Assessment of the Prevalence of Bloodborne Pathogens and Associated Risk Behaviours Among Men who Have Sex with Men and Women who Have Sex with Women In Winnipeg, Manitoba

by

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A Thesis submitted to the Faculty of Graduate Studies of
The University of Manitoba
in partial fulfilment of the requirements of the degree of

MASTER OF SCIENCE

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Assessment of the Prevalence of Bloodborne Pathogens and Associated Risk Behaviours Among Men who Have Sex with Men and Women who Have Sex with Women In Winnipeg, Manitoba

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Of

Master of Science

Abstract

Statement of the problem: Men who have sex with men (MSM) are a high-risk group for HIV infection. Women who have sex with women (WSW) may be at elevated risk for HIV from male sex partners.

Methods: The 'M-Track' HIV surveillance study of MSM was conducted in Winnipeg, Manitoba. A pilot study was undertaken concurrently to assess HIV risk among WSW. Convenience samples of MSM and WSW were surveyed concerning HIV risk behaviours and tested for HIV, hepatitis C, and syphilis.

Results: MSM and WSW surveyed reported inconsistent condom use and high rates of injection drug use and sex trade involvement. Prevalence of blood-borne pathogens was high among both groups. High rates of response error suggested difficulty in survey participation among both groups.

Conclusions: The samples of MSM and WSW reached may represent a high-risk subset of MSM and WSW. Study methods may be improved to better invite and be appropriate for diverse participants.

Acknowledgements

First, I would like to acknowledge the generous financial support of the Canadian Institutes of Health Research, the Western Regional Training Centre for Health Research, and the University of Manitoba. It is a high honor to represent these institutions through my research.

A million thanks go to my Master's Thesis supervisor, Dr. John Wylie, for his guidance and input and attitude. I would like to further express my gratitude to Dr. Carole Beaudoin and Horst Backé for serving on my MSc. supervisory committee. I appreciate so much the time and thought you have contributed to my project.

A very special thanks to the members of Hepatitis Services at the BC Centre for Disease Control for their moral support and for their generous provision of a space to work. Many special thanks to Amanda Yu for her statistical advice on my project, to Maria Alvarez for hashing out ideas with me, and to Ciro Panessa for listening to me gripe a couple of times. Thank you so much guys.

I would like to come up with a new word to thank Dr. Warren Hill for his considerate reviews of my drafts. *Me has ayudado mucho. Estoy agradecida por el regalo.*

Finally, Jules, thank you for coming home all those times I was at the kitchen table. Thanks Mom and Dad, for your awesome support throughout my many years of school. (And thanks for eating an egg and an orange every day in months eight and nine, Mom).

To Mia

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GLOSSARY OF ABBREVIATIONS

Ct	Chlamydia Trachomatis
Gc	Neisseria Gonorrohoeae
HCV	hepatitis C virus
HIV	human immunodeficiency virus
IA	insertive anal intercourse*
IDU	injection drug use
MSM	men who have sex with men
RA	receptive anal intercourse*
STI	sexually transmitted infection
UAI	unprotected anal intercourse
UNAIDS	United Nations Joint Programme on HIV/AIDS
WHO	World Health Organization
WSW	women who have sex with women

*Denotes abbreviation used in tables only.

1. INTRODUCTION

1.1. Scope

This thesis reports the results of two studies undertaken in Winnipeg, Manitoba, between November, 2006, and March, 2007. The first of these studies is the Winnipeg M-Track study, one of several second-generation human immunodeficiency virus (HIV) surveillance studies of men who have sex with men (MSM) organized at selected Canadian sites by the Public Health Agency of Canada (PHAC). The second is a pilot study of women who have sex with women (WSW) initiated by Manitoba Health, which used a modified version of the PHAC M-Track questionnaire to assess HIV risk among WSW, an understudied and potentially high-risk group in the Winnipeg setting. The objectives of the thesis are the following: 1) to explain the concept of second-generation HIV surveillance, 2) to review and to give a rationale for the risk indicators for HIV and sexually transmitted infections (STI) used in behavioural HIV surveillance, 3) to summarize the rationale for the PHAC M-Track study in Canada, 4) to summarize the rationale for undertaking a pilot study of WSW in Winnipeg alongside a larger study of MSM, 5) to report the results of an analysis of selected measures from the MSM and WSW questionnaires, 6) to discuss the implications of the Winnipeg M-Track study and the pilot study of WSW.

1.2. Second-generation HIV Surveillance

In 1996, the WHO and UNAIDS formed a Working Group on Global HIV/STI Surveillance with the aim of strengthening global and regional systems for

monitoring HIV, AIDS, STI and related risk behaviours. At that time, most HIV surveillance systems followed guidelines developed by the WHO Global Programme on AIDS in the 1980s [1]. By reviewing surveillance systems in place in the late 1990s, the WHO/UNAIDS working group identified strengths and shortcomings of the methods first developed to accomplish surveillance goals. The purpose of HIV surveillance systems is to describe trends in HIV infection, to determine which population sub-groups are most affected and most at-risk, to monitor the impact of the HIV/AIDS epidemic, and to assess the effectiveness of prevention and control programs. While systems based on sentinel serosurveillance (e.g., screening for HIV infection among pregnant women) and case reporting methods in place in the 1990s were deemed to be successful in raising awareness of HIV/AIDS, promoting a targeted public health response, and monitoring the epidemic, several areas of weakness were highlighted. Specifically, surveillance systems in place in the 1990s lacked a source for behavioural data, data to describe HIV-risk behaviours that may serve as a marker for increasing rates of infection. Existing systems also made little use of ancillary sources of data, such as reported rates of STI, mortality records, and cohort studies. The focus of existing systems also tended to be the general population, providing little information on the most at-risk sub-populations. Furthermore, systems in place in the 1990s were ill-equipped to distinguish the effects of mortality, incidence, testing behaviors and other factors on HIV prevalence data, and to recognize the effect of HIV treatment on the incidence of AIDS. It was also noted that surveillance systems needed greater capacity to

respond to the unique characteristics of regional epidemics and to adapt to changes in those characteristics, such as shifts in the population sub-group most at-risk. Finally, the WHO/UNAIDS review concluded that data generated by existing surveillance systems were not being used to the greatest advantage and updated systems would need to improve the methods used for disseminating epidemiological information [2-4].

Following the review of surveillance systems in place in the 1990s, WHO/UNAIDS published guidelines for improving surveillance by responding to the gaps identified. Improved systems were given the term "second-generation" surveillance, which were described in contrast to the "first-generation" systems marked by various weaknesses. Second-generation surveillance guidelines now advise expanding biological surveillance and integrating these methods with behavioural surveillance and other sources of information relevant to the HIV/AIDS epidemic. Suggested biological surveillance measures include sentinel serosurveillance in high-risk sub-groups, as well as screening of donated blood, study cohorts, and specimens from general and/or special population surveys. Behavioural surveillance is recommended in the form of repeated cross-sectional surveys in the general population and/or high-risk sub-groups, while other sources of data are HIV and AIDS case surveillance data, mortality records, and STI rates [3].

An important feature of second-generation surveillance is that methods are tailored to the state of regional HIV/AIDS epidemics. The use of specific biological and behavioural measures and other sources of data therefore varies

depending on whether the epidemic is "low-level, "concentrated," or "generalized." "Low-level" epidemics are present in regions where HIV prevalence is under 5% in any population sub-group, while "concentrated" epidemics exist when the prevalence of HIV in a given high-risk population is 5% or more. "Generalized" epidemics are those where HIV prevalence among the "general population", or, in practice, among pregnant women receiving antenatal care, has reached or exceeded 1%. In generalized epidemics, the recommendations for second-generation surveillance include repeated cross-sectional surveys of the general population, as well as continued sentinel surveillance among pregnant women. In addition, surveillance in generalized epidemics requires targeted surveillance in high-risk sub-populations, including groups that may "bridge" with the general population. In contrast, in both low-level and concentrated epidemics, surveillance in the general population is not recommended and it is advised to concentrate resources on the surveillance of high-risk sub-groups [2, 3].

Second-generation surveillance of low-level and concentrated HIV epidemics maintains the use of established surveillance methods, such as the screening of donated blood and HIV/AIDS case reporting. However, to supplement these measures, second-generation surveillance integrates them with enhanced surveillance of STI and bloodborne pathogens (BBP), as well as HIV serosurveillance and repeated cross-sectional behavioural surveys in high-risk sub-populations. Surveillance of STI is a vital complement to HIV surveillance, as STI are known to increase individual susceptibility to HIV

infection and also serve as a proxy for HIV risk behavior [5]. HIV serosurveillance in high-risk sub-populations assists in estimating HIV prevalence and allows for observation of changes over time. Behavioural survey data may be used to monitor patterns of HIV risk, investigate connections between high-risk groups and the general population, and uncover new variables influencing HIV status.

