

**WOMEN AT GREATEST RISK: REDUCING INJECTION
FREQUENCY AMONG YOUNG ABORIGINAL DRUG
USERS IN BRITISH COLUMBIA**

by

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Abstract

This study investigates why some young Aboriginal people inject opiates at higher frequency than others and suggests policies to address high frequency opiate injection. Multivariate logistic regression is used to analyze data gathered between 2003-04 in Vancouver and Prince George. Independent variables include those shown as significant in relevant literature, demographics factors associated with severe addiction, and HCV and HIV serostatus. Career injectors, females, those living in Vancouver, and binge drug use are all traits shown to be highly associated with daily or more opiate injection. To address these factors this study recommends implementing mobile outreach services to women carried out by Aboriginal people to provide harm reduction and referrals to counselling.

Executive Summary

Individuals at high risk of becoming infected with the Hepatitis C virus (HCV) or the human immunodeficiency virus (HIV) are those prone to pursuing high risk behaviours such as unsafe sex and injection drug use. Unlike non-Aboriginal people, high prevalence of HCV and HIV among Aboriginal peoples in Canada is mainly due to injection drug as opposed to unsafe sex. This study uses data from the BC Centre of Excellence Cedar Project to explore why some young Aboriginal drug users may inject at higher rates than others with an eye to providing policy suggestions that will not only reduce injection frequency, but also associated diseases.

Among the Cedar Project cohort of young Aboriginal peoples from Vancouver and Prince George, British Columbia, it was found that being a long-term injector, displaying bingeing behaviours, living in Vancouver, and being female are predictors of high frequency opiate injection. Based on these discoveries, this study proposes three alternatives to address high frequency opiate injection among young Aboriginal people in Vancouver and Prince George. The options include maintaining the status quo, opening two new locations of the Aboriginal Wellness Program to heighten the therapeutic approach to healing; launching two mobile outreach services vans for women to increase outreach and harm reduction; and, providing more funding for the Western Aboriginal Harm Reduction Association Society, a peer run user support group. The options are weighed against four criteria including cultural safety, political viability, effectiveness, and cost. The study recommendation made by the author is recognised as being but one step in solving this deep-seeded problem.

Dedication

This work is dedicated to those surviving addiction as best they can.

Acknowledgements

I thank my parents, my sister, my Nana, and God for the incredible amount of love, support, and guidance they show me every day.

It was an honour to be part of the Public Policy Program. I would like to extend my gratitude to Dr. Nancy Olewiler for her dedication to this school, and vision for the Program's success. Dr. Kennedy Stewart has been a tremendous mentor and guide to me for the past two years. I thank him for his patience and for pushing me to do my best.

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Glossary

AWP	Aboriginal Wellness Program
BCAHATF	British Columbia Aboriginal HIV/AIDS Task Force
CAAN	Canadian Aboriginal AIDS Network
CDP	Canada's Drug Policy
Fix	Common street term used synonymously with "inject" when referring to injection drug users
HCV	Hepatitis C Virus
HEP	Health Enforcement Partnership
HIV	Human Immunodeficiency Virus
IDU	Injection drug user
MMT	Methadone Maintenance Treatment
NAOMI	North American Opiate Medication Initiative
NEP	Needle exchange program
Opiates	Any of various sedative narcotics containing opium or one or more of its natural or synthetic derivatives
PGAPP	Prince George AIDS Prevention Program
PGNFC	Prince George Native Friendship Centre
PLN	Positive Living North
PTSD	Post Traumatic Stress Disorder
Relapse	To fall back into a previous state of addiction after achieving <i>a level of abstinence</i> . To regress into old behaviours.
Serostatus	The status with respect to being seropositive or seronegative for a particular antibody

SIF	Safe injection facility
Stimulants	An agent, especially a chemical agent such as caffeine, cocaine, or speed, that temporarily arouses or accelerates physiological or organic activity
UAS	Urban Aboriginal Strategy
VANDU	Vancouver Area Network of Drug Users
VCH	Vancouver Coastal Health
VIDUS	Vancouver Injection Drug Users Study
VNHS	Vancouver Native Health Society
WAHRS	Western Aboriginal Harm Reduction Society

1 Background and policy problem

British Columbia health authorities are struggling to control and manage the epidemics of Hepatitis C virus (HCV) and human immunodeficiency virus (HIV) that are particularly widespread because of the large population of injection drug users (PHAC, 2002; PHAC, 2005). Injection drug use is now contending with sex between men as the most common way to contract HIV (PHAC, 2005) and is the primary mode of HCV transmission in Canada (Tepper, M., 1998; Haydon, E., et al, 2005). Recently the Public Health Agency of Canada (2005) announced that injection drug use is the most common mode by which Aboriginal people contract these diseases. Studies from British Columbia also signal that injection drug use as a mode of HCV and HIV transmission is having the greatest impact among Aboriginal peoples (Hogg, R. et al. 2005) because of previously unidentified risk-factors among the marginalised population of Aboriginal injection drug users (Craib, K. et al. 2003). This study focuses on injection drug use among young Aboriginal peoples living in two BC cities, Vancouver and Prince George. By looking specifically at frequent and excessive use of opiates via injection among young Aboriginals, it suggests options for harm and use reduction with a primary aim of addressing the underlying motivations for this high risk behaviour. The rest of this section frames the policy problem within the context of the Aboriginal population. Section 2 outlines the methodology employed in this study, Section 3 summarises the model and describes the findings, Section 4 offers four policy alternatives, Section 5 describes the policy recommendation, Section 6 summarises the recommendation, and finally, Section 7 outlines suggestions for implementation.

1.1 Injection drug use as a mode of HCV and HIV transmission

This study focuses on injection drug use as it is the dominant reason why rates of HCV among the general population of British Columbia are well above the national rate and the main reason why the virus is being spread rapidly in the Northern regions of the province (BCCDC, 2004). In 2003 the AIDS rate in BC increased to 2.6 per 100,000 from 2.3 in 2002 (BCCDC, 2004). According to provincial statistics, injection drug use in BC accounted for 25 percent of new HIV infections as of 2001 (Government of BC, 2003), compared to men who have sex with men (29 percent) and heterosexual intercourse (21 percent). Current data one quarter of the

100,000 injection drug users in Canada, live in British Columbia (Vancouver Coastal Health, 2003), and that 81.6 percent of 1,345 injection drug users living in Vancouver were HCV positive (Patrick, D.M et al. 2001). These findings fall in line with international estimates of HCV prevalence within injection drug using populations (Haydon, E., et al. 2005). Further, injection drug use accounts for 16.7 percent of cumulative adult positive HIV test reports with known exposure up to June 30, 2004 (PHAC, 2005). In 2003 the AIDS rate in BC increased to 2.6 per 100,000 population from 2.3 in 2002 (BCCDC, 2004). The Vancouver Health Service Delivery area has by far the greatest AIDS rate in the country, at 9.3/100,000. According to provincial statistics, injection drug use in BC accounted for 25 percent of new HIV infections as of 2001 (Government of BC, 2003), this was compared to men who have sex with men (29 percent) and heterosexual intercourse (21 percent).

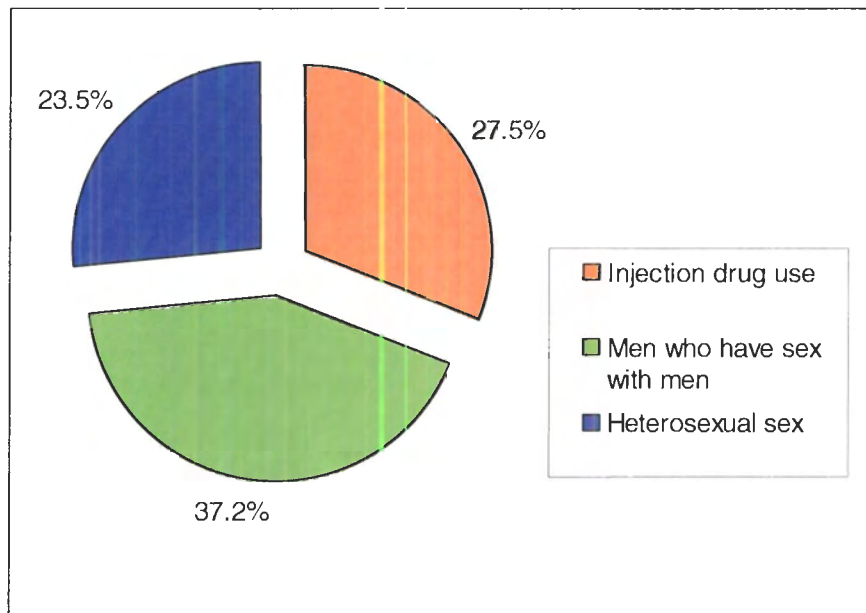
Of particular importance is to the transmission of this disease among drug users is the frequency of injection drug use. It is common sense that a drug dependent person who injects multiple times per day is at higher risk of contracting or transmitting disease compared to an infrequent injector as their chances of either borrowing or accidentally using another's syringe increases. One's chances of remaining HIV or HCV seronegative decline as one injects more and more frequently (Craib, J.P. et al. 2003; Miller, C.L. et al. 2004), because of the increased likelihood that the user will share or borrow a syringe (Wood, E., et al. 2001). A more detailed discussion is provided later on that about why injection frequency is a key focus of this study.

1.2 Vulnerability to HCV and HIV among Aboriginal people

We are just beginning to understand how the HCV and HIV viruses manifest in Aboriginal communities and why, but evidence suggests rates are at a staggering level. Forrester et al indicated that in 2000, the incidence of HCV infection is seven times higher among Aboriginal peoples compared to non-Aboriginal people in Canada (2000). Subsequent data show that a large proportion of HCV-positive Aboriginal people are co-infected with HIV (Zaniewski, G., 2003). Data from the Vancouver Injection Drug Users Study (VIDUS) shows that Aboriginal youth who are injection drug users (24 years and under) are quickly becoming infected with HCV and are at high risk for HIV infection as well (Miller, C., 2005). Other data demonstrate that vulnerability to HCV infection is interrelated with individual behaviours putting them at risk, and with social characteristics such as Aboriginal ethnicity, homelessness and exposure to correctional institutions (Haydon, E., et al. 2005).

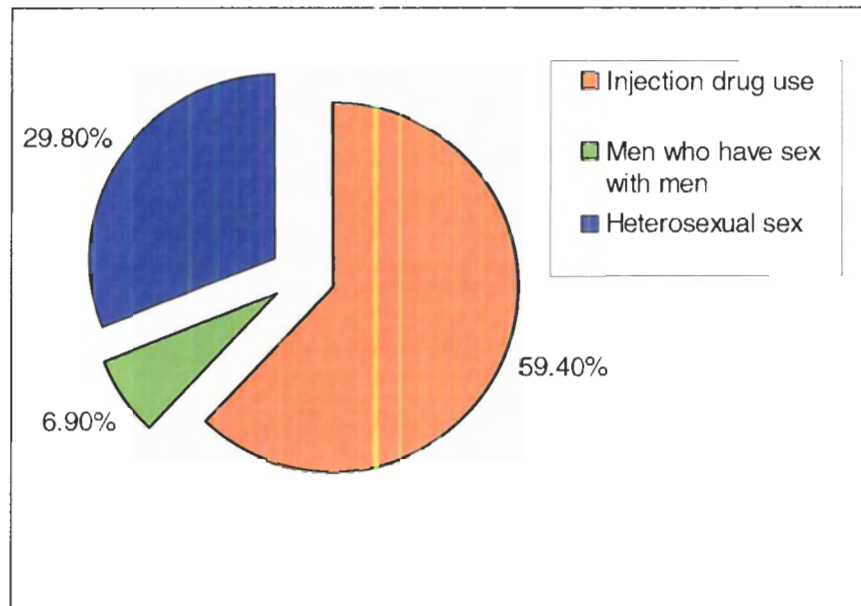
From data with ethnicity reported, it is clear that Aboriginal peoples are overrepresented among those living with HIV/AIDS in Canada (PHAC, 2005).¹ In 2003, 24.6 percent of positive HIV test reports with information on ethnicity were among Aboriginal peoples, while only 3 percent of the Canadian population identifies with Aboriginal descent (Statistics Canada, 2000-01). Compared to non-Aboriginals, Aboriginal HIV incidence happens more often among those aged 29 and under (22.6 percent among Aboriginals compared to 16.5 percent among non-Aboriginals), and among females (45 percent among Aboriginals compared to 19.5 percent among non-Aboriginals).

Figure 1: Comparison of selected exposure categories for reported positive HIV test reports among non-Aboriginal people (PHAC, 2005)



¹ HIV and HCV are reportable diseases in Canada, however ethnicity reporting for new diagnoses are not reported in Ontario and Quebec. These two provinces have high proportions of Aboriginal peoples. Therefore only 29.4% of recorded cases of HIV positive test reports have ethnicity data. The result is that national data on HIV and HCV within Aboriginal communities is underestimated. Moreover, there is indication that current estimates are grossly understated because of a serious lack of trust among Aboriginal people toward the health system (PHAC, 2005).

Figure 2: Comparison of selected exposure categories for reported positive HIV test reports among Aboriginal peoples (PHAC, 2005)



Figures 1 and 2 use the most recent data from the Public Health Agency of Canada to illustrate the difference in exposure categories for non-Aboriginal and Aboriginal people in Canada. We can clearly see that a far higher share of infections arise from injection drug use among Aboriginal peoples compared to non-Aboriginal people. Such results point to the gravity of the problem, as nearly 26 percent of non-Aboriginal people were infected with HIV via injection drug use compared to nearly 60 percent of Aboriginal people. Comparatively, non-Aboriginal people primarily contract HIV from sex between men, while Aboriginal people contract the virus via injection drug use. The Public Health Agency of Canada has identified injection drug use as the most important risk factor for Aboriginal peoples, accounting for 59.4 percent of HIV infections as of June, 2004 (the greatest risk factor for non-Aboriginals is homosexual sex between men, followed by injection drug use). Between 1996 and 2001, Craib et al (2003) found that, within the VIDUS cohort, Aboriginal injection drug users were becoming HIV positive at *twice the rate* of non-Aboriginal injection drug users. What is more, research by Miller et al (2004) discovered that being an injection drug user of Aboriginal descent was a *predictor* of HIV-HCV co-infection.

The Public Health Agency of Canada (2005) has also identified that street involved youth are particularly vulnerable to HIV or HCV infection. This is directly related to low rates of condom use, sex work, and substance abuse (including injection drug use). Over a five year study

period in Vancouver it was discovered that 56 percent of incidence cases of HIV among injection drug users under 25 years were Aboriginal; these young adults were found to be seven times more likely to become HIV positive compared to young non-Aboriginal injection drug users (Miller, C.L., et al. 2002).

1.3 Policy problem

Data available on injection drug use in the Canadian indicates that too many Aboriginal people are administering drugs by injection, and as a result, too many are at risk of HCV and HIV infection. Based on this problem this study examines *why are some young Aboriginal drug users may be injecting drugs more frequently than others*. Answers to this question will provide information by which to design appropriate policies to reduce the number of high frequency injectors. At the same time characteristics that are associated with those who are not using at high frequency can also be determined. Policies for both groups may protect public health and prevent early death due to HCV or HIV among young Aboriginal people.

2 Methodology

This section describes the data used in this study, discusses the process by which the research is conducted, and reviews variables used to explain why some inject opiates at higher rates than others. Explanation of the dependent and independent variables is provided along with descriptive statistics. This information is used to exemplify base information used in logistic regression analysis that follows.

2.1 Data source

The primary data source for this study is information collected by Dr. Patricia Spittal for the University of British Columbia's B.C. Centre of Excellence in HIV/AIDS "Cedar Project". The purpose of the Cedar Project is to estimate the prevalence and incidence of HIV and HCV infection among young Aboriginal drug users in two British Columbia cities, Prince George and Vancouver, and to identify risk factors associated with HIV and HCV transmission among participants who smoke and/or inject drugs. This study uses 2003/4 Cedar Project data gathered from 543 young Aboriginal drug users from Prince George and Vancouver who self-reported use of non-injection or injection drugs at least once in the month before enrolment.² All 543 participants provided written consent to carry out the interview and were informed that they did not have to answer any question to which they objected. The interviews were carried out by Aboriginal staff. 300 participants (44.8 percent) were based in Vancouver and 243 (55.2 percent) in Prince George. 48.3 percent of the participants were female, 51.7 percent male. The average age of the participants was 23 years, the youngest was 13 and the eldest was 30.

² Less representative than random sampling, Faugier and Sargeant (1997) explain that non-random sampling should be done when sampling hard to reach populations, such as drug users. Otherwise an "extremely large sample is needed to achieve sufficient data (about drug users) for an accurate estimation of what is a statistically rare event" (791). What is more, Hendricks and Blanken (1992) point out that respondent-driven sampling, or, "snowball sampling," is justified especially when gathering information on hidden populations that are engaged in sensitive, deviant, or non-legal activities (as referenced in Faugier and Sargeant, 1997). Indeed, obtaining information about young Aboriginal drug users is a difficult task due to their typically migratory nature in addition to being a marginalised group (Spittal, 2005)

Secondary data used in this study is qualitative information gathered through face to face, email, and phone interviews with program directors and administrative staff of three different programs (one in Prince George and two in Vancouver) between February 20th and 27th, 2006. One public board meeting of the Vancouver Coastal Health Authority was attended for additional information on Aboriginal health. All research was granted ethical approval by Simon Fraser Ethics Review Board.

2.1.1 Recruitment of the sample

It should be noted that the cohort was not randomly selected but rather, each participant was recruited by respondent-driven sampling. Although non-random sampling is less representative than random sampling, Faugier and Sargeant (1997) explain that non-random sampling can and should be done when sampling hard to reach populations, namely, drug users. They say that the most important reason is because an “extremely large sample is needed to achieve sufficient data (about drug users) for an accurate estimation of what is a statistically rare event” (791). What is more, Hendricks and Blanken (1992) point out that respondent-driven sampling, or, “snowball sampling,” is justified especially when gathering information on hidden populations that are engaged in sensitive, deviant, or non-legal activities (as referenced in Faugier and Sargeant, 1997). Indeed, obtaining information about young Aboriginal drug users is a difficult task due to their typically migratory nature in addition to being a marginalised group.

2.2 Description of cohort

Altogether, 543 participants took part in the baseline Cedar Project Questionnaire. In total of 300 participants (44.8 percent) were based in Vancouver and 243 (55.2 percent) in Prince George. The ratio of males to females is fairly even, with 48.3 percent female and 51.7 percent male, and the difference in the proportions of gender in both cities is nearly equal (19 more males than females in Prince George and an even number of males and females in Vancouver). At baseline, the average age of the participants was 23 years, the youngest was 13 and the eldest was 30. More description of the data will follow in the section devoted to independent variables.

2.3 Dependent variable

Respondents were asked to identify which drugs they inject, and which they inject most frequently. The majority of the respondents who reported use of injection drugs revealed that they inject opiates (drugs including heroin, morphine, methadone, and dilaudid) more frequently than

other drugs, including cocaine, speedballs (combination of cocaine and heroin), crystal methamphetamine, and the combination of Talwin and Ritalin. After consultation with experts Dr. Patricia Spittal and Sue Currie, it was decided that because of universal effect of opiates, that all of the opiate drugs ought to be combined into one dependent variable.

