

OVERVIEW OF INTERNATIONAL LITERATURE

SUPERVISED INJECTING FACILITIES & DRUG CONSUMPTION ROOMS

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INTRODUCTION

This Overview of International Literature collates what we understand to be a full list of the relevant published papers and reports on drug consumption rooms (DCRs) and supervised injecting facilities (SIFs) internationally (for definitions, see next section). This Overview updates the overview provided by the Drug Policy Modelling Program, University of New South Wales (deVel-Palumbo, Matthew-Simmons, Shanahan & Ritter, 2013)¹; and updates the categories that classify the main areas of evidence provided by the research to date. We included papers and reports where SIFs/DCRs were the main topic² or where SIF/DCR clients were the population studied. The aim of this document is to provide an exhaustive, easy to read overview of scientific literature pertaining to SIFs/DCRs internationally that would facilitate scholars in summarizing main research areas, as well as identifying the key scientific contributions and in preparation of advocacy materials.

Sections 1 – 6 summarise peer-reviewed research papers published in scientific journals; section 8 contains a full list of these papers and relevant edited books and book chapters (n=219). Studies were identified via searches of scientific databases (Google Scholar, ProQuest, SAGE and EBSCO). The key search terms were “supervised injecting facility/ies” and “drug consumption room/s”. We included all papers and reports that appeared in these databases until July 2017 (the database search for the past 12 months of publications should be viewed with caution, as some publications from that period might not have been listed online at the time of the search). In addition, Section 7 provides a categorised list of relevant reports and academic theses found online on publicly accessible webpages and academic papers pertaining to similar services to SIFs/DCRs³.

Reviews of literature and reflections on research methodology are presented in Section 1. Section 2 presents the findings from quantitative research studies that assessed the impact and outcomes of SIFs/DCRs across various domains. Section 3 presents qualitative research in SIFs/DCRs (e.g. in-depth interviews as opposed to surveys). Section 4 provides descriptions of SIFs/DCRs clients and on the operational aspects of the different services worldwide; Section 5 describes the laws and policies around establishing SIFs/DCRs and how these were developed. Section 6 provides an overview of research which has explored the needs and support for SIFs/DCRs specifically in areas where they were not previously established.

Unless marked otherwise, each research paper was assigned into one category as per its main finding or research method. This can sometimes lead to simplification of complex research topics and findings. Also, in this overview, we have refrained from assessing the methods or quality of research presented in the papers; however, all published papers cited in Sections 1 – 6 were subjected to peer-review in the respective scientific journals⁴. Readers are encouraged to directly access the studies cited in this Overview to undertake their own critical appraisal.

¹ Please see section 7.1 for full reference.

² In Section 2 (review of evidence) we also considered papers and reports where SIFs/DCRs were considered among a range of service and policy options.

³ Publicly accessible resources like reports are referred to as “grey literature” and in general differ from the work published in scientific journals in that they generally have not been peer-reviewed (see footnote 4 below).

⁴ Peer review is a process by which an academic manuscript is evaluated by a group of experts in the appropriate field to ensure it is scientifically sound enough to warrant publication. In scientific journals, a ‘blinded’ peer-review process ensures that the experts evaluating the manuscript do not know the identities of the researchers who wrote it, increasing the independence and scientific rigour of the review.

1. SUPERVISED INJECTING FACILITIES AND DRUG CONSUMPTION ROOMS – DEFINITIONS AND RESEARCH TO DATE

Drug consumption rooms (DCRs) and, more specifically, supervised injecting facilities (SIFs) provide space for self-administration of drugs in hygienic conditions and under the supervision of qualified staff (EMCDDA, 2016)⁵. While some authors refer to SIFs/DCRs as spaces that allow people who use or inject drugs (PWUD/PWID) to do so within “a supervised framework in enhanced aseptic conditions with medical monitoring and no risk of police control” (Potier, 2014), others acknowledge that the level of supervision or staff qualifications vary widely in the different countries where SIFs/DCRs operate (de Vel-Palumbo, Matthew-Simmons, Shanahan & Ritter, 2013)⁶. While peer-based, unsanctioned drug consumption rooms predicated on harm reduction principles exist (e.g. McNeil, 2013; Jozaghi, 2015)⁷, most of the published scientific evidence pertains to professionally supervised services. These include Insite, located in Vancouver, Canada,⁸ the Uniting Medically Supervised Injecting Centre in Sydney, Australia, and the numerous drug consumption rooms located across several European countries (including Denmark, France, Germany, Luxembourg, Norway, the Netherlands, Spain, and Switzerland).

1.1. Review of evidence

SIFs are evidence-based harm reduction interventions; their effectiveness has been summarised in several reviews of scientific literature (Hedrich and Hartnoll, 2015, Hedrich et al., 2010, Kerr et al., 2007a, Kimber et al., 2003a, Kimber et al., 2010, Milloy and Wood, 2009, Monico, 2015, Potier et al., 2014, Semaan et al., 2011, Kerr et al., 2017). The full citations of the published literature reviews are provided below.

Reference list - literature reviews

1. HEDRICH, D. & HARTNOLL, R. 2015. Harm Reduction Interventions. *Textbook of Addiction Treatment: International Perspectives*, 1291-1313.
2. HEDRICH, D., KERR, T. & DUBOIS-ARBER, F. 2010. Drug consumption facilities in Europe and beyond. In: RHODES, T. & HEDRICH, D. (eds.) *EMCDDA Scientific Monograph Series No 10 - Harm Reduction: Evidence, Impacts and Challenges*. Lisbon: The European Monitoring Centre for Drugs and Drug Addiction (EMCDDA).
3. KERR, T., KIMBER, J., DEBECK, K. & WOOD, E. 2007. The role of safer injection facilities in the response to HIV/AIDS among injection drug users. *Current HIV/AIDS Reports*, 4, 158-164.
4. KIMBER, J., DOLAN, K., VAN BEEK, I., HEDRICH, D. & ZURHOLD, H. 2003a. Drug consumption facilities: an update since 2000. *Drug and Alcohol Review*, 22, 227-233.
5. KIMBER, J., PALMATEER, N., HUTCHINSON, S., HICKMAN, M., GOLDBERG, D. & RHODES, T. 2010. Harm reduction among injecting drug users - evidence of effectiveness. In: RHODES, T. & HEDRICH, D. (eds.) *Harm Reduction: evidence, impacts and challenges*. Lisbon: EMCDDA.
6. MILLOY, M. J. & WOOD, E. 2009. Emerging role of supervised injecting facilities in Human Immunodeficiency Virus prevention. *Addiction*, 104, 620-621.
7. MONICO, D. 2015. Out of the Alley: Lessons from safe injecting facilities (SIF). *Graduate Annual*, 3, 12.
8. POTIER, C., LAPRÉVOTE, 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.
9. SEMAAN, S., FLEMING, P., WORRELL, C., STOLP, H., BAACK, B. & MILLER, M. 2011. Potential role of safer injection facilities in reducing HIV and Hepatitis C infections and overdose mortality in the United States. *Drug and Alcohol Dependence*, 118, 11.

⁵ The term DCR refers to any such space for (illicit) drug consumption, i.e. via smoking, snorting or injecting. SIFs are DCRs where only injecting is allowed. The term SIFs/DCRs is used throughout this document, except in cases where research pertains to DCRs where injecting is prohibited (the term DCR is used); or is specific to injecting (the term SIF is used).

⁶ Please see section 7.1 for full reference.

⁷ Please see section 7.4 for full reference.

⁸ As of July 2017, Health Canada has approved a total of 15 what they call “supervised consumption sites”.

Most recent contribution(s)

10. KERR, T., MITRA, S., KENNEDY, M. C. & MCNEIL, R. 2017. Supervised injection facilities in Canada: past, present, and future. *Harm Reduction Journal*, 14, 28.

Limitations of the literature around SIFs/DCRs

SIFs/DCRs have the capacity to address some harms associated with drug use, such as public injection, overdose mortality, and infectious disease transmission and can facilitate uptake into healthcare among marginalised populations (Wood et al., 2004b). SIFs/DCRs should be assessed on their capacity to attract high-risk users and link them to other services and on the support of their clients and the community (Des Jarlais et al., 2008). SIFs/DCRs are advocated as a measure to reduce public injecting, to improve public amenity and to enhance the health and functioning of PWID by reducing exposure to blood-borne viruses (BBVs). These outcomes are facilitated through the provision of timely intervention during overdoses by SIFs/DCRs, and increased access to health and social services for marginalised populations of PWUD (Hall and Kimber, 2005).

Reductions in transmission of BBVs and in overdose prevention render SIFs cost-effective, but a broad range of other benefits, including treatment uptake or reductions in overdoses, can be assessed (Fairbairn and Wood, 2016). Opponents, on the other hand, say that SIFs/DCRs facilitate drug use, attract drug users into the area where they are located and “send the wrong message” (Hall and Kimber, 2005).

Although randomised controlled trials (RCTs) represent the highest level of scientifically rigorous examination to which a health intervention can be subjected (Beyrer, 2011), it is ethically appropriate to enrol research participants in an RCT only when there is genuine clinical equipoise around the impact of the intervention under study (Smith, 2016). That is, there must be true uncertainty around which of the trial arms is most likely to benefit trial participants (Ashcroft, 1999). Given that SIFs undoubtedly have the capacity to save lives through timely responses to potentially fatal overdose, it would be unethical – as well as logistically challenging – to randomly allocate PWID to a trial arm which prevented SIF access were one available. For these reasons, research into the impact of SIFs necessarily relies on observational designs (Maher and Salmon, 2007), and therefore suffers the inherent limitation that, in the absence of random allocation, PWID who choose to use SIFs may differ systemically to PWID who do not (Hall and Kimber, 2005).

In addition, the inability to randomly allocate PWID to SIF or non-SIF conditions makes it impossible to definitively exclude the possible role of confounding factors on research outcomes (Kelly and Conigrave, 2002). This limitation was demonstrated in the first evaluation of the Sydney SIF (known as Sydney Medically Supervised Injecting Centre), which was undertaken during a period of unprecedented changes in heroin availability in Australia’s illicit drug markets (Hall and Kimber, 2005). Finally, it has been argued that population-level impacts of SIFs – as have been expected by many commentators – are likely to be observed only in places where multiple services operate, as is the case in several German cities (Hall & Kimber, 2005). The challenges to making population-level changes amenable to measurement (Maher and Salmon, 2007) have led some to conclude that expectations around SIF effectiveness must be tempered with realism (Hall and Kimber, 2005).

A particularly rich source of data around the impact of SIFs/DCRs has been the work of Canadian researchers who led the evaluation of the Vancouver SIF known as Insite. The observational methodology used in their program of research drew on data from three local cohorts of research participants. A ‘cohort’ is a sample, or group, of individual research participants who are followed

longitudinally, or over time. Members of a research cohort are assessed on multiple occasions to determine which factors are associated with particular outcomes. For example, a cohort study might be used to examine whether PWID who access a SIF are more or less likely to enter treatment within a certain period than PWID who do not use a SIF. A longitudinal cohort design is a methodologically more robust form of observational study in which participants are interviewed only once.

