Determining the harm reduction services required for safer crystal methamphetamine smoking in Toronto

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KEY MESSAGES

- Pipe sharing was widespread among crystal methamphetamine smokers participating in this study, and most displayed a casual attitude towards this practice.

- Crystal methamphetamine smoking was often associated with risky or unprotected sex, especially within the MSM community.

- We remain uncertain whether the availability of ‘safer crystal meth smoking’ kits would reduce sharing behaviour, as many participants considered pipe sharing to be integral to the social experience of smoking crystal methamphetamine.

RATIONALE

Several community health agencies, including Toronto Public Health, the Shout Clinic, and the AIDS Committee of Toronto, identified the need to look into possible harms associated with the practice of smoking crystal methamphetamine. In Ontario, this psycho-stimulant drug is thought to be used primarily by street-involved youth, men who have sex with men (MSM), sex workers, and youth in the party scene [1,2]. The paucity of information on harm reduction services specifically targeted at crystal methamphetamine smokers (such as the provision of safer crystal meth pipes) in the literature suggests that Toronto may be one of the first municipalities to address this void in existing public health services. The city is not alone in its need to evaluate the health concerns of crystal methamphetamine smokers; it has been claimed that in most countries where the drug is smoked, this is the most common form of crystal methamphetamine use [3].

The fundamental goal of this project was to acquire the information necessary to create evidence-based harm reduction programs in Toronto for this group of drug users. Harm reduction policies and programs embody the principle that we should aim primarily to reduce the adverse effects of drug use on health, as well as on social and economic wellbeing, without necessarily requiring reduced drug consumption [4,5]. We held a series of five focus groups targeting the demographic groups listed above, in order to determine the health problems experienced by crystal meth smokers, associated risk behaviours (including pipe sharing and unprotected sex), and most importantly, the ideal contents of a 'safer crystal meth smoking' kit. This kit would be comparable to the safer crack use kits already distributed in Toronto and elsewhere [6,7]. Crack kits may include supplies to prevent injuries and reduce disease transmission during crack smoking (including mouthpieces, glass stems and metal screens), educational information about disease risks associated with sharing, and additional supplies, like condoms or lip balm [6,8,9].

One of the primary health concerns associated with crystal methamphetamine smoking is the potential for transmission of the Hepatitis C virus (HCV) through blood remaining on a shared glass pipe or other smoking implement [1]. Heated pipes are believed to create cuts or sores on the user's lips [1]. In a survey of 123 non-injecting drug users in New York, a significant association was found between answering 'yes' to the statement "ever shared both oral and intranasal implements" and HCV infection (OR 2.83; P = 0.04) [10]. In contrast, the association initially found between sharing non-injection drug equipment and HCV infection in a study of 740 non-injecting drug users in the same city disappeared when results were adjusted for age [11]. The investigators felt that the varied results obtained by studies examining this issue were due to the different ways that 'sharing' was measured. A systematic review of 28 studies concluded that with a prevalence of 2.3-35.3% among never-injecting drug users, HCV represented a serious health concern among this population, although a causal mechanism was unclear [12]. Many of the concerns related to this potential route of disease transmission seem to be based on the fact that people who smoke crack cocaine often experience cuts, burns, or blisters on their lips [13]. In addition, there is evidence for crack pipes used by smokers with HCV and oral lesions testing positive for the virus [14]. However, information on HCV prevalence and pipe sharing behaviour among crystal meth smokers specifically appears to be absent from the literature. This topic needs to be investigated using study designs that help determine causality, not simply association.

Methamphetamine smoking is also believed to lead to severe gum and tooth decay, a condition known colloquially as 'meth mouth' [1]. A study of 301 methamphetamine users found that participants had significantly more missing teeth than matched controls (4.58 vs. 1.96; P

<0.001) and were significantly more likely to have self-reported oral health problems (P <0.001) [15]. Examples of severe tooth decay among methamphetamine users have also been documented in case reports [16], but these articles do not provide sufficient evidence, given their small sample size. Interestingly, a recent review of health outcomes associated with methamphetamine use among young people identified only two studies investigating oral health impacts that were rigorous enough to meet inclusion criteria, a finding which the authors felt was incongruous with the amount of attention given to 'meth mouth' [17].