1.3. HIV Risk Behaviours: Trends to monitor in behavioural surveillance

In behavioural HIV surveillance, questionnaire indicators are chosen to measure the likelihood that an uninfected person will have contact with an infected person and that HIV transmission will occur from this contact if it happens [6]. In the Winnipeg studies described here, the focus was sexual contact and sexual transmission, with the sub-populations of interest being MSM and WSW. This section therefore briefly reviews variables that influence sexual transmission of HIV that may be inquired about in behavioural surveillance surveys of high-risk sub-groups. As WSW are an understudied population, the review emphasizes the literature derived from studies of MSM and highlights relevant details from studies of women's risk of heterosexual transmission of HIV.

For both men and women, the likelihood of sexual transmission of HIV is influenced by the mode of sexual contact, the use of condoms, and by an individual's number and type of sex partners [6]. Biological variables that influence the uninfected partner's susceptibility and the infected partner's infectivity also affect the probability of sexual transmission [7, 8]. For example, the risk of HIV transmission rises with the infected partner's viral load, which is highest at the acute stage of infection and at the stage of AIDS [9, 10]. These biological

influences cannot be monitored directly through behavioural surveillance, although certain variables that increase individual susceptibility and that raise the probability of having an acutely infected partner may be inquired about in behavioural surveillance.

1.4. Sexual behaviour and condom use

In general, certain sexual behaviours carry a higher risk of HIV transmission than others, although condom use, as well as biological variables, influences these relative risks [7, 8]. When inquiring about specific sexual behaviours, behavioural HIV surveillance surveys always elicit the frequency of condom use for that behaviour [6], as consistent condom use is shown to reduce the probability of HIV transmission at the individual level [11, 12] and to reduce the incidence of HIV at the population level [13]. Condom use and biological influences aside, the modes of sexual contact carrying the risk of HIV transmission include receptive and insertive anal, vaginal, and oral sex, but the risk ranges from documented, high-risk to theoretical, low-risk [14]. This section reviews the evidence of the relative risks of various modes of sexual contact with and without the use of condoms ("protected" and "unprotected").

Unprotected receptive anal intercourse carries a high risk for HIV transmission for both men and women. Among MSM, receptive anal intercourse is the factor most associated with HIV seroconversion, as has been shown in numerous longitudinal cohort and case-control studies [15-22]. Evidence from longitudinal studies of heterosexual, HIV-discordant couples also suggest that the risk of HIV is high for females practicing receptive anal intercourse [12, 23-27].

The risk of HIV seroconversion among HIV-negative females in discordant partnerships has been reported to be between four and ten times higher among females who report receptive anal intercourse than among those who report only vaginal intercourse [24, 26, 27].

Compared to receptive anal intercourse, the risk of HIV transmission to men through insertive anal intercourse is substantially less: one cohort-derived estimate of the per-contact risk of HIV transmission with an HIV-positive or unknown partner attributes the highest HIV risk to unprotected receptive anal intercourse, followed by protected receptive anal intercourse, unprotected insertive anal intercourse, and protected insertive anal intercourse [11]. Nonetheless, recent studies among MSM have shown both receptive and insertive anal intercourse are associated with HIV seroconversion under specific conditions, discussed in detail below.

For both men and women, unprotected vaginal intercourse is considered high-risk for HIV [14]. Using data from serodiscordant partner studies, the per-contact transmission risk from male to female through vaginal intercourse has been estimated at approximately 1 in 1000 [28], with transmission from male to female estimated to be two to three times more effective than from female to male [8]. However, the per-contact risk of HIV transmission, both from male to female and female to male, through vaginal intercourse can increase ten fold or more under circumstances of high infectivity and susceptibility [10, 28, 29]. Longitudinal studies of serodiscordant partners underscore that the risk of HIV

transmission through vaginal intercourse is substantially reduced by the use of condoms [12, 27].

Oral sex, including male-to-female, female-to-male, male-to-male, and female-to-female, is considered low or negligible risk for HIV [14]. However, case studies have cited receptive or insertive oral sex as the plausible mode of transmission among cases of HIV infection [30]. Additionally, a small number of studies among MSM have associated oral sex with HIV infection [20, 31], specifically receptive oral sex to ejaculation with an HIV-positive partner [32]. Generally speaking, the highest risk oral sex is receptive oral sex with ejaculation [14].

Although the sexual behaviours reviewed pose the greatest risk of HIV based on the available evidence, other modes of sexual contact may carry the potential for HIV transmission [14]. Among these is the use of sex toys, which have been implicated in case reports of HIV infection [33] and lymphogranuloma venerum [34], among other infections.

1.5. Number of sex partners, partner type, and partner HIV status

Sexual transmission of HIV depends on the necessary criterion that an uninfected person has sexual contact with an infected person. In part, the likelihood of an individual having sexual contact with an infected partner is a function of his or her number of sex partners [6]. This has been shown indirectly in studies of HIV in MSM, which have consistently reported a higher risk of prevalent and incident HIV infection among men reporting greater numbers of sex partners [19, 20, 35-37]. The association between number of sex partners and HIV risk has also been documented in diverse samples of women [38-41].

Given its association with HIV risk, guidelines for behavioural surveillance surveys recommend measuring number sex of partners. However, guidelines more specifically advise measuring number of partners by stratifying by partner type, distinguishing between regular, non-regular, and commercial sex partners [6]. UNAIDS defines regular partners as spousal or cohabitating partners and defines non-regular partners as non-spousal and non-cohabitating, including casual partners, boyfriends and girlfriends, and any other non-commercial partner. Commercial partners are defined by UNAIDS as partners with whom money is exchanged for sex; depending on the target population completing the survey, survey items may inquire about a partner who gives money or a partner who receives money [6, 42]. It should be noted that, outside of UNAIDS guidelines, partner types are often represented in research studies using other terms, such as "steady", "non-steady," or "anonymous", and definitions of partner types are subject to variation between studies [43-45]. For example, many studies (including those reported here) include the trading of goods [e.g., drugs, food] or services [e.g., shelter, protection, a ride] in the definition of commercial sex partners.

Recently, research studies have begun to further stratify partner type by perceived partner HIV status, requesting respondents to report if they believe a particular sex partner's HIV status is positive, negative, or unknown. Incorporating perceived partner HIV status has been shown to increase the specificity and predictive value of a HIV risk assessment, decreasing the sensitivity of the risk assessment only slightly [46]. The joint measures of partner type and perceived partner HIV status have been shown to significantly predict

HIV infection by certain modes of sexual contact, sometimes independent of condom use. For example, in two large longitudinal studies of MSM in the U.S., HIV seroconversion was predicted by unprotected receptive anal intercourse regardless of partner status, but also by protected receptive anal intercourse with an HIV-positive or unknown partner, and unprotected insertive anal sex with an HIV-positive partner [32, 36]. Within the Vanguard cohort in Vancouver, British Columbia, HIV-seroconversion has been associated with unprotected anal intercourse (UAI) with a casual partner of any perceived HIV serostatus [22]. In a case-control study of recent HIV seroconverters, MacDonald and colleagues [37] found that cases were significantly more likely to report unprotected receptive anal intercourse with partner not believed to be HIV-negative, as well as insertive anal intercourse with more than one man. Data from the OMEGA cohort in Montreal, Quebec indicates that seroconversion from 1996-2003 was associated with any anal intercourse with a HIV-serodiscordant partner and any anal intercourse with casual partner [47]. In large study of MSM in the US, HIV seroconversion was associated with receptive oral sex to ejaculation with an HIV-positive partner [32].

Partnership type may also influence HIV risk indirectly by affecting sexual behaviour and condom use [48]. Although "high-risk" sexual behaviour is often defined as UAI in a casual sexual partnership, or "one-night stand" [44], evidence from mathematical modeling and cohort studies suggests that the risk of HIV transmission is actually higher in regular, or steady, partnerships [49-51]. In an analysis of an Australian cohort of MSM, Crawford and others [51] found that, when

HIV risk events were defined as UAI with a casual partner, UAI with a regular HIV-positive or unknown partner, or UAI with a regular partner who also has had sex with a casual partner, more risk events occurred within regular partnerships. Having a regular partner may also increase high-risk sexual practices with casual partners: within the OMEGA cohort, practicing UAI with a regular partner was a significant predictor of UAI with casual partners [35]. Reporting commercial sex partners is also a marker of HIV risk, as both HIV prevalence and incidence has been found to be significantly higher among MSM reporting receiving money, drugs, or other goods in exchange for sex [22, 52].

Studies among MSM suggest that perceived partner HIV status may shape some men's perception of HIV risk, promoting differential sexual behaviour and condom use based on partner status [53]. "Serosorting", described as UAI with a same status partner [54], or more generally, the practice of limiting sexual behaviour to those who have the same HIV status [55], has been shown to be common among MSM [53-58]. Some studies have suggested that HIV-negative MSM who serosort are at higher risk for HIV [55, 59].