The three cohorts from which data for the Insite evaluation were drawn included: (i) the Injection Drug Users Study (VIDUS) (Tyndall et al., 1999); (ii) the community health and stress evaluation (CHASE) panel (Burroughs et al., 2003); and (iii) the random sample of SIF clients known as the Scientific Evaluation of Supervised Injecting (SEOSI) cohort (Kerr et al., 2003), who were interviewed on multiple occasions to document changes in outcomes such as their HIV and hepatitis C virus (HCV) status and self-reported public drug use (Wood et al., 2004b). Other outcomes of interest in the Insite evaluation included measures of client, staff and community satisfaction, process (e.g. associations between SIF use and engagement with other health services), and public order (e.g. number of discarded syringes in the SIF neighbourhood) (Wood et al., 2004a, Wood et al., 2006b). Following this comprehensive evaluation, the Canadian research group has undertaken extensive translational activities, including enhancement of health and social services for PWUD, and advocacy around the public health benefits of SIFs/DCRs (Shoveller et al., 2010).

Advocacy with respect to SIFs/DCRs is of fundamental importance because, despite extensive evidence documenting their public health benefits (presented below), SIFs/DCRs have been subject to both sustained and ongoing political opposition (Maher and Salmon, 2007) and to community opposition due to the stigma associated with illicit drug use (Shoveller et al., 2010). It has been argued that, similar to the history of needle-syringe programs, the main barrier to implementing SIFs/DCRs is not a lack of evidence, but rather a lack of political will (Strathdee and Pollini, 2007).

Reference list – reflections on the research and evidence-base around SIFs/DCRs

1. BEYRER, C. 2011. Safe injection facilities save lives. *The Lancet*, 377, 1385-1386.
2. DES JARLAIS, D. C., ARASTEH, K. & HAGAN, H. 2008. Evaluating Vancouver's supervised injection facility: data and dollars, symbols and ethics. *Canadian Medical Association Journal*, 179, 1105-1106.
3. FAIRBAIRN, N. & WOOD, E. 2016. Commentary on Enns et al. (2016): Supervised injection facilities as a cost-effective intervention. *Addiction*, 111, 490-491.
4. HALL, W. & KIMBER, J. 2005. Being realistic about benefits of supervised injecting facilities. *The Lancet*, 366, 271-272.
5. KELLY, C. & CONIGRAVE, K. M. 2002. The Sydney Medically Supervised Injecting Centre: A controversial public health measure. *Australian and New Zealand Journal of Public Health*, 26, 552-554.
6. MAHER, L. & SALMON, A. 2007. Supervised injecting facilities: how much evidence is enough? *Drug and Alcohol Review*, 26, 351-353.
7. SHOVELLER, J., DEBECK, K. & MONTANER, J. 2010. Developing Canada's research base for harm reduction and health equity approaches to HIV prevention and treatment. *Canadian Journal of Public Health/Revue Canadienne de Sante'e Publique*, 101, 442-444.
8. STRATHDEE, S. A. & POLLINI, R. A. 2007. A 21st-century Lazarus: the role of safer injection sites in harm reduction and recovery. *Addiction*, 102, 848-849.
9. WOOD, E., KERR, T., LLOYD-SMITH, E., BUCHNER, C., MARSH, D., MONTANER, J. & TYNDALL, M. 2004a. Methodology for evaluating Insite: Canada's first medically supervised safer injection facility for injection drug users. *Harm Reduction Journal*, 1, 1-5.
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11. WOOD, E., TYNDALL, M. W., MONTANER, J. S. & KERR, T. 2006. Summary of findings from the evaluation of a pilot medically supervised safer injecting facility. *Canadian Medical Association Journal*, 175, 1399-1404.

2. EVALUATION OF SIF/DCR IMPACT

Research demonstrates that SIFs/DCRs have the following benefits:

1. SIFs/DCRs attract high-risk drug users (Bravo et al., 2009, Hadland et al., 2014, Kimber et al., 2008a, Kimber et al., 2003b, Reddon et al., 2011, Scherbaum et al., 2009, Stoltz et al., 2007a, van Beek et al., 2004, Wood et al., 2005c, Wood et al., 2006c);
2. SIFs/DCRs manage drug-related overdose and decrease overdose-related mortality (Kerr et al., 2006b, Marshall et al., 2011, Milloy et al., 2008b, Salmon et al., 2010, van Beek et al., 2004, Andresen and Boyd, 2010);
3. SIFs/DCRs enhance safe injecting practice (Bravo et al., 2009, Kerr et al., 2005, Kinnard et al., 2014, Stoltz et al., 2007b, Wood et al., 2005b, Zurhold et al., 2003);
4. SIFs/DCRs decrease public drug use and improve public amenity (Kimber and Dolan, 2007, McKnight et al., 2007, Petrar et al., 2007, Salmon et al., 2007, Thein et al., 2005, van der Poel et al., 2003, Wood et al., 2004c, Zurhold et al., 2003);
5. SIFs/DCRs increase access to treatment and other health and social services (Kimber et al., 2008b, Lloyd-Smith et al., 2008, Lloyd-Smith et al., 2009, Lloyd-Smith et al., 2010, Milloy et al., 2010, Wood et al., 2007, Wood et al., 2006d, Zurhold et al., 2003); and
6. SIFs/DCRs yield cost savings by preventing BBV transmission and fatal overdoses (Andresen and Boyd, 2010, Bayoumi and Zaric, 2008, Markwick et al., 2014, Marshall et al., 2009, Pinkerton, 2010, Pinkerton, 2011, Wood et al., 2005d)

At the same time, research has shown that SIFs/DCRs do not influence the following areas:

7. SIFs/DCRs do not increase drug use and related risks (DeBeck et al., 2011, Kerr et al., 2007c, Lloyd-Smith et al., 2008, Milloy et al., 2010, Milloy et al., 2008a, Richardson et al., 2008, Kerr et al., 2006a); and
8. SIFs/DCRs do not increase crime (Fitzgerald et al., 2010, Freeman et al., 2005, Snowball et al., 2010, Wood et al., 2006a)

The following sections (2.1 – 2.8) describe the research around the impacts of SIFs/DCRs in more detail.

2.1. Attract high risk drug users

A range of studies in a number of settings indicate that SIFs/DCRs are successful in engaging high risk drug users. For example, among PWID attending a SIF/DCR in Germany⁹, high proportions reported histories of incarceration, public injecting, sharing injecting equipment, unstable accommodation and recent contact with psychosocial services, sixty-three percent self-reported HCV infection and twelve percent reported a history of sex work (Scherbaum et al., 2009). In a survey of 249 street-recruited young heroin injectors in Spain, compared to participants who did not attend SIFs, those who did were more likely to be male, to report illegal income, to inject drugs regularly, to use “speedball” (heroin and cocaine injected together), and to test positive to HCV antibodies (Bravo et al., 2009).

In Vancouver, Canada, a prospective cohort study among 414 young injectors living or working on the street revealed that those who reported recent SIF use were older than those who did not; they were also more likely to report daily heroin or cocaine use, public injecting, visiting a “shooting gallery”¹⁰ and spending most of their time in the area where the SIF was located (Hadland et al.,

⁹ In this study, no controls were provided to compare DCR clients with.

¹⁰ Shooting galleries are illicit off-street spaces close to drug markets used for drug injection; despite not highly visible, these are known for rather unsafe injecting practice, high risk of transmitting blood-borne diseases and potentially, concentration of drug trade.

2014). Also in Vancouver, research among 400 participants of the VIDUS cohort¹¹ revealed that PWID who accessed the SIF (Insite) were older than those who did not. They were also more likely to report public injecting, homelessness, daily drug use and recent overdose (Wood et al., 2005c).

Other research has revealed that more frequent SIF/DCR attenders perform as more risky; i.e. most SIF visits are made by PWUD who experience greater vulnerability in various areas. For instance, among 135 SIF attenders drawn from the Vancouver VIDUS cohort, those who attended the SIF daily were more likely than those who did not to report homelessness, public injecting, sharing needle/syringes, bingeing on drugs, daily heroin use, and histories of overdose and incarceration (Stoltz et al., 2007a).

Indicators of increased risk were also documented among 713 participants of the SEOSI cohort¹². In this study, participants who presented at the SIF twice or more per day were more likely than those who presented less than daily to use cocaine or heroin daily, to be homeless and to require help to inject drugs. Conversely, respondents in this study were less likely to attend the SIF daily when currently using methadone (Wood et al., 2006c).

A cohort study of 395 HIV-positive PWID in Vancouver found that participants who used a SIF for a greater proportion of injections were more likely than others to be high-risk users. Participants who reported having more than 25% of their injections at a SIF were more likely to be older, male and homeless, to inject heroin or cocaine daily, and to have experienced non-fatal overdose (Reddon et al., 2011).

Compared to less frequent attenders, the 25% of clients with the patterns of most frequent attendance at Sydney's Medically Supervised Injecting Centre (MSIC) (the "top 25%") were more likely to report daily injection, sex work, public injection and use of drugs other than amphetamine. They were also more likely than less frequent attenders to be a client of a targeted low threshold primary healthcare centre located within 100 metres of MSIC (the Kirketon Road Centre) (Kimber et al., 2003b). Frequency of attendance was also a significant predictor of overdose at MSIC (van Beek et al., 2004).

Overall, MSIC was shown to have a high coverage on the local injecting drug scene; a capture-recapture method which looked into overlaps in the MSIC database with other health datasets revealed that the SIF was attended by up to 71% of injecting drug users (IDUs) from the Kings Cross area (Kimber et al., 2008a).

Reference list – attract high risk drug users

1. BRAVO, M. J., ROYUELA, L., DE LA FUENTE, L., BRUGAL, M. T., BARRIO, G., DOMINGO-SALVANY, A. & THE ITÍNERE PROJECT, G. 2009. Use of supervised injection facilities and injection risk behaviours among young drug injectors. *Addiction*, 104, 614-619.*
2. HADLAND, S. E., DEBECK, K., KERR, T., NGUYEN, P., SIMO, A., MONTANER, J. S. & WOOD, E. 2014. Use of a medically supervised injection facility among street youth. *Journal of Adolescent Health*, 55, 684-689.
3. KIMBER, J., HICKMAN, M., DEGENHARDT, L., COULSON, T. & VAN BEEK, I. 2008a. Estimating the size and dynamics of an injecting drug user population and implications for health service coverage: comparison of indirect prevalence estimation methods. *Addiction*, 103, 1604-1613.
4. KIMBER, J., MACDONALD, M., VAN BEEK, I., KALDOR, J., WEATHERBURN, D., LAPSLEY, H. & MATTICK, R. P. 2003b. The Sydney Medically Supervised Injecting Centre: Client characteristics and predictors of frequent attendance during the first 12 months of operation. *Journal of Drug Issues*, 33, 639-648.
5. REDDON, H., WOOD, E., TYNDALL, M., LAI, C., HOGG, R., MONTANER, J. & KERR, T. 2011. Use of North America's first medically supervised safer injecting facility among HIV-positive injection drug users. *AIDS Education and Prevention: Official Publication of the International Society for AIDS Education*, 23, 412.

