approximately one in four MSIC clients reported to have received health care services, such as injecting and vein-care advice, in addition to supervised injection support (29).

#### **4.3.2 Access to Addiction Treatment and Detoxification Programs**

The impact of SIS on improving access to addiction treatment programs was studied in four articles uncovered in the literature search: three studies from Vancouver's Insite and one from Sydney, Australia. Research suggested that using a SIS resulted in an increased likelihood for beginning treatment for drug dependence (29) and detoxification

services (51). Clients who accessed the MSIC in Sydney, were more likely than non-clients to report that they started treatment for drug dependence. Wood and colleagues (2007) found that among 1,031 injection drug users, attendance at Insite was significantly associated with an increase in the uptake of detoxification services (OR = 1.32, 95% CI = 1.11 – 1.58) the year after the SIS opened. The detoxification service use was associated independently with increased rates of methadone initiation and increased addiction treatment access (51).

Conversely, a study assessing access to addiction treatment among injection drug users (n = 889) recruited from Insite found that approximately, 30 per cent of participants reported being unable to access addiction treatment over a 2 year period between 2004 and 2006. Being unable to access treatment was independently associated with recent incarceration, daily use of heroin, homelessness, binge drug use and the use of borrowed syringes. Majority of respondents indicated that the reason for being unable to access addiction treatment was due to waiting lists (27). The findings of this study demonstrate that despite the previous evidence that SIS facilitate access to services (29, 51), there remains high-risk groups of IDU who face challenges or encounter barriers in accessing addiction treatment. The authors suggest that this can be augmented by implementing and expanding “low-threshold”, “low-barrier” treatment programs (27).

#### **4.4 Impact of safe injection sites on the public**

Critics perceive that SIS facilitate drug use and that the implementation of SIS would result in increases in crime rates, drug trafficking, and loitering in neighbourhoods where they are located in (29, 30, 41). Research suggests that generally, SIS do not result in disruptions in public order or safety in the neighbourhoods or communities in which they are located (12, 32, 34). It is further shown that SIS have resulted in reduction of public drug use and inappropriate disposal of drug-related paraphernalia, specifically injection equipment (12, 32, 34).

#### **4.4.1 Reduction of public drug use**

The risks associated with public drug use are vast and present individual health, social, and legal implications, as well as implications for the community as a whole. That is, people who inject in public are more likely than those who inject in private residences to share drug equipment, leading to increased risk of contracting blood borne disease, such as hepatitis C and HIV (29). Public drug use also exposes drug users to the risk of being found by law enforcement personnel and is more likely to lead to rushed and unhygienic injection practices due to fear of getting caught (26, 29). Using drugs in public places poses a social risk to drug users, as there is the chance of getting robbed or assaulted. Public drug use also impacts public safety due to exposure to equipment that has been inappropriately disposed. Despite the critiques, national and international evidence suggests that SIS have been found as a solution to the aforementioned risks associated with public drug use both to drug users and the community (12, 29).

Safe Injection Sites in Vancouver and Sydney have been found to reduce the frequency of public injection (12, 29, 41, 49) in the surrounding areas. These findings were based on self report (41), discussions with residents and business operators (29), and measuring of publicly discarded equipment (49). Wood and colleagues (2004) compared the number of injection-related public order problems that occurred 6 weeks before and 12 weeks after the opening of Insite. They found that the opening of Insite was associated with a reduction in the number of people injecting in public ( $p < 0.0001$ ) (48). Similarly, subsequent to the opening of the SIS in Sydney, Australia, fewer episodes of public injection were reported by local residents and business owners (i.e. in 2002 vs. 2000) (29). These findings are echoed by McNeil et al. (2015) who found that an unsanctioned safe smoking room resulted in decreases in crack smoking in public settings, such as alleyways, parks, and empty buildings (26). It is important to note that despite the ability of SIS to reduce the rates of public self-injection or public crack smoking, the capacity and size of SIS may not accommodate all drug use that would otherwise occur in public settings (12).

#### **4.4.2 Reduction in public disposal of injection equipment**

In addition to the reduction of public drug use, the literature suggests that implementation of SIS are associated with a reduction in public disposal of drug-related equipment. According to Wood and colleagues (2004), the volume of injection-related equipment and debris, including discarded syringes, decreased in the areas surrounding Insite within 12 weeks after opening. The researchers found that opening of Insite was independently associated with the number of publicly discarded syringes and injection-related litter ( $p < 0.0001$ ) (49). This was supported by Stoltz et al. (2007) who

found that attendance at Insite was associated a self-reported reduction in syringe dropping (41).

On an international level, counts of public syringes in the surrounding area of the supervised injection facility in Sydney, Australia were found to be lower following the opening of the SIS (29). Furthermore, Kinnard et al. (2014) found that 58.5 per cent of people who used the Copenhagen SIS reported changing their syringe disposal practices since its' opening and of those who reported changing their disposal practices, 95.8 per cent reported changing from not always disposing safely to always disposing safely ( $p < 0.001$ ). These initial findings suggest that the Copenhagen SIS is associated with the adoption of safer behaviors which benefit the neighborhood in which it was implemented (22).

#### **4.4.3 Public Nuisance and Crime in areas surrounding the SIS**

One critique of SIS implementation is the suggestion that it will encourage or increase public nuisance and crime, including drug-related loitering, drug trafficking or crime in areas surrounding the SIS (40, 47). This sentiment is often echoed both by the public and police services when opposing SIS implementation. Despite this critique, the evidence suggests that SIS do not result in increases in crime, loitering, violence or drug trafficking (12, 32, 49). The evaluation of the supervised injection facility in Sydney, Australia found no evidence to suggest that the opening of the facility increased the number of theft and robbery incidents in the surrounding area (29). A study conducted by Wood et al. reported that since the opening of Insite, there has been no significant increase in drug related crimes (49). Similarly, Boyd and colleagues analyzed Vancouver City Police dispatch data and found no increases in violent crime, drug crime, or property crime following Insite's opening (42).