1.6. Sexually transmitted infections

A major influence on probability of HIV transmission that may be monitored in behavioural surveillance is history of STI. A large body of evidence suggests that STI, including Ct, Gc, syphilis, and genital herpes, facilitate the transmission of HIV by increasing both the susceptibility of the uninfected partner and the infectivity of the infected partner through a variety of biological mechanisms (reviewed in this reference) [60]. The magnitude of the effect of STI on HIV

transmission has been estimated at both the partnership level and the population level. For example, among heterosexual HIV-discordant couples in Uganda, genital ulceration was attributed with a more than a two-fold increase (OR-2.58) in the per-contact likelihood of HIV transmission through vaginal intercourse [29]. Further, in Mwanza, the proportion of HIV infections attributable to all curable STI was estimated to be 65%, with chancroid alone accounting for 40% [61]. In cohort and sentinel serosurveillance studies, the presence of genital sores or STI such as genital herpes, Ct, and Gc, has been associated with both prevalent and incident HIV infections among MSM [62-65], as well as heterosexual men and women [40, 41]. Behavioural surveillance guidelines recommend including history of STI as an HIV risk indicator, measured by the experience of genital discharge, pain, or sores in a specified period [6].

1.7. Concurrent partnerships

While infectivity cannot be monitored directly, it is possible to monitor variables that increase an individual's risk of being exposed to an acutely infected partner (Morris et al., 1997). Concurrent sexual partnerships, defined by one or both partners having sex with another partner while continuing to have sex with each other, have been shown to play a fundamental role in increasing the spread of HIV and STI, on par with the contributions of number of sex partners and presence of STI [66]. Concurrent sexual partnerships have also been shown to be predictive of STI at the partnership level [67-69].

1.8. Other variables to monitor

1.8.1. Drug use

Studies of MSM have consistently shown UAI to be associated with the use of specific recreational drugs before sex, including amphetamine and crystal methamphetamine, nitrite inhalants, cocaine, ecstasy, ketamine, marijuana, alcohol, and Viagra [35, 70-75]. Recreational drug use has also been associated with increased numbers of casual partners [76]. In a longitudinal study of MSM in six American cities, Koblin and colleagues [36] indicated a direct increased risk of HIV seroconversion among participants reporting the use of amphetamines, heavy use of alcohol, or the use of alcohol or drugs before sex. Accordingly, UNAIDS behavioural HIV surveillance guidelines recommend assessing levels of alcohol and drug use among target populations [6].

1.8.2. Places frequented by high-risk groups

Places where MSM report socializing or looking for sex may be associated with ancillary HIV risk behaviours, such as drug use [77]. Similarly, places where MSM report having sex may influence patterns of HIV disclosure [78], while places where MSM report meeting sex partners may influence the practice of UAI [79].

1.8.3. Ethnicity

In Canada, Aboriginal persons are over-represented among HIV case reports [80, 81]. The excess HIV burden among Aboriginal people appears to be best accounted for by injection drug use [80-82]. However, a number of HIV-associated risk factors have been shown to be higher among Aboriginal MSM, such as sex

trade involvement [83]. In behavioural surveillance, collecting data on ethnicity is important to allow clear descriptions of target groups [6]. In the Canadian setting, collecting data on ethnicity may further assist in monitoring HIV prevalence among Aboriginal people.

1.8.4. HIV Testing and other health services use

Data on the proportion of survey participants who have requested and received voluntary HIV testing is necessary to assess the reach of this health service to high-risk groups and to determine what proportion of survey participants may not know their HIV status. Collecting further information on STI testing and treatment may assist in better characterizing the contribution of STI to HIV risk [6]. As MSM, as well as persons having multiple sex partners or a history of STI, are at increased risk of hepatitis A and B [84-87], it may be useful to monitor self-reported hepatitis A and B vaccination among groups at risk for HIV.

1.8.5. HIV Knowledge

Knowledge regarding HIV transmission is not sufficient for HIV prevention, although often it is an important pre-requisite. UNAIDS behavioural surveillance guidelines recommend measuring the proportion of survey participants that is able to correctly identify HIV prevention methods, as well as the proportion that reports no incorrect beliefs about HIV transmission [6].

1.9. Second-generation HIV surveillance among MSM in Canada: M-Track

At the same time global health agencies moved to initiate and expand second-generation HIV/AIDS surveillance, several calls were made within Canada to address a rise in HIV incidence among MSM, to enhance MSM-targeted HIV prevention programs and strategies, and to investigate determinants of MSM HIV risk behaviour [35, 88, 89]. In this context, in 2002, PHAC established M-Track, a second-generation surveillance system that aims to monitor HIV risk behaviours and seroprevalence of HIV, hepatitis C virus (HCV), and syphilis (caused by the bacterium *Treponema Pallidum*), among MSM. Following UNAIDS/WHO guidelines [3, 4], the M-Track surveillance system entails periodic cross-sectional behavioural surveys at selected Canadian sites. Participants in the survey also complete a questionnaire and provide a finger-stick blood specimen to be tested for HIV, HCV, and syphilis. The purpose of M-Track is to describe national, provincial, and local trends in sexual and other risk behaviours, to enhance existing surveillance data and national incidence and prevalence estimates, and to provide information for those involved in planning and evaluating the public health response to these infections among MSM. The first M-Track study took place in Montreal, Quebec, between February and August, 2005 [90]. Since then, M-Track studies have been undertaken in Winnipeg, Toronto, Ottawa [91], and Victoria, with an M-Track survey planned for Vancouver in 2008.

1.10. M-Track rationale: MSM as a high-risk sub-population in Canada

Since the beginning of the HIV/AIDS epidemic in Canada, men who have sex with men (MSM) have consistently accounted for the greatest proportion of incident and prevalent infections relative to other HIV exposure categories defined by the PHAC [811]. The proportion of incident HIV infections attributed to MSM peaked between 1981 and 1983 at over 80%, declining steadily throughout the 1980s, yet continuing to represent twice or more the proportion of new infections within any other exposure category until 1990. The proportion of new HIV infections attributed to MSM reached a low of less than 40% in 1996, at which time it was only slightly higher than the proportion attributed to IDU, among whom a rapid proportional increase made them second-most-affected group at that time. However, since the late 1990s, the proportion of incident infections attributed to MSM has risen steadily. In 2002, an estimated 900 to 1,700 new HIV infections, or 42% of the Canadian total of 2,100-4,000, were attributed to MSM, compared to 550-900 within the heterosexual/non-endemic category, the second-most-affected group that year. Reflecting a potential increase from 2002, the most recent PHAC surveillance estimate suggests that 1,100-2000 new infections occurred among MSM in 2005—or 45% of the 2,300-4,500 incident HIV infections in Canada. With respect to prevalent infections, the largest increase in 2005 within any exposure category was observed among MSM, with

[1] The Public Health Agency of Canada defines six mutually exclusive HIV exposure categories: men who have sex with men (MSM); people who inject drugs (IDU); individuals who are both MSM and IDU (MSM/IDU); "heterosexual endemic" or individuals from countries where the primary mode of HIV transmission is heterosexual contact and HIV prevalence is high; "heterosexual non-endemic" or individuals reporting heterosexual contact with a person HIV-infected or at risk of HIV, or heterosexual contact as the only identified risk; "other", comprising recipients of blood products and individuals at risk of occupational or perinatal HIV transmission.

3,400 more prevalent infections than in 2002 representing a 13% relative increase over three years. As of 2005, an estimated 29,600, or 51%, of the 58,000 (48,000-68,000) prevalent HIV infections in Canada were among MSM. This number of infections is three times that identified among the second most-affected group, IDU, who accounted for 9,860, or 17%, HIV infections in Canada in 2005. An additional 2,250 prevalent HIV infections in 2005 were among MSM/IDU (among whom the route of HIV transmission is unknown to be sexual or parenteral), representing another 4% of the Canadian total.