¹¹ See section 1.1 for details.

¹² See section 1.1 for details.

6. SCHERBAUM, N., SPECKA, M., BOMBECK, J. & MARRZINI, B. 2009. Drug consumption facility as part of a primary health care centre for problem drug users. Which clients are attracted? *International Journal of Drug Policy*, 20, 447-449.
7. STOLTZ, J.-A. M., WOOD, E., MILLER, C., SMALL, W., LI, K., TYNDALL, M., MONTANER, J. & KERR, T. 2007. Characteristics of young illicit drug injectors who use North America's first medically supervised safer injecting facility. *Addiction Research and Theory*, 15, 63-69.
8. VAN BEEK, I., KIMBER, J., DAKIN, A. & GILMOUR, S. 2004. The Sydney Medically Supervised Injecting Centre: Reducing harm associated with heroin overdose. *Critical Public Health*, 14, 391-406.*
9. WOOD, E., TYNDALL, M. W., LI, K., LLOYD-SMITH, E., SMALL, W., MONTANER, J. S. G. & KERR, T. 2005c. Do supervised injecting facilities attract higher-risk injection drug users? *American Journal of Preventive Medicine*, 29, 126-130.
10. WOOD, E., TYNDALL, M. W., QUI, Z., ZHANG, R., MONTANER, J. S. G. & KERR, T. 2006c. Service uptake and characteristics of injection drug users utilizing North America's first medically supervised safer injecting facility. *American Journal of Public Health*, 96, 770-773.

*included also in 2.2

2.2. Manage overdose and decrease overdose-related mortality

A number of studies in both Vancouver and Sydney demonstrate the significant impacts of SIFs in terms of managing overdose and preventing overdose-related mortality.

In the first 18 months of Sydney MSIC operation, 409 overdoses (80% related to heroin) were managed onsite, occurring with respect to a total of 56,861 injecting episodes. Overdoses were more likely to occur among frequent attendees (van Beek et al., 2004). The operation of MSIC was also associated with a decrease in ambulance attendances at opioid-related overdoses in its vicinity (an area of 3.6 km² surrounding the MSIC) compared to the rest of New South Wales (Salmon et al., 2010).

A study among the SEOSI cohort in Vancouver¹³ revealed that the Insite facility managed overdoses at a rate of 1.33 per 1000 injections. Factors independently associated with time to overdose included fewer years of injecting, daily heroin use and a history of overdose (Kerr et al., 2006b). It has been estimated that 1.7-11.9 deaths were averted annually in Vancouver's SIF (Milloy et al., 2008b).

Also, a 35% reduction in mortality was observed in city blocks within 500m of the Vancouver SIF (Insite) compared to areas without a SIF (Marshall et al., 2011). This estimate was, however, challenged by Christian (Christian et al., 2012), who argued that the decrease was not attributable to SIF operation.

Recently, two contributions have described the rate of overdose with different opioids at Sydney MSIC. One was based on an audit of approximately 200,000 injections by 4,000 clients showing that injection of fentanyl had approximately three times the rate of overdose than heroin (Latimer et al., 2016). The other one examined 2,860 overdoses occurring between January 2007 and April 2014 showing that heroin had about three times the rate of overdose than other prescription opioids (Roxburgh et al., 2017).

Andersen and Boyd (2010) demonstrated that, due to reductions in both overdose-related mortality and HIV transmission, SIFs are cost-effective (Andersen and Boyd, 2010). Details of this study's methodology are provided in section 2.6.

¹³ See section 1.1 for details.

Reference list – manage overdose and decrease overdose-related mortality

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2. KERR, T., TYNDALL, M. W., LAI, C., MONTANER, J. S. G. & WOOD, E. 2006b. Drug-related overdoses within a medically supervised safer injection facility. *International Journal of Drug Policy*, 17, 436-441.
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8. ROXBURGH, A., DARKE, S., SALMON, A. M., DOBBINS, T. & JAUNCEY, M. 2017. Frequency and severity of non-fatal opioid overdoses among clients attending the Sydney Medically Supervised Injecting Centre. *Drug and Alcohol Dependence*, 176, 126-132.

*included also in 2.6; **included also in 2.1

2.3.Enhance safe injecting practice

A Spanish study among a cohort of 249 young heroin injectors living or working on the street revealed that those of them who used SIF(s) were significantly less likely to borrow used syringes. However, SIF users were also more often regular injectors (Bravo et al., 2009).

Among 431 PWID from the VIDUS cohort¹⁴ in Vancouver, Canada who were assessed at follow-up, there was an independent inverse association between (any) SIF use and syringe sharing (Kerr et al., 2005).

Among the Vancouver SEOSI cohort¹⁵, an analysis of data provided by SIF clients with known HIV status who were recruited between March and October 2004 (n=582) showed that the strongest predictor of not borrowing syringes among HIV-negative SIF users was exclusive SIF use (i.e. not consuming drugs anywhere other than the SIF) (Wood et al., 2005b).

Related research in Vancouver found that among the 760 participants of the SEOSI cohort¹⁶, compared to other respondents, those who used SIF for at least 25% of recent injections reported less syringe reuse, greater use of sterile water, more swabbing of injection sites, less rushed injections, and safer syringe disposal (Stoltz et al., 2007b).

A cross-sectional survey in German DCRs of 169 daily, 205 occasional and 143 less than weekly visitors collected self-reported changes in patterns of drug use since first visiting the service. Respondents were more likely to report being more careful about hygiene if they were frequent attenders (46%) than if they attended occasionally (38%) or rarely (28%) (Zurhold et al., 2003).

Among 41 Danish SIF clients from Denmark who were surveyed about their pre- and post-SIF behaviour, 76% reported reductions in risky injection behaviours since attending the service (Kinnard et al., 2014).

¹⁴ See section 1.1 for details.

¹⁵ See section 1.1 for details.

¹⁶ See section 1.1 for details.

A recent contribution has shown that the use of wheel-filtration when injecting prescription opioids increased among the Sydney MSIC clients who had undergone an educational session on-site at the SIF on how to use wheel-filtration (Steele et al., 2017).

Reference list – enhance safe injecting practice

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2. KERR, T., TYNDALL, M., LI, K., MONTANER, J. & WOOD, E. 2005. Safer injection facility use and syringe sharing in injection drug users. *The Lancet*, 366, 316-318.
3. 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 supervised injecting facility in Copenhagen, Denmark. *Harm Reduction Journal*, 11, 1.
4. STOLTZ, J.-A., WOOD, E., SMALL, W., LI, K., TYNDALL, M., MONTANER, J. & KERR, T. 2007a. Changes in Injecting practices associated with the use of a medically supervised safer injection facility. *Journal of Public Health*, 29, 35-39.
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Most recent contribution(s)

7. STEELE, M., SILINS, E., FLAHERTY, I., HILEY, S., BRED, N. & JAUNCEY, M. 2017. Uptake of wheel-filtration among clients of a supervised injecting facility: Can structured education work? *Drug and Alcohol Review*.

*included also in 2.1; **included also in 2.4 and 2.5

2.4. Decrease public drug use and improve public amenity

Several studies have either assessed public injecting among PWID, or conducted community surveys on the perception of changes in public order and amenity, following the opening of a SIF. In Rotterdam, the Netherlands, 83% of 63 DCR clients self-reported “using drugs less often in public” once the DCR commenced operating (van der Poel et al., 2003). Among 1082 participants in the SEOSI cohort¹⁷ in Vancouver, 71% reported reductions in public injecting; and 56% reported less unsafe syringe disposal after becoming SIF clients (Petrar et al., 2007). In addition, two studies cited previously (Section 2.3) also documented reductions in public injecting among SIF/DCR clients (Stoltz et al., 2007b, Zurhold et al., 2003).

These findings are consistent with those of a street-intercept survey of Vancouver residents and community members in the ten city blocks surrounding the Insite SIF. Participants reported significant decreases in public injecting, discarded syringes and injection-related litter after the SIF opened (Wood et al., 2004c). Likewise, in Sydney, Australia, a telephone survey of a random sample of local residents and business operators in the vicinity of Sydney MSIC¹⁸ (Kings Cross), repeated at baseline, after 18 months of operation and more than four years later, also documented perceived decreases in public injecting and public syringe disposal (Salmon et al., 2007). In addition, PWID attending illegal “shooting galleries”¹⁹ in Kings Cross reported shifting from these unsafe settings into Sydney MSIC (Kimber and Dolan, 2007).

¹⁷ See section 1.1 for details.

¹⁸ Sydney Medically Supervised Injecting Centre

¹⁹ Shooting galleries are illicit off-street spaces close to drug markets used for drug injection. Despite their low visibility, they are high-risk settings for unsafe injecting, blood-borne virus transmission and potentially, concentration of drug trade.

As might be expected, community support for SIFs tended to increase as enhancements in public order and public amenity became apparent. In Sydney, telephone surveys of more than 500 local residents and more than 200 business representatives were conducted before and after the Sydney MSIC commenced operations. The proportion of respondents who supported the service increased from 68% before it opened to 78% after; the majority believed that SIF operation reduced public drug use (Thein et al., 2005).

An analysis of data from the Vancouver SEOSI cohort²⁰ (n=714) found that the factors associated with public injecting included homelessness, syringe lending, requiring help injecting and wait times for SIF. The significance of wait times emphasised the importance of easy access to SIFs in reducing public injecting (McKnight et al., 2007).

Reference list – decrease public drug use and improve public amenity

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2. MCKNIGHT, I., MAAS, B., WOOD, E., TYNDALL, M. W., SMALL, W., LAI, C., MONTANER, J. S. & KERR, T. 2007. Factors associated with public injecting among users of Vancouver's supervised injection facility. *The American Journal of Drug and Alcohol Abuse*, 33, 319-325.
3. PETRAR, S., KERR, T., TYNDALL, M. W., ZHANG, R., MONTANER, J. S. G. & WOOD, E. 2007. Injection drug users' perceptions regarding use of a medically supervised safer injecting facility. *Addictive Behaviours*, 32, 1088-1093.
4. SALMON, A. M., THEIN, H.-H., KIMBER, J., KALDOR, J. M. & MAHER, L. 2007. Five years on: What are the community perceptions of drug-related public amenity following the establishment of the Sydney Medically Supervised Injecting Centre? *International Journal of Drug Policy*, 18, 46-53.
5. STOLTZ, 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 safer injection facility. *Journal of Public Health*, 29, 35-39.*
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7. VAN DER POEL, A., BARENDREGT, C. & VAN DE MHEEN, D. 2003. Drug consumption rooms in Rotterdam: an explorative description. *European Addiction Research*, 9, 94-100.*
8. WOOD, E., KERR, T., SMALL, W., LI, K., MARSH, D. C., MONTANER, J. S. G. & TYNDALL, M. W. 2004c. Changes in public order after the opening of a medically supervised safer injecting facility for illicit injection drug users. *Canadian Medical Association Journal*, 171.
9. ZURHOLD, H., DEGKWITZ, P., VERTHEIN, U. & HAASEN, C. 2003. Drug consumption rooms in Hamburg, Germany: Evaluation of the effects on harm reduction and the reduction of public nuisance. *Journal of Drug Issues*, 33, 663-688.**

*included also in 2.5; **included also in 2.3 and 2.5

2.5. Increase access to treatment and other health and social services

At Sydney MSIC, data from 3,715 clients registered during the service's first 18 months of operation indicated that a total of 1,385 verbal or written referrals were provided to 577 clients, a rate of 24 referrals per 1000 visits. Sixteen percent of those who received a written referral were confirmed to have commenced drug treatment. Factors associated with receiving a referral were frequency of SIF attendance, heroin as main drug injected and completion of high school education. Treatment uptake was positively associated with recent sex work and with patterns of more frequent injection, while it was negatively associated with psychiatric illness and self-harm (Kimber et al., 2008b).