This evidence was not supported in the survey conducted by Kimber and colleagues (2005), where six of 39 respondents reported an increase in drug dealing within the vicinity of their SIS. Three of these respondents also reported increases in petty crime in the area and aggressive incidents outside the SIS. These findings should be interpreted with caution as the authors did not provide further detail on these accounts, nor quantitative figures to support the increase (21).

#### **4.5 Perceptions of SIS among public, people who use drugs, and police services**

Support for implementation of SIS should be found among community stakeholders, including the public, service providers, police services, and people who use drugs. The literature, both grey and academic, emphasizes that consultations with the community, service providers, and people who use drugs should play a major role of the planning

process. Open communication and the ability to address any concerns related to the implementation of SIS within communities is important.

#### 4.5.1 Public Perceptions of SIS

Understanding public perceptions and public knowledge regarding SIS is imperative as it identifies gaps in knowledge and factors that may influence public support towards harm reduction efforts (11). Furthermore, stakeholder consultation is a requirement for any application for an exemption under *Section 56* for implementing new SIFs in Canada (40).

A rapid review conducted to assess public perceptions of harm reduction efforts by the Ontario HIV Treatment Network (OHTN) in 2012 indicated both positive and negative public views regarding harm reduction programs, including SIS. Common negative perceptions of harm reduction interventions included that these programs promote drug use, attract more people who use drugs to the surrounding neighbourhood, and negatively impact communities in which they are located. This article, written from a Canadian perspective, indicated that greater public education is needed, including endorsement from public figures or organizations (33). In order to change negative perceptions, the review provided six recommendations:

- Make injection drug use a public problem
- Ensure the public supporting harm reduction is not equal to condoning or promoting drug addiction
- Elicit public endorsement from respected local people and groups (including politicians, bureaucrats, academics, medical or human-rights based organizations)
- Fend off bad press and watch out for negative portrayals in the media
- Claim the moral high ground – Arguments for harm reduction should include scientific and public health evidence but should also be supplemented by human rights context
- Humanize – Efforts should be made to reduce the gap between people who use drugs/individuals who would benefit from harm reduction programs (“them”) and the remainder of the public (“us”)

Firestone Cruz et al. (2006) assessed public opinions in Ontario regarding SIS. The study, which was conducted in 2003, found that 60 per cent of the sample (n=2,411) agreed that SIS should be made available to injection drug users. Variables which were significantly associated with positive perceptions toward SIS included higher education, use of cocaine or cannabis within the last 12 months, being in favour of cannabis

decriminalization, support of needle exchange programs in prison, viewing illicit drug users as “ill”, and agreement that drug users are in need of public support (10). The TOSCA study found that Ontarians were more likely to agree with implementing an SIS if the goals were described as reducing negative health consequences, increasing contact with service providers or reducing community-related drug problems (1).

Strike and colleagues (2016) sought to assess public opinions about supervised smoking facilities (for crack cocaine and other stimulants). Utilizing data from a 2009 telephone survey of English and French speaking adults in Ontario, the researchers found that significantly fewer participants were knowledgeable about supervised smoking facilities (17.9 per cent) than supervised injection facilities (57.6 per cent) (n=1,035). Fewer participants strongly agreed with the implementation of Supervised Smoking Facilities (19.6 per cent) versus SIS (28.3 per cent). Awareness regarding Supervised Smoking Facilities was associated with higher education, male sex and older age (40). This suggests a lack of public knowledge and an area which needs refinement, when considering stakeholder input regarding implementation (1).

#### **4.5.2 Police perceptions of safe injection sites**

Police are important stakeholders and partners to consider when implementing a SIS (6, 13, 47). While findings regarding police acceptability of harm reduction strategies, including safe injection sites are mixed in the literature, it is imperative that there is support for SIS among law enforcement personnel. People who use drugs may be less willing to use harm reduction services if they perceive that this may expose them to police scrutiny (47).

A qualitative study conducted by Watson and colleagues (2012) explored police perceptions, attitudes, beliefs and values of police in Ottawa and Toronto towards SIS. Data was collected through interviews and focus groups between 2008 and 2010. Findings suggested that police in Toronto and Ottawa (n=18) had an overall negative attitude towards drug users, with the majority not considering harm reduction, including SIS, as an effective response to drug use. In addition to the small sample size of the study, social desirability bias and the political climate at the time of data collection may have influenced findings, thereby impacting generalizability of these results (47).

Furthermore, according to a report produced by the Ontario Association of Chiefs of Police (OACP), the positive effects of SIS are debatable and specifically, the benefits cited from the opening of Insite should not be utilized as a rationale for implementation of SIS in Ontario (30). The report concluded by stating that the OACP does not support the establishment or operation of SIS in Ontario. This was reinforced by critiques of limitations of academic literature, as well as a statement that Insite has done little to reduce crime in the Downtown Eastside in Vancouver. The paper held the position that

if Insite continues to encourage practices that lead to addiction, it will continue to attract people who use drugs into the area, resulting in an increase in local crime (30).

Alternatively, a study assessing police and public health partnerships at the Insite facility sought to determine whether local police impact the utilization of SIS (6). Researchers found that local police facilitated the use of the SIS, especially among high-risk populations, such as sex workers and daily cocaine injectors or when they witnessed unsafe syringe disposal. Approximately 16 per cent of SIS clients surveyed (n=1,090) reported that they had first learned about the SIS through police (6). These findings suggest that local police play a role in facilitating the use of SIS and that police partnerships have played a positive role in Insite's harm reduction efforts by engaging high-risk injection drug users. This also emphasizes the importance and value of coordinating efforts with police and public health.

