

Rationale to Evaluate Medically Supervised Safer Smoking Facilities for Non-injection Illicit Drug Users

Courtney L.C. Collins, BSc¹

Thomas Kerr, PhD^{1,2}

Mark W. Tyndall, MD, ScD^{1,3}

David C. Marsh, MD^{1,4,5}

Patricia S. Kretz, BSc¹

Julio S. Montaner, MD^{1,3}

Evan Wood, PhD^{1,4}

ABSTRACT

Many cities are experiencing ongoing infectious disease epidemics and substantial community harm as a result of illicit drug use. In an effort to reduce these public order and public health concerns, consideration has been given to the opening in Vancouver of a safer smoking facility (SSF). The present review was conducted to examine if there is a rationale to support the evaluation of a SSF in the Canadian context. Available evidence suggests that conventional drug control strategies are insufficient to address the health and community harms of non-injection drug use, and that the public order benefits of supervised injection facilities may be relevant to SSFs. In addition, there is persuasive evidence to suggest there is potential for blood-borne disease transmission through the sharing of smoking paraphernalia, and the potential for SSFs to address this concern is a pressing public health question. Also relevant to this topic are interventions to prevent transition into injection drug use, and SSFs may also be evaluated as a potential strategy to address this concern.

MeSH terms: HIV; hepatitis C; substance abuse; intravenous

La traduction du résumé se trouve à la fin de l'article.

1. British Columbia Centre for Excellence in HIV/AIDS, St. Paul's Hospital, Vancouver, BC
 2. Canadian HIV/AIDS Legal Network.
 3. Department of Medicine, Faculty of Medicine, University of British Columbia, Vancouver
 4. Department of Healthcare and Epidemiology, Faculty of Medicine, University of British Columbia
 5. Vancouver Coastal Health, Vancouver
- Correspondence:** Dr. Evan Wood, Division of Epidemiology and Population Health, BC Centre for Excellence in HIV/AIDS; University of British Columbia, St. Paul's Hospital, 608-1081 Burrard Street, Vancouver, BC V6Z 1Y6, Tel: 604-806-9116, Fax: 604-806-9044, E-mail: ewood@cfenet.ubc.ca

Many cities are currently experiencing blood-borne disease and overdose epidemics, and substantial community harms resulting from injection drug use.^{1,2} However, despite what is known about hepatitis C (HCV) transmission and the identified risk factors for infection, such as syringe sharing,³⁻⁸ and sharing of injecting paraphernalia,^{5,8,9} a considerable number of cases exist in which the infected individual reports no history of traditional risk factors. This is especially true for non-injection drug users (NIDUs).^{10,11} Shared non-injection drug use equipment as a route of HCV transmission may provide an explanation for the elevated HCV prevalence in this population.^{10,12-15}

In a growing number of cities, medically supervised injection facilities (SIFs) have been implemented in an effort to reduce the community and public health impacts of illicit drug use.¹⁶ Reports have suggested that SIFs may improve public order such as public drug use and unsafe disposal of drug use equipment,¹⁷ reduce overdose deaths,¹⁸ and improve access to health care.¹⁹ In several European settings, supervised smoking rooms, have also been established.²⁰ Preliminary reports suggest that the facilities have helped to improve public order and increase contact between drug users and health and social services.²⁰

In Vancouver, the scientific evaluation of the city's pilot SIF has indicated major successes in terms of high service uptake and improved public order within the target community;²¹ however, Vancouver is still contending with public order and public health concerns stemming from public drug use, and many of these problems occur among NIDUs using crack cocaine and crystal methamphetamine.²² This has led to consideration of a request for an exemption to open a supervised smoking facility (SSF) for evaluation.²³ However, the concept of a government-sanctioned SSF may be the source of some anxiety in the community, particularly because a review of the public health literature regarding the potential impacts of such a facility is not available. Therefore, the present review was conducted to examine if there is a rationale to support the evaluation of SSFs in the Canadian context.