The universal effect of opiates is that they have a “numbing” effect on the user, making the individual euphoric as well as mentally and emotionally distanced from his or her environment (Connors, 1994, 49; Pearce, D., 2000). Regular use of opiates results in a development of tolerance in the user, who then requires higher doses of the drug more frequently to produce the same effect (NIDA, 2005). For users who smoke opiates, dependence on such drugs may result in their seeking ways to achieve a greater high and save money, leading them to injection drug use (Roberts, G., 2003). Addiction to opiates is both psychological and physical (AADAC, 2002; Connors, 1994). Injection of opiates leads to more serious addiction and the need to inject several times a day to maintain the high and avoid withdrawal symptoms. A heavy user will experience powerful cravings for opiates and compulsively continue to take them; but when the user stops, within hours he or she experiences withdrawal symptoms. Typical physical withdrawal symptoms can include diarrhea, abdominal cramps, sweating, goose bumps and a runny nose (AADAC, 2002). These symptoms peak at 36 and 72 hours, lasting 7-10 days. What results is a user having an “urgency to escape the pain,” and thus a weakened ability to make decisions that will protect his or her health even when resources are available to do so, often resulting in the use of used syringes or lending syringes to others (Connors, 1994, 48). Ultimately, opiate addiction leads to increased risk of HCV and HIV infection or transmission.

Because frequency of injection is of interest for HCV and HIV risk, daily or more injection was given focus in this study; and, because the majority of daily or more injection drug users choose opiates, daily or more opiate injection is the dependent variable. Figure 3 shows the proportions of Cedar Project participants who use injection drugs amongst injection drug users only. In total, 301 participants (55 percent of the cohort) are injection drug users, and within that group 101 individuals (18.6 percent of the cohort) report injecting opiates daily or more. Accordingly, among those who inject drugs daily or more, nearly 34 percent use opiates. This is compared to 26 percent of the daily or more injectors who use cocaine, 9 percent who use speedballs, and nearly 7 percent who use crystal methamphetamine. Figure 4 includes the non-injectors in the category of less than daily injectors and shows that within the entire cohort, opiate injection drug use exceeds the use of other drugs among those who inject drugs daily or more.

Figure 3: Proportions of drugs injected daily or more and less than daily amongst injectors only

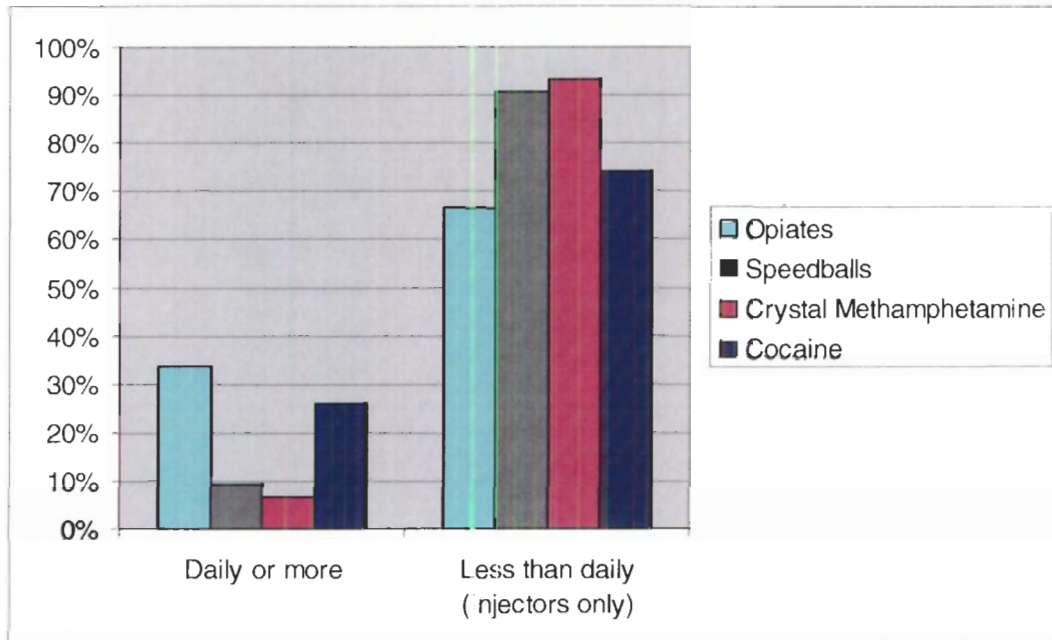
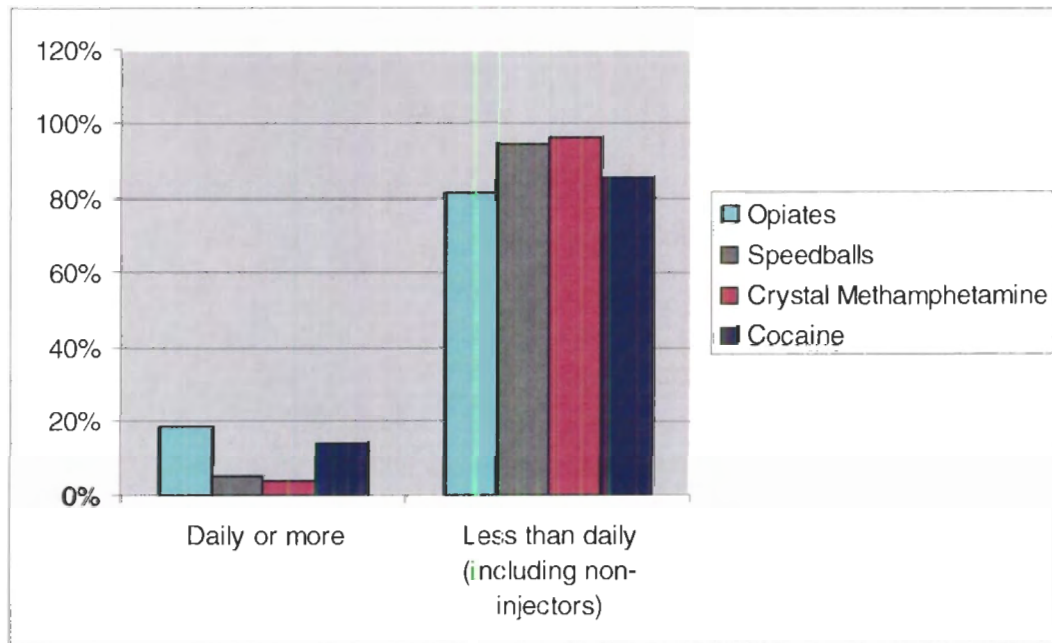


Figure 4: Proportions of drugs injected daily or more and less than daily amongst entire cohort



Daily or more opiate injection is defined as injecting at least one of four different types of opiates (heroin, methadone, morphine, Dilaudid) that were included in the Cedar Project questionnaire. Although methadone was included in the opiates category, only five participants

who reported injecting methadone, all of whom inject the drug less than daily.³ If the respondent reported that they inject *at least* one of the opiates daily or more, then he or she is classified as a daily or more, or, high frequency user. Meanwhile, those who reported that they inject any of the opiates less than daily, or, they inject any of the other drugs (including cocaine, crystal methamphetamine, combinations of Talwin and Ritalin, other non-opioids, or combinations of opioids and non-opioids) at high or low frequency are classified as less than daily opiate injection drug users. Further, participants who answered negatively to the question “have you ever injected a drug,” are coded as “less than daily” injectors of opiates, because the portion of those who have never injected a drug only smoke drugs.

As previously explained, 101 participants in the study are coded as frequent opiate injectors. The remaining 442 individuals, including those who only smoke drugs, are coded as less than daily injectors. The dependent variable is coded as a binary indicator of frequency of opiate injection, where 1 is injection daily or more, and 0 is less than daily injection. The original dataset was transformed into this binary code from alphabetic, categorical coding that was shown to the respondents on a prompt-card; each respondent who responded that they inject a drug was asked to indicate how often they inject. Letters A through D indicated less than daily use of an injection drug, while letters E through I indicated daily or more use, and J indicated that the person had quit the drug. The binary coding was thus derived from these subjective averages of how often respondents inject opiates.

2.3.1 Including non-injectors: Transition users

Non-injectors (drug smokers) were included in the analysis and coded as “less than daily” injection drug users, regardless of the fact that at baseline these participants had *not yet* tried injecting drugs. The first rationale for classifying non-injectors as “less than daily” injectors is from research on transition into injection and explains the likelihood of this event happening.

³ The majority of the respondents who reported use of injection drugs revealed that they inject opiates (drugs including heroin, morphine, methadone, and dilaudid) more frequently than other drugs, including cocaine, speedballs (combination of cocaine and heroin), crystal methamphetamine, and the combination of Talwin and Ritalin. After consultation with experts Dr. Patricia Spittal and Sue Currie, it was decided that because of universal effect of opiates, that all of the opiate drugs ought to be combined into one dependent variable.

Second, it is grounded in the reasoning that inclusion of the non-injectors maximises the sample size, making for better prediction of the dependent variable. Third, when only injectors are included in the analysis, the output from the logistical regression reveals most of the same significant variables as the larger sample. The main differences in the model with injectors only is that the variable for 1-4 years injecting and ever being on methadone maintenance treatment were insignificant.⁴

According to the United Nations Office on Drugs and Crime, it is common for novice drug users to go through a period of smoking or intranasal use prior to transitioning into injection drug use (Des Jarlais, D.C., et al., UNODC, 2005). At the point of transition, the user's reasons for not injecting become less important than achieving a greater high; concern over loss of control over use, HIV, or a fear of needles, go by the wayside. Factors associated with the transition into injection are not the concern of this study; however, it has been found that one of the most common reasons for injection drug use is that it is more cost-efficient: the user gets higher for the same price. The chapter in the 2003 United Nations World Youth Report written by Gary Roberts of the Canadian Centre on Substance Abuse, points out that youth who smoke addictive drugs including cocaine and heroin are at high risk of becoming an injection drug user. He says this must be kept in consideration by policy makers because youth may not be aware of the rapid onset of dependence on injecting opiates. Further, they do not realise that after a period of administering opiates by injection, higher doses of heroin are needed to achieve the same effect (171).

With these points in mind, the inclusion of Cedar Project participants who reported smoking drugs only (including cocaine, crack, sleeping pills, heroin, crystal methamphetamine and others) into the sample was justified by studies that indicate the high risk of these youth to transition to injection drug use. In this sense, the smokers may be considered "potential injectors" whom are addicted to the drug they smoke. It follows that as the drug smokers' tolerance to their drug of choice increases, so too will their desire to achieve a better high, and at the same time, their reluctance to try injection drug use will decrease. That is not to say all of the smokers in this study will eventually transition to injection, but it points to the fact that a portion of them will do so, and that indeed all of the smokers are *at risk* of becoming injection drug users.

⁴ Please see Appendix B to view the model including injectors only.

2.4 Independent variables

The majority of variables chosen from the Cedar Project questionnaire were chosen after careful consideration of literature and from the advice of Dr. Patricia Spittal and Kevin Craib at the BC Centre of Excellence in HIV/AIDS. The choice in variables was aimed at finding a causal relationship between the particular factors that drive 18.6 percent of the study participants to use opiates intravenously at high frequency. Variables included in the analysis are: sexually abuse, sexually revictimisation, income from sex trade, binge drug use, location of interview, age, gender, stability of housing, education, incarceration, methadone treatment, and HCV and HIV serostatus. These factors are grouped according to their relative support in academic literature, to their value in describing the cohort, as well as to intuitive hypotheses.

2.4.1 Variables in literature strongly associated with opiate injection

The following variables are included in the analysis as they are well established factors associated with substance abuse and opiate injection in particular. Further, they are variables that have been associated with substance abuse among Aboriginal peoples, both American Indians and Canadian Aboriginals alike. They include ever being sexually abused, being sexually revictimised, gaining income from the sex trade, and binge drug use behaviour.

2.4.1.1 Sexual abuse

Sexual abuse was chosen as a key independent variable because the causal relationship to substance abuse and heroin injection in particular has been documented in several studies (Bratstein, P., et al. 2002; Simoni, J., et al. 2004; Heffernan, K., et al. 2000; Steel, J., et al. 2004; Dilorio, C., et al. 2002). Bratstein and associates (2002) found that female participants of the Vancouver Injection Drug Users Study who had been sexually abused as children (under 12 years) were more likely to be injecting heroin daily or more (OR: 1.7). They argue that sexual violence is a major contributor to adverse health outcomes among injection drug users in Vancouver (569). Heffernan et al. (2000) revealed that psychiatric patients with a history of childhood sexual abuse were more likely to report heavy use of opiates compared to those who had not been abused (OR: 2.68). Walters et al (2002) report that for American Indians “delayed trauma reactions to child sexual abuse may lead to substance-related problems” (5), this is especially true for those who have lacked buffers that lessen the consequences of sexual abuse, such as strong family, community, and historical ties. Given that the legacies of the residential school system and foster care system have put substantial strain on the social and cultural

cohesion BC's and North America's indigenous populations (Fournier, S., et al. 1997; Duran, E., et al. 1998), Walter's observations on American Indians may be true for a portion of the Cedar cohort members who have been sexually abused. This in turn leads to the conclusion that they are at higher risk for daily or more opiate injection.

The sexual abuse variable asked each participant "Have you EVER been **forced** to have sex against your will and/or been molested." Sexual abuse is thus defined as forceful sex or molestation that has happened at some point an individual's lifetime. The variable was recoded into those who answered "no" (1) and those who answered either "yes," "unsure/can't remember," and "prefer not to answer" (2). Coding was done in this way because there were very few participants who gave an "unsure/can't remember" response (n=8), and fewer who preferred not to answer (n=7). The coding is meant to avoid any statistical problems by including those categories, as well as in an effort to not group the participants who were unsure or too uncomfortable to answer into the "no" category. Moreover, if the "unsure" or "prefer not to answer" category was significant, it would be problematic to justify policy options based upon the significance of such a small proportion of the sample. It was decided that grouping "unsure" and "prefer not to answer" into the "yes" reference category was the most conservative and prudent method of using the variable. The hypothesis for this variable was that those who reported *not* having any experience of sexual abuse would be less likely to be frequent injectors of opiates.

When focusing on those who answered positively, this coefficient revealed 47.5 percent of the entire cohort had answered with certainty that they have been sexually abused (68.3 percent of all females and 28.1 percent of all males). Nearly 11 percent of those who fall into the more than daily category of opiate injection report a history of sexual abuse. Upon further analysis we can see of those who are daily or more opiate injectors, 58.4 percent report experiencing sexual abuse compared to 45 percent of less than daily users. Although it cannot be said that all of those who were sexually abused in this cohort are using drugs as a direct result of the abuse, we can, from the literature already discussed, assume that addiction is a sequela of sexual abuse for many survivors. Within those who were sexually abused, 22.9 percent are daily or more opiate injectors compared to 77.1 percent of those who inject opiates less than daily. Despite a large number of individuals reporting sexual abuse, it is unlikely the hypothesis that sexual abuse is a predictor of daily or more opiate injection will hold in this analysis because of the small portion of those both having the experience of sexual abuse and who inject opiates daily or more.

2.4.1.2 Revictimisation

Revictimisation was the second key variable in the first block of the logistic regression. Specifically, the questionnaire asked “After (the sexual abuse) happened (i.e. the first time) have **other** people forced you to have sex with them?” Revictimisation is defined as having been sexually assaulted or abused at some point in one’s life, and then experiencing this again at second point in time by another perpetrator. Author Jane Simoni and associates (2003) conducted exploratory research on sexual trauma and risk behaviours for HIV infection. They posit that trauma is linked to psychological distress and deviant behaviour such as substance abuse and sexual risk taking. Simons and Whitbeck (1991) found that runaway youth who had been sexually abused at home were more likely to be drug users and revictimised on the streets. The variable used to measure the predicative power of being sexually revictimised on frequent opiate injection asks those who have been sexually abused if they had been forced to have sex or molested at a second time by another person. Because this variable is a sub-variable within a group that has already answered “yes” to having been sexually abused, the coding is dichotomous. All answers for this variable other than “yes” were coded as “no” to maintain internal consistency with the sexual abuse variable.

With a focus on only the positive answers to the question on revictimisation, 47.8 percent of the cohort report they have been revictimised. Over 30 percent of those who have been revictimised later in life reported to be injecting opiates daily or more, comprising 14.6 percent of the total cohort. Due to the small proportion of the sample that report both high frequency opiate injection and revictimisation, it is unlikely that not experiencing revictimisation will show significance in the logistic regression.

2.4.1.3 Income from sex work

Income from sex work is defined as exchanging sex for money, as well as engaging in “survival sex” for drugs, shelter, clothing, or anything else. The Cedar Project questionnaire had an entire section devoted to the topic of sex work, but instead of choosing the variable that asked if the participant had *ever* been paid for sex, this study used a different variable that asked whether or not the respondent’s current source of income comes from the sex trade. Specifically, the variable was derived from the question “What are your other sources of income?” in which the answer “Non-legal—Sex Trade” was singled out. The rationale is that income from sex work captures the proportion of the cohort who currently gain income from the sex trade, rather than the proportion who may have sold or traded sex at some point in their lives. Current sex work at

the time of interview captures the proportions of people who report gaining income from sex while injecting opiates daily or more or less than daily. Given that drug use can fluctuate with time and one's personal situation, it was hypothesised that those who were daily or more injectors of opiates at the time of the interview would concurrently be engaged in sex work.

The variable has been highly associated with drug use, particularly with opiate injection. Kuyper and associates (2005) compared sex trade workers within the VIDUS sample to those who were not engaged in sex work. Results of their analysis showed sex workers were more likely to be daily heroin injectors (OR: 1.29). Sex work is by no means a choice career for the women and men involved. It is dangerous work, and destructive to a person's sense of self-worth (Spittal P.M., et al. 2001). Again from VIDUS data, sex work has been associated with a history of child sexual abuse (Bratstein, P., et al. 2003), suicide attempts, unstable housing (Kuyper, L.M., et al. 2005), and inability to access drug treatment.

In a qualitative study including 51 female sex workers in the UK, it was found that the women were more likely to use heroin over other drugs (Gossop, 1994). Those women who used heroin frequently were more likely to agree that using the drug made it easier to interact with clients (p value= 0.01), and that it "helped them to cope with their work" (p value= 0.01), (966). The experience of opiate withdrawal, called "dope sickness," can also be associated with sex trade work. The symptoms of withdrawal are described by Connors (1994) as being more than simply the physical manifestation of drug addiction; rather, it is a terrible and complex dimension of physical and emotional pain. Connors found that within a cohort of 116 opiate-addicted individuals in Massachusetts, three quarters had used drugs to extinguish withdrawal symptoms. This pain is often chronic, and transcends an opiate-dependent's willingness or ability to make decisions that reduce the amount of harm they encounter while hustling the next fix. Indeed, withdrawal from opiates can be such an overpowering type of chronic pain that even if an addicted individual did not want to engage in sex work, they would do so in order to avoid the agony of being "sick". In this sense, dope sickness increases the likelihood of the addict to engage in sex work, which them vulnerable to violence and to sharing syringes, and, subsequently, to communicable diseases including HCV and HIV.