#### **4.5.3 People Who Use Drugs' Perception of Safe Injection Sites**

It is equally important to understand attitudes of people who use drugs about SIS. Seeking the opinions of drug users, including acceptability and preferences have been cited as an essential component in planning for the implementation of SIS (1, 11, 12, 13, 26, 48). A study conducted in British Columbia explored the experiences of people who use drugs and the potential of expanding Insite across the province. Through semi-structured interviews with drug users, the researchers found that their perceptions of Insite were positive. The study reported Insite served as a "refugee camp" for people who use drugs, by providing them with a safe place to escape the theft, violence, and/or murder that they would normally be exposed to on the streets of the Downtown Eastside. Furthermore, the participants felt that Insite led to a "cultural transformation" in the Downtown Eastside and neighbouring communities, by providing opportunities to be more active in their community (18).

##### **a) Willingness to use a Safe Injection Site**

Overall, findings suggest that people who use drugs indicate a strong inclination and willingness to use a SIS, if it is available to them (11, 14, 40, 41). Willingness to use a SIS was found to be positively associated with individuals who identify as "public injectors" (11, 14).

A study by Hunt et al. (2007) assessed the willingness to use a SIS among needle exchange program attendees in the United Kingdom. It was found that 84 per cent of participants (n= 301) reported willingness to use a SIS if it was available (14), with public injectors showing an increased interest towards using the SIS. Participants also

indicated a preference for having safe injection sites located closer to drug markets or their place of residence (14).

Green and colleagues (2004) assessed the intention and willingness of Montreal residents who inject drugs to use an SIS within their city. The study found most (76 per cent) were willing to use at least one of three proposed SIS models. Predictors of SIS acceptability included history of overdose, awareness of SIS, feelings of relief and empowerment toward SIS, and predominant cocaine injection (11).

Lastly, in a study that was conducted with people who use drugs in Toronto and Ottawa, up to 75 per cent of people who use drugs said they would use an SIS and up to 65 per cent said they would use a Safe Smoking Room (40). The people who reported intent to use these facilities included individuals who were homeless or who were unstably housed, those who were unaware of how to access sterile equipment, people who inject in public places, and people who lent or sold a crack cocaine pipe after using it (40). These findings suggest that those who intend to use a SIS include groups of drug users that may be particularly vulnerable or at high-risk.

#### **b) Perceptions of Safe Injection Sites**

The research suggests that SIS are positively perceived by people who use drugs. A qualitative study conducted by Small and colleagues (2009) interviewed fifty people who inject drug in the Downtown Eastside. Safe injection sites were perceived study participants as sites to address various risk factors associated with public injecting (39). Participants shared fears of being caught by police, being physically assaulted or robbed as a result of injecting publically. This sense of fear often led to “hurrying and worrying” when injecting in public, decreasing the likelihood of safe and hygienic injecting practices.

Jozaghi and Andreson (2013) conducted semi-structured interviews with 31 injection drug users from Vancouver, Surrey and Victoria, British Columbia to understand the role that SISs played in their lives. Participants reported that Insite had a number of positive impacts, including a unanimous agreement that Insite saves lives by reducing fatal overdoses. Participants also self-reported that because of Insite, they have reduced their needle sharing and public injecting behaviours. Participants believed that Insite also served as a mechanism for bring safety and security to the lives of injection drug users in the area. This is by means of reduced risk of getting attacked, robbed, and being persecuted or questioned by police (18). Lastly, participants indicated that the availability of services, including injection equipment has positively impacted them (18).

A study conducted in Canada assessed preferences for SIS. Examples of services which were perceived to be important at a SIS included nursing care; hygiene; counselling; detoxification beds; social workers; drug use information and education; equipment distribution and disposal and referrals for drug treatment (1). A common barrier cited by people who inject drugs related to the SIS design including the accessibility and size of the facilities. Often times the lineup to get inside Insite has been shown to deter clients from waiting (18). These sentiments suggest the need to expand Insite to more than one area, to ensure that people have access without having to resort to public drug use while they wait (11, 18).

Lastly, there was high demand for SSRs among an ethnographic study conducted among people who use drugs in Toronto and Ottawa. People who use drugs provided multiple reasons for implementing SSRs including the frequency of crack cocaine use and the lack of safe and secure places to smoke crack (48). Similar to SIS, SSRs were perceived as an intervention that minimized exposure to police, drug scene violence, stigma, which often resulted when smoking in public places. SSRs have been identified by drug users as a means by which to address social norms regarding pipe-sharing resulting in promotion of risk reduction practices within a controlled setting (26, 48).

#### **4.6 Cost Effectiveness of Safe Injection Sites**

When examining the cost effectiveness of implementing safe injection sites, much of the literature utilizes mathematical modeling to project potential health benefits or aversion of blood borne infections related to the establishment of supervised injection facilities (19, 52, 53). When interpreting these figures, it is important to note that they are relative to the location in which the analyses were conducted, and may not be generalizable to other settings, since the size and geographic location of the population of injection drug users and prevalence of hepatitis C and HIV vary across jurisdictions. The four studies measuring cost effectiveness of SIS found that SIS tend to be cost saving when measuring averted cases of both HIV and hepatitis C infection (1, 19, 52, 53).

The TOSCA study projected that by establishing three facilities in Toronto, about two to three HIV infections could be averted per facility, per year and 15 to 20 hepatitis C infections could be averted per facility over 20 years. In Ottawa, the study projected approximately 6 to 10 HIV infections could be averted by the first two facilities in Ottawa per facility per year and 20 to 35 Hepatitis C infections could be averted per facility per year (1). Jozaghi and colleagues (2014) conducted a study to assess the cost-effectiveness of proposed supervised injection facilities in Ottawa, Canada. In order to do this, the researchers assessed whether the prevention, and thus cost-savings associated with the prevention of hepatitis C and HIV was sufficient to justify the cost effectiveness of opening a SIS in Ottawa. Findings suggested that when accounting for

the cost savings associated with the prevention of both HIV and hepatitis C, opening two SIS in Ottawa would be a “fiscally responsible” harm reduction strategy. These numbers would vary depending on the baseline rates of HIV and Hepatitis C across jurisdictions, as well as the baseline syringe-sharing rate (19).