MEDICALLY SUPERVISED NON-INJECTION DRUG USE

The primary objectives of SSFs are similar to those established for SIFs.²⁰ They generally include: reducing public drug use, and sharing of non-injection drug use paraphernalia; improving contact between a highly marginalized population and the healthcare system; enhancing recruitment into addiction treatment; increasing access to general social services such as housing and welfare; and, reducing drug overdoses.²⁰ Within SSFs, NIDUs are generally provided with sterile drug use equipment, a clean and safe environment in which to use pre-obtained illicit drugs, medical attention in the event of an overdose, and access or referral to primary healthcare and other services including drug treatment.

RATIONALE FOR EVALUATING SSF

Limitations of conventional North American drug strategies

We have previously reviewed the limitations of conventional North American strategies in the context of injection drug use.¹⁹ Many of these issues are also relevant to the implementation of a SSF, such as the failure of supply reduction approaches, over-reliance on incarceration, and displacement of drug addicts into unsafe environments through law enforcement activities.¹⁹ As with SIFs,²⁴ SSFs would offer the opportunity to couple enforcement and public health efforts as police officers could direct public drug users to a facility where medical supervision and ancillary services are available. As well, recent studies of drug treatment programs indicate that crack smokers are less responsive to intervention than other drug-using populations, and point to the continuing need to develop effective interventions for this subgroup of high-risk individuals.²⁵

Public drug use

Public drug use is prevalent in many inner-city neighborhoods, and is cause for public order and public health concerns in these communities.²¹ There is recent evidence that North America's first SIF has been effective in reducing public injection drug use, and injection-related litter.²¹ There is potential for SSFs to provide the same benefits with regard to non-injection drug use.

Uptake of primary care and addiction services

We have recently described the potential for SIFs to promote contact with the health care system, conduct education programs to reduce drug overdoses and the transmission of blood-borne infections, and facilitate entry into drug treatment programs.¹⁹ A SSF has the same potential by getting users in close proximity to the healthcare system, including primary care services. This may be particularly relevant to crack smokers, given evidence of the high incidence of cocaine-induced psychosis,²⁶ and over-reliance on emergency services among this population.²⁷ As for the potential benefits in public order, there is reason to believe that SSFs could possibly provide this in the same way as the SIF.²⁸

Overdose deaths from non-injection drug use

Although injection drug use presents a substantially greater risk for overdose, it has been shown that non-injection drug use also poses a significant risk for fatal overdose.^{29,30} In British Columbia, 14 deaths in the last two years have been attributed to heroin smoking and increasing mortality has been attributed to methamphetamine smoking.³¹ As in the case of SIFs, the medical supervision of NIDUs has the potential to reduce mortality through the close proximity of emergency response in the event of overdose.

Potential for blood-borne disease transmission

It has been suggested that a potential source of blood-borne disease transmission lies in the sharing of non-injection drug use equipment, namely pipes, straws and spoons.^{10,12-15} The potential risk originates from the fact that the equipment comes into contact with blood or other bodily fluids in the nose and mouth and thus, when they are shared, provide a route of transmission for hepatitis C virus (HCV) and other pathogens.¹³ This is of particular concern with regard to HCV because of the virus' ability to maintain its infectivity in the environment, and the high prevalence of HCV among illicit drug users.³² One study of female drug users with no history of injection found that having a history of sharing both oral and intranasal non-injection drug use implements was a significant and independent predictor of

HCV infection after accounting for other known routes of transmission.¹²

Prevalence of open oral sores among smokers of crack cocaine

Crack smokers have a high prevalence of oral lesions including blisters, sores, and cuts on their lips and oral cavities.³³⁻³⁵ These sores are frequently sustained from contact of the mouth and lips with hot smoke, hot glass or metal pipe stems, steel wool used as stem filters or the sharp edges of glass pipe stems.^{33,35} Uptake of commercially manufactured pipes is limited due to their high price.³⁴ Alternatively, drug users often manufacture their own crack pipes out of various materials. The metal tubes of these devices may conduct the heat from the flame used to vaporize the crack, and therefore burned and blistered lips are increasingly common in these settings.³⁴ There is some evidence that these sores caused by crack smoking may facilitate oral transmission of blood-borne infections.^{33,34}

