

Study Report: London, ON

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Executive Summary

Injection drug use continues to be associated with severe health and social harms, including infectious disease acquisition, cutaneous injection-related infections, and fatal and nonfatal overdose. People who inject drugs (PWID) often experience significant barriers to primary and acute care systems. At the community level, injection in public spaces and associated injection-related litter (e.g., discarded syringes) constitute a source of public disorder and community concern.

In response to the growing concerns regarding the harms associated with injection drug use, supervised injection services (SIS), where PWID can inject pre-obtained illicit drugs under the supervision of healthcare staff, have been implemented in various settings. Results from evaluation studies have demonstrated that SIS have largely met their stated objectives, which include: reducing public disorder; reducing risk for infectious disease transmission; reducing injecting-associated morbidity: reducing morbidity and mortality associated with overdose; and facilitating referrals to various health and social programs, including addiction treatment and housing. SIS have also been found to be highly cost-effective.

While SIS have been found to be effective in large urban centres where sizable drug scenes exist and where substantial concentrations of PWID live, little is known about the feasibility and acceptability of SIS in smaller cities or towns – or on the most effective way to deliver supervised injection services in communities where PWID are not concentrated in one geographic area. Herein, we report on SIS feasibility research undertaken in London, Ontario, which explored potential willingness to use SIS and SIS design preferences among local PWID, in addition to acceptability and feasibility of SIS from community stakeholder perspectives.

A mixed-method community-based research approach was employed to meet the study objectives. In the first study phase, a quantitative survey was conducted to investigate drug-using behaviour and related harms, heath care access, willingness to use SIS, and SIS design preferences among 199 PWID in London. In the second phase of the study, we interviewed twenty community stakeholders from five sectors: healthcare (n=5); social services (n=5); government and municipal services (n=3); police and emergency services (n=2); and the business and community sector (n=5).

Among 199 survey participants, 76 (38%) were women (including 1 transgender woman) and the median age was 39 (range: 21 – 66). In terms of ethnicity, 147 participants were white (75%), 44 (22%) identified as First Nations or Métis, and 5 had other ethno-racial backgrounds (3%). The majority of participants (n=113, 57%) reported being homeless or living in unstable housing, while 24 (12%) had been incarcerated in the past six months, and 38 (19%) reported engaging in sex work or exchanging sex for resources in the past six months. Sixty-five percent (n=129) of participants reported injecting drugs daily, with crystal methamphetamine and hydromorphone being the drugs most commonly injected. Seventy-two percent of participants reported injecting in public spaces in the previous six months, one in four reported a history of overdose, and 44 (22%) reported sharing syringes in the previous six months.

In total, 170 (86%) participants reported willingness to use SIS if one were available, while another 14 (7%) said they would not be willing to use such services. The most common reasons for using SIS included: access to sterile injection equipment, overdose prevention, injecting responsibly, safety from crime, and safety from being seen by police. Reasons for not wanting to use SIS include not wanting to be seen, fear of being caught by police, preferring to inject alone, not wanting to be known as a drug user, and inconvenience. A higher proportion of men (n=113, 93%) than women (n=57, 76%) said they were willing to use SIS. Almost all participants selected Old East (Dundas/Adelaide area) or Downtown as ideal locations for SIS programming.

stakeholders Community unanimously supported SIS, but this support was accompanied by some preferences and conditions. Some stakeholders suggested that SIS be decentralized while others suggested that SIS be centralized Downtown or in Old East. Almost all community stakeholders suggested that SIS should be accessible 24 hours, 7 days a week. Stakeholders held mixed views in terms of the proximity of SIS in their neighbourhoods. A few respondents were concerned about how the concentration of services - including SIS - could damage residents and businesses in the same area. Lastly, availability of wrap-around supports (i.e., health and social services) were discussed as a condition to supporting SIS.

London continues to experience significant preventable harm among PWID. Importantly, a majority of PWID (86%) reported that they would use SIS if one were available. Past evaluations have indicated that expressed willingness is strongly correlated with future uptake of such services, and therefore the findings reported herein suggest that PWID in London and the

local community would likely benefit from the implementation of SIS. Therefore, given the data presented in this report, it is recommended that SIS be implemented in London. To address the observed geographical distribution of both public and private injection drug use, and preferences of PWID and community stakeholders, implementation of SIS in Old East and/or Downtown London is recommended, and be integrated within existing services that can provide enhanced wrap-around care for PWID (e.g., addictions treatment, primary health care, housing supports). Given the ongoing challenges associated with injection drug use in this setting. as well the evidence indicating that SIS prevent harms and promote health among PWID, it seems clear that implementing SIS in London would have high potential to improve health and public order, while also saving precious health system resources.