Another significant health concern related to smoking crystal meth is the possible link between use of this drug and risky sexual behaviours. The drug is known to enhance sex drive and enable longer sexual episodes; it also leads to drying of the mucosa, which can cause tears in the genital region and facilitate transmission of HIV or other STIs [18]. A study of 258,567 sexually active adults in California found that non-injection methamphetamine use was inversely associated with condom use, regardless of the type of intercourse [19]; the low rates of condom use (one third of the time during vaginal sex and one quarter of the time during anal sex) among 139 methamphetamine users in the same state lend support to this finding [20]. Greater intensity of meth use was also positively associated with unprotected sex in a sample of 261 HIV-positive MSM in California [21].

METHODS

In collaboration with our agency partners, we produced a list of 15 focus group questions with accompanying probes (see Appendix) that addressed the following topics: 1) factors that lead individuals to smoke crystal methamphetamine, 2) the process of smoking crystal methamphetamine, the types of paraphernalia being used currently, and the frequency of sharing paraphernalia, 3) recommendations for the contents of an ideal 'safer crystal meth smoking' kit that could be provided by community health agencies, and 4) health consequences of smoking crystal methamphetamine.

Focus group participants were existing clients at various community health agencies or youth shelters in Toronto and were known to be crystal methamphetamine smokers. Each of the agencies held one focus group and recruited all participants. The five agencies included an AIDS service organisation, a harm reduction organisation for people in the party scene, an outreach program for youth involved in sex work, a harm reduction shelter for youth, and a youth support organisation. Demographic questionnaires were completed by all participants. Participants provided verbal consent and were compensated $25.00 for their time. This project was approved by the Office of Research Ethics at the University of Toronto.

The focus groups were audio-recorded and summary notes were taken after listening to each recording. Content analysis was used to ensure that the most frequently mentioned comments were included in this report [22]. Frequency was assessed by counting the number of groups that mentioned a particular idea. However, as this study was exploratory in nature, results did not have to be mentioned in a set number of focus groups to be included in the report. The following summaries are meant to give an idea of the range of responses that were given.

RESULTS

A total of 32 participants attended the five focus groups. Approximately 69% were male and almost 66% were between the ages of 20 and 29. Approximately 66% described themselves as Caucasian. About 94% had used more than one non-injection drug in the past year, including methamphetamine, and 59% had injected drugs in the past year. Please see Table 1 for participant characteristics.

Motivations for using crystal meth

Pharmacological and physical

Many groups mentioned the big rush of adrenaline and feelings of euphoria accompanying crystal meth use, and all groups discussed the incredible amount of energy they had while on the drug. This energy seemed to lead users to feel very proactive. All groups mentioned the ability of the drug to allow people to go for extended periods of time without sleep. One person from the youth support organisation mentioned that his primary reason for using the drug at this point was addiction. Please see Table 3 for examples of comments made about motivations for using crystal meth and a variety of other topics.

Table 1 Demographic characteristics of participants, including drug use (N=32)

Demographic factor	Number (%)
Gender	
Male	22 (68.8)
Female	7 (21.9)
Transgender male to female	3 (9.4)
Age	
15 to 19 years old	6 (18.8)
20 to 29 years old	21 (65.6)
30 to 39 years old	2 (6.2)
40 years or more	3 (9.4)
Born in Canada	
Yes	29 (90.6)
No	3 (9.4)
Ethnicity (list all that apply)	
White (Caucasian)	21 (65.6)
Black	3 (9.4)
First Nations/Inuit/Métis	5 (15.6)
Other	3 (9.4)
Left blank	3 (9.4)
Non-injection drugs used in past year (in addition to methamphetamine)	
Cocaine or crack cocaine	23 (71.9)
Heroin or other opiate	10 (31.2)
Ecstasy, Ketamine, or other club drug	27 (84.4)
Other	14 (43.8)
Poly drug user (non-injection)	30 (93.8)
Injection drugs used in the past year	
None	13 (40.6)
Cocaine or crack cocaine	6 (18.8)
Heroin or other opiate	6 (18.8)
Methamphetamine	14 (43.8)
Speedball	5 (15.6)
Ketamine	9 (28.1)
Other	3 (9.4)
Poly drug user (injection)	10 (31.2)

Psychological and emotional

A few groups mentioned crystal meth's ability to improve self-esteem and confidence. All groups discussed using the drug either for depression, for mood swings, or to suppress unwanted emotions. Some participants at the AIDS service organisation said that they used the drug to overcome feelings of guilt associated with homosexuality and sex, due to the lingering effects of a religious upbringing.