Oral manifestations of HIV/AIDS

Between 20-50% of HIV-infected individuals develop HIV-related oral lesions during their disease course.^{36,37} Oral candidiasis and other afflictions that create open sores in the oral cavity may present an additional risk for blood-borne disease transmission in individuals who share crack smoking equipment.^{38,39} These concerns may be particularly relevant given the high prevalence of HCV co-infection among illicit drug users who are infected with HIV.^{40,41}

Other risk behaviours of crack smokers/NIDUs

Many smokers of crack cocaine engage in HIV/HCV risk behaviours other than sharing non-injection drug use equipment.⁴² There is substantial evidence indicating that illicit drug users will modify their risk behaviours when engaged in care and provided with appropriate education.⁴³⁻⁴⁵ Thus, through involvement with various health-related services such as the counselling and addiction treatment that a SSF would provide, NIDUs may reduce their sex- and drug-related risk behaviours.

Transition from non-injection to injection drug use

It has recently been argued that the infection risk reduction hierarchy should be

updated so that the public health importance of prevention of injection drug use is significantly elevated.⁴⁵ With regards to this, previous studies have shown that about 85% of IDUs report illicit non-injection drug use prior to initiating injection use.⁴⁶ In turn, injection drug use contributes to 60% of all new cases of acute HCV infection in the United States.^{15,47} Kelley and Chitwood (2004) found that contact with addiction treatment significantly reduced the likelihood of heroin sniffers transitioning into injection drug use.⁴⁸ Other studies have shown that HIV risk for heroin sniffers can be significantly reduced if transition to injection is delayed or prevented by contact with such treatment.⁴⁹⁻⁵² A study involving street-recruited crack cocaine smokers concluded that intervention programs should target crack cocaine smokers to prevent transition to injection.⁵³ Nevertheless, interventions to reduce this transition are needed.^{46,54} The potential for improving public health by implementing transition-prevention programs at a SSF is a critical public health question that could be addressed through the evaluation of a SSF.

SUMMARY

In summary, implementation of a safer smoking facility evaluation could be based on a sound public health rationale related to the goals of improving public order, prevention of infectious disease, prevention of transition to injection drug use, and improved access to medical care and addiction treatment services. Public health concerns relating to non-injection drug use such as: public drug use, low levels of primary care and addiction services uptake, potential for blood-borne disease transmission, and transition from non-injection to injection drug use are all critical concerns in the Canadian context. If the evaluation of SSF were to show significant improvement of these issues, SSF could potentially provide a public health model that addresses a number of non-injection-drug-related harms that are experienced by many Canadian cities.