It should be noted that the increased proportion of incident HIV infections attributed to MSM may be the result of a decreased incidence observed specifically among IDU. However, overall HIV incidence in Canada may have increased and the range of uncertainty around absolute HIV incidence leaves open the possibility of an absolute increase in HIV incidence among MSM. Consistent with this possibility, a rise in HIV incidence among Canadian MSM has been documented in several Canadian cohort studies since the late 1990s. In Ontario, among MSM accessing repeat diagnostic testing for HIV, an overall rise in incidence of HIV infection was observed in the period 1996-1999, with incidence density rising from 0.79 infections per 100 person-year at risk (PY) in 1996 to 1.39 infections per 100 PY in 1999 [89]. More recent data from Ontario highlighted a 25% increase in HIV-positive diagnoses in the first three-quarters of 2002, relative to the first three-quarters of 2001, with the positivity rate among MSM increasing significantly from 2.6% to 3.7% [92]. The Vanguard project, a prospective study of MSM in Vancouver, British Columbia, also noted an

increase in the rate of new HIV infections among MSM, from 0.6 infections per 100 PY between 1995 and 1999, to 3.7 infections per 100 PY in 2000 [93]. Moreover, the increase in HIV incidence within the Vanguard cohort was sustained, with HIV incidence density for 2002-2003 combined being almost three times that for the period 1997-2001 [94]. Between 1996 and 2001, incidence of HIV infection among MSM within the OMEGA cohort in Montreal, Quebec, was 0.56 infections per 100 PY and appeared to be stable, although increases were observed in the incidence of rectal gonorrhea and infectious syphilis in this cohort [95] and some authors noted a relatively high likelihood of a true increase in HIV incidence in the OMEGA cohort [96]. In 2008, Lavoie and others reported the HIV incidence within the OMEGA cohort to be 0.62 infections per 100 PY between 1996 and the study's end in July 2003, although this was not noted to represent a statistically significant increase from the incidence between 1996 and 2001 [47].

In community surveys of MSM in various Canadian settings, HIV prevalence has consistently reached or exceeded 5% [81, 90, 97, 98], thus meeting the criterion for a concentrated HIV epidemic among MSM in Canada [3]. On this basis, and given the potential for increased HIV incidence among MSM, the M-Track behavioural surveillance system was implemented to investigate HIV-risk behaviours among MSM at selected Canadian sites, including Winnipeg.

1.11. M-Track Winnipeg and a Pilot Study of WSW

In 2005, PHAC partnered with Manitoba Health to undertake an M-Track study in Winnipeg with Dr. John Wylie of Manitoba Health acting as principal investigator. Outside of M-Track, few data are available to describe HIV incidence and

prevalence and risk behaviours among MSM in Winnipeg. Available data on incidence are derived from the Manitoba Health communicable disease surveillance system, which classifies HIV and AIDS as reportable diseases [99]. Data on the distribution of incident HIV infections by exposure category, e.g., the proportion of incident infections attributable to MSM, are not published for the city of Winnipeg. However, data for the province of Manitoba may represent Winnipeg's HIV epidemiology, as 84% of HIV infections identified in Manitoba have been among Winnipeg residents. The most recent data indicate that between 1985 and December 31, 2007, 1477 new cases of HIV infection were identified in Manitoba. Prior to 1996, 65% were within the MSM exposure category, consistent with the proportion within Canada as a whole. The proportion of incident HIV infections attributed to MSM subsequently decreased between 1996 and 2007 to only 18%, much lower than the national average. While the proportion of new HIV infections among MSM may have fallen, the absolute number of HIV infections identified annually in Manitoba has increased: between 1985 and 2002, the greatest number of HIV infections identified in a single year in Manitoba was 76; yet, between 2003 and 2007, the mean number of HIV infections identified annually was 98.6, and 110 between 2003 and 2005. In the most recent year of observation, 2007, MSM accounted for 26.8% of all infections identified (22/82) and for 40% of all infections identified among men (22/55), although no identified risk was reported for 31% of cases among men (17/55) [100].

The Manitoba Health communicable disease surveillance system does not collect data on HIV risk behaviours or other markers of HIV risk among MSM in Winnipeg. However, in 2005, data from the Manitoba Sexually Transmitted Disease Study indicated a representation of not only MSM, but WSW (women who have sex with women) in large sexual networks (size>15 members) whose members tested positive for *Chlamydia Trachomatis* (Ct), *Neisseria Gonorrhoeae* (Gc), or both [101]. As STI such as Ct and Gc serve as a proxy of HIV risk, these data suggested a need to investigate HIV risk behaviours in WSW in Winnipeg as well as MSM. Notably, WSW have appeared among recent incident cases of HIV in Manitoba: between 1999 and 2004, eight women with newly identified HIV infection reported having a female partner, seven of whom also reported having male partners. Given the indication of potentially elevated risk of HIV and STI in WSW, Manitoba Health moved to recruit a small sample of WSW to participate in the Winnipeg M-Track study alongside MSM. This initiative was consistent with second-generation HIV surveillance guidelines, which emphasize the need to anticipate changes in local epidemics [3], in this case a possible increase in HIV and STI risk among WSW.

1.12. Pilot Study Rationale: WSW as a potential high-risk sub-population

In Winnipeg and beyond, there is a need to address the risk of HIV and STI among WSW. Central to this risk is the consensus that the majority of WSW report having male sex partners [102-112]. This proportion ranges from 77.1% to 93.0% with respect to lifetime male sex partners and from 5.7% to 80.2% with

respect to male sex partners in the past 12 months [103, 104]. Lifetime anal sex with a male partner has been documented among 17-24% of WSW [103, 106, 107].

Several factors may increase the risk of HIV and STI among WSW beyond that of women who have sex only with men. For one, evidence suggests that WSW have more male sex partners than other women, both when measured over the lifetime and in the previous six months [113]. Fethers and colleagues [104] found that the median number of lifetime male sexual partners among WSW was significantly greater than that among controls (12 vs. 6), while Koh and others [111] found that the average number of male sex partners in the previous 12 months was 2.4 and 2.2 for lesbian and bisexual women, respectively, compared to 1.4 among heterosexual women. Similarly, Mercer and others [112] found that 49.4% of WSW had more than one male partner in the past year, compared to only 13.4% of women who reported sex only with men.

WSW may also engage in higher-risk sexual activities with their male partners. For example, one comparative study found WSW to more likely than other women to report having anal intercourse [113], while another found WSW to be significantly less likely to report consistent condom use [112]. Descriptive studies of WSW also reflect inconsistent condom use with male partners, with less than a quarter of WSW reporting "always" using condoms [110, 114]; conversely, Bailey and others [107] found that 32% of WSW sampled "never" used condoms for vaginal sex with a male partner, while 42% of WSW "never" used condoms for anal sex with a male partner. Framed in terms of lifetime risk, one study

observed that 40% of WSW had a history of unprotected vaginal intercourse with a male partner, while 11% had a history of UAI [115].

Other sexual risk indicators also appear to be more prevalent among WSW. For example, WSW have been found to be significantly more likely to have high-risk male sex partners, including MSM, IDU [39, 104, 111, 113], and HIV-positive partners, respectively [113]. Furthermore, WSW are more likely to report sex trade involvement [104, 116, 117], including sex trade involvement in the past six months [113]. Women reporting same-sex partners also report a significantly lower age of sexual debut, considered to be a marker for HIV risk [116-118]. In some studies, rates of STI diagnoses have been shown to be higher among WSW [119, 120], including diagnoses of HIV [116].

Compounding their sexual risk, WSW also report higher rates of high-risk drug activities, including higher rates of alcohol and drug use before sex [118]. Several studies have shown that WSW are more likely to use injection drugs than are women who have sex only with men [112, 113, 118]. Studies describing female IDU have noted a high proportion of WSW, among whom HIV risk behaviours (e.g., sex trade involvement), as well as HIV seropositivity, are observed to be higher than among other female IDU [39, 119, 121].

Some authors have argued that health care providers have neglected to provide safer sex education to WSW, and that the belief that WSW are at no risk of HIV and STI may lead to unsafe sexual behavior in this population [109, 122, 123]. In this vein, Koh and others [111] noted that although women who identified as lesbian had the greatest number of male sex partners, they were the least likely

to have received testing for HIV or STI. In this context, an examination of HIV and STI risk among WSW is warranted.

1.13. Objectives: Selected measures for analysis

Objective 1: To describe MSM in personal and social background, sexual behaviour with men, drug use, health services use, HIV and STI testing, knowledge and opinions on HIV and STI, and prevalence of HIV, HCV and syphilis infections.

Objective 2: To describe WSW in personal and social background, sexual behaviour with women and men, drug use, health services use, HIV and STI testing, knowledge and opinions on HIV and STI, and prevalence of HIV, HCV and syphilis infections.

Objective 3: To explore associations between MSM respondent variables and 1) ethnicity, 2) location of interview, 3) a positive result for HIV, and 4) a positive result for HCV.

Objective 4: To explore associations between WSW respondent variables and 1) a positive result for HIV, and 2) a positive result for HCV.

2. METHODS

2.1. Winnipeg Study Team

PHAC M-Track protocol is to solicit input from community representatives and local experts in MSM health throughout study implementation at each M-Track site. The Winnipeg M-Track study team therefore comprised members from the University of Manitoba (the author), Manitoba Health, the Winnipeg Regional Health Authority, and the Gay, Lesbian, Bisexual, Trans-gendered, Two-spirited (GLBTT) Health Promotion Coalition (HPC). The latter is a committee with representation from Winnipeg community health centres, sexual health resource centres, and businesses serving MSM and WSW, including local bathhouses. The author served on the GLBTT HPC from September, 2005 to December, 2006. For administration of questionnaires, the study team employed a study coordinator with an outreach nursing background from July, 2006 to March, 2007. The study coordinator and the author acted as study administrators.