Cognitive

A few groups mentioned that crystal meth makes you think about things a lot, and three of the groups declared that the drug helps you concentrate on a task. A few individuals from the party scene program specifically mentioned using it as a study aid, presumably for its impacts on

concentration and decreased need for sleep. Participants at the harm reduction shelter mentioned that they felt like they could talk about anything and were on the same page as others while on the drug.

Sexual

All groups discussed the fact that sex was better when you were on crystal meth. 'Better' was often defined as longer and more intense. Two groups mentioned that sensitivity to touch was increased, and most groups said that people were more adventurous and felt less inhibited during sex while on the drug. Participants at the AIDS service organisation mentioned that the drug made them feel sexier and helped them get over their fear of rejection or worries about performance.

Other reasons

Three of the groups mentioned using the drug as a weight loss strategy, suggesting that it decreases appetite. This property may have also been used to suppress hunger when facing food insecurity, however. Crystal meth was used for dancing all night by participants at the AIDS service organisation and the party scene program. Individuals at these two groups, as well as at the outreach program for youth involved in sex work, mentioned using the drug for making art and being more creative. Crystal meth may also be used for vocational purposes, as one participant used it to stay up all night while working at a club. Considering the drug's sexual effects and the fact that several participants at one focus group were involved with sex work, crystal meth was likely used in a vocational setting by some of these participants as well.

Process of smoking and paraphernalia currently used

While many participants had tried a variety of ways to use crystal meth, including injecting, snorting, and taking the drug orally or rectally, our focus was on the process of smoking the drug. The most common ways of smoking crystal meth seemed to be using store-bought ball pipes (a glass stem with a bowl attached) or using tin foil and straws, a method known as "chasing the dragon". A few people, mostly at the harm reduction shelter and the youth support organisation, had used homemade pipes, including light bulbs, pop cans, or GHB vials. However, these were usually only used if ball pipes were unavailable. Some participants had used crack stems to smoke crystal meth or had heard of others doing so, but this was usually considered an unsuitable method, as crack stems do not have a bowl to collect the liquefied crystal meth. Several groups mentioned using heated up crack stems to inhale a line of crystal meth through the nose, and then exhale the drug as smoke through the mouth, a method known as "hot rails".

Smoking with a ball pipe, especially one made of Pyrex, was considered the safest way to smoke crystal meth. This method involves putting the crystals in the bowl of the pipe and using a torch lighter to heat the bowl from below but keeping it an inch away. The crystal meth turns to liquid and then to vapour, which the user inhales. Frequency of use varied as much within groups as between groups, ranging from every day to every few weeks or months. Participants in several groups described having been on binges where they smoked every day for several weeks or even a whole month, during which they were awake almost the entire time.

Health problems experienced

Some of the most common health problems associated with smoking crystal meth appeared to be dehydration, lack of nutrition from not eating, and fatigue from sleep deprivation. Several groups mentioned experiencing psychological or perceptual problems, including depression, paranoia, and auditory or visual hallucinations. Other common physical problems included pimples or other skin problems, bowel problems, and dry mouth. One person mentioned a greater tendency to get bleeding gums and another had heard of other crystal meth users losing teeth, but overall, there was a surprising lack of dental or oral health problems among participants given the hype around 'meth mouth'. While none of the groups brought up chapped lips as a major health concern, three of the groups asked that lip balm be included in the kits.

When asked whether they ever obtained cuts or burns on their hands or lips from touching hot pipes, participants from most groups explained that this was unlikely to occur because only the bowl of the pipe gets hot, not the stem. These sorts of injuries were believed to be associated more with crack smoking. The participants clarified further that crystal meth is vaporized, not burned, and that if you used the amount of heat applied to crack pipes with a crystal meth pipe you would burn the drug. Homemade implements like light bulbs and pop cans were more likely to cause injury, and avoiding cuts and burns with any smoking implement was deemed an issue of skill. Several groups mentioned the possibility of obtaining cuts from a broken pipe, however.

Sharing behaviour

When asked how often smoking implements are used by more than one person, almost every group declared that pipes were often used by many people, and that there might be only one or two pipes shared by a whole party full of people. The exception was the group from the party scene program, where most participants were more protective of their pipes and felt they might only share with one or two close friends. Overall, most participants seemed quite unconcerned about the amount of sharing occurring at parties. Another common location for sharing appears to be bathhouses, where crystal meth is shared in exchange for sex, according to participants at the outreach program for youth involved in sex work and at the AIDS service organisation.