In Vancouver, Canada, among the 4,764 clients registered with Insite between March 2004 and April 2005, a total of 2,171 referrals were provided, during 243,701 visits. Referrals were made

²⁰ See section 1.1 for details.

most commonly to drug and alcohol counselling (37%), but also included those made to community health (16%), hospital emergency rooms (11%), detoxification (9%), housing (12%), and methadone maintenance therapy (4%) (Kerr T, 2006). Also in Vancouver, among 1,031 PWID in the SEOSI cohort, the rate of participation in detoxification (assessed through data linkage) increased by 30% in the 12 months after the SIF opened. Among the 18% of clients who entered detoxification, SIF attendance was significantly reduced during the month after discharge (Wood et al., 2007). More rapid entry into detoxification was associated with homelessness, contact with the SIF's addictions counsellor, previous treatment history and weekly SIF attendance (Wood et al., 2006d).

A study described previously (Section 2.3) also reported increased use of other health services among SIF clients, notably among frequent users (Zurhold et al., 2003). In another study (Section 2.4), SIF/DCR clients reported having more time to relax (67%) and attend to their physical health (30%) after becoming clients of a SIFs/DCRs (van der Poel et al., 2003).

Among 1,083 participants in the SEOSI cohort, 22% of respondents received cutaneous injection care onsite at the SIF. The likelihood of receiving this care was higher among women, clients who were homeless, and those who injected heroin daily (Lloyd-Smith et al., 2009). In a related study, 49% of clients' hospital admissions were related to cutaneous injection-related infection. Hospitalisation was more common among clients who were HIV positive, and who were referred to the hospital by a SIF nurse. Length of stay in the hospital was, however, significantly shorter for those referred by the SIF nurse (Lloyd-Smith et al., 2010).

Reference list – increase access to treatment and other health and social services

1. KIMBER, J. O., MATTICK, R. P., KALDOR, J., VAN BEEK, I., GILMOUR, S. & RANCE, J. A. 2008b. Process and predictors of drug treatment referral and referral uptake at the Sydney Medically Supervised Injecting Centre. *Drug and Alcohol Review*, 27, 602-612.
2. LLOYD-SMITH, E., WOOD, E., ZHANG, R., TYNDALL, M. W., MONTANER, J. S. & KERR, T. 2009. Determinants of cutaneous injection-related infection care at a supervised injecting facility. *Annals of Epidemiology*, 19, 404-409.
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6. WOOD, E., TYNDALL, M. W., ZHANG, R., MONTANER, J. S. G. & KERR, T. 2007. Rate of detoxification service use and its impact among a cohort of supervised injecting facility users. *Addiction*, 102, 916-919.
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8. ZURHOLD, H., DEGKWITZ, P., VERTHEIN, U. & HAASEN, C. 2003. Drug consumption rooms in Hamburg, Germany: Evaluation of the effects on harm reduction and the reduction of public nuisance. *Journal of Drug Issues*, 33, 663-688.***

* included also in 2.4; **included also in 4.2; *** included also in 2.3 and 2.4

2.6. Prevent BBV transmission and yield cost savings

Section 2.3 provided an overview of papers documenting safer injecting practice among SIF clients. Other HIV- and HCV-related interventions including education, provision of condoms, and BBV screening are also delivered in SIFs/DCRs (see section 4.4 for papers that provide an overview of the operational aspects of SIFs).

In Vancouver, among 874 SIF clients recruited to the SEOSI cohort²¹, 34% reported receiving safer injecting education at the service. While receiving this education was only weakly associated with daily SIF attendance, other factors such as requiring help with injection or sex trade involvement increased the likelihood of having received this education (Wood et al., 2005d).

Another study among the SEOSI cohort²² (n=1,090) reported that the consistent use of condoms increased within a period of six months from 33% to 70% among SIF clients, although this change was not associated with the frequency of SIF use (Marshall et al., 2009). A later Vancouver study among the VIDUS cohort of 600 PWID²³ revealed that SIF clients were more willing than others to participate in peer-delivered HIV counselling and testing (Markwick et al., 2014).

The Vancouver Insite facility has been subjected to cost-benefit analysis by a number of different research groups, based on estimates of the number of HIV cases averted, sometimes in combination with HCV cases averted and fatal overdoses prevented. Over a period of 10 years, 1,191 HIV and 54 HCV infections were estimated to have been averted due to safer practices and entry into treatment through SIF, yielding estimated net incremental savings of 14–20 million Canadian dollars (Bayoumi and Zaric, 2008).

Another study estimated that approximately 35 HIV cases and three deaths were prevented by Vancouver Insite per year, yielding an estimated net annual benefit of 6 million Canadian dollars (Andresen and Boyd, 2010). Pinkerton (2011), however, suggested that the findings presented by Andersen and Boyd presented above should be revised, yielding a more conservative estimate such that the service prevented 5-6 HIV infections each year (Pinkerton, 2011).

In another study by Pinkerton (2010) it was estimated that 83.5 HIV cases could be averted annually, saving 17.6 million Canadian dollars in lifetime HIV-related medical care costs. This amount greatly exceeded the SIF's operating costs of approximately 3 million Canadian dollars per year. Notably, of these 83.5 HIV infections, only 2.8 were estimated to be attributable to the provision of the onsite injecting space, with the remainder attributed to the needle-syringe program run by Insite (Pinkerton, 2010).

A recent study from Spain has shown that among 2,243 PWID, those who have used SIF were less likely to have undiagnosed HIV infection. SIF participation, however, was not shown as a significant factor when assessing the rate of undiagnosed hepatitis C (Parés-Badell et al., 2017).

Reference list – interventions to decrease HIV/HCV

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2. BAYOUMI, A. M. & ZARIC, G. S. 2008. The cost-effectiveness of Vancouver's supervised injection facility. *Canadian Medical Association Journal*, 179, 1143-1151.

²¹ See section 1.1 for details.

²² See section 1.1 for details.

²³ See section 1.1 for details.

3. MARKWICK, N., TI, L., CALLON, C., FENG, C., WOOD, E. & KERR, T. 2014. Willingness to engage in peer-delivered HIV voluntary counselling and testing among people who inject drugs in a Canadian setting. *Journal of Epidemiology and Community Health*, 66, 675-678.
4. MARSHALL, B. D. L., WOOD, E., ZHANG, R., TYNDALL, M. W., MONTANER, J. S. G. & KERR, T. 2009. Condom use among injection drug users accessing a supervised injecting facility. *Sexually Transmitted Infections*, 85, 121-126.
5. PINKERTON, S. D. 2010. Is Vancouver Canada's supervised injection facility cost-saving? *Addiction*, 105, 1429-1436.
6. PINKERTON, S. D. 2011. How many HIV infections are prevented by Vancouver Canada's supervised injection facility? *International Journal of Drug Policy*, 22, 179-183.
7. WOOD, E., TYNDALL, M. W., STOLTZ, J.-A., SMALL, W., ZHANG, R., O'CONNELL, J., MONTANER, J. S. G. & KERR, T. 2005b. Safer injecting education for HIV prevention within a medically supervised safer injecting facility. *International Journal of Drug Policy*, 16, 281-284.

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8. PARÉS-BADELL, O., ESPELT, A., FOLCH, C., MAJÓ, X., GONZÁLEZ, V., CASABONA, J. & BRUGAL, M. T. 2017. Undiagnosed HIV and Hepatitis C infection in people who inject drugs: From new evidence to better practice. *Journal of Substance Abuse Treatment*, 77, 13-20.

*included also in 2.2

2.7. SIFs/DCRs do not increase drug use and related risks

The body of evidence investigating the contention that SIFs encourage drug use comes exclusively from Vancouver. This research did not support the notion that drug use increases in response to SIF establishment; on the contrary, SIF participation was shown to contribute to drug cessation. The studies likewise suggested that SIFs/DCRs were not associated with increased rates of other adverse outcomes including injecting-related injury, overdose or unemployment.

A Canadian study that extrapolated data from the SEOSI cohort²⁴ found that the rates of initiation into injecting did not increase in the community of drug users in Vancouver after a SIF was opened (Kerr et al., 2007c). A related study comparing data provided by the VIDUS cohort of injecting drug users²⁵ found no significant change in the rate of relapse in injecting before and after the SIF opened (17% vs. 20%). Likewise, there was no change to the rate of cessation of injecting (17% vs. 15%); nor to the rate of entry into treatment (Kerr et al., 2006a).

Another study, undertaken between December 2003 and June 2006 among 1,090 SIF clients in the Vancouver SEOSI cohort, indicated that participation in methadone maintenance therapy was a strong independent predictor of injecting cessation. Participants who used SIF regularly at baseline were more likely to access treatment and thus, cease injecting (DeBeck et al., 2011).

A study of the development of cutaneous infection among the SEOSI cohort²⁶ of SIF participants in Vancouver found no difference in rates of infection between participants who always used the SIF and those who never did. Infection was more common among clients who were male, unstably housed, and who reported borrowing syringes, requiring help to inject and daily cocaine injection (Lloyd-Smith et al., 2008). Later research among this sample found that the development of cutaneous infection was associated with recent incarceration and public drug use, but, not with regular SIF use, measured as undertaking >75% of injections at the SIF (Milloy et al., 2010).

Another study among the SEOSI cohort²⁷ of SIF users in Vancouver, Canada conducted between 2003 and 2005 (n=1,090) revealed that the proportion of overdoses among the respondents remained constant over the study period. Factors associated with recent non-fatal overdose were

²⁴ See section 1.1 for details.

²⁵ See section 1.1 for details.

²⁶ See section 1.1 for details.

²⁷ See section 1.1 for details.

sex trade involvement and public drug use (Milloy et al., 2008a). A different study among the same cohort revealed that the use of SIF (measured as >25% of injections) was not associated with the likelihood of being unemployed (Richardson et al., 2008).