Table 1: Comparison of income from sex work within opiate injection drug users

		Yes	No/no answer	Total
IDU opiates daily or more	Count	50	51	101
	% within OpiateIDU	49.50	50.50	100.00
	% of Total	9.21	9.39	18.60
less than daily	Count	103.00	339.00	442.0
	% within OpiateIDU	23.30	76.70	100.00
	% of Total	18.97	62.43	81.40
Total	Count	153.00	390.00	543.00
	% within OpiateIDU	28.18	71.82	100.00

The proportion of participants who reported to be gaining income from sex trade is 28.2 percent. As expected, females are overrepresented in this group: over half of the female participants (52.7 percent) reported that they were gaining income from sex work at baseline. Table 1 shows the differences between sex workers and non-sex workers in terms of their frequency of opiate injection drug use. What is important here is that of all those who are daily or more opiate injectors, nearly half report getting income from the sex trade; and, when we compare to less than daily opiate injectors, only 23 percent report income from sex work.

2.4.1.4 Binge drug use

The final variable from the literature measures whether participants have been bingeing on drugs. The questions from the Cedar Project questionnaire to create this variable asked if participants had been going on runs or binges when injecting more than usual, or going on runs or binges when smoking drugs more than usual. The answers were combined into a variable that measures participant's tendency for *binge drug use*. This variable was thought to be perhaps the most important because it demonstrates the severity of frequent opiate injection and the relative risk of HCV or HIV infection. Although the variable does not necessarily answer *why* an individual injects more frequently than others, it probes the severity of addiction to injection drugs and captures serious dependency on smoking drugs.

A bingeing drug smoker faces increased severity of addiction, and perhaps transition to injection. Recall the danger a heroin injector faces while dope-sick is that their capacity to make decisions that protect their health is impaired, which puts the individual at risk for HCV and HIV infection. If a frequent injection drug user is bingeing on heroin, he or she may inject the drug several times per day—typically 4 or more (NAOMI, 2005), elevating their chance of sharing needles, accidentally using someone else's syringe, or not bothering to clean the syringe with bleach (Connors, M.M., 1994). It has been observed in Prince George that accessing injection

drug users while they are on a binge can be very difficult, and many drug users do not access the NEP while on a binge (PGAPP February 20, 2006, interview). A VIDUS study by Craib and associates (2003) studied the differences between Aboriginal and non-Aboriginal injection drug users who had recent HIV seroconversion. Binge injection drug use was a strong predictor of HIV seroconversion among female Aboriginal injection drug users (OR: 2.3). The researchers conclude that the risk factors related to HIV transmission among Aboriginal injection drug users, such as binge injection drug use, differ significantly from non-Aboriginal injection drug users. The hypothesis for this coefficient is that high frequency opiate injectors will be more likely to binge on drugs.

Binge drug use was reported by 54.6 percent of the Cedar Project cohort. Within the group of daily or more opiate injectors, 49 percent report bingeing behaviour. However in total, only 16.7 percent of binge drug users are daily or more opiate injectors. From this we can assume that binge drug use may not be correlated at all to daily or more opiate injection because so few individuals are both daily or more opiate injectors and binge drug users.

2.4.2 Demographic variables

The second group of variables in the analysis are of a demographic nature. These include age, gender, stability of housing, education, location, and time spent in prison or jail.

2.4.2.1 Age

The Cedar Project participant *age* varied between 13 and 30 years; with the median age at time of interview being 23 years. After research on the Canadian judicial system and ages of adulthood, as well as experimentation with different categories of ages, it was decided that splitting the cohort roughly according to the median age was the best method of using the variable. The ages of the participants were therefore coded as “23 and under” and “24 and over,” leaving 296 individuals in the first category, and 247 in the second category, respectively. It was hypothesised that those over 24 years would be more likely to inject opiates daily or more, because such individuals would have had more cumulative time being dependent on opiates compared to younger users. At baseline the average age of Cedar Project participants was 23 years, however the majority (61.4 percent) of daily or more injectors are 24 years or older. This indicates our hypothesis regarding age and using opiate daily or more by injection is likely to be accurate.

2.4.2.2 Gender

Most studies on injection drug use focus on risk factors associated with HIV or HCV transmission, rather than on which *gender* is more likely to inject drugs (leading to increased risk of HIV transmission). There are no exact data on how many males and females are active injection drug users in Canada; so it is also uncertain what the gender split is among Aboriginal injection drug users. One discussion paper from the Canadian Centre on Substance Abuse (CCSA) reported that the approximate ratio of male to female injection drug users is 2:1, therefore about one third of injection drug users in Canada are women (Wiebe, J., 2000). Health Canada estimates the ratio is closer to 3:1 (2001). Statistics from a random sample of injectors who used Vancouver's Insite safe injection facility over a three year period showed that 70 percent were male (BCCE HIV/AIDS, 2004). From these data it seems there are more male than female injection drug users in Canada.

Within the Cedar cohort, 56.5 (n=170) percent of injection drug users are female, which contradicts the ratios described above. Considering the data from CCSA and Health Canada is dated and does not specifically consider Aboriginal injection drug users, and because there are a greater number of female injection drug users in the cohort, it was hypothesized that females would be more likely to be frequent injectors of opiates. The reason for the hypothesis is linked to the hypotheses regarding sexual abuse, sexual revictimisation, and income from sex-trade work. According to Spittal and Schechter (2001), these events are "mechanisms" that compromise women's safety and health insofar as they "are intricately and intimately connected to life histories characterized by emotional, sexual and physical cruelty" (802). Given the history of sexual and physical abuse suffered by generations of Aboriginal peoples in the residential school system and the foster care system and the trans-generational abuse that has stemmed from those eras (Duran, E., et al. 1998); and given that women are more commonly suffering the effects of abuse, it was hypothesised that being an Aboriginal female in the Cedar cohort would be an independent predictor of frequent opiate injection.

The ratio of males to females in the cohort is fairly even, with 48.3 percent female and 51.7 percent male; and the difference in the proportions of gender in both cities is nearly even (19 more males than females in Prince George and an even number of males and females in Vancouver). The hypothesis for gender may prove to be significant within the opiate injectors, because 29 percent of females in the cohort are daily or more opiate injectors compared to 8.9 percent of males.

2.4.2.3 Housing

The *housing* variable in the Cedar Project Questionnaire asks respondents to identify where they were currently living and, following the Cedar Project research team's methods, the variable was then dichotomised between unstable and stable housing. Participants defined as having unstable housing report to live in hostels/shelters, hotel rooms, jail/prison, psychiatric institutions, squats, the streets, transition houses, or, to have no fixed address. Stable housing is limited to those who said they lived in houses, boarding houses, apartments, or recovery homes. Unfortunately, this variable does not identify the "hidden" homeless such as people who "couch-surf" or whose living situation changes from day to day. Such persons are at risk of homelessness because they live in conditions that are not "safe, secure or affordable" (Davidson, J., 2004). It was hypothesised that because injection drug users are among the difficult to house populations, that unstable housing would be more likely among the daily or more opiate injectors.

Housing is a relevant and widely discussed subject for populations with mental health and addictions issues, particularly hard-to-house populations that include injection drug users. According to the City of Vancouver 2005 *Survey of Low Income Housing in the Downtown Core*, by 2003, the total of special needs residential facilities (housing for persons with mental health issues and addictions) has increased by 23 percent; and by 2005, the stock of low-income housing had increased by 3 percent, and the total of non-market housing (government assisted) had increased by 8 percent. The federal government announced in 2004 over \$1.2 million to alleviate homelessness and to protect persons at risk of becoming homeless (Government of Canada, 2004). Within the Cedar Project cohort the split between stable and unstably housed participants is nearly even, as 49.4 percent are unstably housed and 45.7 percent are living in stable housing.

2.4.2.4 Location of interview

The *location of interview* variable is a dichotomous variable that determines whether participants are in Vancouver or Prince George. Vancouver has become infamous for its prevalence of injection drug use, particularly in the downtown east side. Insite, Vancouver's Supervised Injection Facility, reported that since it opened its doors it has provided a safe environment for over 3000 injection drug users in the city, most of whom inject heroin (BCCE, 2004). The most recent statistics estimate that there are 8000 injection drug users in Vancouver, and several hundred in Prince George (PGAPP, February 20, 2006, interview). The hypothesis for this variable was that high frequency injection of opiates would most likely occur in Vancouver.

As suspected, it is more common for daily or more injection drug users to be located in Vancouver (74.3 percent).

2.4.2.5 Education

The vast majority (81.8 percent) of participants report that they have not graduated from a secondary education institution. The *education* of the Cedar participants is measured in the questionnaire by asking what the participant's highest level of attainment was; the answers are dichotomised between those who report being high school graduates and those who do not. Roberts claims that youth who begin to use drugs at an early stage often do so in the school environment, and later drop out of school because substance use becomes the centre of their activity (2003). For Aboriginal students, low levels of education attainment may be a more complicated issue. In 2004, 8 percent of Aboriginal students in BC were reported to have behavioural disabilities while only 2 percent of non-Aboriginal students had such problems (Information Department, BC Ministry of Education, 2004). According to Turtle Island Native Network, these problems are associated experiences of discrimination, racism and social isolation (2003). Turtle Island argues that vulnerability among Aboriginal students to negative treatment and experiences in education is related to high drop out rates and low levels of employment. From these arguments, combined with Roberts' claim on substance abuse within schools, it is hypothesised that a high frequency opiate injector within the Cedar Project cohort will be less likely to have graduate from high school. Only 17.3 percent of the cohort report being high school graduates. From the descriptive data, it appears that education will have little bearing on opiate injection drug use among this cohort as the majority of both high and lower frequency injection drug users have not graduated from high school. It is, however, somewhat surprising that 21 percent of daily or more opiate injectors have graduated from high school compared to 16.7 percent of less than daily injectors.

2.4.2.6 History of incarceration

Having ever spent time in *prison or jail* is included as an independent variable not because there is recent or specific research on opiate injection drug use among Aboriginal inmates, but because there is evidence of high incidence of injection drug use within prisons (CCSA, 2004). Moreover, data from Statistics Canada (2005) indicate high proportions (21 percent) of Aboriginal admissions into provincial/territorial custody compared to white inmates relative to the overall Aboriginal population in Canada. Data from the Vancouver Injection Drug

Users Study (VIDUS) shows that 76 percent of 1,1475 participants have been incarcerated at least once since they began using drugs, and 31 percent (n=351) of those people injected while in prison (Miller, C.L., et al. 2004). Injection drug users are often incarcerated due to their use or involvement in illegal activities (CCSA, 2004). In the most recent Correctional Services of Canada (CSC) National Inmate Survey (Robinson, D., et al. 1996) it was found that 38 percent of inmates had used illegal drugs at least once while incarcerated; and opiates were one of the most commonly used drugs second only to cannabis use.

These findings suggest that opiate drug use is a problem for incarcerated people, and that incarceration may intensify dependence on opiates. What is more, a report from the Canadian Human Rights Coalition (2003) brings attention to the fact that as of 2003, Aboriginal women accounted for 29 percent of all female inmates in federal correctional facilities; meanwhile, they account for only 3 percent of the female population in Canada. There is a lesser proportion of Aboriginal men incarcerated, but they still account for 18 percent of male offenders in federal correctional facilities. In addition, the rates of high risk injection drug use are exacerbated by policy that does not assure the provision of materials to sanitise syringes (Jurgens, 1996), nor do injection drug users reduce frequency of use while in prison (CCSA, 2004). Because of the high proportion of female and male Aboriginal inmates within Canadian prisons and jails and the availability of injection drugs such as opiates, it was hypothesised that having spent time in a prison or jail would be a positive predictor of high frequency opiate injection.

Table 2: Comparison of “ever been in prison or jail?” within opiate injection drug users

		Yes	No/no answer	Total
IDU opiates daily or more	Count	81	20	101
	% within OpiateIDU	80.20	19.80	100.00
	% of Total	14.92	3.68	18.60
less than daily	Count	280	162	442
	% within OpiateIDU	63.35	36.65	100.00
	% of Total	51.57	29.83	81.40
Total	Count	361	182	543
	% within OpiateIDU	66.48	33.52	100.00

Table 2 shows the frequencies of participants who have ever been incarcerated compared to their injection drug use. The proportion of daily or more opiate injectors who have been in prison or jail at least once is 80.2 percent, compared to 63.3 percent of non-injectors. However, only 15 percent of the entire cohort are daily or more opiate injectors who have been in jail or prison at some point in their lives. Although this group of people is important because of their

vulnerability to HCV or HIV infection, there are perhaps too few of them to show significance amongst other variables in the regression.

2.4.3 Career injection and treatment

The third group of variables included in the analysis are linked to the history of drug use of the Cedar Project participants and treatment for opiate dependence. These variables include number of years injecting and ever having been on methadone maintenance treatment (MMT).

2.4.3.1 Number of years injecting

Hayden et al (2005) argue that heroin and other opiates are highly addictive, and the longer a person has been injecting drugs, the higher their risk for HCV or HIV. And, in consideration of the time, money, and severity of addiction relative to a heavy opiate injector, the greater number of years of injecting is hypothesised to have a positive influence on the frequency of opiate injection. The mean *number of years injecting* is derived from the question “have you been fixing on a **regular basis** without stopping.” Participants answered yes or no and provided the number of months they have currently been injecting or the time spent injecting prior to stopping. Each participant’s information was first recoded from number of months injecting to number of years, then the number of years was categorised into relatively new injection drug users and non-injection drug users (<1 year), seasoned injection drug users (1-4 years) and career injection drug users (5 years or more). Proportions of cases that fall into each category were considered when coding for sake of evenness, but, according to researchers at the North American Opiate Medication Initiative, a veteran user has been actively injecting opiates for at least five years (NAOMI, 2005). Therefore, the reference category is the “less than one year of injecting” category because it is hypothesised that the veteran users will be far more likely to be frequent opiate injectors, and that the “1-4 years” category will be less significant than the “5+ years” category.

The average time spent injecting among the Cedar Project participants is 2.13 years. For those who have been injecting drugs for five years or more, 47.7 percent are daily or more opiate users. In comparison, among those who have been injecting drugs for less than a year, 95.7 percent inject opiates less than daily, and the remaining 4.3 percent have progressed to daily or more injection. These preliminary findings suggest that long-term injection drug use will be a predictor of high frequency opiate injection in the logistic regression.

Table 3: Frequencies of number of years injecting within entire cohort (non-injectors coded as less than a year injecting)

Time Injecting	Frequency	Percent
Less than a year	327	60.22
1-4 years	107	19.71
5+ years	109	20.07
Total	543	100

Table 3 shows the proportions of injectors falling into the categories measuring time injecting. The majority of injectors have been doing so for less than twelve months and there is little difference in the number of people who have been injecting for one to four years or for five years or more. Clearly, the majority of injectors in the Cedar Project cohort are relatively new to injection drug use, which may be reflecting their youth as well as their potential for becoming career injectors who inject several times per day.

2.4.3.2 Methadone maintenance treatment

Whether or not those surveyed had ever participated in a *methadone maintenance treatment* program (MMT) is included because it is an indicator of serious opiate dependence and a prior attempt to reduce frequency of injection. The 2004 City of Vancouver Four Pillars Drug Strategy report states that the number of people in Vancouver who have been treated with methadone increased from 3294 to 7868 between 1997 and 2002. Data from the Canadian Community Epidemiology Network on Drug Use (Buxton, J., 2005) reports that the total number of clients involved in the BC Methadone Program was 8124 in 2003, down from 8273 in 2002 (33). Program retention from 1999 data revealed 52 percent of clients had remained in the treatment after 1 year; 24 percent of those who had left the BC Methadone Program returned, and 24 percent left never to return. Research from the North American Opiate Medication Initiative (NAOMI, 2005) estimates that 15-20 percent of Canada's opiate addicted population is on methadone therapy, but that the proportion could be higher among addicted populations in Vancouver and Toronto. Data from the VNHS 2004 Annual Report says that 275 of its patients were given MMT, 28 percent of whom were Aboriginal.

The MMT variable is garnered from the question "Have you ever been in a methadone treatment program?" It is a dichotomous variable with "1" being "yes" and "0" being "no". The hypothesis for this variable is that MMT will be predictive of high frequency opiate use, because those who are frequent injectors of opiates will be more likely to have tried MMT and, at

baseline, were using other drugs more often than opiates. It should be noted as a reminder, that methadone was included in the category of opiates when defining the dependent variable, but there were only five participants who reported injecting methadone, all less than daily. In total, 15.8 percent of the Cedar Project cohort have had MMT, and 54.7 percent of individuals within daily or more opiate injectors have had the treatment. Within opiate injectors, only 8.9 percent of less than daily injectors have had MMT compared to 47 percent of daily or more injectors.

2.4.4 HIV and HCV serostatus

The fourth group of variables considered are HIV and HCV serostatus, available because nearly all cohort participants underwent HIV and HCV testing (2 cases missing from the data). It should be noted here that pre and post-test counselling was done for each person as well as prevention and/or treatment options as necessary. These variables are included because of the relationship that has been established in several academic projects between injection drug use and these communicable diseases. What is more, there is no evidence to suggest that a positive HCV or HIV test results in the injection drug user reducing the number of times they inject. Frequent injection drug use to satisfy an addict's dependence on a drug may result in the user borrowing a rig from another user in order to achieve their aim regardless of their HCV and/or HIV serostatus.

HCV and HIV are possible consequences of needle sharing and borrowing, and while these diseases may be indicative of difficulty accessing clean syringes, they are also linked to decreased willingness to travel to or wait for new ones (Connors, M.M., 1994). Miller et al (2005) report that among the VIDUS cohort the incidence rates of HIV and HCV were 11.1 percent and 52.1 percent, respectively. Of those VIDUS participants 24 years and under at baseline, 25 percent were HIV positive (25), and 46 percent (n=110) HCV positive. In another VIDUS study Miller and associates (2002) report that Aboriginal Status is an independent risk factor of HIV and HCV. Vancouver is home to the majority of HCV positive Status Indians in the province at 143 cases per 100,000 population; meanwhile the Northwest Interior (Prince George area) region has 79 cases per 100,000 (CCENDU, 2005). K. Craib and associates (2003) findings on the rate of HIV infection among Aboriginal injection drug users bring to our attention that they are being infected at twice the rate of non-Aboriginal injection drug users. Because HCV is more communicable via the use and reuse of syringes compared to HIV, it is hypothesised that the HIV variable would have marginal significance at best. Because of the high prevalence of HCV positive Aboriginals in BC it hypothesised that there will be a positive relationship to frequent opiate injection.

Among the Cedar Project cohort 46 individuals are positive for HIV (10 in Prince George, 36 in Vancouver), and 177 are HCV positive (79 in Prince George and 98 in Vancouver). Among injection drug users, 39 test positive for HIV, and 169 test HCV positive. Among smokers only, 7 are HIV positive and 8 are HCV positive. Among those who are HCV positive, 60.9 percent inject opiates less than daily, and the remaining 39.1 percent are daily or more opiate injection drug users. For those who are HIV positive, 48.7 percent inject opiates less than daily, and 51.3 percent are among the daily or more opiate injection drug users. In sum, 66.7 percent of all the daily or more opiate injection drug users are HCV positive, and 20 percent are HIV positive.