Concerns about sharing seemed to be more about someone breaking your pipe or burning your meth, rather than about the possibility of disease transmission. Some participants felt that sharing with others at a party was automatic. Other participants mentioned that they would be more likely to share with people who they knew well because they would know if the person had a disease or not. Pipes used were rarely brand new, and most people would only get a new pipe if their old one broke.

Safer crystal meth smoking kit

When discussing the ideal pipe for smoking crystal meth, most participants agreed that tempered glass or Pyrex ball pipes were the best and the least likely to break. Many believed that longer stems were safer, but there was a lot of variety in preferred stem length. Having a large bowl and a large enough hole in the bowl was considered important. Please see Table 2 for the participants' suggestions for the contents of a 'safer crystal meth smoking' kit. Suggested locations for providing the kits included community health agencies, youth shelters, and mobile

buses that could be available all night. Participants felt that it would be good to have kits at bathhouses and clubs, but that these businesses would not allow them to be provided there.

There was a great deal of variety between the groups in terms of demand for the kits. The demand seemed to be very high at groups like the harm reduction youth shelter and the youth support organisation because of the expense of buying good pipes. Participants from the party scene program seemed to be able to afford to buy pipes but would use the kits simply because they were free. However, participants at the AIDS service organisation expressed doubt about whether the kits would be useful in the MSM community. They felt that the social aspect of sharing pipes was an important driver of crystal meth use, both at parties and in the sexual transactions occurring in the bathhouse scene. They also pointed out that dividing a quantity of crystal meth between several pipes would waste a lot of the drug.

Table 2 Suggested contents of a 'safer crystal methamphetamine smoking' kit

Item	Comments
1-2 Pyrex or tempered glass pipes	- To prevent breakage
Lighter	- Torch lighters preferred
Scoops	- To put crystal meth in bowl
Scrapers	- To scrape out residue
Alcohol wipes	- To clean pipe after use
Tin foil and straws	- For "chasing the dragon"
Hand sanitizer	
Condoms	
Lubricant	
Mouthwash	- For oral hygiene concerns
Lip balm	- For cracked lips
Band-Aids	
Rubber mouthpieces	- Many people would not use
Gum	- For dry mouth
Electrolyte powder	- Since not eating much
Educational pamphlet	- With information about health risks, crisis phone numbers, etc.

Sexual risk taking

Almost all groups mentioned that they were more likely to have sex with multiple partners while on crystal meth. Many groups also suggested that the sex might be rougher and that their inhibitions were lowered while on the drug. Some individuals felt that people were less likely to use condoms after smoking crystal meth, and some mentioned being less paranoid about having unsafe sex. Others suggested that it depended on your attitude towards condoms in general. When discussing the inclusion of condoms in the harm reduction kit, participants at the AIDS service organisation suggested that people might be more inclined to use them if they were there. One individual offered that he might hand a condom from the kit to a sex partner if he "had a vibe about him" or "looked kind of dirty".

Table 3 Examples of comments on various topics

Topic	Comment	Focus group
Pharmacological and physical motivations	*Right away you just feel amazing, and you feel like you can do anything. You have a lot of energy. Pretty much everything in your mind is going right... You're just in an amazing world, pretty much.*	Youth support organisation
	I have too many things to do when I'm on it to bother with eating or sleeping. I'm on the go, I want to do stuff.	Outreach program for youth involved in sex work