1.1. Injection drug use in Canada

Injection drug use continues to be associated with severe health and social harms. At the individual level, injection drug use is strongly associated with high rates of infectious disease acquisition,¹ cutaneous injection-related infections,² and fatal and non-fatal overdose,³ and people who inject drugs (PWID) often experience significant barriers to primary and acute care systems.^{4,5} At the community level, injection in public spaces and associated injection-related litter (e.g., discarded syringes) constitute a source of public disorder and community concern.^{6,7}

1.2. Supervised injection services (SIS)

In response to the growing concerns regarding the harms associated with injection drug use, supervised injection services (SIS), where PWID can inject pre-obtained illicit drugs under the supervision of healthcare staff, have been implemented in various settings.⁸ Currently, more than 90 SIS exist in at least eight countries.⁹ However, in Canada today, only two sanctioned SIS exist in Vancouver.^{10,11}

Results from evaluation studies have demonstrated that SIS have largely met their stated objectives, which include: reducing public disorder;^{12,13} reducing risk for infectious disease transmission;¹⁴⁻¹⁶ reducing the morbidity associated with injecting;^{17,18} reducing morbidity and mortality associated with overdose;^{19,20} and facilitating referrals to various health and social programs, including addiction treatment and housing.²¹⁻²³ SIS have also been found to attract a subset of very high-risk PWID, including those at high risk for HIV and hepatitis C infection and overdose, and those who engage in public injecting.24,25 SIS have also been found to be highly cost-effective,^{14,26} and they offer additional benefits for police and emergency services. SIS can serve as a place to refer PWID who are found injecting in public and who may be disconnected from conventional public health programs,²⁷ and they can also reduce the need for ambulance call-outs for overdoses.²⁸

While SIS have been found to be effective in large urban centres where sizable drug scenes exist and where substantial concentrations of PWID live, there have been no evaluations focused on the impacts of SIS in smaller cities or towns - or on the most effective way to deliver SIS in communities where PWID are not concentrated in one geographic area. SIS feasibility work has been undertaken in various settings to inform the implementation of SIS,²⁹⁻³³ and research conducted in Vancouver has shown that assessments of future intentions to use SIS among PWID do predict future use of such facilities.³⁴ Feasibility work has also been useful for identifying SIS design preference and barriers to SIS use among PWID.^{29,30} An assessment and feasibility study conducted in Toronto and Ottawa found that SIS integrated into other harm reduction and healthcare services-rather than a stand-alone SIS facility— would be more effective, efficient, and acceptable to PWID.35 Accordingly, SIS feasibility studies could serve to inform decision makers about the potential of SIS to reduce the harms associated with injection drug use in smaller cities, and could also provide valuable information that could be used to shape the development of future SIS in such settings. Herein, we report on SIS feasibility research undertaken in London. Ontario, which explored potential willingness to use SIS and SIS design preferences among local PWID, in addition to acceptability and feasibility of SIS from community stakeholder perspectives.

2.0 Study Setting: London, Ontario

London is presently contending with serious challenges associated with injection drug use. Data derived from the Public Health Agency of Canada's 2012 I-Track survey of PWID reveal rates of non-prescription opioid injecting (e.g., morphine, Dilaudid, oxycodone) that are considerably higher than national averages, with approximately 69-75% of local PWID reporting injection of various non-prescription opioids in the previous six months.³⁶ High rates of methamphetamine (68%), cocaine (58%) and crack (49%) injecting within the previous six months were also found. These high rates of injection drug use were accompanied by high rates of syringe borrowing (19%) and lending (43%) in the previous six months. Not surprisingly, PWID in London have a prevalence of hepatitis C (79%) that exceeds what has been observed among PWID nationally. While the prevalence of HIV infection in 2012 (6%) was lower than recorded among a national sample of PWID, the I-Track report noted that continued high rates of svringe borrowing and lending could contribute to an HIV epidemic in London.³⁶ Unfortunately, beginning in 2015, London indeed experienced an outbreak of new HIV diagnoses among PWID, who accounted for two-thirds of new HIV diagnoses in London-Middlesex, as compared to 12% provincially.³⁷