REFERENCES

- Strathdee SA, Galai N, Safaeian M, Celentano DD, Vlahov D, Johnson L, et al. Sex differences in risk factors for HIV seroconversion among injection drug users: A 10-year perspective. *Arch Intern Med* 2001;161:1281-88.
- Craib KJ, Spittal PM, Wood E, Laliberte N, Hogg RS, Li K, et al. Risk factors for elevated HIV incidence among Aboriginal injection drug users in Vancouver. *CMAJ* 2003;168(1):19-24.
- van Beek I, Dwyer R, Dore GJ, Luo K, Kaldor JM. Infection with HIV and hepatitis C virus among injecting drug users in a prevention setting: Retrospective cohort study. *BMJ* 1998;317(7156):433-37.
- Thorpe LE, Ouellet LJ, Levy JR, Williams IT, Monterroso ER. Hepatitis C virus infection: Prevalence, risk factors, and prevention opportunities among young injection drug users in Chicago, 1997-1999. *J Infect Dis* 2000;182(6):1588-94. Epub 2000 Nov 2.
- Thorpe LE, Ouellet LJ, Hershov R, Bailey SL, Williams IT, Williamson J, et al. Risk of hepatitis C virus infection among young adult injection drug users who share injection equipment. *Am J Epidemiol* 2002;155(7):645-53.
- Selvey LA, Denton M, Plant AJ. Incidence and prevalence of hepatitis C among clients of a Brisbane methadone clinic: Factors influencing hepatitis C serostatus. *Aust N Z J Public Health* 1997;21(1):102-4.
- Hahn JA, Page-Shafer K, Lum PJ, Ochoa K, Moss AR. Hepatitis C virus infection and needle exchange use among young injection drug users in San Francisco. *Hepatology* 2001;34(1):180-87.
- Hagan H, Thiede H, Weiss NS, Hopkins SG, Duchin JS, Alexander ER. Sharing of drug preparation equipment as a risk factor for hepatitis C. *Am J Public Health* 2001;91(1):42-46.
- Villano SA, Vlahov D, Nelson KE, Lyles CM, Cohn S, Thomas DL. Incidence and risk factors for hepatitis C among injection drug users in Baltimore, Maryland. *J Clin Microbiol* 1997;35(12):3274-77.
- Tortu S, Neaigus A, McMahon J, Hagen D. Hepatitis C among noninjecting drug users: A report. *Subst Use Misuse* 2001;36(4):523-34.
- Flamm SL, Parker RA, Chopra S. Risk factors associated with chronic hepatitis C virus infection: Limited frequency of an unidentified source of transmission. *Am J Gastroenterol* 1998;93(4):597-600.
- Tortu S, McMahon JM, Pouget ER, Hamid R. Sharing of noninjection drug-use implements as a risk factor for hepatitis C. *Subst Use Misuse* 2004;39(2):211-24.
- McMahon JM, Tortu S. A potential hidden source of hepatitis C infection among noninjecting drug users. *J Psychoactive Drugs* 2003;35(4):455-60.
- Conry-Cantilena C, VanRaden M, Gible J, Melpolder J, Shakil AO, Viladomiu L, et al. Routes of infection, viremia, and liver disease in blood donors found to have hepatitis C virus infection. *N Engl J Med* 1996;334(26):1691-96.
- Alter HJ, Conry-Cantilena C, Melpolder J, Tan D, Van Raden M, Herion D, et al. Hepatitis C in asymptomatic blood donors. *Hepatology* 1997;26(3 Suppl 1):29S-33S.
- Wood E, Tyndall MW, Li K, Lloyd-Smith E, Small W, Montaner JS, et al. Do supervised injecting facilities attract higher-risk injection drug users? *Am J Prev Med* 2005;29(2):126-30.
- Broadhead RS, Kerr TH, Grund J-PC, Altice FL. Safer injection facilities in North America: Their place in public policy and health initiatives. *J Drug Issues* 2002;32(1):329-55.
- de Jong W, Wever U. The professional acceptance of drug use: A closer look at drug consumption rooms in the Netherlands, Germany, and Switzerland. *Int J Drug Policy* 1999;10:99-108.
- Wood E, Kerr T, Montaner JS, Strathdee SA, Wodak A, Hankins CA, et al. Rationale for evaluating North America's first medically supervised safer-injecting facility. *The Lancet Infectious Diseases* 2004;4(5):301-6.
- Haemmig R. Beyond safe injecting rooms: Next steps in harm reduction incl. safe smoking rooms. 15th International Conference on the Reduction of Drug Related Harm 2004, Melbourne, Australia.
- Wood E, Kerr T, Small W, Li K, Marsh DC, Montaner JS, et al. Changes in public order after the opening of a medically supervised safer injection facility for illicit injection drug users. *CMAJ* 2004;171(7):731-34.
- Wood E, Spittal PM, Small W, Kerr T, Li K, Hogg RS, et al. Displacement of Canada's largest public illicit drug market in response to a police crackdown. *CMAJ* 2004;170(10):1551-56.
- Campbell L. 'Four Pillars - the Vancouver experience'. 15th International Conference on the Reduction of Drug Related Harm 2004, Melbourne, Australia.
- Wood E, Kerr T, Spittal PM, Tyndall MW, O'Shaughnessy MV, Schechter MT. The health-care and fiscal costs of the illicit drug use epidemic: The impact of conventional drug control strategies and the impact of a comprehensive approach. *BCMJ* 2003;45(3):130-36.
- Sterk CE, Theall KP, Elifson KW. Who's getting the message? Intervention response rates among women who inject drugs and/or smoke crack cocaine. *Prev Med* 2003;37(2):119-28.
- Rosse RB, Collins JP, Jr., Fay-McCarthy M, Alim TN, Wyatt RJ, Deutsch SI. Phenomenologic comparison of the idiopathic psychosis of schizophrenia and drug-induced cocaine and phencyclidine psychoses: A retrospective study. *Clin Neuropharmacol* 1994;17(4):359-69.
- Colliver JD, Kopstein AN. Trends in cocaine abuse reflected in emergency room episodes reported to DAWN. Drug Abuse Warning Network. *Public Health Rep* 1991;106(1):59-68.
- Fischer B, Rehm J, Kim G, Robins A. Safer injection facilities (SIFs) for injection drug users (IDUs) in Canada: A review and call for an evidence-focused pilot trial. *Can J Public Health* 2002;93(5):336-38.
- Darke S, Ross J. Fatal heroin overdoses resulting from non-injecting routes of administration, NSW, Australia, 1992-1996. *Addiction* 2000;95(4):569-73.
- Thiblin I, Eksborg S, Petersson A, Fugelstad A, Rajas J. Fatal intoxication as a consequence of intranasal administration (snorting) or pulmonary inhalation (smoking) of heroin. *Forensic Sci Int* 2004;139(2-3):241-47.
- Smith C. Baffling brain ailment hits heroin smokers. *Georgia Straight*, January 22, 2004.
- Centers for Disease Control. Top 11 most frequently asked questions about viral hepatitis. Available on-line at: http://www.cdc.gov/ncidod/diseases/hepatitis/common_faqs.htm (Accessed June 15, 2004).
- Faruque S, Edlin BR, McCoy CB, Word CO, Larsen SA, Schmid DS, et al. Crack cocaine smoking and oral sores in three inner-city neighborhoods. *J Acquir Immune Defic Syndr Hum Retroviral* 1996;13(1):87-92.
- Porter J, Bonilla L. Crack users' cracked lips: An additional HIV risk factor. *Am J Public Health* 1993;83(10):1490-91.
- Mitchell-Lewis DA, Phelan JA, Kelly RB, Bradley JJ, Lamster IB. Identifying oral lesions associated with crack cocaine use. *J Am Dent Assoc* 1994;125(8):1104-8, 1110.
- Barr CE, Lopez MR, Rua-Dobles A, Miller LK, Mathur-Wagh U, Turgeon LR. HIV-associated oral lesions; immunologic, virologic and salivary parameters. *J Oral Pathol Med* 1992;21(7):295-98.
- Centers for Disease Control and Prevention. 1993 revised classification system for HIV infec-