Psychological and emotional motivations	*With me, like, I have a lot of trauma in my past. Like, I used to be a cutter. I have suicide attempts under my belt, and so when I get into those moods, instead of harming myself or harming others I just smoke some crystal and it just goes away.*	Outreach program for youth involved in sex work
Cognitive motivations	*Especially in college or university, come exam time, when you have to do all that cramming...*	Party scene program
Sexual motivations	*I'm kind of sexually inhibited, so it allows me to access part of myself that I normally can't...It kind of allows me to get past those fears of rejection, or fears of not being good enough for somebody or not being sexy enough for somebody, because it makes you feel sexy.*	AIDS service organisation
Other motivations	*It helps me be more artistic. I find, like, I can draw and paint better.*	Party scene program
Process of smoking and paraphernalia	*Basically, you put your crystal into [the pipe] and you should keep the lighter about an inch below the bottom of the pipe. You let it melt into a liquid form and you wait a second until it re-crystalizes over, and then you heat it up until it puddles again. You keep it constantly moving while inhaling not as hard as you would with crack, but not slow, just like a normal sized breath.*	Youth support organisation
Health problems	*I pretty much stayed up for like two and a half weeks so it was hard to get to sleep. It was hard to sleep, you know, I was trying this and that and I wasn't eating properly...I didn't look really healthy. Things were coming out of my face. I felt really tired and I started losing more and more weight.* When asked whether you could burn your lips from smoking: *I've never seen it happen... I think the reason [why it happens with crack and not crystal] is, because with crack, the heat is right on the stem, where we heat the bowl, and you have to heat it a lot more with crack...Because you hold the stem partway down with crystal, it would never burn your lips cause you'd burn your fingers first. It just doesn't happen.*	Harm reduction youth shelter AIDS service organisation
Sharing behaviour	*It could be the whole party, it could be two people onto one pipe, it could be five people, it could be everyone... It depends on who has a pipe and who doesn't.*	Harm reduction youth shelter
Harm reduction kit	When asked whether everyone would want their own pipe: *No...There's a social element to crystal meth...One person's*	AIDS service organisation

	using it and that's the bait that attracts everyone else...You can be the centre of attention...	
Sexual risk taking	As to why people are less likely to use condoms while on crystal: *It's like showering with a raincoat on. You can't feel the increase in sensitivity from skin contact.*	Party scene program

DISCUSSION

One of the most consistent findings across the five focus groups was the prevalence of sharing crystal meth smoking implements, and the casual attitude towards this practice. Sharing appeared to be a natural part of the smoking experience, both for practical reasons, like not wanting to split a quantity of the drug between several pipes, and for social reasons. While participants at the party scene program seemed to consider smoking crystal meth to be more of a solitary or small group activity, the majority of participants connected the drug's use to parties, dancing at clubs, "sex parties" in the MSM community, and sexual encounters at bathhouses. In this way, some of the drivers of crystal meth use are also driving the sharing behaviour.

While we obtained valuable information about the ideal contents of a harm reduction kit for crystal methamphetamine smoking, our data lead us to question if the kits might be used at all and/or used for the intended purpose of reducing sharing. With the exception of homeless/homeless/street-involved youth, many participants were hesitant to say that a safer crystal methamphetamine smoking kit would lead to changes in their behaviour. Crystal methamphetamine is often smoked in a group setting where sharing is a part of the culture of smoking and not the result of an inability to buy or access new and clean supplies. Questions about ease of purchase revealed that it is relatively easy to purchase a suitable pipe. Research team members had no difficulty purchasing pipes to show during the focus group discussions. Nevertheless, there were a minority of homeless/street-involved participants who lacked sufficient resources to purchase a pipe. Data from a 2009 Toronto study amongst street youth (n=100) showed that 74% youth rated access to a safer crystal meth kit as high on their demands [21]. Among youth in that study who smoked crystal methamphetamine, 83% used a glass pipe with a bowl, 40% used a homemade pipe made from a light bulb, 21% smoked it using tin foil, 19% used a crack pipe and 8% used a metal pipe. While our findings related to sharing behaviour lead us to question whether or not kits would decrease sharing amongst this population, access to kits it might reduce the use of improvised equipment (e.g., light bulbs) said to be more likely to cause injury and burns. Amongst all participants, gay men were the least convinced that the kits would reduce sharing at parties because the social aspect of sharing a pipe was an important part of the experience and integral to the sexual transactions occurring in bathhouses. They also felt that the risk of disease transmission associated with pipe sharing was trivial in the context of the unprotected sex occurring in settings where crystal methamphetamine was used. Future studies targeting crystal methamphetamine smokers should examine more thoroughly whether harm reduction services could actually reduce pipe sharing.

