



Supervised inhalation is an important part of supervised consumption services

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Received: 12 July 2018 / Accepted: 16 January 2019 / Published online: 6 February 2019
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Abstract

Setting The first regulated supervised inhalation site (safer smoking room) in North America has opened in Lethbridge, Alberta, as part of a supervised consumption site addressing all routes of consumption. When designing the service, we felt it was important to accommodate not just injection drug use but also inhalation because (1) it is not the method of drug use that kills but the drug itself, (2) all people who use drugs deserve service regardless of their mode of use, and (3) people who use drugs should have the opportunity to use the method with the lowest risk.

Intervention We received approval from Health Canada to offer supervised inhalation services in addition to supervised injection services. Based on a European model, we worked with a local commercial heating, cooling, and ventilation (HVAC) company to create rooms with ventilation systems that complied with Canadian health and safety regulations.

Outcome People who use drugs by inhalation have repeatedly told us that they want to use indoors and will do so given the option. Since opening the supervised consumption service at the end of February 2018, the response has been overwhelming and both of the inhalation rooms are constantly in use.

Implications Supervised inhalation services provide an alternative to public drug use and an opportunity for people who use drugs to engage with harm reduction services. Other supervised consumption services in Canada may also wish to pursue exemptions for this service.

Résumé

Lieu Le premier site réglementé d'inhalation sous supervision (fumerie à moindre risque) en Amérique du Nord a ouvert à Lethbridge, en Alberta; il fait partie d'un site de consommation sous supervision pour tous les modes de consommation. En concevant ce service, nous avons jugé important de permettre non seulement l'utilisation de drogue par injection, mais aussi par inhalation car : 1) ce n'est pas la méthode de consommation qui tue, mais la drogue; 2) les personnes qui consomment de la drogue ont le droit d'être servies peu importe leur mode de consommation; et 3) ces personnes devraient pouvoir utiliser le mode de consommation le moins dangereux.

Intervention Nous avons obtenu l'accord de Santé Canada pour offrir des services d'inhalation sous supervision en plus de services d'injection sous supervision. En nous inspirant d'un modèle européen, nous avons travaillé avec une entreprise locale de chauffage, ventilation et climatisation (CVC) à créer des salles dotées de systèmes de ventilation conformes à la réglementation canadienne de santé-sécurité.

Résultats Les consommateurs de drogue par inhalation nous ont dit à plusieurs reprises qu'ils veulent consommer à l'intérieur et qu'ils le font s'ils en ont la possibilité. Depuis l'ouverture de notre site de consommation sous supervision la fin de février 2018, la demande est massive, et nos deux salles d'inhalation sont constamment utilisées.

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Conséquences Les services d'inhalation sous supervision constituent une solution de rechange à la consommation de drogue en public et permettent aux consommateurs de drogue de bénéficier de services de réduction des méfaits. D'autres sites de consommation sous supervision au Canada devraient songer à demander une exemption pour ce type de service.

Keywords Supervised consumption · Drug consumption rooms · Harm reduction · Inhalation · Supervised injection · Opioids · Crystal meth · Street drugs · Illicit drugs

Mots-clés Consommation sous supervision · Salles de consommation de drogue · Réduction des méfaits · Inhalation · Injection sous supervision · Opioïdes · Méthamphétamine en cristaux · Drogues des rues · Drogues illicites

Introduction

The first sanctioned supervised inhalation facility (SIF; or supervised smoking facility, SSF) in North America has opened in Lethbridge, Alberta, as part of a supervised consumption site (SCS) addressing four routes of consumption. Lethbridge is the fourth largest city by population in Alberta, with a population just above 96,000. ARCHES (AIDS Outreach Community Harm Reduction Education Support, formerly Lethbridge HIV Connection) is the harm reduction agency operating in the area since 1986. ARCHES is a well-established provider of support services to individuals living with HIV/AIDS, hepatitis C, and other chronic illnesses, providing extensive community support, targeted prevention, walking outreach, rural outreach, harm reduction supply distribution (including needles, safer inhalation kits, and condoms), clinical nursing services, and more. When the need for supervised consumption services became evident, ARCHES was the obvious service provider, given their longstanding relationships with the population. (In this article, we will use the acronym SSF—supervised smoking facility—to avoid conflation with the acronym SIF, which could refer to either supervised injection or supervised inhalation facility.)