Reference list – SIFs/DRCs do not increase drug use and related risks

1. DEBECK, K., KERR, T., BIRD, L., ZHANG, R., MARSH, D., TYNDALL, M., MONTANER, J. & WOOD, E. 2011. Injection drug use cessation and use of North America's first medically supervised safer injecting facility. *Drug and Alcohol Dependence*, 113, 172-176.
2. KERR, T., STOLTZ, J.-A., TYNDALL, M., LI, K., ZHANG, R., MONTANER, J. & WOOD, E. 2006a. Impact of a medically supervised safer injection facility on community drug use patterns: a before and after study. *British Medical Journal*, 332, 220-222.
3. KERR, T., TYNDALL, M. W., ZHANG, R., LAI, C., MONTANER, J. S. G. & WOOD, E. 2007c. Circumstances of first injection among illicit drug users accessing a medically supervised safer injection facility. *American Journal of Public Health*, 97, 1228-1230.
4. LLOYD-SMITH, E., WOOD, E., ZHANG, R., TYNDALL, M., MONTANER, J. & KERR, T. 2008. Risk factors for developing a cutaneous injection-related infection among injection drug users: a cohort study. *BMC Public Health*, 8, 1-6.
5. MILLOY, M. J., WOOD, E., LLOYD-SMITH, E., GRAFSTEIN, E., TYNDALL, M., MONTANER, J. & KERR, T. 2010. Recent incarceration linked to cutaneous injection-related infections among active injection drug users in a Canadian setting. *Journal of Community Health*, 35, 660-666.
6. MILLOY, M.-J. S., KERR, T., MATHIAS, R., ZHANG, R., MONTANER, J. S., TYNDALL, M. & WOOD, E. 2008a. Non-fatal overdose among a cohort of active injection drug users recruited from a supervised injection facility. *The American Journal of Drug and Alcohol Abuse*, 34, 499-509.
7. RICHARDSON, L., WOOD, E., ZHANG, R., MONTANER, J., TYNDALL, M. & KERR, T. 2008. Employment among users of a medically supervised safer injection facility. *The American Journal of Drug and Alcohol Abuse*, 34, 519-525.

2.8.SIFs/DCRs do not increase crime

Increases in crime were not observed in the vicinity of newly established SIFs in either Sydney or Vancouver. More specifically, in Vancouver, Canada, when crime rates were measured in the neighbourhood the year before and the year after SIF opening, no influence of the SIF on drug-related crime in the vicinity was found (Wood et al., 2006a).

Likewise, in the Kings Cross area where the Sydney MSIC is located, a time-series analysis of police-recorded trends in drug-related property and violent crime revealed no significant change in drug crimes in the vicinity of the service before and after its opening (Freeman et al., 2005).

In fact, further studies that compared this trend with trends in other areas of Sydney concluded that with a few minor exceptions, the incidence of robbery and property offences in Kings Cross fell between 2001 and 2010 (coinciding with the period of SIF operation), with a decrease in overall crime. This pattern was consistent with those observed in other neighbourhoods (Fitzgerald et al., 2010). Finally, another study confirmed the decline of robbery and other property crime in Kings Cross between 2001 and 2007. Findings were mixed with respect to “primary drug crimes”²⁸; although cocaine possession increased (consistent with other areas), the possession of narcotics decreased (Snowball et al., 2010).

Reference list – SIFs/DRCs do not increase crime

1. FITZGERALD, J., BURGESS, M. & SNOWBALL, L. 2010. Trends in property and illicit drug crime around the Medically Supervised Injecting Centre in Kings Cross: an update. *Crime and Justice Statistics*, 51, 1-6.

²⁸ “Primary drug crimes” are such that are related to the possession, sale and production of drugs, as opposed to the “secondary drug crimes” that include acquisitive crime to “fund drug habits” or other types of crimes related to drug use.

2. FREEMAN, K., JONES, C. G., WEATHERBURN, D. J., RUTTER, S., SPOONER, C. J. & DONNELLY, N. 2005. The impact of the Sydney Medically Supervised Injecting Centre (MSIC) on crime. *Drug and Alcohol Review*, 24, 173-184.
3. SNOWBALL, L., BURGESS, M. & FITZGERALD, J. 2010. Trends in property and illicit drug crime around the Medically Supervised Injecting Centre in Kings Cross: an update. *Crime and Justice Statistics*, 51.
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3. STUDIES USING QUALITATIVE METHODS

Studies which focus on clients' subjective experiences of and perspectives on SIFs, using methods such as in-depth interviews and identification of common themes, can be used to enrich and contextualise results such as those presented in Section 2 (*Evaluation of SIF/DCR impact*) relating to the impacts of SIFs. Several studies used qualitative methods to provide in-depth insights into the client and staff perceptions of the SIFs/DCRs service operation (see 3.1) or into the paradigm(s) surrounding SIF/DCR establishment (see 3.2).

3.1. Qualitative research into the perceptions about SIF/DCR operation among the clients and staff

Qualitative studies have shown the potential to reduce injecting-related harm and overdose and improve access to health and social services (Jozaghi, 2012a, Jozaghi and Andresen, 2013, Small et al., 2012). SIFs can effectively address gaps in clients' knowledge about safe injecting by providing education and demonstration (Fast et al., 2008). SIFs/DCRs were also shown to have the potential to shape the risk environment for overdose, especially among street-based drug users (Kerr et al., 2007b). The fact that nurses are employed in SIFs/DCRs can significantly improve drug users' access to health services (Small et al., 2008).

The detailed client accounts drawn from qualitative research conducted in Vancouver, Canada, served to support and contextualises the evidence summarised above. It has been pointed out that while from a policy or service provision perspective, SIFs can reduce the risks related to drug injecting, from the clients' perspective, a broad range of risks are reduced, notably those related to criminalisation (Small et al., 2012). In this respect, SIFs/DCRs provide a unique space for discussing drug use devoid of the otherwise punitive context (McNeil et al., 2014). Research from the SIF in Sydney, Australia found the service facilitated the establishment of trusted contacts through what has been described as "accidental intimacy" (Rance and Fraser, 2011). For many clients in Danish cities, the SIFs represent a safe haven (Kappel et al., 2016) and act as a *de facto* "community centre" in Vancouver, Canada (Jozaghi, 2012a). For women in Vancouver, the SIF is a safe place to escape violence and to take control of their drug use (Fairbairn et al., 2008). A Canadian study described the "medicalized" discourse of drug use as a "tool" that can target and overcome the high level of vulnerability faced by PWID, notably in terms of reducing the associated stigma and criminal risks (Ben-Ishai, 2012).

Qualitative research has also informed understanding of the barriers PWID perceive to accessing SIFs/DCRs. For example, access to SIFs/DCRs can be hindered by fear of stigma and discrimination (Krüsi et al., 2009). Waiting times in the ante-room at the Vancouver SIF were shown to be the strongest deterrent to using the service (Small et al., 2011b). Other perceived barriers related to the capacity limits of the SIF/DCR were described, such as its restricted operating hours, or policies prohibiting sharing drugs and assisted injecting (Small et al., 2011a). Research among participants in two Canadian cities without SIFs emphasised that client preferences in terms of routes of drug administration should be taken into account when designing a DCR (Watson et al., 2013). An

international synthesis of qualitative research argued that harm reduction interventions (including SIFs/DCRs) should be embedded within the existing spatial and social relations, i.e. located at the current drug scenes, rather than subjected to urban planning that might place them in locations inconvenient for clients (Rhodes et al., 2006).

Among staff in Switzerland, a number of ethical conflicts related to working in a DCR have been identified. These have been addressed at the service level through development of policies and procedures around issues such as whether to assist clients to inject, client refusal to seek treatment despite poor health, self-mutilation, or non-participation in proposed activities (Solai et al., 2006). Notably, access to SIF by youth (under the age of 18) has emerged as a major ethical issue in research conducted in two Canadian cities without SIFs (Watson et al., 2015).

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3.2. Qualitative research around establishment of SIFs/DCRs

Several research contributions have described the experience of establishing DCRs in different settings. Within analyses of documents and in-depth stakeholders' accounts pertaining to SIF/DCR opening, a variety of discourses are presented, ranging from medical and social to those based on human rights.

Research has captured the accounts of advocates involved in the establishment of DCRs in Denmark, whose work stemmed predominantly from policies assisting socially marginalised individuals (Ankjærgaard et al., 2015). In Canada, a shift in the cultural understanding of addiction was required before a DCR could be opened (Small, 2016). Researchers in Canada have argued that establishment of SIFs/DCRs is not purely an issue of scientific evidence, but also one of fundamental human rights (Hathaway and Tousaw, 2008).

At the same time, analysis of the discourse in Vancouver has demonstrated that despite the large scale of activism and care, advocacy for DCRs has adopted neoliberal arguments (Elliott, 2014). For some, the establishment of a DCR in Vancouver can be seen as a way to impose social control and responsibility on drug users (Fischer et al., 2004). While debate around establishing DCRs can be informed by the aim of enhancing health and welfare outcomes, the SIF in Sydney, Australia was, in fact, established in response to police corruption (Fitzgerald, 2013).

Interviews and focus groups with community stakeholders in Canadian cities where SIFs/DCRs are yet to open reveal significant ambivalence about SIFs, driven by a lack of knowledge and understanding about these services. Concerns relate to a perceived lack of appropriate localities, potential harm to local businesses, the risk of renewed social problems reduced by gentrification, and the potential that resources directed to fund SIFs would compete with prevention and treatment (Strike et al., 2015). Interviews conducted with police representatives in Toronto and Ottawa revealed that their perspectives on research evidence are different to those accepted by the academic community (Watson et al., 2012).

Stakeholders have been interviewed during studies of the feasibility of establishing SIFs/DCRs in settings where they are yet to operate. In Ireland, policy makers report mixed feelings and reluctance to change the law to accommodate SIF operations; there was no SIF/DCR in operation in Ireland at the time of writing this review (O'Shea, 2007). In San Francisco, the community reported concern about the impact of DCRs on already deteriorated public amenities; and was reluctant to accept the harm reduction paradigm (Wenger et al., 2011). In Tijuana, Mexico, key stakeholders considered SIFs as acceptable, but identified a number of barriers to implementation, including religion, police, and lack of political will, public awareness and funding (Philbin et al., 2009).

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4. DESCRIPTION OF SIF/DCR SERVICES AND CLIENTS

A number of papers were published in peer-reviewed journals that provide description(s) of SIF/DCR operation (see 4.1) and of SIF/DCR clients (see 4.2).

4.1. Description of SIFs/DCRs service provision

Several scientific papers described the service provision and general experience with drug consumption rooms in different places in the world, most notably in:

- Sydney, Australia (Jauncey et al., 2010, White, 2012, van Beek, 2003);
- Vancouver, Canada (Golden et al., 2013, Wood et al., 2003b);
- Germany (Michels and Stöver, 2012, Stoeber, 2002);
- The Netherlands (de Jong and Weber, 1999, Wolf et al., 2003)
- Norway (Skretting and Olsen, 2008);
- Spain (Anoro et al., 2003, Dietze et al., 2012);
- Europe as a whole (Dolan et al., 2000, Kimber et al., 2005);
- various countries around the world (Broadhead et al., 2002, Hagan, 2002, Broadhead, 2003).