In order to assess cost effectiveness of Insite, Bayoumi & Zaric (2008) used a model, which considered the effects of an SIS as decreased needle sharing, increased use of safe injection practices and referral to methadone maintenance treatment. When considering the effect of SIS to be associated with decreased needle sharing and safe injection practices alone, it was found that the facility was associated with an incremental net savings of over \$20 million and 1070 life years over 10 years. The researchers reported that cost savings were due in large part to averted cases of HIV infection, even with conservative estimates of efficacy. As with all mathematical models, the authors reported limitations with their analysis, which includes potential errors in estimating numbers associated with drug use and the exclusion of other health benefits (e.g. decreased overdose, reduce transmission of Hepatitis B) of SIS in their model (52).

Lastly, the cost effectiveness of opening a SIS in Saskatoon, a small urban city characterized by concentrated drug use in neighbourhoods with low SES was assessed (53). The study used two mathematical models to estimate the number of HIV infections that could be averted due to the establishment of an SIS in Saskatoon. The benefit to cost ratio was conservatively estimated to be 1.35 when accounting for the opening of two potential facilities.

## 5.0 Limitations

As with all research, contextual interpretation of the findings is imperative and should be kept in mind when considering the generalizability of findings.

The aforementioned is of particular importance when considering SIS models and locations for implementation. That is a 'one size fits all' model does not exist for SIS. For example, in the Downtown Eastside in Vancouver, a concentrated pattern of drug use led to the decision that opening a standalone SIS was the most fitting. Some researchers indicate that the nature of the Downtown Eastside may have contributed to its increased success and critics claim it is unclear whether SIS in neighbourhoods with dispersed, rather than concentrated drug use would exhibit the same public health benefits (13, 30). Most research suggests otherwise and recommends understanding the community in which SIS implementation is being considered. This was appropriately carried out through the TOSCA study's geographic analysis, which demonstrated that drug use is not as heavily concentrated in one area in Toronto and Ottawa, resulting in the proposal for integrated SIS in multiple neighbourhoods (1).

Furthermore, limitations have been cited against the methodologies used to evaluate Insite. Many of the studies have been observational, prospective cohort studies. This type of research is subject to a variety of confounding factors, which may bias findings (13, 30). For example, confounders, which could have led to positive findings associated with reduction in overdose fatalities at Insite, include a change in policing practices shortly after its' opening and the expansion of access to a methadone maintenance therapy program in the areas surrounding Insite (25). Although findings have been endorsed by reputable researchers, as well as organizations, including Health Canada, longitudinal research on the benefits of SISs will provide a better understanding of long-term impacts.

Lastly, many of the studies that assessed behaviour change (e.g., changes in safe injection practices or access to services following accessing SIS) utilized self-report data, as objective measures were not available. As with any self-report data, findings are subject to social desirability bias and the potential for underreporting or over reporting of certain behaviours (13).

As with any literature review, the selection process and inclusion and exclusion criteria may impact the findings of the review. The articles included were limited to those in the English language and therefore excluded literature examining the effectiveness of SIS written in other languages or studies conducted in other countries, including but not limited to Germany and Spain. Articles were also limited to those published after the year 2000, to ensure the literature included was current and in order to account for legislation changes regarding SIS in Canada.

## 6.0 Summary

Region of Waterloo Public Health and Emergency Services (ROWPHE) provides a number of harm reduction services to the residents of Waterloo Region. One harm reduction strategy that requires additional exploration is safe injection sites (SISs) to address the concerns associated with illicit drug use. This review sought to assess the impact of safe injection sites as an effective harm reduction strategy.

A thorough search of academic and grey literature uncovered numerous International and Canadian studies, which assessed the benefits and challenges of SIS as a harm reduction strategy. The findings are summarized below, according to the research questions.

### 1. What is the landscape of SISs in Canada?

To operate legally in Canada, SISs require an exemption under Section 56 of the *Controlled Drugs and Substances Act (CDSA)*. These exemptions are granted by the federal Minister of Health. For jurisdictions interested in seeking a *Section 56* exemption, the *Respect for Communities Act*, passed in 2015, outlines the process and criteria for applicants (12, 13, 43). Currently, in Canada, there are two supervised injection sites in Vancouver and additional supervised injection sites being planned in Toronto and proposed in Montreal and Ottawa. To date, there are no sanctioned SIS in Canada where clients can consume inhalation drugs (i.e. supervised inhalation sites or safe smoking rooms) (1, 7, 40).

### 2. Are SISs an effective harm reduction strategy to improve health outcomes for people who use drugs?

SISs have been found to be an effective harm reduction strategy for improving health outcomes of people who use drugs including, reducing the likelihood of reusing and sharing drug equipment, thereby reducing the risk of contracting blood-borne infections, such as hepatitis C and HIV, and reducing the number of fatal overdoses on-site. In addition, SIS are successful in engaging high-risk and marginalized individuals who use drugs, including regular and long-time users, individuals experiencing homelessness and those who were previously incarcerated (1, 12, 21, 29).

### 3. What impact, if any, do SISs have on reducing barriers to accessing health and social services among people who use drugs?

SISs improve access to health and social services, among illicit drug users, who typically face many barriers to accessing care. This includes increased likelihood of accessing health care services on-site for injection-related wounds, and increased referrals to social services off-site. Furthermore, SISs have been shown to facilitate access to addiction treatment programs and detox services (12, 27).

### **What impact do safe injection sites have on the public?**

Critics perceive that SIS encourage drug use and that the implementation of SIS in would result in increased crime, drug trafficking, and loitering in neighbourhoods they are located in (29, 30, 41). Research suggests that generally, SIS do not result in disruptions in public order or safety in the neighbourhoods or communities in which they are located (12, 32, 34). In fact, the literature suggests that SIS, in addition to having no impact on the safety of neighbourhoods, have resulted in the reduction of public drug use and inappropriate disposal of drug-related paraphernalia, specifically injection equipment (12, 32, 34).