Evidence generated by the Middlesex-London Health Unit points to other notable harms associated with injecting locally, as well as the associated burden on health services in the area. According to a recent report, the rate of opioidrelated death is high, at 8.8 per 100,000 people compared to 4.1 per 100,000 people provincially.³⁸ Emergency Medical Services responded to 603 overdoses in 2013 alone, and rates of emergency department visits for opioid-related issues were 1.5 times higher than the Ontario average.³⁸ Demand for substance use treatment also remains high, with rates of presentation for treatment for methamphetamine use also being higher than the Ontario average.³⁸ At the community level, there have been persistent concerns regarding discarded syringes and other injection-related litter in London.³⁹

Although the City of London offers an array of programs and services for PWID, including substance use treatment, supportive housing, naloxone provision, and needle and syringe distribution, problems arising from injection drug use persist and constitute a source of much preventable harm and community concern.^{36,38} Accordingly, questions remain regarding whether the addition of SIS programming to the existing set of services and programs could help reduce health-related harms and public disorder associated with injection drug use in this setting.

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3.0 Methods

A mixed-method community-based research approach was employed to meet the study objectives. In the first study phase, a quantitative survey was conducted to investigate drug-using behaviour and related harms, heath care access. willingness to use SIS, and SIS design preferences among PWID in London. In brief, between March 2016 and April 2016, the research team worked with a team of 3 peer research associates who administered surveys to 199 local PWID who had injected drugs within the past six months. Potential participants were recruited through peer outreach efforts and word-of-mouth, and were invited to book appointments or drop-in to London InterCommunity Health Centre, My Sisters' Place, or Regional HIV/AIDS Connection in order to be part of the study. All participants gave informed consent and were provided a \$25 honorarium. In the second phase of the study, we interviewed twenty community stakeholders from five sectors: healthcare (n=5); social services (n=5); government and municipal services (n=3); police and emergency services (n=2); and the business and community sector (n=5). Research ethics boards at the University of Toronto and the University of British Columbia approved the study.

In the sections that follow we report on data describing the socio-demographic characteristics of the study population, their drug use and related harms, their willingness to use SIS, and their preferences regarding SIS design. In section 5.0, we report on findings from the key informant interviews.

4.0 Results of Survey with People who Inject Drugs

4.1 Sociodemographic characteristics, healthcare and social-structural exposures

The sociodemographic characteristics. healthcare and social-structural exposures of study participants are presented in Table 1. Among 199 survey participants, 76 (38%) were women (including 1 transgender woman) and the median age was 39 (range: 21-66). In terms of ethnicity, 147 participants were white (75%), 44 (22%) identified as First Nations or Métis, and 5 identified with other ethno-racial backgrounds (3%). The majority of participants (n=113, 57%)reported being homeless or living in unstable housing, while 24 (12%) had been incarcerated in the past six months, and 38 (19%) reported engaging in sex work or exchanging sex for resources in the past six months. Participants were also asked to report their experience with addiction treatment, with 84 (43%) reporting any history of addiction treatment, 10 (5%) reporting addiction treatment use in the previous six months, and 15 (8%) reporting difficulties accessing addiction treatment in the previous six months. Health challenges were common, with 19 (9%) participants self-reporting that they were HIV positive and 106 (56%) reporting that they were hepatitis C positive (Figure 1).

Table 1: Sociodemographic characteristics,healthcare and social-structural exposures of SISfeasibility study participants in London, Canada

Characteristic	n (%)
Median age (range)	39 (21 to 66)
Gender identity	
Female	76 (38)
Male	123 (62)
Ethnicity	
Indigenous (First Nations or Métis)	44 (22)
Racialized (Non-Indigenous)	5 (3)
White	147 (75)
Sexual orientation identity	
Heterosexual	161 (82)
Gay, lesbian, or bisexual	35 (18)
Homeless or unstably housed in past 6 months	113 (57)
Incarceration in past 6 months	24 (12)
Sex work in past 6 months	38 (19)
Access to addictions treatment	
Never	112 (57)
Yes, more than 6 months ago	74 (38)
Yes, in the past 6 months	10 (5)
Tried but unable to access addictions treatment in past 6 months	15 (8)



4.2 Drug use and risk characteristics

A variety of drug use and risk characteristics of participants are reported in Figures 2–9. As shown in Figure 3, the most commonly used drugs were crystal methamphetamine, hydromorphone, morphine, and Ritalin or Biphentin. In addition to opioids such as hydromorphone, morphine, or heroin, 49 participants (25%) reported injecting methadone, whether prescribed to them or illicitly obtained.