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4.2. Description of SIF/DCR clients

Studies have described the characteristics of clients attending SIFs/DCRs (beyond the information presented in Section 2.1). These studies investigated:

- attendance patterns of SIFs/DCRs clients in Switzerland (Dubois-Arber et al., 2008) and in Canada (Kerr T, 2006), including the seasonality with respect to welfare payments in Canada (Zlotorzynska et al., 2014);
- HIV and HCV seroprevalence status in Sydney, Australia (Salmon et al., 2009b) and in Vancouver, Canada (Tyndall et al., 2006, Wood et al., 2005a);
- injecting practice, education or related injury in Sydney, Australia (Salmon et al., 2009a) and in Vancouver, Canada (Pedersen et al., 2016, Wood et al., 2008b, Lloyd-Smith et al., 2012);
- factors associated with having been referred to the SIF in Vancouver, Canada by the police (DeBeck et al., 2008);
- other medical issues, such as echocardiographic abnormalities among SIF clients in Denmark (Axelsson et al., 2014);
- the most recent contributions have described the characteristics of DCR clients in Denmark (Toth et al., 2016), the outcomes of mental health assessment among Sydney MSIC clients (Goodhew et al., 2016), and the use of injecting pharmaceutical preparations at Sydney MSIC (Lafferty et al., 2017) and in German DCRs (Schulte et al., 2016).

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Most recent contribution(s)

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*included also in 2.5

5. LAWS AND POLICIES SURROUNDING SIFs/DCRs

A significant body of literature has described the laws and regulations surrounding SIFs/DCRs (see 5.1) and how such laws and regulations were developed (see 5.2).

5.1. Description of laws and regulations surrounding SIFs/DCRs

Several peer-reviewed papers and reports have described the laws and policies governing the operations of SIFs/DCRs, notably in Canada. International legal perspectives were also described, as well as the legislative options for developing SIFs/DCRs in the United States. The legal aspects of opening a SIF/DCR were described in the following contexts:

- international legal framework for establishment of SIFs/DCRs (Malkin et al., 2003);
- laws and regulations governing SIF operation in Vancouver, Canada (Bowal and Horvat, 2013, Christie et al., 2004, Chu, 2010, Dooling and Rachlis, 2010, Fortson, 2006, Sheldon et al., 2013, Small, 2010);

- broader description of the Canadian policies relating to SIFs (Bayoumi and Strike, 2016, Boyd, 2013, Elliott et al., 2002, Small, 2012, Sutton, 2014, Webster, 2013); and
- the legislative options for establishing SIFs/DCRs in the United States, where they are yet to be implemented (Beletsky et al., 2008, Burris et al., 2009).

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5.2. Policy implementation and development

Another significant body of literature has focused on how policies surrounding SIFs/DCRs operation were developed and the main issues surrounding them. This work describes the way in which the “European model” was transferred to Australia and Canada, how it was developed in Denmark, or the reasons why certain countries (e.g., the UK, France) encounter more substantial challenges than others. Contributions relating to SIF/DCR policies include:

- general notes on the evidence and policy issues surrounding SIFs/DCRs (Fry et al., 2006);
- description of how the SIF/DCR model was transferred from Europe to Australia and Canada (McCann and Temenos, 2015);
- how evidence, public support and bi-partisan politics helped to transfer the Sydney SIF from trial to a permanent service in Australia (Jauncey et al., 2011); the role of advocacy on different jurisdictional levels in Australia (Williams, 2016); and the personal experience of the SIF establishment in Sydney, Australia described by the founding director (van Beek, 2004);
- how the Canadian government treated the research evidence from the Vancouver Insite evaluation (Wood et al., 2008a); how moral judgment impeded policies despite the large body of evidence in

Canada (Zlotorzynska et al., 2013); and how the establishment of a SIF in Vancouver impacted on any future scaling-up of the service in Canada (Hyshka et al., 2013);

- policy development in favourable political climate in Denmark (Houborg and Frank, 2014);
- the barriers to SIF/DCR implementation in France, including the fear of increasing the presence of drug users and of “sending the wrong message” about the acceptability of drug use (Jauffret-Roustide et al., 2013);
- reasons why SIFs/DCRs were opened in Germany, but not in the UK given the different potential for city-level policies, media reporting and historical developments of drug scenes (Lloyd et al., 2016); further barriers for SIF implementation in the UK (Lloyd and Hunt, 2007); and finally, comparison of developments in Canada and the UK (Hayle, 2015); and
- the recent contributions have focused on development of the policies around SIF in different Canadian jurisdictions (Fischer et al., 2016, Hayle, 2017, Longhurst and McCann, 2016, Wild et al., 2017).

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13. ZLOTORZYNSKA, M., WOOD, E., MONTANER, J. S. & KERR, T. 2013. Supervised injection sites: Prejudice should not trump evidence of benefit. *Canadian Medical Association Journal*, 185, 1303-1304.

Most recent contribution(s)

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15. HAYLE, S. 2017. A tale of two Canadian cities: Comparing supervised consumption site (SCS) policy making in Toronto and Vancouver. *Drugs: Education, Prevention and Policy*, 1-11.
16. LONGHURST, A. & MCCANN, E. 2016. Political struggles on a frontier of harm reduction drug policy: geographies of constrained policy mobility. *Space and Polity*, 20, 109-123.
17. WILD, T. C., PAULY, B., BELLE-ISLE, L., CAVALIERI, W., ELLIOTT, R., STRIKE, C., TUPPER, K., HATHAWAY, A., DELL, C. & MACPHERSON, D. 2017. Canadian harm reduction policies: A comparative content analysis of provincial and territorial documents, 2000–2015. *International Journal of Drug Policy*, 45, 9-17.

6. THE POTENTIAL FOR ESTABLISHING SIFs/DCRs IN DIFFERENT LOCALITIES

Several papers were published in peer-reviewed journals such that explored the rationale for scaling up SIFs/DCRs into the localities where they were not previously established (see 6.1), that surveyed people who use drugs about their willingness to attend SIFs/DCRs in such localities (see 6.2) and that quantified the economic benefits of SIFs/DCRs being established or scaled up (see 6.3).

6.1. Rationale for scaling up SIFs/DCRs

Several peer-reviewed papers have argued for the need to scale-up SIFs/DCRs to new localities and to the countries that are yet to establish them. The following papers have provided:

- rationale for establishing SIFs/DCRs in Canada based on European and Australian experiences, prior to the opening of the Vancouver site (Fischer et al., 2002) and later, for expansion to other Canadian cities (Jozaghi, 2012b, Kazatchkine, 2011);
- arguments for up-scaling the SIFs/DCRs service, notably to Melbourne, Australia (Malkin, 2001);
- rationale for establishing SIFs/DCRs in Norway (Skretting, 2002) or in the United Kingdom (Wright and Tompkins, 2004) and commentary on the plans to establish a SIF in Ireland (Houston, 2016);
- arguments for a global scaling-up of SIFs/DCRs (Kerr et al., 2008, Skretting, 2002); and
- the recent contributions have focused on the potential to establish multiple SIFs/DCRs across Canada (Aubin, 2016, Jozaghi, 2016, Lefebvre et al., 2016) or one SIF/DCR in Melbourne, Australia (Rio and Epstein, 2017); SIFs/DCRs were also discussed as suitable interventions to be implemented in the United States (Crowley et al., 2017, Nadelmann and LaSalle, 2017, Wakeman, 2017).

Reference list – Rationale for scaling up SIFs/DCRs

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2. FISCHER, B., REHM, J., KIM, G. & ROBINS, A. 2002. Safer injecting facilities (SIFs) for injection drug users (IDUs) in Canada: A review and call for an evidence-focused pilot trial. *Canadian Journal of Public Health*, 93, 336-338.
3. HOUSTON, M. 2016. Ireland is to install supervised injecting rooms. *British Medical Journal*, 352, i406.
4. JOZAGHI, E. 2012b. Science versus politics: the need for supervised injection facilities in Montreal, Canada. *International Journal of Drug Policy*, 23, 420-421.
5. KAZATCHKINE, C. 2011. Supervised injection sites in Quebec: one step closer to reality. *HIV/AIDS Policy & Law Review/Canadian HIV/AIDS Legal Network*, 15, 15.
6. KERR, T., MONTANER, J. & WOOD, E. 2008. Supervised injecting facilities: time for scale-up? *The Lancet*, 372, 354-355.
7. MALKIN, I. 2001. Establishing supervised injecting facilities: A responsible way to help minimise harm. *Melbourne University Law Review*, 25.
8. SKRETTING, A. 2002. Public injection rooms, a help to heroin addicts? *Nordic Studies on Alcohol and Drugs*, 19, 33-49.
9. WRIGHT, N. M. & TOMPKINS, C. 2004. Supervised injecting centres. *British Medical Journal*, 328, 100-102.

Most recent contribution(s)

10. AUBIN, S. 2016. Safe Injection Sites and Needle Exchange Programs: An Important Part of Ensuring Health to Injection Drug Users. *Revue interdisciplinaire des sciences de la santé-Interdisciplinary Journal of Health Sciences*, 1, 17-22.
11. CROWLEY, R., KIRSCHNER, N., DUNN, A. S. & BORNSTEIN, S. S. 2017. Health and Public Policy to Facilitate Effective Prevention and Treatment of Substance Use Disorders Involving Illicit and Prescription Drugs: An American College of Physicians Position Paper - Substance Use Disorders Involving Illicit and Prescription Drugs. *Annals of Internal Medicine*, 166, 733-736.
12. JOZAGHI, E. 2016. Morality versus the scientific evidence: the story behind Bill C-2. *Journal of Substance Use*, 21, 225-227.
13. LEFEBVRE, C., CROSBY, L. & KOVACS-LITMAN, A. 2016. Inside Insite: The cost-effectiveness of supervised injection facilities. *University of Western Ontario Medical Journal*, 85, 61-62.

14. RIO, I. M. & EPSTEIN, J. 2017. The medical coalface of the heroin epidemic. *The Medical Journal of Australia*, 206, 484-485.
15. WAKEMAN, S. E. 2017. Another Senseless Death - The Case for Supervised Injection Facilities. *New England Journal of Medicine*, 376, 1011-1013.

6.2. Surveys on the acceptability of SIFs/DCRs among potential clients

In a number of countries, surveys assessed the willingness of PWID/PWUD to attend a SIF/DCR, if it was made available. In several studies, surveys included questions about specific policies that might make the service more or less acceptable to the potential clients. Several studies explored the acceptability of SIFs/DCRs in:

- Australia prior to the SIF in Sydney had opened (van Beek and Gilmour, 2000); in relation to the policies and procedures of the Sydney MSIC that might make the program more attractive to potential clients (Fry, 2002); and in Melbourne, where SIFs are yet to be established despite ongoing calls for such a service throughout the past 20 years (Fry et al., 1999);
- Vancouver, Canada, prior to the opening of Insite (Kerr et al., 2003, Wood et al., 2003a). In his commentary on this work, Fry drew attention to the importance of service design (Fry, 2003); another study from Vancouver, Canada also verified that those who expressed willingness to use a SIF actually did so when it was opened (DeBeck et al., 2012);
- Montreal (Green et al., 2003, Green et al., 2004) and Ottawa (Shaw et al., 2015, Navarro and Leonard, 2004) in Canada, where at the time of writing, SIFs/DCRs remain to be established;
- the UK (Hunt et al., 2007) and the US (Broadhead et al., 2003, Kral et al., 2010) where SIFs/DCRs are yet to be established; and
- the recent contributions have explored the willingness of people who use drugs to access a DCR/SIF in Rhode Island, US (Bouvier et al., 2017) and in London, UK (Butler et al., 2016).