Another striking finding was the insistence by almost all groups that injuries to the mouth (e.g., cuts and burns) and the tooth decay (i.e., meth mouth) were not as much of a concern for crystal methamphetamine smokers as popularized in the media [22]. However, amongst crystal methamphetamine smokers in the Shout Clinic study, 35% reported cracked lips, 35% burns and cuts to hands and 18% burns and cuts to the lips. While findings are mixed, current research suggests that poverty, homelessness, personal hygiene and drug-related effects (e.g., reduced salivation; teeth-grinding) are key contributors to the oral health status of this group of drug users as opposed to the use of crystal methamphetamine [23-27]. However, the recommendation by many study participants to include lip balm in the harm reduction kits suggests that dry, cracked lips associated with smoking the drug might still provide a route of entry for Hepatitis C and other blood-borne infections. Given the frequency of sharing and the prevalence of this health problem, more information is needed about the potential for disease transmission via pipes use to smoke crystal methamphetamine. In spite of these uncertainties, using crystal methamphetamine harm reduction kits as a way to make contact with drug users in need of health services or to disseminate public health information is an option worth considering. Safer crack use kits have been used in this way to reach the most isolated or marginalised drug users [6,23].

Some notions about personal risk and assumptions about the disease status of others that emerged in the focus groups were troubling. Participants at the AIDS service organisation focus group were all existing clients of the organisation and had likely received extensive education about preventing the spread of HIV and other STIs. However, the men attending this focus group seemed unconcerned about consistent condom use and some seemed to believe that someone's physical appearance correlated with their likelihood of being infected. This may be a common finding within this community, as a previous study found that when making assumptions about the serostatus of a sex partner, HIV-positive MSM based 25% of their assumptions of a negative serostatus and 3% of their assumptions of a positive serostatus on physical appearance [28]. On a similar note, other participants believed that having known someone for a long time or trusting someone based on their appearance were sufficient criteria for pipe sharing, even if they were aware of the risk of Hepatitis C transmission. These findings point to a need for greater awareness of the unbiased prevalence of infectious diseases and promotion of safer sex among drug users.

Considering the lack of evidence proving that Hepatitis C is spread via sharing of crystal meth pipes at this time, it is possible that there are more important and cost-effective ways of addressing the health needs of this population of drug users than the provision of clean pipes. A series of semi-structured interviews with crystal methamphetamine-using street youth in Vancouver revealed that participants were managing their mental health problems with the drug rather than accessing mental health services [29]. There is also support for the idea that street youth may use crystal methamphetamine to cope with food insecurity [29,30]. Alternative public health interventions might therefore include safer sex education campaigns, mental health services, or nutrition programs.

One limitation of this study was that participants were all existing clients of community health agencies or youth shelters in Toronto, and the experiences of the most marginalised or isolated crystal methamphetamine smokers may have been absent. In addition, our analysis could have been furthered if our questionnaires had asked how long each participant had been smoking crystal methamphetamine and how frequently they used the drug. On the whole, however, the exploratory nature of this study allowed us to obtain valuable information about the social

context of crystal methamphetamine smoking in Toronto and the wide range of associated health concerns.

References

1. Ontario Needle Exchange Network. *Reducing the Risks of Hepatitis C for People Who Use Crack or Crystal Methamphetamine*. Toronto: Ontario Needle Exchange Network; 2007.

2. Toronto Drug Strategy Advisory Committee. *The Toronto Drug Strategy: A comprehensive approach to alcohol and other drugs*. Toronto: Toronto Drug Strategy Advisory Committee; 2005.

3. Kinner S.A., Degenhardt L. Crystal methamphetamine smoking among regular ecstasy users in Australia: increases in use and associations with harm. *Drug and Alcohol Review* 2008; **27**: 292-300.

4. International Harm Reduction Association. What is harm reduction? A position statement from the international harm reduction association [Internet]. 2009 [cited 5 April 2011]. Available from: http://www.ihra.net/what-is-harm-reduction

5. Des Jarlais D.C., Friedman S.R., Ward T.P. Harm reduction: A public health response to the AIDS epidemic among injecting drug users. *Ann Rev Publ Health* 1993; **14**: 413-450.

6. Toronto Public Health. Distribution of safer crack use kits [Internet]. 2006 June [cited 5 April 2011]. Available from: http://www.toronto.ca/health/cdc/pdf/needlex_factsheet.pdf

7. Leonard L., DeRubeis E., Pelude L., Medd E., Birkett N., Seto J. "I inject less as I have easier access to pipes": injecting, and sharing of crack-smoking materials, decline as safer crack-smoking resources are distributed. *Int J Drug Policy* 2008; **19**: 255-64.