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Figure 4: Frequency of injecting top drugs injected in the past 6 months



As shown in Figure 5, participants also reported high rates of injecting in public or semi-public spaces, with 141 (72%) stating that they had done so in the previous six months. Participants were also asked to indicate which neighbourhoods they injected in. Figure 8 shows that respondents most often injected either in Old East (53%) or Downtown (26%). Risks for infectious disease transmission were also evident, with 44 (22%) participants noting that they had borrowed and/or loaned used syringes in the previous six months. One in four participants reported a history of non-fatal overdose (Figure 9).



100%

80%

60%

40%

20%

0%

24%

Ever overdosed

unintentionally

21 %

Alone during

most recent overdose



Overdosed in past six months

4%

4.3 Willingness to use SIS and SIS design preferences

As shown in Figure 10, 170 (86%) of participants reported willingness to use SIS if one were available, 13(7%) said they might be willing, while another 14 (7%) said they would not be willing to use such services. Table 2 illustrates the top 5 reasons for wanting and not wanting to use SIS. The most common reasons for wanting to use SIS included: access to sterile injection equipment, overdose prevention, injecting responsibly, safety from crime, and safety from being seen by police. Reasons for not wanting to use SIS included not wanting to be seen, fear of being caught by police, preferring to inject alone, not wanting to be known as a drug user, and inconvenience. A higher proportion of men (n=113, 93%) than women (n=57, 76%) said they were willing to use SIS. Participants were also asked to indicate their first and second choices for where to implement SIS. Similar to the locations in which they reported injecting most often, almost all participants selected Old East or Downtown (Figure 11). Most (n=165, 83%) said they would walk and 109 (55%)said they would take a bus to get to a SIS. The majority (81%) preferred that SIS be set up with private cubicles, and to access SIS during the day time (72%).

Table 2: Top 5 reasons for wanting and not wanting to use SIS*

n ((%)
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Top 5 reasons for wanting to use SIS, among those willing or maybe willing

I would be able to get clean sterile injection equipment	110 (60)	
Overdoses can be prevented	101 (55)	
I would be injecting responsibly	96 (53)	
I would be safe from crime	93 (51)	
I would be safe from being seen by the police	79 (43)	
Top 5 reasons for not wanting to use SIS, among those unwilling or maybe unwilling		
l don't want to be seen	12 (44)	
I fear being caught with drugs by police	10 (37)	
l always inject alone	6 (22)	

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I do not want people to know I am a drug	5 (19)
user	
l feel it would not be convenient	5 (19)

* Respondents could select all that apply



5.0 Results of Key Informant Interviews

Key informants were stakeholders from five sectors impacted by injection drug use in London: healthcare, social services, government and municipal services, police and emergency services, and the business and community sector. They were diverse in terms of their previous knowledge related to SIS. Community stakeholders unanimously supported SIS, but this support was met with preferences and conditions. Some stakeholders suggested that SIS be decentralized from the downtown core and located in different neighbourhoods in the city. Others suggested that SIS be centralized Downtown or in Old East as a strategy to respond to injection drug use issues that are impacting these neighbourhoods. Many respondents discussed accessibility in terms of the close proximity of SIS to other services, and ideally located where PWID congregate. Others thought SIS should be located on major bus routes or for a mobile SIS option for PWID who do not reside or congregate in the downtown or old east neighbourhoods. Almost all community stakeholders suggested that SIS should be accessible 24 hours, 7 days a week. Stakeholders held mixed views in terms of the proximity of SIS in their neighbourhoods. A few respondents were concerned about how the concentration of services - including SIS could damage residents and businesses in the same area. One respondent explicitly welcomed SIS in her neighbourhood. Lastly, wrap-around supports were discussed as a condition to supporting SIS. These were described as health and social services that are provided alongside SIS as part of a continuum of care for PWID.