While SSFs have existed in Europe for years (Shannon et al. 2006), there has been some debate about the merit of SSFs and their relative value to people who use drugs and to harm reduction efficacy. Some stakeholders, including Health Canada, had concerns about ventilation, and others felt that there was a lack of evidence that SSFs would reduce HIV or HCV transmission or that those infections were a concern at all for people who smoked illicit drugs (Watson et al. 2013). Furthermore, the general public is largely unaware of SSFs and their benefit, compared to a much greater knowledge of supervised injection facilities (Strike et al. 2016). Even health authorities can fail to see the value in SSFs (Shannon et al. 2006).

The impetus for our pursuit of a federal exemption from Health Canada to accommodate not just injection drug use, but also inhalation, was fourfold. First, people who use drugs have repeatedly told us that they want to use indoors and will do so given the option. Similarly, McNeil et al. (2015),

DeBeck et al. (2011), and Watson et al. (2013) found that people who smoke crack or methamphetamine want to do so out of the public eye in a private and safe space, away from law enforcement and social violence. Public stimulant smoking has been associated with risks such as rushed drug use, increased risk of bloodborne infection, pipe sharing, and public injection (Malchy et al. 2008; Voon et al. 2016). This lack of a safe space in Vancouver led to the Vancouver Area Network of Drug Users (VANDU) accommodating an unsanctioned or provisional safer smoking room; the room was a repurposed bathroom and not (at the time of this writing) specifically designed as an inhalation room (McNeil et al. 2015). People who use drugs have also expressed the belief that providing a SSF was one way to decrease publicly discarded crack and methamphetamine paraphernalia (Watson et al. 2013).

The second reason for creating a SSF was our appreciation that it is not the method of drug use itself that directly results in fatalities but rather the drugs themselves. To limit supervised consumption services to injection, therefore, seemed short-sighted. Certainly, injection drug use is associated with higher numbers of overdoses, due to the fact that the drug is injected as a bolus, is not easily titrated by the person using, and is of unknown constitution. And while theoretically it is possible for someone who is smoking a drug to titrate the amount of drug they are getting, this is certainly not always the case, due in part to the inconsistent and often unknown constitution of street drugs. Additionally, cocaine and methamphetamine alter the permeability of the blood–brain barrier (Dietrich 2009; Riley et al. 2017; Sajja et al. 2016), which not only has direct implications for drug impacts (including overdose) and brain pathology, but for increased access of viruses (including HIV) into the brain (Dietrich 2009).

Third, we believed that by offering a SSF we would be able to connect with a wider clientele than only those who use by injection. While injection drug use is well known for its high risk of complications, inhalation also has complications and risks, including increased risk of HIV or hepatitis C (HCV) and other infections, burns and cuts, and cardiovascular and respiratory problems. Providing safe spaces for supervised smoking creates opportunities for harm reduction

interventions and health education, and a method of engagement for a population that does not inject. Collins et al. (2005) suggest that prevention programs are desperately needed to reduce the risk of HCV transmission, and that SSFs could play a “critical role in addressing this public health concern” (p. 281). They also indicate that “crack smokers are less responsive to interventions than other drug users” (p. 281) and that effective interventions, including SSFs, must be developed for this subgroup of high-risk individuals. In Vancouver’s unsanctioned SSF, volunteers distribute harm reduction supplies, disrupt pipe-sharing, and provide timely education regarding health risks (McNeil et al. 2015). Peers who are former and even current drug users are a key component in harm reduction education for people who smoke illicit substances in Vancouver (Jozaghi et al. 2016).

Last, to offer supervised consumption services to one subset of people who use drugs and not another seemed to imply that one group deserved service while another did not. We were concerned about the optics of preferential treatment for one mode of use (injection) over less harmful modes (inhalation/smoking). In a Vancouver study of people who smoke crack, McNeil et al. (2015) found that the omission of safer smoking rooms within regulated consumption sites was noted by the affected population. Thus, we were concerned that by valuing injection and excluding inhalation, we would lose the opportunity to encourage—and support—clients changing to less risky modes of use. Certainly, the distribution of safer smoking supplies has been associated with decreased needle use, as people who use drugs have the option to transition to a safer method of drug use (Leonard et al. 2008). However, it is unclear to what degree the SSF will provide a direct mechanism for people to employ less risky modes of drug consumption.