Table 4: Years injecting by HCV serostatus (non-injectors included in less than a year injecting)

		Positive	Negative	Total
Less than a year	Count	29	294	323
	% within <1 year	8.98	91.02	100.00
	% of Total	5.41	54.85	60.26
1-4 years	Count	58	48	106
	% within 1-4 years	54.72	45.28	100.00
	% of Total	10.82	8.96	19.78
5+ years	Count	90	17	107
	% within 5+ years	84.11	15.89	100.00
	% of Total	16.79	3.17	19.96
Total	Count	177	359	536
	% within total	33.02	66.98	100

Table 5: Years injecting by HIV serostatus (non-injectors included in less than a year injecting)

		Positive	Negative	Total
Less than a year	Count	9	317	326
	% within <1 year	2.76	97.24	100.00
	% of Total	1.66	58.60	60.26
1-4 years	Count	11	95	106
	% within 1-4 years	10.38	89.62	100.00
	% of Total	2.03	17.56	19.59
5+ years	Count	26	83	109
	% within 5+ years	23.85	76.15	100.00
	% of Total	4.81	15.34	20.15
Total	Count	46	495	541
	% within total	8.50	91.50	100

Tables 4 and 5 make clear that Cedar Project Participants with long-term involvement as injection drug users are at higher risk of contracting HCV and HIV. Among those who report

injection drug use for less than one year, 9 percent are HCV positive and nearly 3 percent are HIV positive. Among those who have been injecting for 1-4 years, the numbers of HCV and HIV positive participants increases to nearly 55 percent and just over 10 percent, respectively. Finally, among those who have been injecting for 5 years or more, 84 percent are HCV positive and nearly 24 percent are HIV positive. Thus, with each consecutive category of years injecting, the number of positive HCV and HIV participants increases.

Summary of methods

This section explains the methods used to research high frequency opiate injection among the Cedar Project participants. It provides the rationale for choosing opiates as the dependent variable and the rationale for including the non-injectors in this study. Independent variables are described and relevant literature was reviewed as is the expected relationships between the independent and independent variables. The next section examines the relationship between these variables in more detail by using of logistic regression.

3 Model summary & discussion

This section presents four models that explain which Cedar Project participants have a greater probability of injecting opiates daily or more. Model I includes variables found to be significant in relevant literature and Model II explores several demographic variables. Model III examines variables related to severe addiction to injection drugs, and Model IV adds HCV and HIV serostatus to the regression. This discussion centres on Model IV, which includes all variables. The results of Model IV are used to present policy options in the next sections that are designed to address the problem of frequent opiate injection drug use.

3.1 Results

Variables presented in the last section are included in four logistic regression models, the results of which appear in Table 6. Each model uses a number of variables to explain whether a Cedar project participant is more or less likely to be a frequent opiate injector. The log-2 likelihood indicates how much unexplained information remains after each model has been fitted to the dependent variable. There remains a large amount of unexplained information relating to daily or more opiate injection in the final model including all coefficients. The overall fit of each model is indicated by Pseudo R-square scores located at the bottom portion of the table. With each sequential addition of variables the Pseudo R-square increased from a score of 0.082 in the first model to a score of 46.1 for Model IV. This indicates that when all independent variables are included they explain about 46 percent of the variation in the dependent variable.⁵

⁵ There were no signs of multicollinearity in the model.

Table 6: Daily or more opiate injection

Variable	Model			
	I	II	III	IV
Not Sexually Abused	0.037 (1.037)	0.205 (1.228)	0.157 (1.170)	0.093 (1.098)
Not Revictimised	-0.535 (0.585)	-0.033 (0.968)	-0.024 (0.976)	0.005 (1.005)
Income from Sex Trade	0.973 (2.647)	0.516 (1.676)	0.478 (1.613)	0.506 (1.659)
Binge Drug Use	-0.269 (0.764)	-0.093 (0.912)	-0.054 (0.947)	-0.047 (0.954)
Vancouver		0.592 (1.807)	0.807 (2.241)	0.862 (2.369)
Age		1.058 (2.882)	0.492 (1.636)	0.493 (1.637)
Female		1.698 (5.463)	1.252 (3.497)	1.242 (3.462)
Unstable Housing		-1.041 (0.353)	-0.899 (0.407)	-0.899 (0.407)
Not High School Graduate		0.170 (1.186)	0.063 (1.065)	0.032 (1.032)
Been in Jail/Prison		1.133 (3.107)	0.449 (1.567)	0.439 (1.551)
Years Injecting (1-4 years)			1.949 (7.020)	1.931 (6.895)
Years Injecting (5+ years)			2.383 (10.836)	2.368 (10.681)
Methadone Treatment			0.737 (2.090)	0.737 (2.090)
HCV Positive				0.123 (1.131)
HIV Positive				-0.334 (0.716)
Final Log Likelihood	447.499	374.193	308.491	307.87
Pseudo-R2	0.082	0.294	0.459	0.461
Percentage Correct	81.7	83.3	86.1	86.1

Note: Bracketed values are exponent beta values Non-bracketed values are unstandardised beta values. Coefficients significant at the .05 level are in bold.

3.2 Model I: Variables in literature associated with opiate injection

Model I includes variables explained in the literature to have had past successes in predicting frequent opiate injection. Variables included are *not* sexually abused, *not* revictimised, income from sex trade, and binge injection. The Nagelkerke R-square value is low at 8.2 percent, and from the log-likelihood we can see there is a very large amount of unexplained information remaining after these variables are added into the model. Although it was hypothesised that those who were not sexually abused would be less likely to frequently inject opiates, this is not the case as those not having been sexual abused or revictimised has no direct relationship to frequent opiate injection. In this model variables on sexual violence, although important to the discussion of vulnerability, are not relevant to opiate injection among this cohort nor did binge drug use. The only significant variable in this initial model is whether or not the study participant had previously been involved in the sex trade Sex work proved to be a clearly predicative variable in this model, which is in line with previous studies as well as with the initial hypothesis. The odds that participants who get income from sex work inject opiates daily or more are 1.6 times higher, other things equal, than those who do not get income from sex work (95 percent confidence interval [CI] 1.682-4.70).⁶ The final variable in the first model, binge drug use, clearly demonstrates it has no significant effect on frequency of opiate injection within this cohort, thus running contrary to previous findings in other studies.

3.3 Model II: Variables from literature and demographic variables

Model II adds demographic variables to the previous Model, including location of interview, age category, gender, stability of housing, education, and history of incarceration. The inclusion of demographic variables increases the Nagelkerke R-square value by over 20 percentage points (from 0.082 to 0.294), indicating the demographic variables are useful to explain daily opiate injection. In addition, including these variables clarifies some of the links between the academically established variables and the particular demographic characteristics of the Cedar Project cohort. Sexual abuse and revictimisation remain inconsequential to this model and do not gain in significance in subsequent models, and the previously significant variable measuring sex trade is now non-significant. This effect is mainly due to the inclusion of gender in

⁶ The confidence interval was included to show the limits of where the true value of the standardised beta may lie within the range given. In addition, they were included to show the precision of estimation of this value.

the analysis, as the majority of sex workers in the study are female.⁷ In light of the descriptive information on sex work, the importance and implications of this variable will be discussed further on. Location of interview, age, gender, stability of housing, and having a history of incarceration are significant at the 95 percent confidence level while education is not. Binge injection continues to be a non-predictor of frequent opiate injection and gains no significance with added variables in Models III and IV.

3.4 Model III: Variables from literature, demographic variables, and variables indicating severe addiction

Model III variables were added in attempt to link the number of years injecting and MMT to the overall predicative power of daily or more opiate injection. When these variables are added the Nagelkerke R-square value increases to 0.459, indicating they are of great importance when attempting to explain high frequency injection drug use. The predicative power increases by 2.8 percentage points from (83.6 to 86.1). It becomes clearer in Model III the importance of location and gender as independent predictors of frequent opiate injection within the cohort. Even with the subsequent layers of time injecting and MMT, the location gender and housing variables from the previous models remain significant although age and incarceration are now non-significant. Participation in methadone treatment program is another significant indicator of high frequency opiate injection in Model III. The odds indicate that those who reported to have had MMT at some point in their injection drug using careers are twice as likely to be a frequent opiate injection drug user at baseline (CI 1.044-4.186).

⁷ In a separate logistic regression without the gender coefficient, sex trade was highly significant. In this model, sex trade workers are 2.7 times more likely than non-sex trade workers to inject opiates daily or more (*p value*= 0.002, CI 1.424 - 5.213). It is also interesting to note that without gender, the location Vancouver is a significant predictor at the 95% confidence interval of high frequency opiate injection (*p value*= 0.043, CI 1.024 - 4.091). Methadone becomes significant at this level as well—without gender those who have had MMT are 2.488 times more likely to be daily or more opiate injectors (*p value*= 0.007, CI 1.279 - 4.839)

3.5 Model IV: Variables from literature, demographic variables, variables indicating severe addiction, and HCV and HIV serostatus

The final variables, HIV and HCV serostatus were added in Model IV. Model IV makes it clear that positive HIV and HCV serostatus are not effective for predicting frequency of opiate injection drug use in this cohort. The variables improved the R-square value by a meagre 0.002 percent and did not change the predicative power of the model. The overall R-square value indicates that we are still predicting less than half of the variation in the dependent variable, and there remains a large amount of unexplained information despite including 15 variables. Overall, the inclusion of these two variables has very minimal effects on both the significant and insignificant variables in the equation. Despite the small increase in the overall predictive power of Model IV it is this model that provides the final coefficient values to be used for further analysis in this study. Significant results in Model IV are described below.

3.5.1 Years injecting

As shown in Model IV, a person who has been injecting for five years or more is nearly 10 times more likely than someone who has just started the habit to be categorised as a daily or more opiate user. Thus the nature of addiction among daily or more opiate injectors is chronic; and consequently these individuals experience acute withdrawal symptoms on a regular basis, increasing the likelihood that they engage in risk taking behaviour, such as needle sharing (Connors, M.M.,1994). From this finding and from the literature we can say that this group of frequent opiate injectors within the Cedar cohort are at high risk of HCV and/or HIV infection.

3.5.2 Gender

Gender is another important variable in the equation. As shown in Model IV, females are 2.5 times more likely than males to be daily or more injectors of opiates. A closer look at opiate-dependent women within the Cedar project sheds more light on the implications of this finding. Within the daily or more opiate injectors 75.2 percent (n=76) are females; these women amount to 14 percent of the entire cohort. Looking specifically at sex trade involvement, we see that 90 percent of the sex trade workers in the cohort are women. Recall that within those who fall into the daily or more category of opiate injection, 49.5 percent are gaining income from the sex trade compared to 23.3 percent who fall into the less than daily category. Although sex trade work is only significant in Model I, these descriptive findings suggest that it is widespread among the

females of the Cedar Project cohort, as 25 percent of the women are involved in this dangerous business. The inclusion of the gender coefficient in Model II has the effect of making sex trade work insignificant; however, the importance of this sex work ought to be considered in policy that addresses female Aboriginal high frequency opiate injectors.

Upon further analysis, 69.4 percent of those who report being sexually abused are female; and in total 33 percent of all females compared to 14.5 percent of males in the cohort report sexual abuse. Sexual abuse and revictimisation are not significant variables here, however, in light of the descriptive analysis and literature that supports the hypothesis, we cannot assume that sexual violence has no impact on a person's self-identity and behaviours. Such behaviours may include drug and/or alcohol dependence which can serve as mediators for bingeing, sex trade involvement, revictimisation, and so on (Walters, K., et al. 1999) that mitigate the traumatic event of sexual abuse (Walters, K., et al. 2002).

Women are also more prevalent in the 1-4 years injecting and the 5 years or more injecting categories than men (60 percent to 40 percent, and 56 percent to 44 percent, respectively); and, relative to their prevalence in the opiate injection drug use variable overall, it follows that females are at higher risk than males in this group for HCV infection. Table 8 describes the proportion of females to males within HCV serostatus and shows that far more females are HCV positive than males.

Table 7: *Distribution of positive and negative HCV serostatus, by gender*

		Female	Male	Total
HCV positive serostatus	Count	109	68	177
	% Within HCV Posit	61.58	38.42	100.00
	% Within Gender	42.25	24.46	33.02
	% of Total	20.34	12.69	33.02
HCV negative serostatus	Count	149	210	359
	% Within HCV Nega	41.50	58.50	100.00
	% Within Gender	57.75	75.54	66.98
	% of Total	27.80	39.18	66.98

Table 9 describes the proportion of females HIV serostatus. It is again evident that females are overrepresented, this time in the positive serostatus category. These findings are of grave concern to both Vancouver and Prince George as young female opiate injection drug users are far more likely to be daily or more users and, as these tables suggest, highly vulnerable to HCV and HIV infection. The combination of these findings with information derived from the

literature on sex trade work and sexual abuse leads to the realisation that young Aboriginal females who inject opiates are at the highest risk for HIV and HCV.

Table 8: *Distribution of positive and negative HIV serostatus by gender*

		Female	Male	Total
HIV positive serostatus	Count	34	12	46
	% Within HIV Positive	73.91	26.09	100.00
	% Within Gender	13.03	4.29	8.50
	% of Total	6.28	2.22	8.50
HIV negative serostatus	Count	227	268	495
	% Within HIV Negative	45.86	54.14	100.00
	% Within Gender	86.97	95.71	91.50
	% of Total	41.96	49.54	91.50

3.5.3 Housing

As shown in Model IV, those with unstable housing are 60 percent less likely to be daily or more opiate injectors. It is curious that unstable housing is protective of high frequency opiate injection. It could be reasoned that persons in stable housing have more disposable income to feed their addiction, or perhaps programs have been working to house these typically hard to house individuals. Table 10 compares unstable and stable housing with daily and less than daily opiate injection drug use. Nearly 68 percent of daily or more opiate injectors are living in stable conditions compared to about 44 percent of less than daily opiate injectors.

Table 9: *Comparison of stable and unstable housing within opiate injection drug users*

		Unstable	Stable	Total
Daily or more opiate IDU	Count	31	65	96
	% within opiate IDU	32.29	67.71	100.00
	% of Total	6.01	12.60	18.60
Less than daily opiate IDU	Count	237	183	420
	% within opiate IDU	56.43	43.57	100.00
	% of Total	45.93	35.00	81.40
Total	Count	268	248.00	516
	% within opiate IDU	51.94	48.06	100.00

This finding suggests that high frequency opiate users are more likely to live in stable conditions, narrowly defined as living in a house, apartment, recovery home, or in a boarding house. It is possible that the variable, as defined, did not capture the number of people who were

“couch surfing,” or the number of people who were perhaps living at a friend or relative’s home temporarily. It is a possibility that this finding shows a sampling bias, where respondents referred persons they live with temporarily or are “crashing” with. Another possibility is that those able to maintain a daily or more habit of opiate injection are able to do so because they are stably housed. If they are receiving housing subsidies, or social assistance, then these individuals may be more capable of buying opiates regularly compared to an unstably housed person. We also know that Insite was established to provide harm reduction resources and a SIF to give people a place to inject safely and privately. We now know that there is a population of Aboriginal injection drug users who are perhaps out-of-sight in a stable housing arrangement. Inarguably, the finding leads to the conclusion that more inquiry into the living conditions of the Cedar Project cohort is necessary in order to understand its relationship to drug use and how to address these individuals with harm reduction policy.

3.5.4 Location

Because of its infamous reputation for injection drug use, especially heroin, it is not surprising that Vancouver has a significant association with daily or more opiate injection in this study. Participants from Vancouver are 1.4 times more likely to be high frequency opiate injection drug users. There are many services offered in Vancouver to assist drug users in maintaining health and in reducing their use, however, this finding suggests that the services are missing the mark. Three quarters of those in the Cedar Project cohort who inject opiates daily or more live in Vancouver; but, we should not disregard the 217 individuals (49.1 percent) who inject opiates less than daily and live in Prince George. Looking only at injectors, 25.7 percent (n=26) of daily or more opiate injectors live in the Northern city; and the remaining 100 individuals injecting opiates less than daily are likely to continue using opiates at greater frequency. Further, Table 10 illustrates that if we look at injection drug use generally, the difference between the two cities is not great. For these reasons the options to address the policy problem will include provisions for the Northern city for prudent strategy to prevent an outbreak of HIV such that Vancouver has experienced. As a result of inaction, the city may witness a steady increase of daily or more injectors putting strain on the already sparse services catering to injection drug use. Alternatively, if these individuals move, they may join the population of daily or more opiate injectors in Vancouver’s DTES.

Table 10: Distribution of injectors and non-injectors by city of residence

		Prince George	Vancouver	Total
Yes IDU	Count	126	175	301
	% within location	51.85	58.33	55.43
% of Total		23.2	32.23	55.43

A study from the University of Northern British Columbia in Prince George asked youth why they are vulnerable to substance abuse and found that there is wide availability of a variety of narcotics on the streets coupled with a paucity of policy or programming to address substance dependence among youth (Stockburger, J., et al 2005). Further, there is evidence that Aboriginal youth are prone to beginning their drug careers in rural and urban centres in Northern BC then moving to Vancouver where their problems escalate (Stockburger, J., et al. 2005; UNYA, 2004). In the descriptive data we see that the prevalence of sex work within the Prince George Cedar Project cohort is nearly exact to that of Vancouver. It is clear from this finding that policies analysed in this study should not ignore strategies for reducing opiate injection drug use in the Northern city of Prince George.

3.5.5 Methadone maintenance treatment

Having been on MMT has a strong relationship to frequent opiate injection, which at first glance is unsurprising. As shown in Model IV, those who have had MMT are 1.09 times more likely to report high frequency opiate injection. From statistics discussed earlier, MMT seems to be a choice method of addressing opiate addiction in BC, because studies have implied that MMT blocks the effects of opiate withdrawal symptoms, therefore reducing the risk and harm associated with opiate addiction (NAOMI, 2005). The finding in this study shows that many of those who inject opiates daily or more have tried MMT and subsequently returned to regular and frequent opiate injection. On one hand, this may be indicative of the *addiction to administering opiates via injection* among the daily opiate injectors, a phenomenon that R.H. Pal observed among injection drug users (2002). On the other hand, it may indicate retention in MMT has not been consistent in this cohort, that MMT is a non-preferred method of controlling opiate addiction among the injectors, or that there have been problems with accessing the treatment. More research into this finding is necessary in order to completely understand its implications.

3.5.6 Non-significant variables

The non-significance of HCV and HIV serostatus for predicting high frequency opiate injection drug use among the Cedar Project participants are important to note. This finding signals that being HCV and/or HIV positive *does not* reduce the odds of being a high frequency opiate injector. It is apparent that individuals within this cohort who are HCV or HIV positive are continuing behaviours that perpetuate the spread of the viruses to others, namely, injection drug use. Further, recall Tables 4 and 5 demonstrate that with each consecutive category of number of years injecting, there is an increase in the number of individuals who are HCV or HIV positive. Therefore, if an individual is aware of his or her positive serostatus, he or she may not be abating or ceasing injection drug use but rather continuing this behaviour. Subsequently, as an HCV or HIV negative injection drug user's drug dependence intensifies and their chance of seroconversion increases, we may witness a decline in the injection drug users' health, followed by the health of the community as a whole. This result supports the findings of the Public Health Agency of Canada: injection drug use is the primary reason for high incidence of HIV among Aboriginal peoples. Clearly, the Cedar Project cohort is at high risk of HIV and HCV infection via injection drug use. We are left with the reality that both HCV and HIV positive *and* negative Aboriginal injection drug users require services that provide means to protect their own health and the health of the communities in which they live.