Along with these conditions for SIS support, community stakeholders identified additions to SIS to ensure their effectiveness in London. Multiple interviewees suggested wrap-around support through community partnerships; education and awareness campaigns for the general public; supportive housing programs; treatment options; and counselling supports.

Community stakeholders play a role in determining the location and design preferences

of SIS. They want to be actively engaged in all stages of development of SIS. Future SIS programming and evaluation should consider these perspectives when determining optimal service delivery for SIS in London.

6.0 Conclusions & Recommendations

London continues to experience significant preventable harm among PWID. As indicated by the data presented herein, high rates of injection drug use persist in this setting, with many PWID injecting in public spaces, which in turn exposes them to considerable risks to health and personal safety. PWID continue to experience risks for infectious disease transmission, overdose, softtissue infections, and criminal justice system involvement persists. Further, given the high rates of public injecting, local communities, police, ambulance personnel, and hospitals are left to contend with the fallout from underaddressed issues from injection drug use.

Importantly, a majority of PWID (86%) in this setting reported that they would use SIS if one were available. Past evaluations have indicated that expressed willingness is strongly correlated with future uptake of such services, and therefore the findings reported herein suggest that PWID in London and the local community would likely benefit from the implementation of SIS in this setting.³⁴ Although several services for PWID exist in London, none are able to address the problem of public injecting and the individual and community-level harms arising from this behaviour, and limited interventions exist to address injection-related infections and overdose. As has been found in other settings in Europe, Australia and Canada, SIS in London have high potential to improve public order, reduce infectious disease transmission and overdose. and promote access to addiction treatment and other services. Further, although some have suggested that SIS may exacerbate public disorder, crime, and exacerbate community drug use patterns, rigorous evaluation of SIS elsewhere has shown that negative impacts of this kind have not occurred.^{12,40-42} Therefore, given the data

presented in this report, it is recommended that SIS be implemented in this setting. Specifically, to address the observed geographical distribution of both public and private injection drug use, and preferences of PWID and most community stakeholders, implementation of SIS in Old East and/or Downtown London is recommended, integrated within existing services that can provide enhanced wrap-around care for PWID (e.g., addictions treatment, primary health care, housing supports). Such action has high potential to reduce the unaddressed harms associated with injection drug use locally for individuals, businesses, local communities, police, ambulance and other healthcare staff.

This research presented has limitations that should be noted. First, the sample recruited was not randomly sampled and may not be representative of the population of PWID in London. However, extensive efforts were made to recruit PWID from a range of settings in the city. Second, we relied on self-reported information, which may subject to response biases, including socially-desirable responding and problems with recall. In particular, reported levels of accidental overdose were low in comparison to previous research with PWID, and may have been affected by social desirability. However, past research has found the self-reports of PWID to be valid and reliable.

In conclusion, we observed a high rate of unaddressed and preventable harm among PWID in London, as well as a high rate of willingness to use SIS in this setting if one were available. Given the ongoing challenges associated with injection drug use in this setting, as well the evidence indicating that SIS prevent harms and promote health among PWID, it seems clear that implementing SIS in London would have high potential to improve health and public order, while also saving precious health system resources. Thank you to all of the study participants who took part in the survey and the key informant interviews. We would also like to thank the following individuals and organizations for their involvement in this study: Andy MacLean, Elaine Hamm, Samantha Scott, Sharon Koivu, Jesse Helmer, staff at Regional HIV/ AIDS Connection, staff at Ontario HIV Treatment Network, London CAReS, London InterCommunity Health Centre, London Police Service, Middlesex-London Health Unit, and My Sisters' Place.