2.2. Development of survey instruments

2.2.1. MSM Questionnaire

The M-Track core questionnaire was drafted in 2002 by members of PHAC in collaboration with personnel from other Canadian studies on MSM health, including Omega in Montreal, SexNow in Vancouver, and the Ontario Men's Survey in Toronto. Core questions were based on existing Canadian questionnaires with the aim of measuring trends in risk for BBP and STI using a self-administered, paper-based questionnaire. The core questionnaire was

updated in 2006 with the input from representatives from established M-Track sites. As the M-Track core questionnaire is designed to accommodate additional survey items necessary to address local concerns (referred to as "site-specific questions"), a number of survey items were developed by the Winnipeg study team. The M-Track core questions and Winnipeg site-specific questions are shown in Appendix 1.

The Winnipeg M-Track questionnaire was piloted with ten MSM participants in July, 2006. The participants completed the paper-based, self-administered questionnaire independently, but were seated together. Two study administrators were present and the participants were encouraged to ask questions if they did not understand a question. After completing the questionnaire, participants were asked to describe any difficulties they had with the language used or the instructions provided in the questionnaire. The study coordinator recorded participant feedback. Following pilot testing, the language in the questionnaire was modified for low-literacy participants and the instructions for skipping questions and sections were highlighted. Data from pilot testing were not entered for analysis. The MSM survey took approximately 40 minutes to complete.

2.2.2. WSW Questionnaire

The WSW questionnaire was developed by the Winnipeg study team by modifying the M-Track core questionnaire and site-specific questions for use with women who have sex with women. Questions specific to WSW sexuality and health were also added. The WSW questionnaire was administered to five

women in August, 2006. Unlike with the MSM questionnaire, these participants completed the questionnaire separate from each other, with only one study administrator present. No further modifications were made to the WSW questionnaire following pilot testing. Data from pilot test sessions were not entered for analysis. The WSW questionnaire items are shown in Appendix 2. The WSW survey took approximately 40 minutes to complete.

2.3. Survey instruments

Both the MSM and WSW questionnaires were paper-based, self-administered and divided into the same 17 parts. In the MSM questionnaire, the section on male partners appeared first, while on the WSW questionnaire the section on female partners appeared first. Part 1 consisted of questions on demographic characteristics, while Part 2 elicited information on participants' sex-seeking behaviour in public settings and drug use in general and before sex.

On both questionnaires, parts 3-15 elicited information on sexual, risk, and protective behaviours with different male and female partner types. Casual partners were defined as partners 'you had sex with only once (a "one night stand" for example)'. Regular partners were defined as partners 'you have had sex with two or more times'. For both casual and regular partners, participants were instructed that this did not include partners 'you gave, or who gave you, money, drugs, or other goods or services in exchange for sex.' Client partners were defined as someone who 'has given you money, drugs, goods, or anything else in exchange for sex." Sex worker partners were defined as someone 'you have given money, drugs, goods or anything else in exchange for sex'.

On both questionnaires, the section on male partners was comprised of eight parts (Parts 3-10 on the MSM questionnaire, Parts 8-15 on the WSW questionnaire), while the section on female partners were comprised of four parts. This was because the section on regular male partners was stratified into parts by partner HIV status, which was not done for regular female partners.

Part 16 elicited participants' self-reported history of diagnostic testing and results for BBP and STI, dates diagnosed with HIV and/or HCV, hepatitis vaccination, and use of HIV medication, as well as reasons tested or not tested for HIV, HCV, and syphilis. Part 17 contained statements on BBP and STI and asked participants to agree or disagree.

Questionnaire items on numbers of sex partners in the past six months used various scales ranging, for example, from "None" to "6 or more" (e.g., number of regular partners), or from "None" to "50 or more" (e.g., client partners). Items on the frequency of sexual, risk and protective behaviours (e.g., frequency of drug use before sex) used Likert scales ranging from "Never" to "Always". Items on drug use used Likert scales ranging from "Never" to "Yes-but not in the past six months," to "Yes-in the past six months." Frequency of sex-seeking in public settings was measuring with a Likert scale ranging from "Never" to "More than once a week." For most other items, participants were asked to indicate "No" or "Yes," to choose from a list of response options, or to specify "Other." Most items had both a "Refused" and an "Unsure" option, although the scale measuring sex-seeking in public settings combined these options into one.

Although the MSM and WSW questionnaires each contained over 500 items, a high proportion of items followed from one or more "stem" items, where participants were instructed to skip questions that did not apply to them on the basis of their response to a stem item. For example, participants who did not report opposite-sex sex partners were instructed to skip all questionnaire parts on these partners and participants who did not report anal intercourse were instructed to skip all items on this topic. Therefore, it was anticipated that only a small proportion of participants, if any, would be required to respond to every questionnaire item.

2.4. Identification of venues and study promotion

Potential study venues were identified by the Winnipeg study team and were limited to community health centres and bars serving MSM/WSW. Venue operators and/or managers at each potential site were approached by the study coordinator, who explained the study and asked for their participation as a study venue. It should be noted that community health centres that were used as study venues included Nine Circles Community Health Centre, which provides care to persons with HIV who have no primary care provider, and Mount Carmel Clinic, which provides care to persons with hepatitis C, including injection drug users. The study coordinator had previous experience working with both Nine Circles Community Health Centre and Mount Carmel Clinic, which serve a high number of Aboriginal patients.

Study posters were placed at local businesses and community health centres serving MSM/WSW. Throughout the study period, the study coordinator

identified organizations that were hosting events targeted to MSM/WSW and requested their permission to display study posters and to distribute cards at these events. Not all venues that were approached to display study posters were asked to serve as study venues. Venues that declined to serve as study sites were asked to display study posters.

2.5. Eligibility and recruitment

Individuals were eligible to participate in the study if they identified as having had a same-sex partner and were aged 15 or over. MSM participants were recruited using three strategies: 1) venue-based recruitment from bars and community health centres, 2) through study advertisements which displayed a direct contact number for the study coordinator, and 3) through respondent-driven sampling (RDS) [124-126]. As no bars targeting WSW clientele were known to operate in Winnipeg at the time of the study, WSW participants were recruited from community-health centres, through advertising, and through RDS.

To facilitate sampling from bars and community health centres, the study coordinator was present at each study venue on a rotating basis, corresponding to the times when a particular venue would yield the greatest number of potential participants. In sampling participants from venues, the study coordinator approached potential participants in the venue, explained the study, and presented the option to participate. Alternately, and at her discretion, the study coordinator waited by study posters to be approached by potential participants.

To implement the RDS, 14 MSM seeds and six WSW seeds were chosen to recruit peers into the study. Seeds were individuals whom the study

coordinator knew from her previous work as an outreach nurse and whom she deemed likely to have a large personal network [126]. These individuals were given RDS cards, which were printed with a unique code and the study coordinator's contact information, and were instructed to give these cards to other MSM (or WSW in the case of WSW seeds) to recruit them to participate in the study. When a participant used an RDS card to enter the study, the card's unique code was used to document which seed had recruited that participant.

The target sample size for the MSM component was set by PHAC at 250 participants. The target sample size for the pilot study of WSW was set by the principal investigator at 100 participants.

2.6. Specimen collection

During the process of informed consent, participants who elected to complete the questionnaire were given the option of providing a finger-stick blood specimen. Participants were informed that blood specimens would be sent to PHAC for serological testing for HIV, HCV, and syphilis and were advised that they would not receive the results of the test. Participants who consented to give specimens were given the option of having their blood destroyed following testing or stored at PHAC for future testing at PHAC's discretion. Participants were advised that stored samples may be used for future laboratory tests, for example, new types of hepatitis or sexually transmitted infections. Specimens were collected by the study coordinator after the questionnaire was completed. Following PHAC protocol [127], a finger-tip on the participant's non-dominant hand was selected and cleaned with an alcohol swab. The swabbed area was punctured with a micro-

lancet and five blood spots were collected onto a cotton-fibre-based filter paper. All specimens were assigned a unique, randomly generated code corresponding to the donor participant's questionnaire identification number. Specimens were shipped to the PHAC National Laboratory in Ottawa.

2.7. Informed consent and ethical considerations

All participants were required to provide written, informed consent prior to completing the questionnaire or providing a blood specimen. All participants were informed that their participation in the study was voluntary and that they could cease to participate at any time. All participants were advised where in Winnipeg they could obtain diagnostic testing for HIV, HCV, or syphilis if they wished to receive the test results. Participants were given an honorarium of $10.00 CDN after completing the questionnaire. This study was approved by the University of Manitoba Health Research Ethics Board.