#### **4. What are the perceptions of safe injection sites held by the public, police services and people who use drugs?**

People who use drugs perceive safe injection sites as a location in which to escape from the multiple risk factors associated with public drug use, including fears of being caught by police, being physically assaulted, or robbed (11, 14, 39, 40). However, depending on the jurisdiction, the public and police services have varying opinions on the benefits of harm reduction services and the implications on the community and injection drug users. Further awareness raising and consultations may be required in order to understand public and police perceptions.

#### **5. How cost effective are safe injection sites as a harm reduction strategy?**

The findings related to cost-effectiveness of SIS as a harm reduction strategy suggests that SIS are a cost-saving intervention when measuring averted cases of both HIV and Hepatitis C infection and the costs of such aversions (1, 19, 52, 53). These findings should be interpreted with caution and may not be generalizable to all jurisdictions as the calculations are based on specific baseline infection rates, syringe sharing rates, and costs (52).

### **Conclusion**

Despite the aforementioned benefits, it is important to note that the implementation of SIS do not come without challenges, including the lengthy legislative process required to obtaining a *Section 56* Exemption from the *Controlled Drugs and Substances Act*. Furthermore, in order to accurately assess the need for implementation, baseline epidemiological data is required, including, but not limited to, incidence and prevalence of blood borne infections, estimates of both illicit drug use and public drug use, approximate numbers regarding inappropriate disposal of drug paraphernalia, rates of fatal and non-fatal overdose, and an understanding regarding access to health and social services among illicit drug users (11, 52). In addition, it is imperative to ensure that all stakeholders, including community members and illicit drug users themselves are supportive of and knowledgeable of SIS and the rationale behind implementation.

Lastly, consultation with a range of stakeholders (e.g., the public, police, health and social services, and illicit drug users, themselves) is needed throughout the assessment and planning process (7, 48).

## References

1. Bayoumi, A.M., Strike, C., Jairam, J., Watson, T., Enns, E., Kolla, G.,...Brandeau, M. (2012). Report of the Toronto and Ottawa Supervised Injection Assessment Study. Toronto, Ontario: St. Michael's Hospital and the Dalla Lana School of Public Health, University of Toronto.
2. Bravo, M.J. Royuela, L., Bruqal, M.T., Barrio, G., Dominco-Salvany, A., Itinere Project group. (2009). Use of supervised injection facilities and injection risk behaviours among young drug injectors. *Addiction*, 104(4), 614-619.
3. Canadian Centre on Substance Abuse. (2005). Supervised Injection Facilities: FAQ. Retrieved from: <http://www.ccsa.ca/Resource%20Library/ccsa-010657-2004.pdf#search=supervised%20injection%20facility>
4. Canadian Centre on Substance Abuse. (2008). Harm Reduction: What's in a name? Retrieved from: <http://www.ccsa.ca/Resource%20Library/ccsa0115302008e.pdf#search=supervised%20injection%20facility>
5. [City of Vancouver. \(2015\). City of Vancouver: Downtown Eastside Plan.](#)
6. DeBeck, K., Wood, E., Zhang, R., Tyndall, M., Montaner, J., Kerr, T. (2008). Police and public health partnerships: Evidence from the evaluation of Vancouver's supervised injection facility. *Substance Abuse Treatment, Prevention and Policy*, 3(11).
7. DeBeck, K., Buxton, J., Kerr, T., Qi, J., Montaner, J., Wood, E. (2011). Public crack cocaine smoking and willingness to use a supervised inhalation facility: implications for street disorder. *Substance Abuse Treatment, Prevention, and Policy*, 6(4).
8. [Dr. Peter AIDS Foundation. \(2016a\). Dr. Peter AIDS Foundation Annual Report 2015/2016.](#)
9. [Dr. Peter AIDS Foundation. \(2016b\). Dr. Peter AIDS: Model of Care.](#)
10. Firestone Cruz, M., Patra, J., Benedikt, F., Rehm, J., Kalousek, K. (2006). Public opinion towards supervised injection facilities and heroin-asted treatment in Ontario, Canada. *International Journal of Drug Policy*, 18, 54-61.
11. Green, T.C., Hankins, C.A., Palmer, D., Boivin, J.F., Platt, R. (2004). My place, your place or a safer place: The Intention Among Montreal Injecting Drug Users to Use SIF. *Canadian Journal of Public Health*, 95(2)110-114.
12. Health Canada. (2008). Vancouver's INSITE service and other Supervised Injections Sites: What has Been Learned From Research? Final Report of the Expert Advisory Committee. Prepared for the Honourable Tony Clement. Minister of Health. Government of Canada.
13. Hyshka, E., Bubela, T., Wild, T.C. (2013). Prospects for scaling-up supervised injection facilities in Canada: the role of evidence in legal and political decision-making. *Addiction*.