3.5.7 Summary of results

This section detailed significant findings in the logistic regression. Four categories of variables were entered, and in the final, fourth model the Nagelkerke R-square value reached 46.1 percent. Significant variables in the final model that predict high frequency opiate injection drug use among Cedar Project participants include 1-4, and 5 years or more injecting, being female, having had MMT, living in stable housing, and living in Vancouver.

4 Policy Alternatives

In light of the findings from logistic regression and the subsequent investigation into those findings, this section presents a discussion of the status quo and three possible policy options designed to address high frequency injection drug use. Regression analysis in the previous section identified being female, living in Vancouver, being stably housed, and having been on MMT before as having association with frequent opiate injection. This first part of this section describes the policy objectives used to design alternatives, and then frames a strategy for harm reduction to reduce the number of people in the daily or more opiate injection group. The section ends with detailed descriptions of the four alternatives.

4.1 Considerations in Developing Policy Alternatives

While developing the policy alternatives, the Canadian Aboriginal AIDS Network “principles of good practices approach” to HIV/AIDS policy was kept in mind (Patterson, M. & Reimer, G., 2004). Three of the CAAN principles of good practice that are most relevant to the policy problem and options are as follows. First, community based approaches are best for addressing HIV within Aboriginal communities—there is significant distrust toward the cultural outsiders. Hence, Aboriginal staff ought to be central in programming direction and implementation; the outcome of this practice has been shown to increase the policy effectiveness as well as have a capacity building effect among Aboriginal service providers (RCAP, 1996; Kirby, 2004; CAAN, 2003). The policy options described in this study assume that the Aboriginal Employment Preferences Policy will be utilised (CHRC, 2005). Explicitly, the Aboriginal Employment Preferences Policy states

it is not a discriminatory practice for an employer to give preferential treatment to Aboriginal persons in hiring, promotion or other aspects of employment, when the primary purpose of the employer is to serve the needs of Aboriginal people (CHRC, 2005).

Where possible, to align with the objectives of the policy alternatives, employment of Aboriginal peoples should be sought above employment of non-Aboriginals. More will be said on this in Section 8 on implementation.

Second, “holistic care, treatment, and support” is a sign of a robust policy. The holistic worldview is common within traditional Aboriginal healing methods; it recognises the important yet delicate balance of spiritual, emotional, physical, and mental health to achieve a high level of well-being (Bent, K., 2004). This practice sees that the roots of the addiction is addressed and the complexity of outcomes (such as bingeing, sex work, and relapse) are linked to such roots. Finally, harm reduction for addictions is listed by CAAN as a practice that is acceptable for addressing injection drug use in Aboriginal communities and reducing the spread of HCV and HIV (Patterson, M. & Reimer, G., 2004). To CAAN, harm reduction is more culturally appropriate than abstinence based methods (such as 12 step programs) of addiction treatment because the underlying causes of substance dependence may be addressed while allowing the individual to keep using. For example, the addicted individual is given methadone treatment to assist her in reducing opiate injection while at the same time she receives counselling for her experiences as a child. CAAN states that it recognizes that

Many Aboriginal customs and traditions require abstinence or freedom from mind and mood altering drugs. However, harm reductions and abstinence-based philosophies need not be in conflict with each other. Ultimately they both support the common goal of “no harm” for the individual while using different ways to reach that goal. If no harm (abstinence) is not possible, ways of reducing harm need to be offered and supported (16).

This statement from CAAN supports use and harm reduction policy for injection drug using Aboriginal peoples, because it empowers the user with the option of healing and/or abstinence.

4.2 Harm reduction policy

This section provides a brief introduction to harm reduction policy and describes its role in national and provincial policy. This explanation is relevant to *how we go* about framing the policy problem when assessing options to address it.

While prohibition and use reduction methods of substance abuse control are centred on punitive measures, supply reduction, and abstinence, harm reduction recognises that there will never come the day without behaviour that put some at risk of HCV or HIV transmission. Harm reduction focuses on minimising the harm associated with high-risk behaviour, including consequential health, social, and economic outcomes. It focuses its strategies on those who use so frequently and excessively that their lives are at serious risk (Roche, A.M., et al. 1997).

Although injection drug users pose danger to themselves and to public health, the makers of harm reduction policies are committed to the human rights of drug users including their right to

use. They view harm reduction as a strategy that preserves the dignity of drug users as well as a means to secure the health of the public. Harm reduction strategists are concerned with the failure of prohibitionist and punitive policy and use evidence-based information to advocate progressive alternatives for reducing the harms arising from substance abuse. They adhere to principles of a liberal, benevolent state and aim to use a positive, rather than a punitive approach to drug use. As Richard Elliott and associates suggest,

Joining human rights law with public health evidence can help shift global drug control policy away from the current, failed emphasis on prohibition to a more rational, health-promoting framework that is both programmatic and principled (2005, 106).

Harm Reduction gives injection drug users the means to protect themselves and others while using, as well as the choice to access services and opportunities for recovery that reflect “where they are at.” Harm reduction may be employed at any point during the 6 stages of change for substance dependent individuals. These stages include pre-contemplation (not ready to change), contemplation (considering change), preparation (getting ready to make change), action (process of changing behaviour), maintenance (avoiding relapse), and termination (problem behaviour no longer a threat to health) (NPNU, 2000). Throughout these stages, a continuum of harm reduction strategies are used that include everything from needle exchange programs (NEP), methadone maintenance therapy (MMT), and law enforcement strategies, to out-patient addiction treatment and recovery houses.

For the most part, policy for the management and reduction of HCV and HIV transmissions in Canada is based upon prohibitionist theory. Narcotics such as opiates are illegal; drug users and suppliers are subject to penalty for their behaviour. It also embraces use reduction policy, aimed to reduce the intake amount of a substance abuser to the point where they eventually abstain (Health Canada, 1998). In the 1990s, there was a substantial influx of HIV infections related to injection drug use (PHAC, 2005). Research showed that drug policy in Canada was counter-effective in the management of communicable disease as well as the reduction of injection drug use (Kerr, T., et al. 2001). In reaction, the federal government announced the new Canada Drug Policy (CDP) in 1998, which embraced principles of the relatively new theory of harm reduction.

Some harm reduction strategies embraced by Health Canada include programs needle exchanges and diversion tactics (warning substance abusers rather than arresting them), programs which recognise that overcoming substance abuse by forced detox or incarceration is

counterproductive (Health Canada, 1998). Despite research that proves supply reduction (crackdowns on dealers) does not result in use or demand reduction (Wood, E., et al. 2003), it is still used as a method to control drug use (Health Canada, 1998). Indeed, evidence of prohibition and enforcement based policies remain in such policies as the Health and Enforcement Partnership (HEP) which purports to enhance the collaboration of health workers with law enforcement at the local, provincial, and national levels (Health Canada, 1998).

In response to the growing HIV/AIDS and HCV epidemics among British Columbia has been working to incorporate harm reduction methods into its drug policy. Vancouver's Four Pillars approach to addressing addiction— harm reduction, prevention, treatment, and enforcement— is an example of adapting to the influx of HCV and HIV among the city's injection drug users. Harm reduction policy is now used in Canada's major urban centres, however these methods are not as widely practiced in rural settings. Recent media reports have shed light on the growing prevalence of injection drug use in the Northern regions of BC, as well as on the shocking prevalence of HCV (Hume, M., 2005). In Prince George and surrounding areas resources for management of HIV and HCV are scarce (Dingwall, C., 2005). Moreover, health service providers do not have the benefit of programming based on new data or pilot studies such as those found in Vancouver.

This section has outlined the interrelated topics of injection drug use, HCV and HIV transmission, and vulnerability to these diseases among Aboriginal peoples. The policy problem asks why some young Aboriginal injection drug users are injecting opiates more frequently than others. A brief explanation of harm reduction policy was given with the intention of gaining a better understanding of the issue and how it may be solved with policy. This section is followed by the methodology section, in which the data used in this study are detailed and the analysis is explained. Next, we will discuss the findings and implications, and finally, we will undertake policy analysis to adequately address the issue.

4.2.1 Using harm reduction and use reduction to frame policy

The key focus of these policies is to reduce the harm caused and the use of daily opiate injection among the Cedar Project cohort in Vancouver and Prince George, as well as the greater population this sample represents in British Columbia. Harm reduction policies, as already discussed, address the risk of HCV and HIV infection among injection drug users by employing programs such as needle exchange, safe injection sites and legal heroin prescriptions. Often harm reduction policies contrast with use reduction policies that attempt to lessen the number of times

an injection drug user fixes to the point where they eventually must abstain. Use reduction strategy not only targets the user but also uses law enforcement for behaviour control and supply reduction. For example, Vancouver's law enforcement stages massive crackdowns on the supply side of illicit drugs, even though this strategy has been shown to be ineffective in use reduction and is contrary to harm reduction (Wood, E., et al. 2004). Use reduction strategies such as Vancouver's supply reduction activities aim to help the drug dependent person achieve abstinence, but such policies are criticised by research for their rigid aims and failure to recognise the complexity of an addict's life (Roche, Evans & Stanton, 1997).

Roche et al (1997) suggest that harm reduction and use reduction policies do not have to be mutually exclusive. They propose that when the two paradigms are enmeshed the policy is more effective because its scope incorporates of the interests of the substance dependent person, the government, health professionals, and the community. Therefore, when used in combination, use and harm reduction encompass of the interests of stakeholders while achieving multiple goals including the reduction of HCV and HIV incidence amongst the injection drug using population as well as addressing the underlying factors contributing to excessive use. An integrated use and harm reduction policy would recognise that not all injection drug users are willing or ready to "kick the habit"; that it is necessary to provide means for safe injection; that reducing the number of times one injects a drug is a primary goal; and that no injection for the *willing* individual is an optimal health outcome. Entwined in this integrated system is the explicit recognition of the complexity of substance abuse, thus policy for use and harm reduction recognises the role of gender and culture. It must acknowledge that there is a difference between men and women who inject drugs, and no two cultures manage or view the cause of injection drug use the same. So, above all else, for effectiveness, policy must be flexible and sensitive to the "culture of the community in which it is intended" (1211).

4.2.2 Policy objectives

Each policy was chosen on the basis of four objectives. The objectives are as follows:

- a) To reduce the number of times opiate injectors fix (move them from the category of daily or more injection to less than daily injection)
- b) To develop culturally appropriate and gender specific alternatives that complement current harm reduction strategies for Aboriginal injection drug users
- c) To address underlying issues of opiate addiction among daily or more injectors

- d) To reduce the incidence of HCV and HIV among Aboriginal injection drug users in British Columbia

The first objective directly targets the policy problem, as there are too many young Aboriginal injection drug users who inject opiates daily or more. The second objective is meant to specify the beneficiary population of the policy, but it also speaks to the necessity of providing appropriate and thus effective programming within the frame of Aboriginal culture and values. The third policy objective recognises that there are root causes of substance abuse; and, although the statistical model did not directly explain the chain of events leading to addiction, we do know that injection drug use is one sequela of major underlying issues for addicted individuals. To be short, these young Aboriginal people who inject opiates daily or more are not doing so because their lives have been joyous and carefree. The fourth objective calls for the long-term outcome of the policy to be a reduction in HCV and HIV incidence among young Aboriginal injection drug users in BC.

The following alternatives aim to prioritise factors associated with high frequency opiate injection in the logistic regression. Prior to the alternatives it should be noted that the author was mindful to the fact that all programs will require *collaboration and partnering* with First Nations leaders, community services, cultural societies, and health councils in the Vancouver and Prince George areas. Moreover, the integrity of Aboriginal decision-making is a key component to policies targeting the Aboriginal population; this must be prioritised beyond the limits of the Canadian Constitution. This means working together with First Nations health service providers to use their expertise in tailoring the policies is essential to making policies relevant; and giving Aboriginal leaders and Aboriginal welfare organisations the final say in implementation is mandatory to making policies legitimate. This study acknowledges that partnerships with the government is necessary for imposing meaningful, effective, and long-lasting policy; but that in the end, Aboriginal leaders and Aboriginal organisations have the final word in acceptance or rejection of an intervention.

4.3 Status quo

Maintaining the status quo, or, doing nothing about the policy problem, means continuing without adding to or altering services currently available in Vancouver and Prince George. The following is a discussion selected services in both cities that represent the extent of what is available. Vancouver a large amount of services available because it has a greater population of injection drug users. The services in Vancouver described below are included because they are

representative of the range of programs available that are relevant to this study. The description of services in Prince George are more complete because there are so few available.

4.3.1 Services in Vancouver

In the late 1990s and early part of the new millennium a series of reports from the VIDUS study made it clear that too many Aboriginal peoples are at-risk of HCV and HIV infection. Recall that in 2003, perhaps the most damning evidence of social neglect was revealed by data based on the VIDUS cohort. The data demonstrated that incidence of HIV infection among Aboriginal injection drug users was twice as high among non-Aboriginal injection drug users (Craib, K., et al. 2003). Decision makers scrambled to assemble and implement programs to address issues raised by VIDUS statistics. Growing evidence showed that old ways of managing addiction were failing, and new ways of framing the issue and creating policy were sought. More recently, it is apparent that HCV and HIV are becoming more widespread in the Northern regions of BC (Hume, 2005). This narrative of the status quo is by no means an exhaustive list of the policies and programs in place to reduce the harm of addiction and HCV and HIV transmission, instead it is an overview of some of the more well-known in Vancouver and Prince George that are relevant to the results of the logistic regression.

The Four Pillars Approach that Vancouver has undertaken is a good example of an integrated harm and use reduction strategy. The four pillars include harm reduction, prevention, treatment, and enforcement as general strategies for addressing substance abuse, HCV, and HIV. Needle exchange programs (NEP) are a standard method of harm reduction; currently, there are 11 needle exchange services funded by Vancouver Coastal Health Authority (VCH) in Vancouver (VCH, 2004).

In September 2003, harm reduction policy in Vancouver was further embraced with the opening of *Insite*, a supervised injection facility (SIF). *Insite* is perhaps the capstone achievement of VCH, as it was the first of its kind in North America, and seems to be a highly successful operation. The facility is located in the heart of Vancouver's DTES, and provides a safe and clean environment where injection drug users may inject their own drugs. *Insite* reports that on average, 600 injectors visit the facility per day, primarily facilitating the safe injection of heroin and other opiates (CCENDU, 2005). Injection drug users administer their own drugs in an enclosed, judgement free environment where overdose deaths, and HIV and HCV transmissions are prevented. Moreover, referrals are made by the SIF nurses and counsellors for addictions treatment, detox, primary health care services, and mental health resources (BC Centre for

Excellence in HIV/AIDS, 2004). Since its inception, there has been evidence of less public injection drug use, fewer publicly discarded syringes, and fewer deaths caused by overdose (Kerr, T., et al. 2006). The reason is that the facility has provided a safe environment for injection and disposal of used needles that is away from the public eye for over 3000 injection drug users in Vancouver.

Vancouver Native Health Society (VNHS) is another operation funded by the Aboriginal Health Services branch of VCH. The VNHS provides medical services, counselling, and social services not just to people of Aboriginal descent, but to any non-Aboriginal peoples living in the DTES who require its services (VNHS, www.vnhs.net, 2003). Its mandate is to provide essential services to the marginalised populations in the DTES; more specifically, to provide services at no cost to those who face barriers accessing mainstream health care and to promote compliance with treatment. The populations who face these barriers include the addicted, mentally ill, homeless, and immigrants in the “ghettoized” community within the DTES (VNHS, 2003). Services and programs are delivered in a non-judgemental, culturally sensitive manner by part-time physicians and one nurse. Medical services include methadone maintenance treatment (MMT), addictions counselling, and HIV/AIDS specialist care. In 2004, VNHS treated 376 HIV-positive patients; Aboriginals and Caucasians accounted for equal numbers in this group (VNHS, 2004).

The Downtown East Side Activities Society (DEYAS) was established in the early 1980s in response to the growing incidence of HIV among street involved people in Vancouver’s downtown east side (DEYAS, deyas.net, undated). DEYAS aims to reach the most marginalised people in the DTES and focuses most of its resources on injection drug users. It has though faced considerable downsizing in recent years. This spring its youth programs including the youth drop-in centre, the alcohol and drug counselling services, and the life skills and employment centre will cease to offer services to youth in the DTES. What is more, DEYAS needle exchange program has been downsized considerably. Remaining programming includes a health outreach van that delivers emergency health care to street-involved people in the DTES and a youth detox program. The primary purpose of the van is to reduce the number of unnecessary hospital emergency services. In 2004, DEYAS reported that they provided over 35,000 treatments to nearly 15,000 clients with the outreach van.

Another program targeting at-risk Aboriginal people is the Urban Native Youth Association (UNYA). UNYA is composed of over 70 Aboriginal employees that work in 13 Aboriginal-specific programs (UNYA, www.unya.bc.ca, 2004). Programs operate mainly out of the Vancouver Native Friendship Centre, and consist of counselling, educational, referral,

residential, and recreational activities. In addition, UNYA has an Aboriginal youth drop-in centre for persons aged 15-24. Funding sources include the Vancouver Coastal Health Authority, Vancouver School Board, BC Ministry of Child and Family Services, and the federal government. Three key elements of UNYA are its Aboriginal youth-only services, it is run by Aboriginal peoples, and 9 of the Board of Directors are Aboriginal youth. In recent years, UNYA partnered with the Urban Aboriginal Strategy, and the federal department of Western Economic Diversification to design and advocate for the Native Youth Centre in East Vancouver. It is expanding and elaborating on its vision to open a Native Youth Centre, set to open within this decade.

Clearly, Vancouver has been working hard in the past decade to reduce injection drug use. The city doubled its budget for harm reduction in the 2004-05 fiscal year to \$1.75 million allowing for the extension of harm reduction strategies to many health care facilities in the city (CCENDU, 2005). In conjunction with needle exchange, safe injection facilities, and methadone programs there is an emphasis on referrals for addictions counselling that aims for use reduction with abstinence as the optimal outcome.

4.3.2 Policy in Prince George

Compared to Vancouver, there is a paucity of services for Aboriginal drug users in the Northern city of Prince George, reflecting not only the difference in size between the two cities, but also the absence of specialised services provided by the Northern Health Authority. Coupled with an upward trend of new HIV infections, this situation is cause for alarm. There are a few small but capable organisations in Prince George that offer harm reduction, and fewer that offer services for Aboriginal people specifically. The following are programs and services offering harm reduction services in Prince George.

The Prince George Native Friendship Centre (PGNFC) offers programming for both youth and adults who are street-involved and substance dependent (PGNFC, www.pgnfc.com, 2005). Their programming includes a youth drop-in centre, counselling, street outreach, life skills development, and an emergency shelter. To date, there are two HIV/AIDS service organisations that focus on harm reduction for injection drug users in Prince George. For one, there is Positive Living North, whose activities include interactive youth workshops in a series called “The Power to Choose,” as well as advocacy and awareness campaigns.