Intervention

Our application to Health Canada for an exemption to offer supervised smoking services, in addition to the more common supervised injection services, was the first of its kind in Canada. In our application, we were required to include the additional policies and procedures relevant to supervised smoking. Policies unique to inhalation included overdose intervention, workplace health and safety, client-to-staff ratio for safe operation, and emergency evacuation procedures. We were also required to articulate the medical and health benefits of supervised inhalation, since the exemption is based on the medical benefits of supervised consumption. Additionally, we needed to show that we were in compliance with all federal, provincial, and municipal smoking legislation. (Because smoking legislation and bylaws are specific to tobacco and tobacco by-products, a safe inhalation facility would technically not contravene existing laws. There are no existing

standards for illicit substances, so we worked with Alberta Labour to ensure we were in compliance with relevant codes by the implementation of protections.)

Concurrently with the development of our application we consulted with our clients—people who use drugs—to determine what they wanted in a supervised smoking service. They told us they wanted ARCHES to offer: separate rooms for separate consumption of substances (e.g., crack in one room, opiates in another); a space where they could inhale with others, as drug use is often a social event; an enclosed space for smoking that was medically monitored by staff; and, a space where any drugs can be used, although they did not want cross-contamination to occur between substances. Clients were very interested in having the option to inhale, in addition to other routes of use with which they may have more experience. In a culture of free needle distribution, free pipe distribution is a relatively recent newcomer and we are finding considerable client uptake of smoking as an alternative to injection.

We received approval from Health Canada to offer supervised inhalation (smoking) services in addition to services addressing ingestion, injection and snorting. Based on a European model, we worked with a local commercial heating, cooling, and ventilation (HVAC) company, who worked in consultation with a mechanical engineer, to create rooms with ventilation systems that complied with Canada’s more stringent occupational health and safety regulations and in accordance with building codes for commercial spaces. Furthermore, the system had to comply with provincial tobacco ordinances (Tobacco Reduction Act) and municipal by-laws. Research has indicated that staff safety is a primary concern regarding the implementation of SSFs and as such, high quality ventilation systems are needed (Watson et al. 2013).

The American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) Standard 62.1-2016, *Ventilation for Acceptable Indoor Air Quality*, guided the technical design of the smoking rooms to ensure acceptable air quality and minimal adverse health effects from second hand smoke. These guidelines, while originating in the United States, have also been adopted in Canada. In these guidelines, “acceptable indoor air quality” means “air in which there are no known contaminants at harmful concentrations as determined by cognizant authorities and with which a substantial majority (80% or more) of the people exposed do not express dissatisfaction” (ASHRAE 2016, p. 3). “Environmental tobacco smoke” is defined as “the ‘aged’ and diluted combination of both side-stream smoke (smoke from the lit end of a cigarette or other tobacco product) and exhaled mainstream smoke (smoke that is exhaled by a smoker)” and commonly known as “secondhand smoke” (ASHRAE 2016, p. 4). This definition also includes smoke produced by cannabis, electronic smoking devices, and controlled substances. However,

Table 1 Demographics of unique clients (*n* = 654) to SCS between March and June 2018

Characteristic	Number	Percentage
Age (in years)		
< 20	29	4.43
20–29	246	37.61
30–39	227	34.71
40–49	105	16.06
50–59	43	6.57
60+	4	0.61
Total	654	100.0
Gender		
Male	382	58.41
Female	272	41.59
Ethnicity		
Caucasian	183	27.98
Indigenous (FNMI)	401	61.31
Other	70	10.70

FNMI, First Nations, Métis or Inuit

at this time, some contaminants, including crack and methamphetamine, lack guidelines and standards for acceptable concentrations and exposure values (ASHRAE 2016).