14. Hunt, N., Lloyd, C., Kimber, J., Tompkins, C. (2007). Public injecting and willingness to use a drug injection room among needle exchange program attendees in the UK. *International Journal of Drug Policy*, 18, 62-65.
15. [Kerr, T., Tyndall, M., Li, K., Montaner, J., & Wood, E. \(2005\). Safer injection facility use and syringe sharing in injection drug users. \*The Lancet\*, online Research Letter. Retrieved May 9, 2008](#)
16. Lang, K., Neil, J., Wright, J., Dell, C.A., Berenbaum, S., El-Aneed, A. (2013). Qualitative investigation of barriers to accessing care by people who inject drugs in Saskatoon, Canada: perspectives of service providers. *Substance Abuse Treatment and Prevention Policy*, 8(35).
17. Logan, D.E., & Marlatt, G.A. (2010). Harm Reduction Therapy: A Practice-Friendly Review of Research. *Journal of Clinical Psychology*, 66(2), 201-214.
18. Jozaghi, E. & Andresen, M.A. (2013). Should North America's first and only supervised injection facility (Insite) be expanded in British Columbia, Canada. *Harm Reduction Journal*, 10(1).
19. Jozaghi, E., Reid, A.A., Andresen, A., Juneau, A. (2014). A cost-benefit/cost-effectiveness analysis of proposed supervised injection facilities in Ottawa, Canada. *Substance Abuse, Prevention, and Policy*, 9(31), 3-13.
20. Kimber, J., Dolan, K., Wodak, A. (2005). Survey of drug injection rooms: service delivery and perceived public health and amenity impact. *Drug and Alcohol Review*, 24, 21-24
21. Kimber, J., et al. (2003). The Sydney medically supervised injecting centre: Client characteristics and predictors of frequent attendance during first 12 months of operation. *Journal of Drug Issues*, 33(3), 639-648.
22. Kinnard, E.N., Howe, C.J., Kerr, T., Hass, V.S., Marshall, B.D. (2014). Self-reported changes in drug use behaviours and syringe disposal methods following the opening of a SIF in Copenhagen, Denmark. *Harm Reduction Journal*, 11, 29.
23. Lessard, R. & Morissette, C. (2011). Toward supervised injection services. Report of a feasibility study on the implementation of supervised injection services in Montreal: Summary Report. Retrieved from:  
[http://publications.santemontreal.qc.ca/uploads/tx\\_asssmpublications/isbn978-2-89673-246-3.pdf](http://publications.santemontreal.qc.ca/uploads/tx_asssmpublications/isbn978-2-89673-246-3.pdf)
24. MacArthur, G.J., Van Velzen, E., Palmateer, N., Kimber, J., Pharris, A., ..., Hutchinson, S.J. (2014). Interventions to prevent HIV and Hepatitis C in people who inject drugs: A review of reviews to assess evidence of effectiveness. *International Journal of Drug Policy*, 25, 34-52.

## References Cont'd

25. Marshall, B.D., Millay, M.J., Montaner, J.S.G., Kerr, T. (2011). Reduction in overdose mortality after the opening of North America's first medically supervised safer injection facility: a retrospective population-based study. *The Lancet*, 377, 1429-1437.
26. McNeil, R., Kerr, T., Lamkin, H., Small, W. (2015). "We need somewhere to smoke crack": An ethnographic study of an unsanctioned safer smoking room in Vancouver, Canada. *International Journal of Drug Policy*, 26, 645-652.
27. Milloy, M.S., Kerr, T., Zhang, R., Tyndall, M., Montaner, J., Wood, E. (2010). Inability to access addiction treatment and risk of HIV infection among injection drug users recruited from a supervised injection facility. *Journal of Public Health*, 32(3), 342-349.
28. Ministry of Health and Long Term Care. (2016). Ontario Public Health Standards: 2008, Revised May 2016. Retrieved from: [http://www.health.gov.on.ca/en/pro/programs/publichealth/oph\\_standards/docs/ophs\\_2008.pdf](http://www.health.gov.on.ca/en/pro/programs/publichealth/oph_standards/docs/ophs_2008.pdf)
29. MSIC Evaluation Committee. (2003). Final Report on the evaluation of the Sydney Medically Supervised Injection centre. Sydney: Kaldor, J., Lapsley, H., Mattick, R.P., Weatherburn, D., Wilson, A.
30. Ontario Association of Chiefs of Police. (2012). Supervised Injection Sites: A Position paper by Ontario's Police Leaders. Retrieved from: <http://www.oacp.on.ca/Userfiles/Files/NewAndEvents/PublicResourceDocuments/Supervised%20Injection%20Paper%20Feb2012%20FINAL.pdf>
31. Pinkerton, S.D. (2010). Is Vancouver Canada's supervised injection facility cost-saving? *Addiction*, 105, 1429-1436.
32. Potier, C., Laprevote, V., Dubois-Arber, F., Cottencin, O., Rolland, B. (2014). Supervised injection services: what has been demonstrated? A systematic literature review. *Drug and Alcohol Dependence*, 145, 48-68.
33. Rapid Response Service. *Rapid Response: Public Perception of Harm Reduction Interventions*. Toronto, ON: Ontario HIV Treatment Network; December 2012.
34. Rapid Response Service. *Rapid Response: What is the effectiveness of supervised injection services?* Toronto, ON: Ontario HIV Treatment Network; May 2014.
35. Ritter, A., & Cameron, J. (2006). A review of the efficacy and effectiveness of harm reductions strategies for alcohol, tobacco, and illicit drugs. *Drug and Alcohol Review*, 25, 611-614.
36. Toronto Public Health. (2016a). Staff Report for action on: Supervised Injection Services for Toronto: Next Steps. March 7, 2016. City of Toronto.
37. Toronto Public Health. (2016b). Supervised Injection Services in Toronto: Frequently Asked Questions. Retrieved from:

<http://www1.toronto.ca/wps/portal/contentonly?vgnextoid=f998163207663510VgnVCM10000071d60f89RCRD>