The Prince George AIDS Prevention Program (PGAPP), funded by the BC Northern Health Authority, is a harm reduction service that provides needle exchange, clean crack pipes

and condoms as well as health services (PGAPP, February 20, 2006, interview). It is estimated that about 1200 needles are exchanged through the program annually and about 1200 clients are served by the health clinic; nearly half of PGAPP clients are of Aboriginal descent. PGAPP recognises that giving services that reflect where the client sits within the stages of harm reduction, their primary purpose is to help injection drug users avoid HIV infection and for HIV positive injection drug users to live as long as they can.

Finally, Positive Living North (PLN) offers social and advocacy services to people living with HIV in Northern BC, as well as education on safe sexuality. More information on PLN was sought, however, no responses were given despite several requests. From its website, it is clear that an essential part of PLN is the Fire Pit Cultural Centre (PLN, www.positivelivingnorth.ca, 2006). The Fire Pit is a gathering place for Aboriginal people to connect with culture and community, as well as an environment to communicate openly about health issues, especially HIV/AIDS. The Centre operates daily, and works to associate culture with healing and harm reduction.

4.4 Policy Alternative 1: Make the connection - Expand and enhance the Aboriginal Wellness Program

In 2002, after recognising that Aboriginal people often avoid seeking out services or programs for mental health or addictions, the Aboriginal Wellness Program (AWP) was created to fill the gap between an institution such as Vancouver Coastal Health (VCH) and Aboriginal service organisations in Vancouver (February 27, 2006, interview). The problem of providing services to Aboriginal people that are culturally safe as well as effective was overcome by integrating both traditional and western models of health service delivery under one roof. A presentation by Nadine Caplette, Director of Aboriginal Health Services for VCH, was given at the February 22, 2006, public VCH board meeting. Caplette characterised the AWP as a service that successfully reaches Aboriginal peoples with complex issues including addiction and mental health problems. The AWP approach to harm reduction is not clinical, but rather therapeutic (February 27, 2006, interview). Drug users are encouraged to speak openly about their drug use and are not coerced into abstinence; so, addiction is treated as a sequela of other issues. The matters that underlie addiction are addressed in the group and in one-to-one counselling in conjunction with traditional healing ceremonies. Because diversity of Aboriginal culture is recognised, effort is made to assure treatment occurs in the context of the individual and his or her cultural background.

Public AWP presentation data showed that 20 percent of 300 AWP clients show symptoms of PTSD and 23 percent have issues with alcohol and drug dependence (2006). In response to its clients' needs, the AWP provides a bundle of services including addictions counselling, trauma, other mental health services, and group counselling twice per week at a DTES location (February 27, 2006, interview). According to Caplette, the program is not reaching the number of women that it could (2006), nor is it reaching those in greatest need. She argued that with more staffing and a permanent location in the DTES, the AWP could help many more women. Certainly, the current AWP location in South East Vancouver mostly serves women who are not living in the chaotic and impoverished conditions of the DTES, and whose lives are relatively more stable compared to those in the DTES (February 27, 2006, interview).

There are currently 11 staff members at AWP (10 of which are Aboriginal) in the one South East Vancouver location. This alternative suggests that AWP be given support to open a second location in the DTES; and in light of this study's findings, it also includes a third location open in Prince George to work in conjunction with the Northern Health Authority. According to an AWP administrator, the requirements for the second branch in the DTES are a ground floor location and resources for the office; the interviewee stated that the current staff in the South East location of AWP would be split between these two locations (February 27, 2006, Interview). This option suggests a third branch of AWP is in acknowledgement of the parallel issues in the North and the need for services that target addicted Aboriginal people to reduce HCV and HIV transmission. The third branch requires 6 new Aboriginal counsellors and administrative staff for the Prince George location (based on current number of staff), as well as a budget to contract a program manager (as was required when the AWP was established) for start up and program development (Healing Ways, 1999).

4.5 Policy Alternative II: Target women - Mobile services for high risk women

Harm reduction strategies work theoretically to reach the addicted, at-risk individual "where they're at," and in doing so allow the drug user the liberty of self-determination. Harm reduction can also reach drug users "where they're at" geographically, as is done with outreach services by street nurses, social workers, and neighbourhood patrols. Outreach services are an essential part of harm reduction because of the chaotic lifestyle of chemically dependent persons often means that they are unable to access services such as needle exchange programs or medical assistance (PGAPP, February 20, 2006, interview).

Using the concept of mobile outreach to make contact with hard to reach populations, this alternative would entail mobile outreach to provide confidential and safe, services to addicted women in Vancouver and Prince George. A similar program was launched in Coventry, UK, by the Terrence Higgins Trust Sex Workers Into Sexual Health (SWISH) program. Like the SWISH program, this alternative suggests using a specialised van to reach sex workers and distribute condoms, rigs, sexual health information, pregnancy testing, safe injection information, needle exchange, and information on dangerous johns. Moreover, a major component is to provide information and help on accessing social services, both Aboriginal-focused and general, through a referral service for addictions counselling and medical advice. Harm reduction would therefore be the van's primary purpose, but use reduction would be fostered via referrals through a compassionate connection with the women.

The SWISH van does not drive from client to client, but rather parks in inconspicuous places for a few hours at a time in areas of Coventry where sex work is prevalent. Because the program is well advertised, the women are aware of when they can access its services. To service women in Vancouver in an effective way, this study recommends that the van operate similarly to the SWISH program, but with the added component of on-call outreach. It is important that the service be available to women where they are at, geographically and at varying hours in the day or night. This geographical concept was used by Victoria AIDS Resource and Community Services (VARCS) Mobile X program; it worked so that if a client could access a telephone, he or she could call the van and request it come to the area as needed. The operating hours of the van should reflect what is needed in the community, but should offer service 6 days per week, for a suggested 12 hours per shift.

This policy would require one specially equipped van in both Prince George and Vancouver, as well as a minimum of 3 workers per van—including one nurse, and two specially trained and experienced outreach workers. In conscience of the target population a minimum of 2 out of the 3 workers should be of Aboriginal descent. It should be noted that it is not reasonable to limit the van's outreach to Aboriginal only clients. In this sense the van's mandate would resemble that of the VNHS, insofar that it would have themes of Aboriginal health, and employ Aboriginal people but welcome non-Aboriginal street-involved women to use its services.

4.6 Policy Alternative III: Create a sense of community - Support for Aboriginal drug users group

An injection drug user peer support group, such as the Vancouver Area Network of Drug Users (VANDU), would improve the capacity of drug users to lead healthier, more productive lives (CHALN, 2005). Further, VANDU has been a tour de force as a human rights advocacy group for the rights and lives of injection drug users (CHALN, 2006). Using this momentum, VANDU supported the development of an Aboriginal drug users group in 2002 to accommodate its large Aboriginal membership. The Western Aboriginal Harm Reduction Society (WAHRS) was established not only to make a more culturally appropriate setting for its Aboriginal members in Vancouver, but to save lives. A recent resource from the Canadian HIV/AIDS Legal Network calls for the acknowledgement that drug user peer support groups are part of the harm reduction continuum (2005). For one, the appeal of a peer-run injection drug users' self-help group is that it allows users to access harm reduction strategies from a fellowship of people who "get it," and without fear that they will be coerced into abstinence-based programming. In doing so, drug user peer-support groups help alleviate the social isolation faced by drug users as well as provide a safe environment (without discrimination or judgement) where vital, life saving information is shared and concerns can be voiced. Indeed, WAHRS provides its members with a greater sense of community. As one founding member of WAHRS explained (February 22, 2006, interview), through WHARS a young Aboriginal injection drug user has contact with older, more experienced peers who have information on safe injection practices or special services, who understand the experience of being an urban Aboriginal drug users, and who have perhaps achieved some stability while living with addiction.

A second positive outcome of supporting an Aboriginal drug users group is that policy makers have access to the experts. Illegal drug user groups perform a critical link between decision makers and health care providers with the reality of their behaviours within their environments (CHALN, 2005). The result is a transfer of knowledge between user and researcher, allowing for an exchange of ideas and information imperative to understanding how to best serve Aboriginal injection drug users as well as a point of contact for health professionals to give life-saving advice to the users.

WAHRS is a good foundation for accessing Aboriginal injection drug users, but more funding to continue its work, build its capacity, and acquire leadership is necessary. A 2-year funding grant was given to WAHRS through VCH Aboriginal Health. The funding given was not enough for WAHRS to make a lasting impact among Vancouver's Aboriginal drug users because

it was insufficient to cover costs for cultural programming (February 22, 2006, interview) To date the 2-year grant to WAHRS has not yet been renewed and for this reason its meetings are scheduled to cease; it is still uncertain whether another grant will be given to WAHRS for 2006-08. After consultation with two members of WAHRS (February 22, 2006, interview), it was clear that the intention of the group is not only to provide a sense of community to Aboriginal injection drug users in Vancouver, but also to help decrease incidence of HCV and HIV among themselves. In short, WAHRS endeavours to be part of the solution. These WAHRS members envision that the program would facilitate users meetings several days per week; the number of hours the program operates will be a decision made amongst members and program facilitators. The program requires a non-drug using Aboriginal individual to be a Program Coordinator, such as Ann Livingston at VANDU, who is paid a yearly salary. In addition, it is suggested that the program will need 2 part time program assistants for administration and other tasks. It also requires a budget for resource materials and guest speakers or traditional healers. Like VANDU, it would provide stipends to its members who participate, in addition to a hot meal.

Currently, there is no drug user peer support group in Prince George. This fosters the continuance of social exclusion and isolation of drug users, injection drug users in particular. As a result, creating a support group would require more resources than in Vancouver. The two WAHRS members shared that extending the organisation to Prince George was part of their vision, as they are aware that drug users in the North of BC have no community and no voice in how policy affects them (February 22, 2006, interview). This option would enable young Aboriginal injection drug users in Prince George and Vancouver to have voice within the greater drug using communities. They would be given the opportunity, to organise and advocate for themselves, as well as create a point of contact with health authorities, policy makers, Native healers, and others.

5 Recommendations

This section begins with a matrix that explains the four criteria used to compare and evaluate the three policy alternatives against the status quo. The four criteria include cultural safety, political viability, effectiveness, and cost. Each criterion is given measures, which are also explained. The status quo and three policy options are evaluated according to these criteria's measurements, and a recommendation based upon their respective strengths and weaknesses made.

5.1 Criteria and measurement matrix

Table 11 offers a description of each criterion used in the policy analysis. The definitions coincide with the descriptions above; the measurements will be used to weight each option while the methods explain where the information for measurement was gained. Each component to each criterion is either given a high score (10 points), medium score (5 points) or a low score (0 points). Although cultural safety is weighted by six separate measures (spiritual, mental, emotional, physical, addresses intergenerational trauma, stability of environment), it is not weighted differently from the other criteria. Political viability and effectiveness are weighted with four measures each (HCV and HIV prevention, knowledge transfer, surveillance, youth; and women specific programming, switch from high to low frequency injection, binge injection drug use specific components, accessibility, respectively). In total, each criterion is scored out of a possible 40 points (for cultural safety, the measures for holistic health are scored out of a possible 20 points). Political viability and effectiveness are scored out of a possible 40 points each. Because cost only has one measure, it was modified to have a more reasonable weight compared to the others. The criterion is scored out of a possible 40 points, so, a low cost alternative is equivalent to 40 points, medium to 20 points, and high cost to 0 points. Table 11 below provides a summary of the criteria, measures and methods.

Table 11: Matrix of criteria, measurements, and methods

Criteria	Definition	Measurement (high/medium/low)	Method/Sources
Cultural Safety	<ul style="list-style-type: none"> ▪ Uses Aboriginal holistic health model ▪ Intergenerational trauma lens ▪ Stable environment 	<ul style="list-style-type: none"> ▪ Estimated proportion of spiritual/emotional/mental/physical components ▪ Ease of providing services related to the Legacy ▪ Stability, serenity of environment 	<ul style="list-style-type: none"> ▪ Elite interviews ▪ <i>Healing Ways</i> (1999), ▪ Estimation based on program accommodations
Political Viability	<ul style="list-style-type: none"> ▪ HCV/HIV prevention strategies ▪ Youth components ▪ Capacity building/knowledge transfer ▪ Surveillance and monitoring: good science 	<ul style="list-style-type: none"> ▪ Estimated proportion of prevention specific strategies; and youth components ▪ Predicted ability of policy to both give and gain information on HIV and harm reduction ▪ Estimated amount of surveillance and research that can be done on site 	<ul style="list-style-type: none"> ▪ Comparison to other similar programs ▪ <i>BC Aboriginal HIV/AIDS Task Force</i> (2000) ▪ <i>Priorities for Action BC</i> (2003) ▪ Elite interviews ▪ Estimation relative to size of program and capacity of staff
Effectiveness	<ul style="list-style-type: none"> ▪ Reduction of users in daily or more opiate IDU category (switch to less than daily) ▪ Specifically targets women and long/short term injectors. ▪ Services available to IDUs at convenient hours 	<ul style="list-style-type: none"> ▪ Projected change based on merits of option ▪ Option composed of specific programming for women and binge IDU ▪ Number of hours service is provided per week 	<ul style="list-style-type: none"> ▪ Elite interviews ▪ Assessment of option components ▪ Estimate of operating hours per week based on similar programs
Cost	<ul style="list-style-type: none"> ▪ Annual monetary cost of options 	<ul style="list-style-type: none"> ▪ Estimates based on capital, labour & rent ▪ Other 	<ul style="list-style-type: none"> ▪ Back of the envelope calculations based on 2006 currency ▪ Elite interviews

5.2 Cultural safety

The importance of cultural safety for Aboriginal-specific policy should not be understated. “Cultural safety” is a concept developed by a Maori nursing student in New Zealand to help explain why the medical profession approaches Indigenous peoples has been insensitive to their world views. Unsafe cultural practice is defined as any “action which diminishes, demeans or disempowers the cultural identity and wellbeing of an individual” (Nursing Council of New Zealand, 1992). Health services to Aboriginal people in Canada have historically and are often presently delivered in such a way that is paternalistic and alienating to some populations, thereby making the policy ineffective (Stout, M.D., et al. 2001; Reist, D., et al. 2004). In response, some health services and policies are using more culturally safe practices and are becoming attuned to best practices suggested by Aboriginal peoples.

It is evident that because of a history of mistrust toward Canadian institutions, the content and approach of policy must be approved by and carried out with the help of Aboriginal people. One study by the University of Northern BC found a consensus among substance abuse service providers was that any policy on Aboriginal addictions must be “understood contextually and entrenched in a comprehension of colonial treatment of Aboriginal populations, current governmental and political trends, and historic determinants” (de Leeu, S., et al. 2003). What is more, assuring cultural safety means that policy makers avoid further marginalisation of Aboriginal people by making policy *they think* is appropriate by involving Aboriginal people in both the development and implementation stages of the policy. Measuring support from Aboriginal stakeholders in the short term is difficult, as a series of negotiations are necessary between political actors. Acquiring a measure for the support among Aboriginal people for the cultural safety of policies was not part of this study, however, and we will revisit the issue of stakeholder support in the recommendation and implementation section.

This criterion defines a culturally safe policy for Aboriginal injection drug users as one that should be an integration of holistic and western practices. These practices should facilitate a continuum of care that includes both harm reduction as well as traditional and western resources to address the complex issues that perpetuate active addiction (Healing Ways, 1999).

Cultural safety will be measured with the following components. First, options will be assessed for providing services related to the four holistic components to Aboriginal health care, which are: spiritual health (for example, smudging, having Elders speak, and practicing culture); emotional health (allowing expression of feelings, and providing compassionate listening); mental health (assistance/support for achieving balance and self-esteem); and physical health

(providing information on achieving a healthy body, or to protect body from harm), (Saskatoon Aboriginal Women's Health Community Committee, 2004). Second, in combination with western styles of physical and mental health, a culturally safe policy should be able to address issues no matter what stage of healing the injection drug user is at. Therefore another measurement of cultural safety is its capacity to approach addictions through the lens of intergenerational trauma. Third, culturally "appropriate" care has been described as including "the physical structure of the environment, how a program or service is delivered and by whom, and it provides choices relative to how each person experiences culture." Thus the final measurement is the provision of services in a safe and calm environment (Vancouver Richmond Health Authority, 1999).

5.3 Political Viability

Political viability is a qualitative estimation of which groups and stakeholders are expected to accept or oppose the alternatives. The political stakeholders considered for this criterion are British Columbia's Ministry of Health, and the Red Road, an organisation representative of First Nations and Aboriginal AIDS service organisations in British Columbia.

It was decided that the *most* politically viable option would reflect objectives of the stakeholders. Objectives were derived from *BC's Priorities for Action in Managing the Epidemics—HIV/AIDS: 2003-2007* (2003), and a ground breaking document presented by Red Road and the BC Aboriginal HIV/AIDS Task Force entitled *Pathways to Wholeness* (BCAHATF, 2000). Three key objectives were gleaned from these documents because they mirror each other and are relevant to the policy problem. These objectives include reducing HCV and HIV infection, building the capacity of Aboriginal communities to address injection drug use, and improving surveillance of the HCV and HIV epidemics among Aboriginal peoples. For all concerned, reducing infection among all people must focus on prevention of HCV and HIV transmission, especially among those at highest risk for infection. For the Aboriginal population this is especially important for youth under 30 years (AHATF, 2000). Overall prevention and youth-specific prevention will be measured.

Knowledge transfer has recently been identified as an essential component of the evolution of harm reduction strategies (Jacobson, N., et al. 2005) and builds upon a community's capacity to manage injection drug use and infectious disease. The community in this case is Aboriginal drug users and service providers concerned with their drug use. Knowledge transfer is defined here as "a process by which relevant research information is made available and

accessible for practice, planning, and policy-making through interactive engagement with audiences” (Lavis, J.N., et al. 2005). The method is in high regard because it builds upon the knowledge within a community by sharing information to identify, understand, and discuss problems between, for example, injection drug users, program staff, and researchers. So, in the context of this criterion, knowledge transfer could happen when a drug user shares the reason why a particular program is not working with a service provider, and a service provider may share with an injection drug user some of the latest strategies or services available to maintain their health while using.

The last objective that will be used in the political viability criterion that is shared by both the province and Aboriginal organisations is to use “good science and careful monitoring” (Government of British Columbia, 2003) of HCV and HIV, as well as quantitative and qualitative social science research. To be sure, surveillance of HIV in particular among Aboriginal peoples is not up to par compared to non-Aboriginal surveillance (PHAC, 2005), and remains as a barrier to providing adequate prevention or treatment strategies. This is particularly true in Northern BC (Hume, 2005), and so it is a vital concern to the Province and Aboriginal communities alike.

5.4 Effectiveness

This criterion is central to evaluating the proposed alternatives, as it refers to the actual results they are expected to produce. First, the effectiveness of each alternative will be estimated by their projected success in closing the gap between daily or more opiate injectors and less than daily injectors—that is, bringing the daily or more opiate injectors into the category of less than daily, thereby reducing the harm they may cause. Next, options will be evaluated for how effective they are in addressing the issues revealed in the results of the quantitative component of this study and others (Spittal, P.M., et al. 2001). It was found that targeting female Aboriginal injection drug users is an essential sign of an effective strategy to address the policy problem.