The SSF is mechanically ventilated with a balanced exhaust and supply system. Air enters the dedicated space through steel grilles that are washable and structurally robust. The indoor air from the SSF is filtered and discharged to the outside of the building via a rooftop vent, from where it dissipates into the environment. Each smoking room is an independently ventilated negative air pressure room on its own independent ventilation system, to avoid distributing the smoke to any other area of the SCS. The room is overventilated, by spec, with 250 CFM (cubic feet per minute) of air being removed from each smoking room and 125 CFM flowing into each. The calculation of CFM takes into account both the volume of air and the rate at which it moves into or out of an enclosed space. Ventilation systems are connected to an uninterrupted power supply. Air in the consumption site as a whole is replaced over six times per hour and is replaced 15 times per hour in the smoking rooms.

There is an emergency smoke evacuation switch on the wall of the nursing station, so that in the event an emergency situation arises that requires staff intervention, staff can do so

without exposure to smoke. When pushed by the attendant, it closes the air intake damper and clears the room of smoke rapidly, by drawing 600 CFM through each room. The smoking rooms are also air conditioned, as they are located in the centre of the building and tend to become quite warm due to a combination of smoking activities, body temperature, and high usage.

Other design considerations came from people who use drugs, including creating separate injection and smoking areas within the same facility, due to the different effects of uppers and downers, exposure to different methods of use, and different behaviours associated with each (Watson et al. 2013). Some people who use drugs would not want to be exposed to seeing others inject, some would be triggered by others’ drug use, and some felt there was a “pecking order” or stigma associated with the preferred route and use (Watson et al. 2013). Additionally, people who smoked drugs wanted to be able to smoke at the same time as another person, so each room can accommodate three people comfortably. In our Lethbridge needs assessment, using the Edmonton Drug Use and Health Survey (Hyshka et al. 2016), we found that three quarters (76.5%) of the 207 survey respondents said they would use a SSF (Pijl et al. 2017). This acceptance rate was similar to Shannon et al. (2006) and DeBeck et al. (2011), but substantially higher than a study by Collins et al. (2005) which found that only 27% of drug users surveyed would use a SSF if one was available. It is not clear why our population differed from that in the Collins et al. (2005) study. Other research reveals that a small subset of people who use drugs do not see the value in a SSF—particularly compared to SIF—because people “can do a toke of crack anywhere” (Watson et al. 2013, p. 159). In other words, it appears that people who use drugs seem to view smoking as more portable and less risky (than injection) and not requiring a place-based intervention, per se.

The supervised inhalation service was promoted through the community consultation process, during our needs assessment, through our other service delivery (including a significant outreach program) and through our ongoing relationships with clients who access our services. Furthermore, people who access our services let others know about this service by word of mouth. As part of a standard intake process, when clients access the SCS, they are asked about the drugs they are planning to use and the route by which they plan to use them.

Table 2 Frequency of SCS usage by route

Route	March 2018	April 2018	May 2018	June 2018
Oral/intranasal	58 (2.4%)	97 (2.0%)	233 (3.2%)	321 (2.8%)
Inhalation	967 (40.6%)	1653 (34.2%)	2184 (30.1%)	3576 (31.0%)
Injection	1358 (57.0%)	3086 (63.8%)	4843 (66.7%)	7651 (66.3%)
Totals	2383	4836	7260	11,548

Statistics indicate number of visits, not number of unique visitors/clients

Table 3 Unique clients' SSF visits accounting for overall supervised consumption site (SCS) use during first months of operation in 2018

Visits	March <i>n</i> (%)	April <i>n</i> (%)	May <i>n</i> (%)	June <i>n</i> (%)
1 or more	141 (59.5%)	219 (70.9%)	260 (69.3%)	321 (70.2%)
None	96 (40.5%)	90 (29.1%)	115 (30.7%)	136 (29.8%)
Total SCS clients	237 (100%)	309 (100%)	375 (100%)	457 (100%)

Further detail is available from ARCHES

Staff on site can tailor harm reduction instruction to each client.

Outcome

Since opening the supervised consumption service on February 28, 2018, the response has been overwhelming, to the extent that there is a need to increase the number of inhalation rooms to reduce wait times. There were a total of 654 unique clients who attended the site in the first four months of operation. Of these, most were between the ages of 20 and 29 (37.61%) or 30 and 39 (34.71%). More than half were male (58.41%), and 61.31% identified as Indigenous (First Nations, Métis or Inuit) (see Table 1).