Reference list – Surveys on the acceptability of SIFs/DCRs among potential clients

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2. BROADHEAD, R. S., BORCH, C. A., Yael VAN, H., FARRELL, J. & ET AL. 2003. Safer injection sites in New York City: A utilization survey of injection drug users. *Journal of Drug Issues*, 33, 733-750.
3. DEBECK, K., KERR, T., LAI, C., BUXTON, J., MONTANER, J. & WOOD, E. 2012. The validity of reporting willingness to use a supervised injecting facility on subsequent program use among people who use injection drugs. *The American Journal of Drug and Alcohol Abuse*, 38, 55-62.
4. FRY, C., FOX, S. & RUMBOLD, G. 1999. Establishing safe injecting rooms in Australia: attitudes of injecting drug users. *Australian and New Zealand Journal of Public Health*, 23, 501-504.
5. FRY, C. L. 2002. Injecting drug user attitudes towards rules for supervised injecting rooms: Implications for uptake. *International Journal of Drug Policy*, 13, 471-476.
6. FRY, C. L. 2003. Safer injecting facilities in Vancouver: considering issues beyond potential use. *Canadian Medical Association Journal*, 169, 777-778.
7. GREEN, T., HANKINS, C., PALMER, D., BOIVIN, J.-F. & PLATT, R. 2003. Ascertaining the need for a supervised injecting facility (SIF): The burden of public injecting in Montreal, Canada. *Journal of Drug Issues*, 33, 713-731.
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9. HUNT, N., LLOYD, C., KIMBER, J. & TOMPKINS, C. 2007. Public injecting and willingness to use a drug consumption room among needle exchange programme attendees in the UK. *International Journal of Drug Policy*, 18, 62-65.
10. KERR, T., WOOD, E., SMALL, D., PALEPU, A. & TYNDALL, M. W. 2003. Potential use of safer injecting facilities among injection drug users in Vancouver's Downtown Eastside. *Canadian Medical Association Journal*, 169, 759-763.
11. KRAL, A. H., WENGER, L., CARPENTER, L., WOOD, E., KERR, T. & BOURGOIS, P. 2010. Acceptability of a safer injection facility among injection drug users in San Francisco. *Drug and Alcohol Dependence*, 110, 160-163.
12. NAVARRO, C. & LEONARD, L. 2004. Prevalence and factors related to public injecting in Ottawa, Canada: implications for the development of a trial safer injecting facility. *International Journal of Drug Policy*, 15, 275-284.

13. SHAW, A., LAZARUS, L., PANTALONE, T., LEBLANC, S., LIN, D., STANLEY, D., CHEPESIUK, C., PATEL, S. & TYNDALL, M. 2015. Risk environments facing potential users of a supervised injection site in Ottawa, Canada. *Harm Reduction Journal*, 12, 1.
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Most recent contribution(s)

15. BOUVIER, B. A., ELSTON, B., HADLAND, S. E., GREEN, T. C. & MARSHALL, B. D. 2017. Willingness to use a supervised injection facility among young adults who use prescription opioids non-medically: a cross-sectional study. *Harm Reduction Journal*, 14, 13.
16. BUTLER, G., CHAPMAN, D. & TERRY, P. 2016. Attitudes of intravenous drug users in London towards the provision of drug consumption rooms. *Drugs: Education, Prevention and Policy*, 1-7.

6.3. Surveys on the acceptability of SIFs/DCRs among the public

In addition, in some localities, surveys among the general public have explored the acceptability of and public opinion around SIFs/DCRs. These include the following papers:

- in Ontario, Canada where SIFs/DCRs are yet to be established, 60% of respondents to a public opinion survey supported establishing such service (Cruz et al., 2007);
- subsequently, public support for SIFs in Ontario increased, as a result of increased media coverage (Strike et al., 2014);
- a later survey in Ontario, Canada, explored attitudes to supervised smoking rooms, revealing that the public knew little about the intervention and just over one-half of respondents 'somewhat' agreed with SIF/DCR implementation (Strike et al., 2016);
- for changes in public opinion, surveys before and after SIF opened in Sydney, Australia, see Section 2.4;
- a recent contribution has focused on the public opinion about SIFs/DCRs in two Canadian cities, Ottawa and Toronto (Kolla et al., 2017).

Reference list – Surveys on acceptability of SIFs/DCRs among the public

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2. STRIKE, C., JAIRAM, J. A., KOLLA, G., MILLSON, P., SHEPHERD, S., FISCHER, B., WATSON, T. M. & BAYOUMI, A. M. 2014. Increasing public support for supervised injection facilities in Ontario, Canada. *Addiction*, 109, 946-953.
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Most recent contribution(s)

4. KOLLA, G., STRIKE, C., WATSON, T. M., JAIRAM, J., FISCHER, B. & BAYOUMI, A. M. 2017. Risk creating and risk reducing: Community perceptions of supervised consumption facilities for illicit drug use. *Health, Risk & Society*, 19, 91-111.

6.4. Cost effectiveness of scaling up SIFs/DCRs

A number of studies applied economic modelling to the hypothetical scenarios of up-scaling the SIF/DCR model into other localities in Canada. They have presented the following results:

- If the capacity of Insite was expanded at its current location in Vancouver, 22 cases of HIV could be averted each year, yielding cost savings of 3.09 Canadian dollars for every dollar invested (Andresen and Jozaghi, 2012).
- Depending on the number of SIFs established in Ottawa, between 5 and 19 cases of HIV, and 48 to 191 cases of HCV could be averted annually. When HIV and HCV are both considered, this would yield a cost savings of 0.95 cents for every dollar invested, which would be, according to the authors, acceptable (Jozaghi et al., 2014).

- In Montreal, Canada, 11 cases of HIV and 65 cases of HCV could be averted annually, yielding a cost savings of 1.21 Canadian dollars for every dollar invested (Jozaghi et al., 2013).
- In Saskatoon, Canada, it was estimated that establishing two SIFs which averted 28 HIV infections per year would yield cost savings of 1.35 Canadian dollars for every dollar invested (Jozaghi and Jackson, 2015).
- If a SIF established in Toronto, Canada, prevented between 2 and 5 cases of HIV each year, along with 41–122 cases of HCV, cost savings of 1.21 Canadian dollars would be realised for every dollar invested (Jozaghi and Reid, 2015).
- Establishing a SIF in Toronto could yield ICER²⁹ \$10,763 (Canadian dollars) per QALY³⁰ over the period of 20 years, (164 HIV and 459 HCV infections averted) and \$6,127 (Canadian dollars) per QALY in Ottawa (358 HIV and 323 HCV infections averted); establishing three SIFs in Toronto as well as two SIFs in Ottawa would be cost-effective (Enns et al., 2016).
- Establishing two extra SIFs in Victoria, Canada could yield a cost savings of 1.25 Canadian dollars for every dollar invested 1.25:1 (Jozaghi et al., 2015).
- Recent studies estimated cost-effectiveness of a SIF/DCR to be established in Baltimore (Irwin et al., 2017b) and in San Francisco, US (Irwin et al., 2017a) and two commentaries reflected on the cost-effectiveness research with respect to SIFs worldwide (McCarthy, 2016).

Reference list – cost-effectiveness of scaling up SIFs/DCRs

1. ANDRESEN, M. A. & JOZAGHI, E. 2012. The point of diminishing returns: an examination of expanding Vancouver's Insite. *Urban Studies*, 49, 3531-3544.
2. ENNS, E. A., ZARIC, G. S., STRIKE, C. J., JAIRAM, J., KOLLA, G. & BAYOUMI, A. M. 2016. Potential cost-effectiveness of supervised injection facilities in Toronto and Ottawa, Canada. *Addiction*, 111, 475-489.
3. JOZAGHI, E., HODGKINSON, T. & ANDRESEN, M. A. 2015. Is there a role for potential supervised injection facilities in Victoria, British Columbia, Canada? *Urban Geography*, 36, 1241-1255.
4. JOZAGHI, E. & JACKSON, A. 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 and Management*, 4, 373.
5. JOZAGHI, E. & REID, A. A. 2015. The potential role for supervised injection facilities in Canada's largest city, Toronto. *International Criminal Justice Review*, 25, 233-246.
6. JOZAGHI, E., REID, A. A. & ANDRESEN, M. A. 2013. A cost-benefit/cost-effectiveness analysis of proposed supervised injection facilities in Montreal, Canada. *Substance Abuse Treatment, Prevention, and Policy*, 8:25.
7. JOZAGHI, E., REID GRAVES, J., ANDERSEN, K. & JUNEAU, A. 2014. A cost-benefit/cost-effectiveness analysis of proposed supervised injection facilities in Ottawa, Canada. *Substance Abuse Treatment, Prevention, and Policy*, 9: 31.

Most recent contribution(s)

8. IRWIN, A., JOZAGHI, E., BLUTHENTHAL, R. N. & KRAL, A. H. 2017. A cost-benefit analysis of a potential supervised injection facility in San Francisco, California, USA. *Journal of Drug Issues*, 47, 164-184.
9. IRWIN, A., JOZAGHI, E., WEIR, B. W., ALLEN, S. T., LINDSAY, A. & SHERMAN, S. G. 2017. Mitigating the heroin crisis in Baltimore, MD, USA: a cost-benefit analysis of a hypothetical supervised injection facility. *Harm Reduction Journal*, 14, 29.
10. MCCARTHY, M. 2016. Supervised injection centers could save millions of dollars in health costs, US study finds. British Medical Journal Publishing Group.

7. OTHER RESOURCES

We identified several resources other than peer-reviewed papers that provided useful information about SIFs/DCRs, such as reports published by national or international organisations (see 7.1) or academic theses (see 7.3). Recently, operational guidelines for DCRs/SIFs have been published in

²⁹ ICER stands for the Incremental Cost-Effectiveness Ratio (ICER), a measure used to assess cost-effectiveness of a health care intervention (difference in cost between two possible interventions divided by the difference in their effect).

³⁰ QALY stands for Quality Adjusted Life Years is a generic measure of disease burden which accounts for treatment gains in terms of the quantity and quality of life years.

Canada (see 7.2). Also, in several peer-reviewed papers, similar services to SIFs/DCRs were described (e.g. peer-driven drug consumption rooms or injecting sites in hospitals, see 7.4).