Another measure of effectiveness is the policy’s capacity to reach people who have been fixing for more than one year because they were identified as being associated with high frequency opiate injection. Addressing career injection drug use is no simple matter, and the individual caught in a cycle of injection drug use without adequate intervention is at serious risk of HCV and/or HIV infection. The success of a policy’s ability to address career injection will be in its services that accommodate long-term, hard to reach injection drug users, and its capacity to provide harm reduction and/or use reduction services to them. What is more, to reach the

objective of prevention, the policy option will be evaluated on its ability to reach the injection drug users who have been injecting for less time and are on a course for long-term, career injection. At last, reaching high-risk groups is not a 9 to 5 job. An effective policy should be able to operate at odd hours to make a difference among injection drug users, in effect making contact with the user “where they’re at.” The effectiveness of the policy will be analysed qualitatively using projected estimates and considering similar policies along with their relative successes or failures.

5.5 Cost

The efficiency of cost is a monetary measure of how much of a financial burden each policy will be on the public purse. Using back-of-the-envelope, conservative estimations the cost of each policy alternative will be calculated. The highest-ranking alternative will use the least amount of money to achieve the greatest outcome. Expenditures ought also to facilitate long-term programming, but for the purposes of this study annual cost will be used. Included in the analysis will be resources necessary for all requirements of each policy, such as staffing salaries, capital expenditures, rents, resource requirements, maintenance and upkeep costs, and so on.

5.6 Evaluation of alternatives

The criteria and measurements described in Table 11 will be used in the analysis and evaluation sections of this study. Remember that the policy problem under review is that there are too many young Aboriginal injection drug users who are using opiates daily or more. The participants of the study are within cohort of Aboriginal people under 30 years of age, and who are surviving the best way they know how. In this study we looked at reasons why some of these individuals might be fixing at high frequency; our main concern is that injection drug use is highly correlated to HCV and HIV infection. We know that injection drug use is the primary mode of HIV transmission among Aboriginal peoples, and that Aboriginal injection drug users in BC are acquiring communicable diseases at a greater rate than non-Aboriginal injection drug users; the current reality shows the dire consequences of inaction. The hope is that the policy recommended for implementation will successfully reduce the number of people belonging to the daily or more opiate injection group, and therefore reduce their risk.

Opiate injection has been related to the desire to achieve numbness, to dissociate from reality, and to manage pain. The desired effects from opiate use are much the same as alcohol consumption, but addiction and poor physical and mental health happen much sooner; and injection of opiates (as opposed to smoking opiates) achieves that effect tenfold. Again, recall from the logistic regression we saw that years injecting, gender, living in Vancouver, stable housing, and having been on MMT before are highly associated with high frequency opiate injection. From further analysis we know that Prince George should not be left out of policy considerations. We also know that women are more strongly represented among sex workers, are more associated with a history of sexual abuse, and are more likely to fall into the HCV or HIV positive category. Again, it is important to take note of the particularly complex issues discussed here, and to acknowledge that no one policy will suffice to prevent this population from an HIV outbreak of epic proportions.

The options discussed in the next section are proposals to help alleviate the acute problem we see today. We first begin with a brief analysis of the status quo, to reinforce why it is not a viable option that will address the policy problem. Next we go into deeper evaluation of the AWP, mobile services for women, and finally Aboriginal drug user peer support groups.

5.6.1 Matrixes of scores

Recall that sub-section 6.1 provides a detailed explanation of high, medium, and low scores and their respective numeric equivalents. Table 13 summarises the numeric and high, medium, and low scores assigned to each policy alternative relative to each broad criterion. Table 14 in Appendix C provides a more detailed description of the scores in the high, medium, and low format. A brief summary of the implications of these scores and the study recommendation is given in Section 7.

Table 12: Summary of scores for policy alternatives

Criteria	Alternatives		
	Aboriginal Wellness Program	Mobile services for women	Aboriginal drug user peer support group
Cultural safety (40)	35 HIGH	20 MEDIUM	20 MEDIUM
Political viability (40)	10 LOW	30 HIGH	20 MEDIUM
Effectiveness (40)	25 MEDIUM	30 HIGH	5 LOW
Cost (40)	0 LOW	20 MEDIUM	40 HIGH
Total (160)	70	100	85

5.7 Status quo

The status quo was included in this study because it is important to measure what is currently in place to address the policy problem, and to not overlap policies that are working well. Injection drug use continues to be a problematic behaviour ostensibly not yet lessened by programs and services in Vancouver and Prince George. Although there are several programs addressing HCV and HIV prevention and surveillance, they have not yet brought about a reduction of incidence among Aboriginal drug users, and we are now witnessing a steady growth of prevalence in the Northern regions of BC. None of the services seem adequate to address the most significant factors of opiate injection in this study.

Perhaps aside from Insite, there are no programs that cater to long-term, career injection drug users. According to Cedar Project data, there are many Aboriginal injection drug users who have been actively injecting for several years and are currently injecting opiates daily or more; and, apparently, they have been missed by programs and services meant to reduce the amount of

harm they incur upon themselves and public health. Also, specialised treatments for female injection drug users are not present, nor are there specialised programs offering holistic health care specifically to injection drug users. And, while we wait for the Native Youth Centre to open its doors in Vancouver, the young Aboriginal people of the city and those arriving from the North continue to become involved in harsh and dangerous street life.

In conclusion, the status quo receives a medium rating for cultural safety, as the Aboriginal communities of Vancouver and Prince George work hard to address intergenerational trauma at the Friendship Centres and continue to strengthen their capacity for holistic service provision. For political viability the status quo receives a low score because although there are several research projects on behaviours in the DTES, there are few in the North, and the HCV and HIV prevention strategies are not working well enough to reduce transmission. From data discussed in this study, medium and long-term drug users are steadily increasing their chances of contracting HCV and/or HIV; meanwhile new injection drug users are steadily becoming more and more dependent upon regular fixing patterns to avoid withdrawal. Further, women are injecting opiates at higher frequency than men, a trend that is not being addressed explicitly by policies in Vancouver or Prince George. The overall effectiveness of the status quo is therefore low.

After evaluating it against the criteria, the status quo is clearly not an option that will bring about a reduction of high frequency opiate injection drug use among Aboriginal people in Vancouver and Prince George. Its services are helping alleviate the problems for which they were designed, however they are insufficient to provide use and harm reduction resources to hard to reach populations, including female Aboriginal injection drug users. The status quo was therefore excluded from further consideration in this analysis.

5.8 Aboriginal Wellness Program

5.8.1 Cultural safety

The AWP provides a continuum of care based on an Aboriginal holistic health model. Its services place great emphasis on spiritual wellness by reconnecting the client with healing traditions relevant to the individual's culture, rather taking a pan-Aboriginal approach (February 27, 2006, Interview). Thus the AWP receives a high score for spiritual health. Mental and emotional health components of the AWP also receive high scores because the agency employs a psychiatrist to assess mental well-being, and addresses the experience of trauma through

counselling and victim support. Despite it being under the VCH umbrella, the AWP has no physical component to its programming other than referrals. It therefore receives a low score for addressing the physical health of its clients. The Program receives a high score for explicitly addressing the Legacy of residential schooling in sharing circles, and another high score for its serene, discreet, and confidential environment that is equipped to facilitate traditional healing methods. Overall, for cultural safety the AWP receives the highest score of 35 points.

5.8.2 Political Viability

Although the AWP receives the majority of its support from VCH and was part of public consultation before it began (February 27, 2006, Interview), it is not a specific service to prevent or reduce HCV or HIV among injection drug users. The AWP specifically addresses underlying issues related to substance abuse, but it is not a communicable diseases prevention program. It is for this reason that the AWP has a low score for HCV and HIV prevention. Knowledge transfer about injection drug use and current trends on the streets of Vancouver and Prince George may happen from user to AWP provider, but the relationship may not be reciprocal beyond referrals to other agencies for different services. Despite this, there is substantial capacity building generated by the AWP as its employees are nearly all of Aboriginal descent (February 27, 2006, Interview). Consequently, the option is given a medium rating for knowledge transfer on harm reduction. There is plenty of opportunity for surveillance of social trends and phenomena among clients of AWP and the facility is well equipped to manage longitudinal studies, but it is not equipped to handle epidemiological surveillance of HCV or HIV. It therefore has a medium score for surveillance. Although there are younger clients at AWP, there is no youth specific programming, and so it receives a low rating for youth components. In total, AWP receives a low score for political viability.

5.8.3 Effectiveness

For the most part, AWP services are centred on women (70 percent) but there are also components designed for men (February 27, 2006, Interview). Although we do not want to overlook men's health, AWP receives an intermediate score for targeting women's issues because in this study we are mainly concerned with women who are active injection drug users. The Program receives a high score for reducing the number of times an opiate injection drug user fixes per day, as the addictions counselling combined with spiritual and emotional support given to clients without pressure to quit fits well into therapeutic harm reduction. Outreach to the

clients' home may be an adequate way to address binge injection but only so long as the client has a home and a telephone to ask for the service. Further, when an individual is fixing with opiates in regular patterns for a long period of time, they are not likely to reach out for help until their behaviour temporarily stops. The key to reducing harm to that user is to reach them while they are actively using and provide them with means to protect their health. The AWP requires the user to have not used that day (February 27, 2006, Interview), which may not be feasible for the chronic opiate injection drug user. Further, it does not provide services such as safe injection instruction or clean syringes onsite. But, AWP receives a medium score for services that address long-term injection drug use because it offers use reduction addictions services. The AWP is open from Monday to Friday, from 8:30 a.m. to 4:30 p.m., and is closed for an hour during lunch. Its total number of available hours per week to the injection drug user is 35 hours, giving it a medium level of accessibility.

5.8.4 Cost

This option requires the space and resources (computers and office furniture to accommodate 5 employees and their clients) in the DTES as well as an entirely new operation in Prince George. Establishing the smaller AWP satellite office in the DTES was roughly, yet conservatively estimated and should be considered as a guideline only. Prince George requires that the Northern Health Authority provide funding for 11 employees including counsellors, a psychiatrist, and administrative staff; this is in addition to funding for space and resources. In addition to this venture, a contracted strategic planner would be required to properly implement the Program. The estimate of what the cost to establish a new AWP in the DTES and in Prince George is based upon the only available data from 1999. The estimates are found in *Healing Ways*, the document that spurred Vancouver's AWP.

- 1 × 1 year of rent in commercial space in Vancouver's DTES = \$12,000
- 5 × Dell Dimension 9150 PCs (including taxes) = \$8,031.30 (Dell.ca, 2006)
- 5 × large workstations, heavy duty office chairs, 10 × visitors' chairs, 1 × set lounge area furniture (including taxes) = \$5,908.62 (Ikea.ca, 2006)
- Half of original AWP base cost to establish smaller, third branch of AWP in Prince George, + 1 contract for Strategic Planner of Prince George branch = \$683,000 (Vancouver Richmond Health Board, 1999)
- Total estimated cost of AWP alternative = **\$708,939.92**

In conclusion, the AWP alternative has the *highest* overall cost compared to other policy options, and thus has a low score for the cost criterion.

5.9 Mobile services to women

5.9.1 Cultural safety

It will be difficult for the mobile services to women to deliver complete holistic health services to women. The vans rate highly for provision resources for physical health (condoms, clean rigs, sexual health information). But it has a medium rating for emotional health because although the van fosters the connection to female outreach workers as well as other sex workers, it is limited due to space in the van. The mobile service receives a low rating for spiritual and mental health components because the scope of this program would likely be limited to referrals to such services. This alternative is perhaps the least capable of providing residential school information to Aboriginal injection drug users because of the street location of the van's services. Because the van provides a confidential, albeit small and mobile, safe haven to sex workers and female drug users with direct contact to compassionate outreach from Aboriginal women, the alternative has an intermediate rating for providing a serene environment.

5.9.2 Political Viability

The political viability of the mobile service to women meets the mutual interests of the province and Aboriginal peoples well. Key prevention strategies employed by this alternative include distribution of condoms and sterile rigs to women who are at high-risk. What is more, because of the alternative's mobility, these resources can better reach the drug user "where they're at," and women from prevent using "dirty" needles while dope sick, or engaging in unsafe sex because of difficulty getting condoms at odd hours. By accessing these safety commodities, perhaps while dope-sick, female injection drug users and sex workers can better protect themselves from HCV or HIV infection. The alternative does not have specific components to target youth beyond referrals; therefore it has a low rating for youth strategies. The van's outreach would be devoted entirely to women, its workers would be female, and so it scores is highly for its focus on gender.

This alternative rates highly for knowledge transfer, because the women will be able to enter the mobile service van, have a seat, a cup of coffee, and converse with the staff. This point of contact is essential for the transfer of information on how the women are faring outside or what they need, and for staff to give referrals or information on safe injection or safe sex. Surveillance

may be somewhat difficult in the van because there are several activities going on within the mobile service. Engaging in lengthy interviews or filling out surveys and maintaining an acceptable level of confidentiality will not be as easily done compared to a fixed site. But, the program does have the ability to recruit women to participate in research; and, as was done with the SWISH program, it can generate small surveys for program evaluation, and blood and/or pregnancy testing can be carried out by the nurse on board. The option has a medium surveillance rating, but, overall, the option has a high degree of political viability.

5.9.3 Effectiveness

The mobile services for women rates lower than the other options for reducing the number of times per day young Aboriginal people inject opiates. The reasoning is that the primary function of the van is harm reduction, and the secondary function is referrals to services that may provide assistance with use reduction. It is important to note that there is no evidence to say that harm reduction encourages high frequency injection (Kerr, T., et al. 2006; Elliott, R., et al. 2005). Nevertheless, this option will work best in response to the acute needs of the user and to a lesser extent to the users' rehabilitation. This alternative exclusively targets women at high-risk, hence it rates highly for effectively reaching the population of Aboriginal women. The alternative has a high score for targeting injectors who have been injecting regularly for 1-4 years or longer. Again this is because of mobility: the van can be in places where drug users are at, and thus, supplies for prevention and protection are more readily available. Moreover, the injection drug user who has been injecting for less than a year will be accessed easier with mobile services and given information or referrals that may be instrumental in reducing the likelihood of transition into frequent and long-term opiate injection drug use. Finally, this alternative has a high score for accessibility because, in this study's design, it will run for a total of 72 hours per week. In total, the mobile services for women option is a highly effective policy alternative.

5.9.4 Cost

Mobile services for women in Vancouver and Prince George requires two vans, and, as with the SWISH program, it will need three workers (2 outreach workers, and 1 community nurse) per van. The costs of altering the vans to make them more suited to operate as a mobile clinic of sorts is considered, as well as the cost of petrol and maintenance. The van chosen for this option is an industrial-type cargo vehicle, with an extra high roof (to accommodate people

entering its rear) and an extra wide wheel base. The following costs are included in the analysis of this alternative to gain an approximate price of the alternative.

- 2 × 2006 Dodge 3500 Sprinter Cargo Vans (2.7L Inline 5 engine, 5 speed automatic) with extra high roof, power locks, additional parabolic mirrors, and rear backup alarm (including taxes) = \$121,022.40 (Dodge Canada, 2006)
- Estimated cost for custom alteration of vans = \$10,000
- If approximate distance travelled per day is 100 km, then at \$0.897 per litre of petrol (GasTips.com, Average gas prices in East Vancouver, February 26, 2006), in consideration of their fuel economy, the estimated price for one year of fuel for the two vans = \$9060.48
- Annual salaries for 2 nurses = \$84,000 (Ty's Career Guide Weekly, 2006)
- Annual cost for wages to 4 outreach workers = \$111,312 (Ty's Career Guide Weekly, 2006)
- Total estimated cost of mobile van alternative = **\$335,394.88**

In conclusion the mobile services to women alternative has a medium range cost compared to the other two alternatives.

5.10 Community of injection drug users: WAHRS

5.10.1 Cultural safety

The purpose of WAHRS in the organisation's constitution is "to recover a holistic traditional philosophy, to reconnect with our spirituality and culture, and to infuse our politics and our relationships with traditional values" (WAHRS, 2002). WAHRS strives to adopt holistic methods, and two of its members affirmed their plan to utilise traditional healers and to invite Elders to speak at WAHRS meetings (February 22, 2006, interview). Using the peer education, or, mentorship model, where newer, younger members are paired with older more experienced members to share information, this system of harm reduction is said to empower injection drug users to help themselves stay healthy. A sense of community spawns out of the relationships based on caring for one another. Spiritually then, this option has a high rating. Because it helps develop connections between users, but cannot guarantee compassionate connections, the option has a medium rating for emotional health. As of February 2006, WAHRS does not have scheduled programming or permanent staff to address physical and mental health issues (such as a nurse, counsellor, or psychologist) and, as a result, this option rates low in these categories of holistic health. WAHRS does have a good (medium) ability to provide information on the Legacy

and the effects of intergenerational trauma through guest speakers. With proper funding, the organisation's environment could be made to reflect Aboriginal culture, however, because there are no hired outreach or counsellors in the WAHRS alternative it is uncertain whether a serene, healing environment is possible in the context of a drug user support group. Thus, the environmental stability that WAHRS could provide has a low rating. In total, WAHRS receives a low score for cultural safety.

5.10.2 Political Viability

Harm reduction is part of the provincial and municipal strategy to reduce HCV and HIV transmission in BC, and it is obviously integral to the purpose of WAHRS. The organisation's *raison d'être* is to empower Aboriginal drug users to have a say in the political agenda and in doing so take their health into their own hands. There is no purpose statement in the WAHRS constitution that applies to HCV or HIV prevention, but the organisation has the *potential* to operate at a level that VANDU has achieved and create sub-groups for people in MMT, a safe injection group, or its very own NEP. At its highest potential, WAHRS could expand prevention methods to drug users whom ordinary client-provider systems fail to reach (CHALN, 2006). Although WAHRS has this potential, its capability of delivering HCV and HIV prevention services is not certain at this point. WAHRS is rated at medium level for HCV and HIV prevention because the community of peers may or may not achieve this criterion.

WAHRS rates high for knowledge transfer, as one of its purposes is to "ensure that a voice for people who are Aboriginal who use illicit drugs is empowered, strengthened and heard" in matters that have the most impact on their well-being (WAHRS, 2002). Surveillance will ultimately be authorized or declined to take place within the WAHRS environment by its members through a democratic decision-making forum. The option is given a medium rating here because the nature of the organisation is community-oriented, and will be more likely to be capable in having social science research conducted amongst its members rather than epidemiological research. When asked in the interview if WAHRS would be able to accommodate youth in its breadth of operations, the Society members stated that typically there are few young Aboriginal drug users who attend the meetings, and so making such a group would not be a priority. For this reason a low rating was given for Aboriginal youth strategy. Overall, the political viability of WAHRS is at an intermediate level.

5.10.3 Effectiveness

It is difficult to say how effective this option would be in reducing HCV and HIV in British Columbia overall. WAHRS could clearly be an important political body that facilitates good policy making through knowledge transfer (CHALN, 2006), but how well it will fare in addressing the acute needs of women who are injecting opiates daily or more is questionable. There is no group within VANDU or WAHRS that has specific programming for women, and so at this point the option has a low rating for gender considerations. There is no evidence to suggest drug user peer support groups reduce the number of times that members inject per day. Despite good work and ongoing efforts to reduce discrimination while increasing awareness within communities, WAHRS effectiveness in reducing injection is still uncertain; so, using this criterion it receives a low score for both effectiveness in helping opiate injectors switch from daily or more to less than daily injection. Likewise, WAHRS would have frequent interaction with medium and long-term injection drug users and the opportunity to offer information on safe injection practices. It receives a medium rating for specific services to long and short term injectors because it does give valuable information to protect the health drug users, but it does not offer service for use reduction. If given the funding to operate at a reasonable level, like VANDU, WAHRS could be open for 30 hours per week, but given that it is a smaller organisation and a sub-group of VANDU, as an estimate, it would more likely to be in operation for 24 hours per week. This puts the option in a low level of accessibility compared to the other options discussed. Overall, WAHRS receives a low rating for effectiveness.