2.8. Laboratory procedures

Genetic Systems r LAV enzyme immunoassay (EIA) for the detection of anti-HIV, Hepatitis C Virus Encoded Antigen (Recombinant c22-3, c200 and NS5) Ortho HCV Version 3.0 Elisa for the detection of anti-HCV, and Serodia®-TP-PA qualitative gelatin particle agglutination assay for the detection of anti-*Treponema Pallidum* were performed at the PHAC National Laboratory for HIV Reference Services. Protocol for HIV testing was as follows: specimens reactive to HIV by EIA were retested in duplicate. Specimens reactive upon repeat EIA were

testing using Genetic Systems HIV-1 Western Blot. Specimens reactive by Western Blot were confirmed anti-HIV reactive.

2.9. Data entry

Data from questionnaires were entered into the Statistical Package for the Social Sciences (SPSS®) Data Entry Builder (version 15). In order to estimate the rate of data entry error, 10% of MSM questionnaires and 10% of WSW questionnaires were manually reviewed. To select questionnaires for review, Microsoft Excel was used to randomly generate numbers corresponding to records of questionnaires entered (i.e.,, questionnaire 5, 19, 26, 35, 47, 54, 55, 73, 93, 98, 104, 107, 120, 122). Any data entry errors that were seen in these questionnaires were corrected at the time of review. Data entry error rates were calculated as the number of errors per questionnaire and as the number of errors per number of data elements entered.

Laboratory data was received from PHAC in a Microsoft Excel file, with results from serological testing linked to the random code generated at the time of specimen collection. Questionnaires, which contained both the specimen code and the questionnaire identification number, were manually reviewed and the questionnaire identification number was subsequently linked to the specimen code in an added field in the laboratory data file. Testing results and questionnaire data were then each sorted by questionnaire identification number and merged using the SPSS® version 15 “Merge files” function.

2.10. Selection of cases for inclusion in analyses

As noted above, the MSM and WSW questionnaires contained instructions to participants to skip questionnaire items or parts that did not apply to them. During the data entry process, it was observed that many participants responded to questions that ostensibly did not apply to them on the basis of their response(s) to key questions. For example, several participants who reported having no male sex partners in the past six months (i.e.,, responded "None" to item 187) went on to respond to item 188 regarding anal intercourse with a male partner in the past six months. In other cases, for example, participants who reported having no regular, HIV-positive male partners in the past six months completed the section on regular, HIV-positive male partners. Other times participants indicated their frequency of condom use during modes of sexual contact they reported did not occur.

The type of error described has been referred to in survey design research as "error of commission," defined by responding to an inapplicable question [128]. Error of commission stands in contrast to "error of omission," defined by not responding to an applicable question. Although both errors of commission and errors of omission were observed during data entry, errors of commission appeared to be more common and to have greater potential to mislead data interpretation.

Given the errors of commission observed during data entry, a method was devised to define and select appropriate cases for inclusion in the analyses. First, a manual review was conducted of the MSM and WSW questionnaires to

identify items that should apply to only some participants. These items were given the term "key-dependent." Key-dependent items are defined here as items that follow from, and are logically related to, one or more items that appear before them in the questionnaire, i.e.,, they are "dependent" on one or more key items. To illustrate the use of this term, the item regarding anal intercourse with a male partner in the past six months (item 188) is dependent on the item on the number of male sex partners in the past six months (item 187). This is because the applicability of item 188 on anal intercourse depends on whether a participant has reported having a male sex partner (item 187). In this case, the key item is 187 (male sex partners) and the "key-dependent" item is 188 (anal intercourse with male sex partners).

As may be observed in Appendices 3 and 4, the majority of key-dependent items are dependent on more than one key item. For example, MSM questionnaire item 196, regarding unprotected sex with a male partner from outside Manitoba, is dependent on two items: item 187 (number of male partners) and item 195 (number of partners met outside Manitoba). It should be noted that item 196 is the only item that is dependent uniquely on item 187 and 195.

Unlike item 196, which is the only key-dependent item that is dependent on key items 187 and 195, other key-dependent items are dependent on the same key items. For example, MSM questionnaire items 223 (condom use during oral sex with a client partner) and 224 (ejaculation in the mouth during oral sex with a client partner) are dependent on the same three key items. These

are: item 187 (number of male partners), item 217 (number of client partners), and item 222 (oral sex with a client partner).

Following these principles, each key-dependent item in the MSM and WSW questionnaires was identified and noted along with its corresponding key item or key item series. For each key-dependent item, the pattern of responses to key item(s) required to maintain logical agreement was noted. This pattern of responses was used to define a measure of "eligibility to respond" for each key-dependent item (see Appendices 3 and 4). For example, if participants reported having a male sex partner (item 187) and a male sex partner from outside Manitoba (item 195), they were considered "eligible to respond" to item 196 on unprotected sex with a male partner from outside Manitoba. If participants reported having a male sex partner (item 187), a client male sex partner (item 217), and oral sex with a client partner (item 222), they were eligible to respond to item 223 and to item 224.

Participants who selected the "Don't know" or "Refused" option for key items were considered eligible to respond to related key-dependent items only if logical agreement was maintained nonetheless. For example, participants who indicated "Don't know" for item 187 (number of male sex partners in the past six months) were still eligible to respond to subsequent items on male sex partners. Participants who indicated "Don't know" to item 171 ("Do you have a doctor or nurse you consider your primary care provider?") were not eligible to respond to items 172, 173, and 174, regarding their primary care provider's knowledge and behaviour (see Appendices 3-4).

For each key-dependent item, a filter was created using the SPSS® "Select cases" function, which was used to limit the analysis to cases that were eligible to respond. Thus, in order for their responses to be included in the analysis of a key-dependent item, participants were required to have responded to the key item(s) leading up to, and logically related to, that item.

For questions that applied only to HIV-positive or HCV-positive participants, no eligibility to respond criteria was created based on response patterns. Instead, the analysis was limited to participants who were confirmed HIV/HCV antibody-positive through laboratory testing.

By definition, key items applied to all participants. This was also true for items with no relationship to another question, e.g., item 032 on past year's income. For items that applied to everyone, all participants who gave a response were included in the analysis. For brevity, items that apply to everyone are referred to collectively as independent items. Independent items include key items and items with no relationship to another question.

2.11. Measurement of errors of commission

In order to identify questionnaire items that were problematic, rates of error of commission were calculated separately for each key-dependent item. Again, error of commission was defined as the number of participants who responded to the item despite the fact the item did not apply to them. Separate frequency tables were produced with and without filters for key-dependent items and these tables were compared. The difference between the number of participants who responded to an item and the number of participants who were eligible to

respond to that item was interpreted as the number of participants who missed the skip or misunderstood the instructions, i.e., as the number of errors of commission. For each item, the error rate was calculated as the number of errors of commission divided by the total number of participants. In addition, a mean error of commission rate was calculated for all key-dependent items on the MSM and WSW questionnaires respectively.

2.12. Items excluded from analysis

It was noted during data entry that for a small number of items the data entry field was designed to accommodate only one response, yet a high number of participants indicated more than one response. For each of these items, the first response in the order of options listed in the questionnaire was entered and additional responses were recorded in a Microsoft Word file. This applied to the two items requesting participants to indicate the "one drug you use most frequently" (for injection and non-injection drugs respectively) and to the six items requesting participants who saw education campaigns about HIV, syphilis, and/or STI to specify what they saw and where they saw it. These items were excluded from the analysis.

Items regarding MSM female sex partners were not analyzed, as these were outside the scope of the thesis. However, these items were included in the calculation of response error.

2.13. Statistical analyses

Frequency tables were produced to describe participants on all variables. After an initial examination of the data, and for statistical comparisons only, responses to the item on personal income were dichotomized by Under $10,000 and $10,000 or more, and responses to items on sexual behaviour were recoded into binary responses by None/Never vs. all other responses and by Always vs. Not always. For statistical comparisons and for descriptive purposes, responses to the items on ancestors' ethnic group and ethnic group most identified with were dichotomized by Aboriginal vs. Non-Aboriginal. This was done by manual review by the author, with participants naming one or more Aboriginal groups categorized as Aboriginal. Frequency distributions of response options to questions instructing participants to "check all that apply" were produced using the SPSS® "Count values within cases" function.

Comparisons of dichotomous variables were made using Chi-square and Fisher's exact test. MSM respondent variables were tested for associations with location of interview, ethnicity, HIV status, and HCV status. For the MSM comparisons, independent and key-dependent items were analyzed separately to facilitate the use of data filtering. WSW variables were tested for associations with HIV status and HCV status.