8. Canadian HIV/AIDS Legal Network. Distributing safer crack use kits in Canada [Internet]. 2008 [cited 5 April 2011]. Available from: http://www.aidslaw.ca/publications/interfaces/downloadFile.php?ref=1390

9. Strike C., Leonard L., Millson M., Anstice S., Berkeley N., Medd E. *Ontario Needle Exchange Programs: Best Practice Recommendations*. Toronto: Ontario Needle Exchange Coordinating Committee. 2006.

10. Tortu S., McMahon J.M., Pouget E.R., Hamid R. Sharing of noninjection drug-use implements as a risk factor for Hepatitis C. *Substance Use & Misuse* 2004; **39**: 211-224.

11. Howe C.J., Fuller C.M., Ompad D.C., Galea S., Koblin B., Thomas D., Vlahov D. Association of sex, hygiene and drug equipment sharing with hepatitis C virus infection among non-injecting drug users in New York City. *Drug and Alcohol Dependence* 2005; **79**: 389-395.

12. Scheinmann R., Hagan H., Lelutiu-Weinberger C., Stern R., Des Jarlais D.C., Flom P.L., Strauss S. Non-injection drug use and Hepatitis C Virus: a systematic review. *Drug and Alcohol Dependence* 2007; **89**: 1-12.

13. Porter J., Bonilla L. Crack users' cracked lips: an additional HIV risk factor. *Am J Public Health* 1993; **83**: 1490-1491.

14. Fischer B., Powis J., Firestone C.M., Rudzinski K., Rehm J. Hepatitis C virus transmission among oral crack users: viral detection on crack paraphernalia. *Eur J Gastroenterol Hepatol* 2008; **20**: 29-32.

15. Shetty V., Mooney L.J., Zigler C.M., Belin T.R., Murphy D., Rawson R. The relationship between methamphetamine use and increased dental disease. *JADA* 2010; **141**: 307-318.

16. Shaner J.W., Kimmes N., Saini T., Edwards P. "Meth mouth": rampant caries in methamphetamine abusers. *AIDS Patient Care and STDs* 2006; **20**: 146-150.

17. Marshall B.D.L., Werb D. Health outcomes associated with methamphetamine use among young people: a systematic review. *Addiction* 2010; **105**: 991-1002.

18. Shoptaw S., Reback C.J. Methamphetamine use and infectious disease-related behaviors in men who have sex with men: implications for interventions. *Addiction* 2007; **102**: 130-135.

19. Molitor F., Truax S.R., Ruiz J.D., Sun R.K. Association of methamphetamine use during sex with risky sexual behaviors and HIV infection among non-injection drug users. *Western Journal of Medicine* 1998; **168**: 93-97.

20. Semple S.J., Patterson T.L., Grant I. The context of sexual risk behaviour among heterosexual methamphetamine users. *Addictive Behaviors* 2004; **29**: 807-810.

21. Semple S.J., Zians J., Grant I., Patterson T.L. Methamphetamine use, impulsivity, and sexual risk behavior among HIV-positive men who have sex with men. *Journal of Addictive Diseases* 2006; **25**: 105-114.

22. Krueger R.A. Analyzing and reporting focus group results. Thousand Oaks, California: SAGE Publications; 1998.

23. Chandler R. *Best Practices for British Columbia's Harm Reduction Supply Distribution Program*. British Columbia: BC Harm Reduction Strategies and Services Committee; 2008.

21. Barnaby, L., Penn, R., Erickson, P. Drugs, Homelessness and Health: Homeless Youth Speak Out About Harm. Reduction (Shout Clinic Harm Reduction Report 2010). Toronto, Ont.: Shout Clinic, Central Toronto Community. Health Centres, 2010. Available at: http://www.wellesleyinstitute.com/research/affordable_housing_research/drugs-homelessness-health-homelessyouth- speak-out-about-harm-reduction/

22. Frontline: *How meth destroys the body.* 2006 [http://www.pbs.org/wgbh/pages/frontline/meth/body/].

23. Robbins J, Wenger L, Lorvick J, Shiboski C, Kral A: **Health and oral health care needs and health care-seeking behavior among homeless injection drug users in San Francisco.** *J Urban Health* 2010, **87(6):**920-930.

24. Shaner JW, Kimmes N, Saini T, Edwards P: **"Meth mouth": rampant caries in methamphetamine abusers**. *AIDS Patient Care STDS* 2006, **20(3):**146-150.