tion and expanded surveillance case definition for AIDS among adolescents and adults. *JAMA* 1993;269(6):729-30.

38. McCarthy GM, Mackie ID, Koval J, Sandhu HS, Daley TD. Factors associated with increased frequency of HIV-related oral candidiasis. *J Oral Pathol Med* 1991;20(7):332-36.

39. Patton LL, van der Horst C. Oral infections and other manifestations of HIV disease. *Infect Dis Clin North Am* 1999;13(4):879-900.

40. Wood E, Schechter MT, Tyndall MW, Montaner JS, O'Shaughnessy MV, Hogg RS. Antiretroviral medication use among injection drug users: Two potential futures. *AIDS* 2000;14(9):1229-35.

41. Miller CL, Wood E, Spittal PM, Li K, Frankish JC, Braitstein P, et al. The future face of coinfection: Prevalence and incidence of HIV and hepatitis C virus coinfection among young injection drug users. *J Acquir Immune Defic Syndr* 2004;36(2):743-749.

42. Edlin BR, Irwin KL, Faruque S, McCoy CB, Word C, Serrano Y, et al. Intersecting epidemics—crack cocaine use and HIV infection among inner-city young adults. Multicenter Crack Cocaine and HIV Infection Study Team. *N Engl J Med* 1994;331(21):1422-27.

43. Des Jarlais DC, Friedman SR. Fifteen years of research on preventing HIV infection among injecting drug users: What we have learned, what we have not learned, what we have done, what we have not done. *Public Health Rep* 1998;113(Suppl 1):182-88.

44. Ronco C, Spuhler G, Coda P, Schopfer R. Evaluation for alley-rooms I, II, and III in Basel. *Soc Prev Med* 1996;41:S58-68.