7.1. Reports

In addition to studies published in peer-reviewed scientific journals, a number of reports have provided descriptions and summaries of the SIF/DCR model and the scientific evidence pertaining to it (n=34). Several of these reports were specific assessments of the local situation (as in reports from Vancouver, Canada) or evaluation of the SIF after its opening (as in Sydney, Australia). International organisations, including the Drug Policy Alliance, the Beckley Foundation, the International Drug Policy Consortium or the European Monitoring Centre for Drugs and Drug Addiction have published reports that summarize the evidence and practice in SIFs/DCRs. These include:

General

- DE VEL-PALUMBO, M., MATTHEW-SIMMONS, F., SHANAHAN, M., & RITTER, A. 2013. *Supervised Injecting Facilities: What the literature tells us. Drug Policy Modelling Program*. Available at: <https://dpmp.unsw.edu.au/resource/bulletin-no-22>
- Drug Policy Alliance. 2016. *Supervised Injection Facilities*. Available at: http://www.drugpolicy.org/sites/default/files/DPA%20Fact%20Sheet_Supervised%20Injection%20Facilities%20%28Feb.%202016%29.pdf
- EMCDDA. 2016 *Drug consumption rooms: an overview of provision and evidence (Perspective on drugs)*. Available at: <http://www.emcdda.europa.eu/publications/pods/drug-consumption-rooms>
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Canada

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Europe

- SCHÄFFER, D., STÖVER, H. 2014: *Drug Consumption Rooms in Europe: Models, Best Practice and Challenges*. Amsterdam: Regenboog Group. Available at: <https://www.aidshilfe.de/sites/default/files/documents/Drug%20consumption%20in%20Europe.pdf>
- WOODS, S. 2014. *Drug Consumption Rooms in Europe. Organisational overview*. Regenboog Group, Amsterdam. Available at: <http://www.drugsandalcohol.ie/23121/>
- EMCDDA. 2017. *Perspectives on drugs: Drug consumption rooms: an overview of provision and evidence*. Luxembourg: Office for Official Publications of the European Communities. Available at: <http://www.emcdda.europa.eu/topics/pods/drug-consumption-rooms>

Germany

- KEMMESIES, U. E. 1999. *The open drug scene and the safe injection room offers in Frankfurt am Main* 1995. Münster: Indro. Available at: http://www.indro-online.de/injection_room.htm.
- STÖVER, H., SCHÄFFER, D. 2011. *Drug Consumption Rooms in Germany. A Situational Assessment by the AK Konsumarum*. Deutsche AIDS-Hilfe, Akzept e.v., Berlin. Available at: http://www.akzept.org/pdf/aktuel_pdf/DKR07af1Eng.pdf

Netherlands

- PEACEY, J. 2014. *Drug Consumption Rooms in Europe. Client experience survey in Amsterdam and Rotterdam*. Amsterdam: Regenboog Group. Available at: http://www.academia.edu/9215441/Drug_Consumption_Rooms_in_Europe_Client_experience_survey_in_Amsterdam_and_Rotterdam

Australia

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- NATIONAL CENTRE IN HIV EPIDEMIOLOGY AND CLINICAL RESEARCH. 2006. *Sydney Medically Supervised Injecting Centre Interim Evaluation Report no. 2: Evaluation of Community Attitudes towards the Sydney MSIC*. Sydney: UNSW.
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- NATIONAL CENTRE IN HIV EPIDEMIOLOGY AND CLINICAL RESEARCH. 2007. *Sydney Medically Supervised Injecting Centre Evaluation Report no. 4: Evaluation of service operation and overdose-related events*. Sydney: UNSW.
- SAHA INTERNATIONAL LIMITED. 2008. *Final Report to NSW Health 'Economic Evaluation of the Medically Supervised Injecting Centre at Kings Cross (MSIC)*. Sydney: SAHA.

All reports evaluating the operation of Sydney MSIC are available at: <https://uniting.org/who-we-help/for-adults/sydney-medically-supervised-injecting-centre/resources>

- HORSBURGH, K. 2017. *Reducing Preventable Deaths Among People Who Use Drugs*. Scottish Drugs Forum. Available at: <http://www.wcmt.org.uk/sites/default/files/report-documents/Horsburgh%20K%20Report%202015%20FINAL.pdf>

Switzerland

- ZOBEL, F. & DUBOIS-ARBER, F. (2004). *Short appraisal of the role and usefulness of Drug Consumption Facilities (DCF) in the reduction of drug-related problems in Switzerland: Appraisal produced at the request of the Swiss Federal Office of Public Health*. Lausanne: University Institute of Social and Preventative Medicine. Available at: https://www.iumsp.ch/Publications/pdf/inject_inhalation04_en.pdf

United Kingdom

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- INDEPENDENT WORKING GROUP. 2006. *The Report of the Independent Working Group on Drug Consumption Rooms*. New York: IWGDCR. Available at: <https://www.jrf.org.uk/sites/default/files/jrf/migrated/files/9781859354711.pdf>

United States

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- HYSHKA, E., ANDERSON, J., WONG, Z., WILD, C. T. 2016. *Risk Behaviours and Service Needs of Marginalized People Who Use Drugs in Edmonton's Inner City*. Alberta: University of Alberta, School of Public Health. Available at: <https://crismprairies.ca/wp-content/uploads/2017/02/Edmonton-Drug-Use-and-Health-Survey-Dr.-Elaine-Hyshka-January-2016.pdf>
- ROBERTS, M., KLEIN, A., TRACE, M. 2004. *Drug consumption rooms - a Drugscope Briefing Paper*. Oxford: The Beckley Foundation. Available at: <http://beckleyfoundation.org/resource/briefing-paper-drug-consumption-rooms/>
- RUSSELL, J. *Safe Injection Facilities: Rethinking the American War on Drugs*. New York: Roosevelt Institute. Available at: <http://rooseveltinstitute.org/wp-content/uploads/2015/10/10-Ideas-for-Healthcare-2015.pdf>
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- SCHATZ, E., & NOUGIER, M. 2012. *Drug consumption rooms: Evidence and practice*. London: International Drug Policy Consortium. Available at: http://www.drugsandalcohol.ie/17898/1/IDPC-Briefing-Paper_Drug-consumption-rooms.pdf

7.2. Operational guidelines

Despite SIFs/DCRs have been in operation since 1980s (the first DCR was established in Switzerland in 1986) operational guidelines have rarely been available. Recently, British Columbia Centre on Substance Use has provided guidance to the newly established services that include the steps, qualifications and procedures performed at SIFs.

- BRITISH COLUMBIA CENTRE ON SUBSTANCE USE. 2017. *Supervised Consumption Services – Operational Guidance*. Vancouver: British Columbia Centre on Substance Use. Available at: <http://www.bccsu.ca/wp-content/uploads/2017/07/BC-SCS-Operational-Guidance.pdf>

7.3. Theses

Finally, several unpublished research theses (n=8) available online have contributed to the knowledge about SIFs with original research and data collection. We identified the following contributions (sorted according to the year of publication):

- HARATI, D. F. 2015. *Inside InSite: How a Localized Social Movement Led the Way for North America's First Legal Supervised Injection Site*. (Harvard Law School, Irving Oberman Memorial Student Winning Prize)
- KIMBER, J. 2005. *Role of the Sydney Medically Supervised Injecting Centre in reducing injecting drug use-related harm: evaluating accessibility, utilisation, coverage and selected health impacts*. (Doctoral dissertation, University of New South Wales)
- SALMON, A. M. 2008. *Policy and Public Health: an evaluation of the Sydney Medically Supervised Injecting Centre*. University of New South Wales.
- SANDERSON, A. 2011. *Insite as Representation and Regulation: A Discursively-Informed Analysis of the Implementation and Implications of Canada's First Safe Injection Site* (Doctoral dissertation, Université d'Ottawa/University of Ottawa).
- LINGLE, C. A. 2013. *A Critical Review of the Effectiveness of Safe Injecting Facilities as a Harm Reduction Strategy* (Doctoral dissertation, University of Pittsburgh).
- RAUTENBERG, J. 2013. *Addiction in the City: Analyzing Supervised Consumption Site Development Processes* (Doctoral dissertation, University of Manitoba).
- LOW, D. 2014. *Interest in a Safe Injection Facility Among Injection Drug Users in King County, WA* (Doctoral dissertation, University of Washington).
- POTIER, C. 2014. *Les centres d'injection supervisés: une revue systématique de la littérature* (Doctoral dissertation, UNIVERSITE LILLE 2).
- ZHANG, K. 2014. *'No easy fix': The Supervised Injection Site Debate in Canada* (Doctoral dissertation, University of Ottawa).
- MONICO, D. 2015. *Out of the Alley: Lessons from Safe Injecting Facilities (SIF)*. Graduate Annual, 3(1), 12.

- VISHLOFF, J. N. 2015. *Striving for Connection: A Phenomenological Examination of Nurses' Experience Supervising the Injection of Illicit Drugs* (Doctoral dissertation, Faculty of Education: Simon Fraser University).

7.4. Papers related to similar services

A small related literature (n=7) has focused on peer-based interventions that provide safe injecting spaces based on harm reduction principles, but were not included in our overview of scientific literature, as presented in Sections 1-6:

- JOZAGHI, E. 2014. A cost-benefit/cost-effectiveness analysis of an unsanctioned supervised smoking facility in the Downtown Eastside of Vancouver, Canada. *Harm Reduction Journal*, 11(1), 1.
- JOZAGHI, E. 2015. Exploring the role of an unsanctioned, supervised peer driven injection facility in reducing HIV and hepatitis C infections in people that require assistance during injection. *Health & Justice*, 3(1), 1-10.
- MCNEIL, R. 2013. *The impact of environmental factors on risk, harm, and health care access among people who inject drugs*. Electronic Theses and Dissertations (ETDs) 2008.
- MCNEIL, R., KERR, T., LAMPKIN, 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(7), 645-652.
- MCNEIL, R., SMALL, W., LAMPKIN, H., SHANNON, K., & KERR, T. 2014. "People knew they could come here to get help": an ethnographic study of assisted injection practices at a peer-run 'unsanctioned' supervised drug consumption room in a Canadian setting. *AIDS and Behavior*, 18(3), 473-485.

Also, a paper assessed the willingness to access an in-hospital injecting facility among hospitalised injectors in Canada was published recently:

- TI, L., BUXTON, J. HARRISON, S. DOBRER, S., MONTANER J., WOOD, E. KERR, T. 2015. Willingness to access an in-hospital supervised injection facility among hospitalized people who use illicit drugs *Journal of Hospital Medicine* 10 (5): 301-306.
- SHARMA, M., LAMBA, W., CAUDERELLA, A., GUIMOND, T. H. & BAYOUMI, A. M. 2017. Harm reduction in hospitals. *Harm Reduction Journal*, 14, 32.

8. COMPLETE LIST OF PEER-REVIEWED LITERATURE

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- BAYOUMI, A. M. & STRIKE, C. J. 2016. Making the case for supervised injection services. *The Lancet*, 387, 1890-1891.
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