3. RESULTS: M-TRACK STUDY OF MSM

3.1. Laboratory Screening

Ninety-six MSM participants provided blood specimens (96/121=80.0%). One of these specimens was provided by the participant whose questionnaire data was not entered for analysis (1/96=1.0%). This participant's specimen tested non-reactive for HIV, HCV, and syphilis. Laboratory screening results were linked to questionnaire data from 95 participants (95/121=78.5%). Among these 95 specimens, determinate HIV results were available for 95 (95/95=100%); determinate HCV were available for 93 specimens (93/95=97.9%) and determinate syphilis results for syphilis were available for 91 specimens (91/95=95.8%). Among specimens with determinate results, 18 were anti-HIV reactive (18/95=18.9), 18 were anti-HCV reactive (18/93=19.4%), and three were anti-*Treponema Pallidum* reactive (3/91=3.3). Eight specimens were both anti-HIV reactive and anti-HCV reactive (8/93=8.6%). None of the specimens that were anti-*Treponema Pallidum* reactive were anti-HIV or anti-HCV reactive.

3.2. Questionnaire Component

3.2.1. Data entry error

One hundred and twenty-two questionnaires were completed. However, by mistake, data from only 121 questionnaires were entered into the SPSS® Data Entry Module and included in the analysis. In the 14 questionnaires reviewed, 19 data entry errors were identified. As there are 502 data elements in the questionnaire, the total number of data elements reviewed was 7028. The 19

errors identified therefore reflect a data entry error rate of 1.357 errors per questionnaire or 0.0027 errors per 100 data elements.

3.2.2. Errors of commission and cases included in the analyses

Rates of errors of commission for key-dependent items on the MSM questionnaire are shown in Table 1. It should be noted that the number of "eligible" participants for each key-dependent item is equal to the number of cases that was included in the analysis of that item (see Appendices 3-4). On average, nine participants (mean=8.8; S.D.=6.5) per key-dependent item responded although the item did not apply to them on the basis of their previous responses (range=0, 30). The mean response error rate was 7.27% (range=0%, 24.8%). The response error rate was above 10% for 33 items and above 20% for six items.

3.2.3. Errors of omission and denominators used in presentation of results

It should be noted that, although the calculation of rates of errors of omission was outside the scope of the thesis, errors of omission were common. To avoid making assumptions about participants who made errors of omission, these participants were not included in the calculation of proportions. Therefore, all results presented here use the total number of eligible respondents as the denominator for each item, i.e., the number of participants who were entered into the analysis who gave a response. Consequently, items that may be expected to have the same denominator frequently have different denominators. Results

presented here in table format continually note the number of respondents to each item (N=number of respondents) and, where prudent, the denominator is emphasized in the text.

3.2.4. Recruitment Method and Location of Interview

The majority of questionnaires were completed in Winnipeg bars (Club 200: 42/121=34.7%; Gio's: 8/121=6.6%) or community health centres (Nine Circles Community Health Centre: 21/121=17.4%; Sunshine House: 15/121=12.4%; Resource Assistance for Youth (Ray): 11/121=9.1%; Sage House: 7/121=5.8%; Sexuality Education Resource Centre: 3/121=2.5%; Mount Carmel Clinic: 2/121=1.7%). A small number of questionnaires were completed at Winnipeg coffee shops (Robin's Donuts: 6/121=5.0%; Tim Horton's 2/121=1.7%), at the participant's home (3/121=2.5%), or in the interviewer's car (1/121=0.8%).

Among participants who reported how they heard about the M-Track study (N=117), the majority indicated through 'word of mouth' (57/117=48.7%) or through study personnel (38/117=32.5%). Thirteen participants reported seeing a poster advertising the study (13/117=11.1%). Nine participants reported being recruited by RDS (9/117=7.69%), although the study coordinator's records indicate only seven participants were recruited by RDS.

3.2.5. Questionnaire Part 1: Personal and social background

The demographic characteristics of participants are shown in Table 2. Among the eight participants who reported living outside Winnipeg (8/121=6.6%), seven provided their place of residence. Three of these participants resided in towns in

Manitoba (3/7=42.8%), specifically Easterville (1/7=14.2%), Teulon (1/7=14.2%), and Portage La Prairie (1/7=14.2%). The remaining four participants were from outside Manitoba (4/7=57.1%), residing in Kenora, Ontario (2/7=28.5%), Montreal, Quebec (1/14.2%), and Vancouver, British Columbia (1/7=14.2%).

The majority of participants indicated the language they first learned and still understand was English. Only 12 participants reported the language they first learned and still understand was neither English nor French (12/121=9.9%), however 17 used the space provided to specify another language. Among these 17 participants, the majority specified Aboriginal or First-Nations languages, including Cree (6/17=35.2%), Ojibway (3/17=17.6%), Saulteaux (2/11.7%), Oji-Cree (1/17=5.9%) and "English and Cree together" (1/17=5.9%). One participant specified "German/English" (1/17=5.9%), one participant specified Welsh (1/17=5.9%), and two specified French (11.7%).

One hundred and two participants specified the ethnic or cultural group(s) of their ancestors (102/121=84.3%). Among these participants, 65 reported one or more ancestor groups that were coded as Aboriginal (65/102=63.7%). Responses that were coded as Aboriginal were: "Aboriginal," "Aboriginal half-breed," "Blackfoot," "Cree," "Dene," "First Nation-Saulteaux," "First Nation," "First Nations Ojibway," "Indian," "Metis," "Mohawk," "Native," "Native Canadian (Aboriginal)," "Ojibway," "Peter Balynlyn Cree Nation," and "Saulteaux." Thirty-seven participants reported ancestor groups that were coded as Non-Aboriginal (37/102=36.2%). Groups that were coded as Non-Aboriginal were "Belgian," "Black, "Black Canadian," "British, "Canadian," "Caucasian," "Celtic," "Dutch,

"English," "English/Saxon," "German," "German/Austrian," "Hungarian," "Irish," "Irish/Russian," "Italian," "Jewish," "Mennonite," "Northern Irish," "Polish," "Polish/Ukranian," "Portuguese," "Romani/Ukranian," "Russian," "Scottish," "Scotch," "Swedish," "Ukranian," and "Welsh."

One hundred and two participants used the space provided to specify an ethnic or cultural group they most identify with (102/121=81.0%). However, four participants gave responses that could not be grouped for analysis and these were excluded ("doesn't matter," "Everyone," "my boyfriend, "None"). Among the remaining 98 participants, 46 reported identifying most with a group that was coded as Aboriginal (46/98=46.9%). These were "Aboriginal," "Aboriginal half-breed", "Blackfoot," "Canadian/English/Metis," "Cree," "Cree/French/Metis," "Cree/Ojibway," "English/Metis," "First Nation," "Metis," "Native," "Ojibway," and "Saulteaux." Fifty-two participants reported identifying most with a group that was coded as Non-Aboriginal (52/98=53.1%). These included "American," "Belgian," "Black," "Canadian," "Canadian/English," "Canadian/English/French," "French," "German," "Irish," "Portuguese," "Romani/Ukranian," "Ukranian," and "Welsh." The majority of these non-Aboriginal participants indicated the ethnic or cultural group they most identified with was Canadian (29/98=55.8%).

Among participants who reported their sexual orientation (N=120), the majority of participants identified as gay or homosexual, although over one-quarter identified as bisexual. Two of the participants who identified as gay or homosexual also identified as two-spirited; these were entered as "gay or homosexual" and not included in the total for two-spirited. Six participants

specified an alternative to the options provided (6/120=5.0%). These were 'Transgender' (4/6=66.7%), 'Queer' (1/6=16.7%) and 'Too-friendly' (1/6=16.7%). Table 3 shows the types of health services and facilities accessed by participants in the past year. Nearly one-third of participants reported receiving medical attention at a community health centre (37/121=30.6%). Among these participants, most specified Nine Circles, where study recruitment took place (30/37=81.1%). Nineteen participants had received medical attention at a correctional facility, among whom over half specified the Remand Centre (13/19=68.4%) and/or Headingley Correctional Centre (10/19=52.6%). Five participants reported receiving medical attention at two correctional facilities (5/19=26.3%) and one reported receiving medical attention at three correctional facilities (1/19=5.3%).

One-hundred and fifteen participants indicated whether they have a doctor or nurse they consider to be their primary care provider (115/121=95.0%). Of these 115 respondents, 64 reported they did (Yes: 64/115=55.7%; No: 42/115=; 36.5%; Unsure: 7/115=6.1%; Refused: 2/115=1.7%). Among those with a primary care provider who responded to the item, the majority reported that their primary care provider knows their sexual orientation (41/62=66.1%). Approximately half of respondents indicated their primary care provider has discussed safer sex methods with them (34/64=53.1%), while less than half of respondents reported that their primary care provider has asked them about new sex partners (25/63=39.7%).

3.3. Questionnaire Part 2: Drug Use and Sex Life

Places where respondents looked for sex during the past six months and the frequency this occurred are listed in Tables 4 and 5, respectively. It may be noted in Table 4 that the number of respondents varies for each item (i.e., for each place listed in the questionnaire). Among those who responded, the greatest proportion reported looking for sex in gay bars (60/110=54.5%), straight bars (34/102=33.3%), and after-hours clubs or parties (32/100=32%). One-quarter or more of respondents reported looking for sex over the internet (28.96=28.9%), telephone chat lines (25/98=25.5%), and in saunas (24/98=24.5%). While less than ten percent of respondents reported looking for sex in bicycle paths or public restrooms, more than a fifth of respondents reported looking for sex in parks (21/97=21.6%).