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References

- 1. Strathdee SA, Hallett TB, Bobrova N, et al. HIV and risk environment for injecting drug users: The past, present, and future. Lancet. 2010;376(9737):268–284
- 2. Lloyd-Smith E, Wood E, Zhang R, Tyndall MW, Montaner JS, Kerr T. Risk factors for developing a cutaneous injection-related infection among injection drug users: A cohort study. BMC Public Health. 2008;8:405.
- 3. Kerr T, Fairbairn N, Tyndall M, et al. Predictors of nonfatal overdose among a cohort of polysubstance-using injection drug users. Drug & Alcohol Dependence. 2007;87(1):39-45.
- 4. PalepuA, Tyndall MW, Leon H, et al. Hospital utilization and costs in a cohort of injection drug users. Canadian Medical Association Journal. 2001;165(4):415–420.
- McCoy CB, Metsch L, Chitwood DD, Miles C. Drug use and barriers to use of health care services. Substance Use & Misuse. 2001;36(6-7):789-806.
- 6. Small W, Rhodes T, Wood E, Kerr T. Public injection settings in Vancouver: Physical environment, social context and risk. International Journal on Drug Policy. 2007;18(1):27–36.
- 7. CBC News. Melting snow reveals discarded needles. http://www.cbc.ca/news/canada/thunder-bay/ melting-snow-reveals-discarded-needles-1.1222947 (accessed November 16, 2016). 2012.
- 8. Kimber J, Dolan K, Wodak A. Survey of drug consumption rooms: Service delivery and perceived public health and amenity impact. Drug & Alcohol Review. 2005;24(1):21-24.
- 9. Hedrich D, Kerr T, Dubois-Arber F. Drug consumption facilities in Europe and beyond. In: Rhodes T, Hedrich D, eds. Harm reduction: Evidence, impacts, and challenges. Luxembourg: European Monitoring Centre for Drug and Drug Addiction; 2010.
- 10. Krusi A, Small W, Wood E, Kerr T. An integrated supervised injecting program within a care facility for HIV-positive individuals: A qualitative evaluation. AIDS Care. 2009;21(5):638-644.
- 11. Wood E, Kerr T, Lloyd–Smith E, et al. Methodology for evaluating Insite: Canada's first medically supervised safer injection facility for injection drug users. Harm Reduction Journal. 2004;1(1):9.
- 12. Wood E, Kerr T, Small W, et al. Changes in public order after the opening of a medically supervised safer injecting facility for illicit injection drug users. Canadian Medical Association Journal. 2004;171(7):731-734.

- 13. McKnight I, Maas B, Wood E, et al. Factors associated with public injecting among users of Vancouver's supervised injection facility. American Journal of Drug & Alcohol Abuse. 2007;33(2):319-325.
- 14. Bayoumi AM, Zaric GS. The cost-effectiveness of Vancouver's supervised injection facility. Canadian Medical Association Journal. 2008;179(11):1143-1151.
- 15. Kerr T, Tyndall M, Li K, Montaner JS, Wood E. Safer injection facility use and syringe sharing in injection drug users. Lancet. 2005;366(9482):316–318.
- 16. Marshall BD, Wood E, Zhang R, Tyndall MW, Montaner JS, Kerr T. Condom use among injection drug users accessing a supervised injecting facility. Sexually Transmitted Infections. 2009;85(2):121–126.
- 17. Stoltz JA, Wood E, Small W, et al. Changes in injecting practices associated with the use of a medically supervised safer injection facility. Journal of Public Health. 2007;29(1):35–39.
- 18. Lloyd-Smith E, Wood E, Zhang R, et al. Determinants of hospitalization for a cutaneous injection-related infection among individuals who inject drugs: A cohort study. BMC Public Health. 2010;10(1):327.
- 19. Milloy MJ, Kerr T, Mathias R, et al. Non-fatal overdose among a cohort of active injection drug users recruited from a supervised injection facility. American Journal of Drug & Alcohol Abuse. 2008;34(4):499-509.
- 20. Marshall BD, Milloy MJ, Wood E, Montaner JS, Kerr T. Reduction in overdose mortality after the opening of North America's first medically supervised safer injecting facility: A retrospective population-based study. Lancet. 2011;377(9775):1429-1437.
- 21. Kimber J, Mattick RP, Kaldor J, van Beek I, Gilmour S, Rance JA. Process and predictors of drug treatment referral and referral uptake at the Sydney Medically Supervised Injecting Centre. Drug & Alcohol Review. 2008;27(6):602-612.
- 22. Wood E, Tyndall MW, Zhang R, Montaner JS, Kerr T. Rate of detoxification service use and its impact among a cohort of supervised injecting facility users. Addiction. 2007;102(6):916–919.
- 23. Small W, Van Borek N, Fairbairn N, Wood E, Kerr T. Access to health and social services for IDU: The impact of a medically supervised injection facility. Drug & Alcohol Review. 2009;28(4):341-346.
- 24. Wood E, Tyndall MW, Li K, et al. Do supervised injecting facilities attract higher-risk injection drug users? American Journal of Preventative Medicine. 2005;29(2):126-130