We had 11 overdoses from inhalation in the first four months after opening; seven of these were related to opioids (five of which were treated with oxygen administration and nurse observation, and two of which were reversed using Naloxone) and four were related to methamphetamine, for which there is no antidote. Overdoses due to inhaled (smoked) drugs contributed to 4.2% of the overall overdose rate for the SCS.

In March 2018, the first month of operation, usage by inhalation accounted for 40.6% (967) of client visits. The number of people smoking in the SSF increased in April to 1653, in May to 2184, and in June to 3576. Thus, the numbers of clients utilizing the inhalation space is increasing (see Table 2). When the consumption site first opened, we noticed that almost half of clients (40.6%) were using by inhalation. Looking at usage by client numbers (representing unique clients): in March 2018, 141 of 237 (59.5%) unique clients used the inhalation room at least once; in April, these numbers rose to 219 of 309 (70.9%) unique clients; in May, 260 of 375 (69.3%), and in June, 321 of 457 (70.2%). The number of visits for the inhalation room increases every month (see Table 3). Overall, we have found that individuals who do not use the inhalation room are clients who access the SCS infrequently (i.e., low average number of visits). Our most frequent SCS users use the inhalation room typically a quarter or less of their visits (i.e., are injection drug users who may sometimes decide to smoke rather than inject). Of clients who used the inhalation room, roughly 42% used it for most or all of their SCS visits (75–100% of the time). Substances being

consumed by inhalation (smoking) include, in decreasing order of incidences self-reported by people using the site: methamphetamine (84.7% of recorded substances for inhalation), a variety of opiates (5.27%), and crack (rock) (4.3%) (see Table 4).

As of May 22, 2018, we expanded operating hours (previously 0900 h to 0200 h) to a 24/7 operation. This expansion was in response to the overwhelming need that resulted in long lineups outside the facility. Pending funding, we would like to add two more smoking rooms as these are also in high demand.

Since the inception of our supervised consumption application, we intended to actively encourage clients to choose safer forms of drug use other than injection as part of moving them down the treatment continuum. This harm reduction goal informs all areas of our practice. Staff make sure clients are aware of other ways to use a drug. They also encourage people who are not able to find a vein for injection, or who do not know how to inject independently, to consider an alternate (and safer) method, such as inhalation. Harm reduction is in all of the staff members' conversations with clients. Clients who are seeking to move from inhalation to injection meet with staff to discuss the risks associated. An interesting local

Table 4 Incidences of substances being consumed (client self-report)

Substance	Inhalation	Intranasal/oral	IV injection
Opiates	949 (11.3%)	568 (80.1%)	9667 (57.1%)
Carfentanil	35	7	320
Fentanyl	106	531	7706
Heroin	778	7	1455
Methadone	19	3	13
Morphine	8	1	79
Oxycontin/oxycodone	3	19	94
Uppers			
Methamphetamine	6876 (82.0%)	96 (13.5%)	5073 (29.9%)
Crack/rock	257 (3.1%)	4	14
Cocaine	6	14	27
Speedball ^a	23	4	2097 (12.4%)
Cannabis	267 (3.2%)	1	0
Unknown/other	3	22	63
Total	8381	709	16,941

^a Methamphetamine and fentanyl

phenomenon was the widely held belief, among people who use illicit drugs, that opiates could not be smoked—only taken orally or by injection. ARCHES has been instrumental in helping clients switch to inhaling by providing them with the education and equipment they need, so they are not injecting as much.

As for documenting clients transitioning to less risky routes of drug use (i.e., from injection to smoking) at this early stage, we have considerable anecdotal evidence. Patterns are largely dependent on the number of times a client accesses the site in a month (or a year); the provision of equipment and client education to promote smoking over injection; and the approach of the end of the month, which is associated with clients having fewer financial resources and an increased need to “make do” with what little substances they can procure and use. As our data increase with time and client visits, it may be easier to see how many clients are choosing to change.

Conclusion

Supervised inhalation is a promising innovation to assist people who use drugs. These services provide an alternative to public drug use and an opportunity for people who use drugs to engage with harm reduction services.

Acknowledgements We are grateful for the professional expertise of Mr. Richard Altvater at 4 Seasons Home Comfort.

Compliance with ethical standards

Conflict of interest The authors declare that they have no conflict of interest.

Publisher's note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

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