38. Salmon, A.M., Dwyer, R., Jauncey, M., van Beek, I., Topp, L., Maher, L. (2009). Injecting-related injury and disease among clients of a supervised injecting facility. *Drug and Alcohol Dependence*, 101, 132-136.
39. [Sandy Hill Community Health Centre. \(2016\). Proposed Supervised Injection Services \(\) at Sandy Hill Community Health Centre: Frequently Asked Questions.](#)
40. Santé Montreal. (2015). Supervised Injection Services. Retrieved from: <https://santemontreal.qc.ca/en/public/health-a-z/supervised-injection-services/>
41. Small, W., Van Borek, N., Fairbairn, N., Wood, E., Kerr, T. (2009). Access to health and social services for IDU: the impact of a medically supervised injection facility. *Drug and Alcohol Review*, 28(4), 341-346.
42. Strike, C., Rotondi, N.K., Watson, T.M., Kolla, G., Bayoumi, A.M. (2016). Public opinions about supervised smoking facilities for crack cocaine and other stimulants. *Substance Abuse, Treatment, Prevention, and Policy*, 11(8), 1-10.
43. Stolz, J.A., Wood, E., Small, W., Li, K., Tyndall, M., Montaner, J., Kerr, T. (2007). Changes in injecting practices associated with the use of a medically supervised injection facility. *Journal of Public Health*, 29(1).
44. Vancouver Coastal Health. (2016). Supervised Injection Sites. Retrieved from: <http://www.vch.ca/your-health/health-topics/supervised-injection/supervised-injection>
45. [Vancouver Coastal Health. \(2016\). Insite User Statistics 2015/2016.](#)
46. [Waterloo Crime Prevention Council. \(2011\). Waterloo Region Integrated Drugs Strategy.](#)
47. Watson, T.M., Bayoumi, A., Kolla, G., Penn, R., Fischer, B., Luce, J., & Strike, C. (2012). Police Perceptions of Supervised Injection sites (SISs): A Qualitative Study. *Substance Use & Misuse*, 47, 364-374.
48. Watson, T.M., Strike, C., Kolla, G., Penn, R., Jairam, J., Hopkins, S., Luce, J., Degani, N., Millsion, P., Bayoumi, A.M. (2012). Design considerations for supervised injection facilities (SCFs): Preferences for facilities where people can inject and smoke drugs. *International Journal of Drug Policy*, 24, 156-163.
49. Wood, E., Kerr, T., Small, W., Li, K., Marsh, D.C., Montaner, J.S.G., Tyndall, M.W. (2004). Changes in public order after the opening of a medically supervised safe injecting facility for illicit injection drug users. *CMAJ*, 171(7), 731-734.
50. Wood, E., Tyndall, M.W., Li, K., Lloyd-Smith, E., Small, W., Montaner, J.S.G., Kerr, T. (2005). Do Supervised Injection Facilities Attract Higher-Risk Injection Drug Users? *American Journal of Preventive Medicine*, 29(2). 126-130.
51. Wood, E., Tyndall, M.W., Zhang, R., Montener, J.S.G., Kerr, T. (2007). Rate of detoxification service and its' impact among a cohort of supervised injecting facility users. *Addiction*, 102(6), 916-919.

52. Bayoumi, A.M., Zaric, G.S. (2008). The cost-effectiveness of Vancouver's supervised injection facility. *CMAJ*, 179(11), 1143-151.
53. Jozaghi & Jackson. (2015). Examining the potential role of a supervised injection facility in Saskatoon, Saskatchewan to avert HIV among people who inject drugs. *International Journal of Health Policy Management*, 4(6), 373-379.

## APPENDICES

### APPENDIX A: PICO (Person, Intervention, Comparison, Outcome) Search Strategy

Population	Intervention	Comparison	Outcomes
<ul style="list-style-type: none"> <li>• Injection drug users (IDUs)</li> <li>• Alcohol/illicit drug (i.e. marijuana, cocaine, crack) users</li> <li>• Street-involved individuals</li> <li>• Sex workers</li> <li>• Other individuals who may be vulnerable to drug use (i.e. previously incarcerated, low SES)</li> </ul>	<ul style="list-style-type: none"> <li>• Supervised/safe injection sites (including alcohol, injection, non-injection substance use)</li> <li>• Supervised injection/inhalation sites</li> <li>• Safe injection site</li> <li>• Safe injection/inhalation sites</li> <li>• Harm reduction programs</li> <li>• Safe injection facilities</li> <li>• Drug injection room</li> <li>• Harm Reduction [MeSH]</li> <li>• Needle-Exchange Programs [MeSH]</li> <li>• Needle and syringe programs (NSP)</li> <li>• Supervised injection services (s)</li> </ul>	<ul style="list-style-type: none"> <li>• No programs/sites</li> <li>• Needle exchange programs</li> </ul>	<ul style="list-style-type: none"> <li>• Reduced overdose morbidity and mortality</li> <li>• Improved health outcomes (i.e. reduced risk for contracting and transmitting IDs, i.e. HIV/AIDS, Hep B, Hep C, STIs)</li> <li>• Reduced barriers for accessing health and social services</li> <li>• Reduced costs for health, social, legal and incarceration associated with drug use</li> <li>• Reduced stigma associated with substance use</li> <li>• Police and community perceptions</li> </ul>

## APPENDIX B: Literature Review Critical Appraisal Tool

### Citation:

Guiding Questions	Yes/No	Comments
<p><b>Is this article relevant to our issue and setting?</b></p> <p><input type="checkbox"/> Does the study address a topic related to our research question?</p> <p><input type="checkbox"/> Was the research conducted in a setting similar to ours (Public Health, Primary Care)?</p>	<p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p>	
<p><b>Are the results presented objectively?</b></p> <p><input type="checkbox"/> Are the results from all included studies clearly displayed?</p> <p><input type="checkbox"/> Are the results similar to those found by other studies on the same topic?</p>	<p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p>	
<p><b>Are the author's conclusions justified?</b></p> <p><input type="checkbox"/> Is there a conclusive result?</p> <p><input type="checkbox"/> Are there any numerical outcomes?</p> <p><input type="checkbox"/> Are the results reported in the data tables content with those described in the Discussion and Conclusions sections?</p> <p><input type="checkbox"/> Are potential discrepancies discussed?</p>	<p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p>	
<p><b>Can we be confident about findings?</b></p> <p><input type="checkbox"/> Does the study have a clearly stated objective and focus on a clearly defined issue?</p> <p><input type="checkbox"/> Does it describe the population studied, the intervention given, and the outcomes?</p> <p><input type="checkbox"/> Are the data valid and of good quality?</p>	<p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p>	
<p><b>Should we apply the results to local public health practice?</b></p>	<p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p>	