25. Padilla R, Ritter AV: **Meth mouth: methamphetamine and oral health.** *J Esthet Restor Dent* 2008, **20(2):**148-149.

26. Shetty V, Mooney LJ, Zigler CM, Belin TR, Murphy D, Rawson R: **The relationship between methamphetamine use and increased dental disease.** *J Am Dent Assoc* 2010, **141(3):**307- 318.

27. Marshall BD, Werb D: **Health outcomes associated with methamphetamine use among young people: a systematic review.** *Addiction* 2010, **105(6):**991-1002.

28. Parsons J.T., Severino J., Nanin J., Punzalan J.C., von Sternberg K., Missildine W., Frost D. Positive, negative, unknown: assumptions of HIV status among HIV-positive men who have sex with men. *AIDS Educ Prev* 2006; **18**: 139-149.

29. Bungay V., Malchy L., Buxton J.A., Johnson J., MacPherson D., Rosenfeld T. Life with jib: a snapshot of street youth's use of crystal methamphetamine. *Addiction Research and Theory* 2006; **14**: 235-251.

30. Werb D., Kerr T., Zhang R., Montaner J.S.G., Wood E. Methamphetamine use and malnutrition among street-involved youth. *Harm Reduction Journal* 2010; **7**: 1-4.

APPENDIX: Focus group discussion guide

Introductory questions about smoking crystal meth

1. What is good about using crystal?

2. People use crystal for a lot of different reasons. Tell us some of yours.
   (e.g., fun, enhance sexual performance, dull hunger pains, get rid of unwanted emotions)

3. How do people use crystal?
   a. Which methods are better for getting high? (Probe: Injecting? Snorting? Smoking?) Why?
   b. Which methods are safer? Why?

Process of smoking

4. How often do you and people you know typically smoke crystal meth?
   a. Daily, weekly, monthly etc. Why more or less often
   b. How many hits do they take each time they smoke it? Why more or less?

5. Can someone explain how crystal meth is smoked and then the rest of you talk about how your process is similar or different?

Contents of safer crystal smoking kit

6. What are people using now to smoke crystal?
   a. Ask around the room for descriptions of all types of equipment (Probe: what homemade stuff, eg. light bulbs, bubblers etc., are people using?)
   b. What are the best and worst pieces of equipment for smoking crystal? Why?
   c. Are some pieces of equipment safer than others?
   d. Do people use the crack kits to smoke crystal?

7. Do any of those types of equipment tend to cause burns or cuts or other problems?

a. Which ones?
b. How often?
c. Are you aware of anything that can be done to make these works safer to use?

8. Think about all the times you've seen people smoking crystal.
    a. How often is the equipment brand new and clean?
    b. How often is the equipment used by more than one person?
    c. How often does the equipment get passed around, loaned, rented?
    d. What things make re-using the equipment more or less likely to occur?

9. Please describe the ideal pipe for smoking crystal. Ask around the room for descriptions of all types of equipment
    a. Which of these sample pipes do you like the most? Why?
    b. Would a pipe that can be used to smoke both crystal and crack be good for you?

10. If a safer crystal smoking kit was created, what should be in the kit? Ask around the room for all suggestions (Probe: Information insert?)
    a. How likely are people to use the items suggested?
    b. Would you use a safer crystal smoking kit? Why?
    c. Over a month, how many kits would people typically need?

11. What sites/agencies/programs would be good places to get the kits from? (Probe: Needle exchanges? Bathhouses? Mobile and outreach services? Community agencies?) Why? (Probe: Hours? Friendly staff?)

Health concerns related to smoking crystal

12. What kinds of health problems do people who smoke crystal experience? (e.g., tired, dental, open sores, breathing problems, hallucinations?)
    a. Do you think these problems are from smoking crystal or something else (e.g., being poor, homeless etc.)
    b. Are these different from the problems people who use other drugs experience?
    c. Are there any services that could help with these issues?

13. Tell us about Sex and Meth. How does meth make sex better or different for you? Do you have different, wilder kinds of sex when you're using meth than you do when you're sober? (Probe: sexual risk taking, rougher, more partners, longer etc.)

Summary and conclusion

14. Does this sound like a good summary of what should be included in a safer crystal smoking kit? *read off notes about kit contents*

15. Do you have any additional concerns or comments?