- 25. Wood E, Tyndall MW, Qui Z, Zhang R, Montaner JS, Kerr T. Service uptake and characteristics of injection drug users utilizing North America's first medically supervised safer injecting facility. American Journal of Public Health. 2006;96(5):770–773.
- 26. Pinkerton SD. Is Vancouver Canada's supervised injection facility cost-saving? Addiction. 2010;105(8):1429-1436.
- 27. DeBeck K, Wood E, Zhang R, Tyndall M, Montaner J, Kerr T. Police and public health partnerships: Evidence from the evaluation of Vancouver's supervised injection facility. Substance Abuse Treatment, Prevention, & Policy. 2008;3(11).
- 28. Salmon AM, van Beek I, Amin J, Kaldor J, Maher L. The impact of a supervised injecting facility on ambulance call-outs in Sydney, Australia. Addiction. 2010;105(4):676-683.
- 29. Kerr T, Wood E, Small D, Palepu A, Tyndall MW. Potential use of safer injecting facilities among injection drug users in Vancouver's Downtown Eastside. Canadian Medical Association Journal. 2003;169(8):759-763.
- 30. Watson TM, Strike C, Kolla G, et al. Design considerations for supervised consumption facilities (SCFs): Preferences for facilities where people can inject and smoke drugs. International Journal on Drug Policy. 2013;24(2):156–163.
- Fry C, Fox S, Rumbold G. Establishing safe injecting rooms in Australia: Attitudes of injecting drug users. Australian & New Zealand Journal of Public Health. 1999;23(5):501-504.
- 32. Broadhead RS, Borch CA, van Hulst Y, Farrell J, Villemez J, Altice FL. Safer injection sites in New York City: A utilization survey of injection drug users. Journal of Drug Issues. 2003:733-750.
- 33. Kral AH, Wenger L, Carpenter L, Wood E, Kerr T, Bourgois P. Acceptability of a safer injection facility among injection drug users in San Francisco. Drug & Alcohol Dependence. 2010;110(1-2):160-163.
- 34. DeBeck K, Kerr T, Lai C, Buxton J, Montaner J, Wood E. The validity of reporting willingness to use a supervised injecting facility on subsequent program use among people who use injection drugs. American Journal of Drug & Alcohol Abuse. 2012;38(1):55-62.
- 35. Bayoumi A, Strike C, Brandeau M, et al. Report on the Toronto and Ottawa Supervised Consumption Assessment Study. http://canadianharmreduction. com/sites/default/files/TOSCA%20report-web.pdf (accessed November 16, 2016). 2012.

- 36. Middlesex-London Health Unit. A profile of people who inject drugs in London, Ontario: Report on the Public Health Agency of Canada I-Track Survey, Phase 3 Middlesex-London, 2012. http://www.healthunit.com/uploads/public-health-agency-of-canada-i-track-survey-phase-3.pdf (accessed November 16, 2016). 2013.
- 37. Middlesex-London Health Unit. Persons who inject drugs in Middlesex-London: An update. https://www. healthunit.com/uploads/2016-06-16-report-040-16. pdf (accessed November 16, 2016). 2016.
- 38. Middlesex-London Health Unit. The impact of prescription and non-prescription drug use in Middlesex-London https://www.healthunit.com/uploads/2014-05-15-report-032-14.pdf (accessed November 16, 2016). 2014.
- 39. Campanella E. More than 2.5 million needles distributed in London last year. The London Free Press. http://www.lfpress.com/2015/08/13/morethan-25-million-needles-distributed-in-londonlast-year (accessed November 16, 2016). 2015.
- 40. Kerr T, Stoltz JA, Tyndall M, et al. Impact of a medically supervised safer injection facility on community drug use patterns: A before and after study. British Medical Journal. 2006;332(7535):220–222.
- 41. Kerr T, Tyndall MW, Zhang R, Lai C, Montaner JS, Wood E. Circumstances of first injection among illicit drug users accessing a medically supervised safer injection facility. American Journal of Public Health. 2007;97(7):1228–1230.
- 42. Wood E, Tyndall MW, Lai C, Montaner JS, Kerr T. Impact of a medically supervised safer injecting facility on drug dealing and other drug-related crime. Substance Abuse Treatment, Prevention, & Policy. 2006;1:13.