45. Vlahov D, Fuller CM, Ompad DC, Galea S, Des Jarlais DC. Updating the infection risk reduction hierarchy: Preventing transition into injection. *J Urban Health* 2004;81(1):14-19.

46. Fuller CM, Vlahov D, Ompad DC, Shah N, Arria A, Strathdee SA. High-risk behaviors associated with transition from illicit non-injection to injection drug use among adolescent and young

adult drug users: A case-control study. *Drug Alcohol Depend* 2002;66(2):189-98.

47. Recommendations for prevention and control of hepatitis C virus (HCV) infection and HCV-related chronic disease. Centers for Disease Control and Prevention. *MMWR Recomm Rep* 1998;47(RR-19):1-39.

48. Kelley MS, Chitwood DD. Effects of drug treatment for heroin sniffers: A protective factor against moving to injection? *Soc Sci Med* 2004;58(10):2083-92.

49. Des Jarlais DC, Casriel C, Friedman SR, Rosenblum A. AIDS and the transition to illicit drug injection—results of a randomized trial prevention program. *Br J Addict* 1992;87(3):493-98.

50. van Ameijden EJ, van den Hoek JA, Hartgers C, Coutinho RA. Risk factors for the transition from noninjection to injection drug use and accompanying AIDS risk behavior in a cohort of drug users. *Am J Epidemiol* 1994;139(12):1153-63.

51. Chitwood DD, Comerford M, Kitner KR, Palacios W, Sanchez J. A comparison of HIV risk

behaviors between new and long-term injection drug users. *Subst Use Misuse* 2001;36(1-2):91-111.

52. Chitwood DD, Sanchez J, Comerford M, Page JB, McBride DC, Kitner KR. First injection and current risk factors for HIV among new and long-term injection drug users. *AIDS Care* 2000;12(3):313-20.

53. Irwin KL, Edlin BR, Faruque S, McCoy HV, Word C, Serrano Y, et al. Crack cocaine smokers who turn to drug injection: characteristics, factors associated with injection, and implications for HIV transmission. The Multicenter Crack Cocaine and HIV Infection Study Team. *Drug Alcohol Depend* 1996;42(2):85-92.

54. Swift w, Maher L, Sunjic S, Doan V. Transitions between routes of heroin administration: a study of Caucasian and Indochinese heroin users in South-western Sydney, Australia. *Addiction* 1999;92(1):71-82.

Received: June 25, 2004
 Accepted: March 11, 2005

RÉSUMÉ

Plusieurs villes doivent composer avec des épidémies continues de maladies infectieuses et les dommages importants causés par l'utilisation de drogues illicites. Afin de réduire le nombre d'infractions à l'ordre public et d'apaiser les préoccupations en matière de santé publique, on a envisagé la création, à Vancouver, d'installations sécuritaires pour les fumeurs de drogues illicites (ISFDI). La présente évaluation avait pour but d'examiner s'il s'avérait justifié d'appuyer l'évaluation d'une ISFDI dans le contexte canadien. Les preuves disponibles révèlent que, d'une part, les stratégies antidrogues habituelles ne suffisent pas à contrer les effets sur la santé et la collectivité de l'utilisation des drogues non injectables et que, d'autre part, les effets positifs de la création de sites d'injection sur le maintien de l'ordre public peut justifier la création d'ISFDI. De plus, certaines données probantes convaincantes laissent supposer qu'il pourrait y avoir des répercussions positives sur la transmission de maladies à diffusion hémotogène qui découlent du partage des articles des fumeurs et la possibilité que les ISFDI puissent remédier à cette situation constitue une question de santé publique prioritaire. Les interventions visant à prévenir le passage aux drogues à injection représentent un autre sujet pertinent à l'étude de la présente question; on pourrait également évaluer les ISFDI comme un moyen stratégique éventuel pour corriger cette situation.



Canadian HIV/AIDS Information Centre
 Canadian Public Health Association
The services you can trust
1-877-999-7740

Centre canadien d'information sur le VIH/sida
 Association canadienne de santé publique
Des services dignes de confiance
www.aidssida.cpha.ca