Guiding Questions	Yes/No	Comments
<input type="checkbox"/> Can the results be interpreted and applied within the scope public health practice? <input type="checkbox"/> Are the benefits worth the potential harms and costs? <input type="checkbox"/> Are all important public health outcomes considered?		
<b>Should this article be included in the review?</b> If yes, please complete an article summary sheet: <a href="#">1590203</a>	<input type="checkbox"/> Yes <input type="checkbox"/> No	

## APPENDIX C: Literature review article summary sheet

### Citation:

<b>Summary (a few sentences to summarize the article):</b>	<b>Please list:</b>
<b>Research questions:</b>	<b>Please list:</b>
<b>Strengths of the article:</b>	<b>Please list:</b>
<b>Limitations (if applicable):</b>	<b>Please list:</b>
<b>What organizations are involved in the intervention? (e.g. Public Health, other)</b>	<b>Please list:</b>
<b>Which populations does the intervention target?</b>	<b>Please list:</b>
<b>Does the article suggest interventions/strategies for specific populations?</b>	<b>Please describe:</b>
<b>What does the article say about the intervention? (include mention of cost, and other resources)</b>	<b>Please describe:</b>
<b>What are the recommendations?</b>	<b>Please describe:</b>
<b>Are there other articles from the reference list that we might want to review?</b>	<b>Please list:</b>
<b>Any other comments or key information about the article?</b>	

#### **APPENDIX D: Topics addressed by academic literature review articles**

**Landscape of SIS in Canada:** Bayoumi et al., 2012, Bayoumi & Zaric, 2008, Bravo et al., 2009, DeBeck et al., 2011, Green et al., 2004, Health Canada, 2008, Hyska et al., 2013, Jozaghi & Andresen, 2013, Jozaghi, et al., 2014, McNeil et al., 2015, Potier et al., 2014, Strike et al., 2016

**Engaging high-risk individuals:** Bayoumi et al., 2012, Bayoumi & Zaric, 2008, Bravo et al., 2009, DeBeck et al., 2011, Green et al., 2004, Health Canada, 2008, Hyska et al., 2013, Hunt et al., 2007, Kerr et al., 2005, Kimber et al., 2005, Kimber et el., 2003, Kinnard et al., 2014, Logan et al., 2010, MacArthur et al., 2014, Marshall et al., 2011, McNeil et al., 2015, Milloy et al., 2010, MSIC Evaluation Committee, 2003, Potier et al., 2014, Salmon et al., 2009, Strike et al., 2016, Stolz et al., 2007, Watson et al., 2012a, Watson et al., 2012b, Wood et al., 2004, Wood et al., 2005, Wood et al., 2007

**Impact of SIS on health outcomes:** Bayoumi et al., 2012, Bayoumi & Zaric, 2008, Bravo et al., 2009, DeBeck et al., 2011, Health Canada, 2008, Hyska et al., 2013, Hunt et al., 2007, Kerr et al., 2005, Jozaghi & Andresen, 2013, Jozaghi, et al., 2014, Kimber et al., 2005, Kimber et el., 2003, Kinnard et al., 2014, Logan et al., 2010, MacArthur et al., 2014, Marshall et al., 2011, McNeil et al., 2015, Milloy et al., 2010, MSIC Evaluation Committee, 2003, Potier et al., 2014, Salmon et al., 2009, Strike et al., 2016, Stolz et al., 2007, Watson et al., 2012a, Watson et al., 2012b, Wood et al., 2004, Wood et al., 2005, Wood et al., 2007

**Impact of SIS on access to care:** Health Canada, 2008, Kerr et al., 2005, Kimber et al., 2005, Kimber et el., 2003, Kinnard et al., 2014, MacArthur et al., 2014, Marshall et al., 2011, McNeil et al., 2015, Milloy et al., 2010, MSIC Evaluation Committee, 2003, Potier et al., 2014, Salmon et al., 2009, Strike et al., 2016, Stolz et al., 2007, Watson et al., 2012a, Watson et al., 2012b, Wood et al., 2004, Wood et al., 2005, Wood et al., 2007

**Impact of SIS on public:** Bayoumi et al., 2012, Bayoumi & Zaric, 2008, Firestone Cruz et al., 2006, Green et al., 2004, Health Canada, 2008, Kimber et al., 2005, Kimber et el., 2003, Kinnard et al., 2014, MacArthur et al., 2014, Marshall et al., 2011, McNeil et al., 2015, Milloy et al., 2010, MSIC Evaluation Committee, 2003, Potier et al., 2014, Salmon et al., 2009, Strike et al., 2016, Stolz et al., 2007, Watson et al., 2012a, Watson et al., 2012b, Wood et al., 2004, Wood et al., 2005, Wood et al., 2007

**Public Perception of SIS:** Bayoumi et al., 2012, Bayoumi & Zaric, 2008, Firestone Cruz et al., 2006, Green et al., Kimber et al., 2005, Kimber et el., 2003, Kinnard et al., 2014, MacArthur et al., 2014, Marshall et al., 2011, McNeil et al., 2015, Milloy et al., 2010, MSIC Evaluation Committee, 2003, Potier et al., 2014, Salmon et al., 2009, Strike et al., 2016, Stolz et al., 2007, Watson et al., 2012a, Watson et al., 2012b, Wood et al., 2004, Wood et al., 2005, Wood et al., 2007

**Police perception of SIS:** Bayoumi et al., 2012, Bayoumi & Zaric, 2008, Bravo et al., 2009, DeBeck et al., 2011, DeBeck et al., 2008, Firestone Cruz et al., 2006, Green et al., 2004, Hyska et al., 2013, Potier et al., 2014, Watson et al., 2012a

**IDU perceptions of SIS:** Bayoumi et al., 2012, Bayoumi & Zaric, 2008, Firestone Cruz et al., 2006, Hunt et al., 2007, Potier et al., 2014, Watson et al., 2012b, Wood et al., 2004, Wood et al., 2005, Wood et al., 2007

**Cost effectiveness of SIS:** Bayoumi et al., 2012, Bayoumi & Zaric, 2008, Health Canada, 2008, Jozaghi, et al., 2014