5.10.4 Cost

The 2003/05 budget given to WAHRS for full operation was \$25,000, and according to its members the amount was “enough to hang (themselves) on,” (February 22, 2006, Interview) as it gave them limited ability to make an impact within the community beyond hosting weekly peer support meetings. For maximised effectiveness, the funding should also be able to support a Program Coordinator who believes in the voice of the users, who will oversee WAHRS activities and manage operations on behalf of its members (Kerr, T., et al. 2001). To increase its breadth and effectiveness, this option suggests that for both Vancouver and Prince George, WAHRS be funded 1.5 times more than the original grant, plus a budget to hire a Program Coordinator. The funding scheme is as follows:

- 2 × 2 year grants = \$74,000

- 2 × 2 Program Coordinator positions, paid \$18.50/hour (Ty's Career Guide Weekly, 2006), for 50 weeks per year = \$44,400
- Total estimated cost of Aboriginal drug user support group option in Vancouver and Prince George = **\$118,000**

In conclusion, supporting an Aboriginal drug user support group in Vancouver and Prince George rates highest for having the lowest cost.

6 Summary

This study makes clear that more work needs to be done to reduce high frequency opiate injection among young Aboriginal people. Current policies and programs of the status quo are not sufficient to address the issue, if they were, we would not be witnessing the disturbing trends of injection drug use, HCV, and HIV incidence we see today among Aboriginal peoples in BC.

This section summarises where the AWP and drug user support group options fell short, and why mobile services for women had the highest score. To recapitulate, our four objectives were to reduce the number of times opiate injectors fix; to develop culturally appropriate and gender specific alternatives to mainstream harm reduction strategies for Aboriginal injection drug users; to address underlying issues of opiate addiction among daily or more injectors; and to reduce the incidence of HCV and HIV among Aboriginal injection drug users in British Columbia. Section 6 followed by section 7 which suggests areas of further research and outlines suggested steps to implement mobile services to women.

- The Aboriginal Wellness Program provides an impressive array of integrated services to clients with mental and emotional problems including addictions and trauma. The Program is attractive because it works on underlying issues of substance abuse, and because of its protection of Aboriginal values while it builds the capacity of Aboriginal service providers. The Program fell short in its applicability to this study's particular policy problem because although it offers addiction services for use reduction, it does not provide practical harm reduction services required to slow or halt communicable disease transmission via injection drug use. That is not to say that this Program can or will not provide these services in the future, but as of now the Program falls short in this vital facility. The final reason why the AWP alternative failed to outweigh the other options because it is the most costly to implement.
- The Western Aboriginal Harm Reduction Society is an important political body that provides a sense of community to its members in Vancouver. The spiritual and emotional gains made by having association with WAHRS should not be understated, nor should its potential in giving Aboriginal drug users a voice in decision-making that affects them. The WAHRS option would be the most inexpensive to support, however, it falls short on

several fronts because to-date it has no programming for mental or physical health, or for women and youth. WAHRS activities do provide services that inform injection drug users on safe injection practices and survival on the street, but they are not sufficient to reduce injection drug use. And to-date, WAHRS does not appear to have the ability to reduce HCV and HIV infection in Vancouver. Finally, WAHRS' accessibility is limited to fewer hours per week than the other options.

Summary of recommendation

Those injecting daily or more are doing so because they have been actively injecting drugs for several years, they also tend to binge on drugs for periods of time. And more often than not, frequent opiate injectors are women. Upon further analysis many of these women may be involved in sex work. Also, daily or more opiate injectors are more likely to have tried MMT, but for some reason have returned to high-risk behaviours. More investigation into the finding that says frequent opiate injectors live in stable conditions should be studied further.

Mobile services to women received the greatest criteria score overall, and it is therefore this study's recommendation.⁸ Considering the findings of the logistic regression, this option is an innovative method to reach female injection drug users "where they're at," whether that is on a street corner or in an apartment building. The vans provide an opportunity to make the vital point of contact with street involved women, with the primary purpose of meeting their needs for safe injection drug use and referrals to counselling, or other services. Although it was not part of the criteria, the vans have the unique potential to administer MMT. This potential should be investigated further.

Despite its relatively low score for cultural safety, the mobile services option is designed to operate for many hours per week in both cities and to be operated by trained Aboriginal staff. The option received high ratings for political viability because it seeks to prevent HCV and HIV transmission among those who are most seriously addicted and have been using for several years at a time, and there is some opportunity for surveillance. What is more, the van may be successful in accessing young Aboriginal users who are relatively new to injection drug use and who are on the brink of high frequency injection.

The mobile services to women alternative fits well into the harm reduction framework, because it facilitates knowledge transfer between users and the van staff. The mobile van is for

⁸ Please see Appendix E for description of van from Dodge Canada.

women only, and can access women who are bingeing on drugs easier than an immobile program. The long-term outcome from the vans should be a reduction in HCV and HIV transmission among Aboriginal injection drug users.

7 Further Recommendations and Suggestions for implementation

In this section some recommendations are made for future implementation and further study. These recommendations are based on findings from the logistic regression that bring about more questions and should therefore be studied further. They are also based on the attributes of policies not recommended by this study for immediate implementation, but should however be investigated for future implementation. This study recommends implementing mobile services to women. Suggested steps to implement this policy are given following the additional recommendations.

7.1.1 Make MMT more available

This study found a weak association between high frequency opiate injection and having ever been on MMT. This indicates that many of the study participants have not been given MMT to manage their opiate addiction. MMT is a standard method of harm reduction as it gives users an oral dose of an opioid and circumvents HIV infection via needle sharing. Although MMT has shown positive effect in reducing addiction and infectious disease, the treatment has several drawbacks including sharp withdrawal symptoms that some suggest are worse than heroin withdrawal and an apparent inability to reduce HCV among young injection drug users (PHAC, 2001; NAOMI, 2005).

7.1.2 Investigate stable housing and injection drug use

A strong predictor of high frequency opiate injection was found to be stable housing. Investigation into this trend should be done to understand the difference stable housing makes in a chronic injection drug user's patterns of using. Insite was developed in Vancouver to offer drug users an alternative to injecting drugs publicly, however, from this data it seems that there are many injection drug users behind closed doors. Accessing these users and assuring their health may be a priority, depending upon further research.

7.1.3 AWP in Vancouver's DTES and Prince George

The AWP not only provides services in a culturally safe manner to facilitate healing, but it also works to re-build the damaged relationship between health care providers and Aboriginal communities. It does this by acting as a liaison between VCH, the Aboriginal community, and Aboriginal service providers. This option fell short because it does not sufficiently address the policy problem at hand; even so, the value in making such services accessible to people in the DTES and downtown Prince George gives them another alternative to opiate use for pain management. Moreover, the Program does not ask drug users to abstain while undergoing treatment; rather, it seeks to address underlying issues that propel the individual to escape from their own reality in order to empower them to make healthier choices for themselves and others. This option was the most expensive. It is therefore suggested that a cost-benefit analysis of providing such a service in the DTES or Prince George versus not providing the service be done to provide evidence that expanding the AWP is a cost-efficient venture for the Province.

7.1.4 WAHRS in Vancouver and Prince George

On their own accord, WAHRS was developed for Aboriginal drug users by Aboriginal drug users. The organisation has high hopes to make its mark in BC. Indeed, it has several parts that when put together in a stable environment, create a sophisticated, culturally safe peer support program; but, without adequate funding, WAHRS may never achieve its full potential. The Vancouver organisation needs institutional support to run its own affairs and achieve sustainability. With added components to confront other shortcomings, WAHRS would certainly be an asset to Vancouver. Further, the absence of peer support for any and all drug users in Prince George speaks to the alienation and isolation that perpetuates discriminatory and indifferent policy and treatment toward drug users in the North. Social isolation coupled with racism creates massive barriers to healing and are powerful mechanisms for substance abuse to continue from generation to generation. Having a voice is a freedom taken for granted among socially included people; and since harm reduction is based upon human rights, it follows that entrenching support for WAHRS into the Provincial agenda should be made a priority.

7.2 Suggested implementation strategy

This study recommends that the Vancouver Coastal Health Authority and the Northern Health Authority provide a budget to implement mobile services for women in Vancouver and Prince George. Although the city of Vancouver was singled out in the data analysis as most

problematic, the Northern city of Prince George is experiencing an influx of injection drug use and, as a direct result, an increase in HCV and HIV. The mobile services will provide much needed harm reduction and a compassionate outreach services to women at high-risk of HCV and HIV infection. In this section the importance of collaboration and overcoming jurisdictional barriers is discussed, and then steps for implementation of the mobile services to women are suggested. In the section that follows, further recommendations are made.

Implementation of mobile services for women cannot be done without collaboration and partnerships between governments as well as approval among social-political actors, including Aboriginal health services and advocacy organisations. Alliances with decision makers and representatives of Aboriginal communities are essential for restore the relationship between government and First Nations. The potential of partnering and collaboration between political actors and institutions is vital for implementing policy aimed at vulnerable groups of Aboriginal peoples.

In Aboriginal health policy, policies are often developed in the precarious context of cooperation between federal, provincial, and municipal governments as well as Aboriginal band councils. Historically, the jurisdictional boundaries of each level of government, or, in the case of Aboriginal band councils, the sovereignty of authority, have presented challenging barriers to approaching issues such as communicable disease in an efficient manner. Indeed, jurisdictional issues are notorious for making off-reserve Aboriginal policy confounded and ineffectual, especially in the field of health care, and particularly in the field of HIV/AIDS (Matiation, S., 1999). For the purpose of writing policy for a population of young Aboriginals living in Vancouver and Prince George, it will be assumed that issues of jurisdiction will be overcome by the precedent agreements or strategies of cooperation and collaboration between governments that are currently in practice.⁹

⁹ For example, in response to the disparity of health and other outcomes, and the inability of the Non-Insured Health Benefits policy to fill gaps among urban Aboriginal peoples, the federal government has taken steps to provide funding for health programming for off-reserve Status Indians. One approach to overcoming jurisdictional barriers is the Urban Aboriginal Strategy (UAS). The UAS provides funding for the Greater Vancouver Urban Aboriginal Strategy; it deals with issues related to health, the arts, housing, and education. The city of Vancouver has also taken steps in the so-called Vancouver Agreement to address issues related to the DTES, including youth at-risk as well as gender issues. The Agreement aims to work in partnership with all levels of government for better policy outcomes (British Columbia, 2000). The 2001 National Health Summit in Prince George identified jurisdiction as a major issue that puts people's health at risk, namely urban Aboriginal peoples. The Summit resolved to overcome jurisdictional barriers for more coordinated, efficient delivery of health care to eliminate gaps between Aboriginal and non-Aboriginal peoples (2001). Finally, urban programs run for and by Aboriginal people play a vital role in making effective policy, which is why partnerships between these organised bodies and the three levels of

Steps for effective implementation

The following suggestions regarding steps for implementation come from the Red Road HIV/AIDS Network *Implementation Guide* (2001), *Research Methods for Policy Evaluation* (Purdon, S., et al. 2001), and some were inspired by the Cedar Project and Dr. Patricia Spittal.

7.2.1 Secure partners in Aboriginal community

- Clearly acknowledge that Aboriginal partnerships are key to successful, culturally safe policy for Aboriginal health
- Create specialised proposal to Aboriginal Chiefs, Councils, social services, health services, and other key Aboriginal stakeholders
- Tailor policy to knowledge gained from knowledge transfer of best practices
- Accommodate requests, viewpoints, and specifications made by Aboriginal partners to enhance the effectiveness and the cultural safety of the mobile services to women in Vancouver and Prince George

7.2.2 Host a community workshop

- Assemble important partners and collaborators to a community workshop for full consultation on the implementation strategy of mobile services to women in Vancouver and Prince George
- Invite representatives of AIDS service organisations, drug users, Aboriginal Chiefs and Councils, Aboriginal social services, representatives from Native Friendship Centres, women's group representatives, youth group representatives, and law enforcement
- Presentations made on the mobile services for women, followed by open forum discussion and debate about key implementation issues/concerns

7.2.3 Train necessary personnel

- Assure that the majority of people hired to work on the mobile services to women are Aboriginal peoples
- The key issue here is to make the option an opportunity to build upon the capacity of Aboriginal services

7.2.4 Carry out excellent scientific investigation

- Train Aboriginal staff to ethically gather data and interpret findings

government is essential. Partnerships between Aboriginal governments and health authorities are becoming more common, however a relationship of transparency and open communication is not so common.

- Coordinate with project partners to transcribe findings and disseminate knowledge for advocacy and funding for expansion or for other projects
- Invite graduate students to partake in research and publish findings

7.2.5 Conduct program evaluation

- Analyse program data to determine if the van is successfully providing services to the target population Aboriginal women
- Formative evaluation to decide what needs to be done to improve the service
- Ask if the program creates any other additional positive outcomes or externalities
- Ask if there has been any deadweight loss (the number of program recipients who would have gained the same positive outcome without the mobile van)

This section provided several suggestions that will help the process of implementing mobile services more easily within Vancouver and Prince George communities. The mobile services will provide services to women in great need of resources and referrals, who may otherwise be missed by stationary programs. The resources may provide women with the means to protect themselves from HCV and HIV infection, whether it is with information, clean rigs, or referrals to service providers that can help begin the process of behavioural change.

Appendices

Appendix A: Selected questions used in study from Cedar Project questionnaire

1. Have you ever injected drugs (yes/no)
2. When you were using which of the following injection drugs did you regularly inject and how often? (heroin, cocaine, heroin and cocaine, methadone, morphine, crystal methamphetamine, Talwin and Ritalin, other)
3. In the past 6 months, did you go on runs or binges when you injected drugs more than usual? (yes/no)
4. In the past 6 months, did you go on runs or binges when you smoked drugs more than usual? (yes/no)
5. Have you been fixing on a regular basis without stopping? (if yes, how long? If no [stopped and started], how long?)
6. Have you ever been forced to have sex against your will and/or been molested? (no/yes/unsure or can't remember/prefer not to answer)
7. After this happened (i.e. the first time) have other people forced you to have sex with them? (no/unsure or don't remember/yes)
8. What are your other sources of income? Non-legal sex trade? (yes/no)
9. What was your biological gender at birth?
10. Location of interview.
11. What is your date of birth?
12. Where do you live right now?
13. Have you ever been in a methadone maintenance program?
14. Have you ever been in a prison, jail, or detention centre overnight or longer? (unsure/no/yes)
15. HIV serostatus [blood test]
16. HCV serostatus [blood test]

Appendix B: General questions used for Elite interviews

1. How many people does your program serve?
2. From where does your program receive funding?
3. Of the people that you serve, how many are Aboriginal?
4. Does your program use harm reduction strategies?
5. What are some of the harm reduction strategies/policies employed by your program?
6. What type of programming or policy do you think would best help heavy injection drug users reduce the number of times they fix?
7. How could these programs better reach young Aboriginal injection drug users?
8. Are there programs that would better reach female Aboriginal injection drug users?
9. Would you say that your program receives adequate funding to address the issues you see day to day among injection drug users?

Appendix C: Logistic regression of daily or more opiate injection with sample of injectors only

Table 13: Daily or more opiate injection (injectors only)

Variable	Model			
	I	II	III	IV
Not Sexually Abused	0.977 (0.944)	1.061 (0.875)	1.076 (0.853)	1.020 (0.962)
Not Revictimised	0.910 (0.798)	1.216 (0.635)	1.244 (0.618)	1.265 (0.594)
Income from Sex Trade	2.275 (0.004)	1.488 (0.258)	1.482 (0.290)	1.555 (0.244)
Binge Drug Use	2.343 (0.005)	2.249 (0.014)	2.420 (0.009)	2.478 (0.008)
Vancouver		2.130 (0.020)	2.160 (0.024)	2.257 (0.019)
Age		1.536 (0.166)	1.176 (0.624)	1.192 (0.601)
Female		4.487 (0.000)	3.618 (0.004)	3.589 (0.004)
Unstable Housing		0.419 (0.007)	0.436 (0.013)	0.442 (0.015)
Not High School Graduate		1.342 (0.443)	1.285 (0.535)	1.247 (0.588)
Been in Jail/Prison		2.510 (0.011)	1.713 (0.163)	1.715 (0.165)
Years Injecting (1-4 years)			1.857 (0.138)	1.907 (0.132)
Years Injecting (5+ years)			3.582 (0.003)	3.803 (0.004)
Methadone Treatment			1.935 (0.067)	1.944 (0.066)
HCV Positive				1.025 (0.946)
HIV Positive				0.708 (0.463)
Final Log Likelihood	329.383	289.737	272.18	271.637
Pseudo-R2	0.093	0.268	0.337	0.339
Percentage Correct	67.2	74.8	74.1	74.500

Bracketed values are unstandardised beta values.
Values not in brackets are exponent beta values.

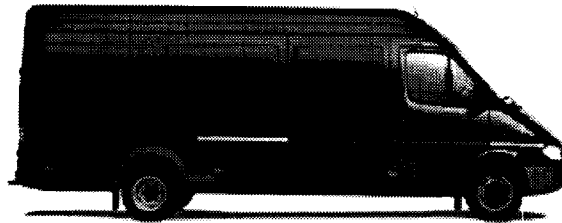
Appendix D: summary of values and scores awarded to policy options

Table 14: Summary of high, medium, and low scores awarded to each alternative

Criteria	Alternatives		
	Aboriginal Wellness Program	Mobile services for Women	Aboriginal drug user peer support group
Cultural safety (40)			
▪ Spiritual	High	Low	High
▪ Mental	High	Low	Low
▪ Emotional	High	Medium	Medium
▪ Physical	Low	High	Low
▪ Addresses trauma/Legacy	High	Low	Medium
▪ Stable environment	High	Medium	Medium
Political viability (40)			
▪ HCV/HIV prevention	Low	High	Medium
▪ Knowledge transfer	Medium	High	High
▪ Surveillance	Medium	Medium	Medium
▪ Youth focus	Low	Low	Low
Effectiveness (40)			
▪ Specific to women	Medium	High	Low
▪ Shift >daily to <daily opiate IDU	High	Low	Low
▪ Targets time of injection with harm and use reduction	Low	High	Low
▪ Hours of access per week	Medium	High	Low
Cost (40)			
▪ Economic efficiency	Low	Medium	High
Numeric score (160)	70	100	85

Appendix E: Description of van for mobile services for women

2006 Dodge 3500 Sprinter Cargo Van 4013-mm (158-in.) WB (High Roof)



PRICING INFORMATION

Base MSRP: 48,445.00

Options: 1,185.00

Colours: 1,280.00

Destination: 1,990.00 A/C Excise Tax: 100.00

Sub Total*plus taxes: \$53,000.00

(<http://www.dodge.ca/en/sprinter/>, 2006)

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