The distribution of the number of places participants looked for sex in the past six months is shown in Table 6. On average, participants reported looking for sex in approximately three places in past six months (mean=2.9; S.D.=3.2; range=0, 19).

Table 7 illustrates participants' use of injection drugs, including time of use. It should be noted that participants were instructed to skip the section on injection drug use if they had never injected drugs. However, there was no place on the questionnaire for participants to indicate "Never to all" to confirm the reason for skipping the section on injection drugs. In this analysis, participants who skipped the section in its entirety were not assumed to be included in the "Never" group and therefore were excluded from the denominator.

Consequently, the percentages represented in Table 7 use the number of respondents to each item as the denominator for that item and not the total number of participants.

Among participants who reported ever injecting one or more drugs (N=51), the mean number of drugs ever injected was 2.9 (S.D.=2.8; range=1, 15). With respect to lifetime use, cocaine was the injection drug most frequently reported (N=28), followed by crystal meth (N=19), and Talwin/Ritalin (N=17).

Among participants who reported ever injecting, just over half reported injecting in the past six months (27/51=52.9%). Among participants who injected in the past six months, the drug reported most frequently was cocaine (13/27=48.1%). The mean number of drugs injected in the past six months among these participants was 2.7 (S.D.=3.1; range=1, 15).

Participants' use of non-injection drugs is illustrated in Table 8. With respect to use in the past six months, while the greatest number of participants reported using alcohol (N=92), marijuana (N=82), and non-injection cocaine (N=45). Among all participants, the mean number of non-injection drugs used in the past six months was five (S.D.=4.0; range=0, 19).

Table 9 illustrates participants' use of drugs two hours or less before sex with a male partner. Among all participants who reported use, regardless of frequency, the most common drugs used before sex were alcohol (N=81), marijuana (N=64), cocaine/crack/freebase (N=31), and poppers (N=29).

3.4. Questionnaire Parts 3-10: Male Sex Partners

Table 10 illustrates how many male sex partners respondents had overall and of each partner type ("casual," "regular," "client," and "sex worker"). Only 113 participants responded to the item regarding the total number of male sex partners they had in the past six months (113/121=93.4%). Among these 113 respondents, 99, or 87.6%, had at least one male sex partner in the past six months, while 14 had none (14/113=12.4%).

It may be noted in Table 10 that not all 99 respondents who had a male sex partner responded to the items on numbers of casual, regular, client, and sex worker partners. Among those who had at least one male sex partner who responded to the items on partner type, the greatest number reported having one or more casual partners (N=72), followed by regular partners (N=66), client partner (N=33), and sex worker partners (N=3).

Table 11 illustrates participants' responses to the small number of items regarding male sex partners that were not stratified by partner type. Among participants who reported having a male partner in the past six months (N=99), 63 reported having anal intercourse (63/99=63.6%). Of the 63 participants who reported anal intercourse, 53 indicated with how many partners they had anal intercourse in the past six months (53/63=84.1%). The median number of anal sex partners among these participants was two (mean=5.9; S.D.=9.5; range=1, 47). More than half of respondents indicated having UAI with at least one male partner (35/60=58.3%). Over a quarter of respondents specified having UAI with at least one HIV-positive male partner (9/33=27.3%), while just under half of

respondents specified having UAI with an HIV-unknown partner (15/34=44.1%) and/or an HIV-negative partner (17/35=48.6%). Overall, just more than half of respondents reported using a condom the last time they had anal intercourse (24/42=57.1%).

Only a small proportion of respondents indicated having sex with a male partner whom they met outside Manitoba (14/97=14.4%) or outside Canada (6/95=6.3%). Slightly less than a quarter of respondents indicated having sex with a male partner who was traveling in, but not a resident of, Manitoba (21/94=22.3). However, it may be noted in Table 11 that UAI was common among respondents having sex with partners whom they met while traveling or with partners who were themselves traveling.

Table 12 shows participants' sexual behaviour stratified by the partner types reported. Among respondents who had a casual partner, well over a third reported having UAI with this partner type (27/68=39.7%) A small proportion of these respondents specified having UAI with an HIV-positive casual partner (2/27=7.4%), while a greater proportion specified UAI with an HIV-unknown (10/27=41.7%) or HIV-negative casual partner (10/27=41.7%). Approximately half of respondents with a casual partner reported having insertive anal intercourse (39/72=54.2%) and receptive anal intercourse (37/71=52.1%), respectively, with a casual partner.

As shown in Table 12, most items on regular male partners were further stratified by partner HIV status. Among respondents who had one or more regular male partners, approximately half reported having regular male partners

whom they knew were HIV-negative (33/67=49.3%), while over a quarter reported having regular male partners whose HIV status was unknown (16/60=26.7%). Only a small number reported having one or more regular HIV-positive male partners (7/65=10.8%).

Among respondents with a regular HIV-negative partner, a large majority of respondents reported receptive anal intercourse (22/33=66.7%), while slightly less than half of respondents reported receptive anal intercourse with a regular HIV-unknown partner (7/16=46.7%). The majority of respondents with regular HIV-positive male partners reported having receptive anal intercourse with that partner type (4/7=57.1%). However, only a very small number of respondents is represented in these proportions.

A small number of items regarding regular male partners were not stratified by partner HIV status (Table 12). This includes the item on sex partner concurrency, which suggests that, among respondents with any regular partners, the majority also had sex with someone else during that time (35/65=53.8%).

A large number of participants in this sample reported having a male client sex partner, i.e., a partner from whom they received money, drugs, or other goods or services in exchange for sex (N=33). The vast majority of respondents specified they received money in exchange for sex (31/33=93.9%), yet over half received drugs (17/33=51.5%), and a large proportion received other goods or services, such as clothing, shelter, or protection (13/32=40.6%). Among respondents who had client partners, approximately a third indicated having insertive anal intercourse (12/32=37.5%) and receptive anal intercourse

(11/32=34.4%), respectively, with client partners. While client partners were relatively common, sex worker partners, i.e., partners whom respondents gave money, drugs, or other goods or services in exchange for sex, were uncommon, reported by only three participants (Table 12).

Comparing across partner types (Table 12), findings suggest that a higher proportion of respondents discussed HIV with regular partners (40/65=61.5%) than discussed HIV with casual partners (29/69=42.0%) or client partners (10/33=30.3%). Generally speaking, a greater proportion of respondents discussed HIV with their male sex partners than discussed syphilis or other STI, such as Ct and Gc.

Table 13 shows the use of condoms/barrier protection stratified by sexual behaviour and partner type, with regular partners further stratified by HIV status. Across all sexual behaviours and partner types, the greatest proportion of respondents reported using condoms "all the time" for receptive anal intercourse with a casual partner (18/34=52.9%). However, the proportion of respondents who used condoms "all the time" was less than half for insertive anal intercourse with casual partners and less than half for insertive and receptive anal intercourse for all other partner types.

Condom use for oral sex, which the questionnaire elicited for casual and regular partners only, was less frequent than condom use for anal intercourse. The majority of respondents indicated using condoms "never" with regular partners (35/58=60.3%), while nearly half of respondents indicated using condoms "never" with casual partners (27/57=47.4%). Among respondents who

had oral sex, the majority indicated their casual and/or regular partners ejaculated in their mouth without a condom at least some of the time.

3.5. Questionnaire Part 16: Health care, HIV, hepatitis and STI

Table 14 illustrates participants' self-reported testing history for BBP and STI in the past two years. It should be noted that many data were missing from the section on BBP/STI testing and the number of respondents differs for each item.

Among respondents who were tested for an infection in the past two years, the greatest proportion were tested for HIV (41/106=38.6%), followed by Gc (31/101=30.7%), hepatitis B (27/98=28.4%), hepatitis C (26/95=27.3%) and Ct (27/99=27.3%). Approximately one-quarter of respondents had been tested for hepatitis A (24/97=24.7%) and syphilis (25/103=24.3%), respectively, in the past two years. Among respondents to the item on HIV testing, less than one-fifth had never been tested for HIV (19/106=17.9%). However, nearly 40% of respondents had never been tested for syphilis (40/103=38.8%), while more than a quarter of respondents had never been tested for Gc (29/101=28.7%) and Ct (30/99=30.3%), respectively.

Table 15 shows the 46 participants who reported receiving diagnoses of BBP and/or STI and the time they reported this occurred. Among all participants, the mean number of self-reported infections was less than one (mean=0.8; S.D.=1.5; range=0, 8). However, among participants who reported being diagnosed with one or more infections, the mean number of self-reported infections was two (S.D.=1.8; range=1, 8).

Among the 46 participants who reported being diagnosed with one or more infection, 44 reported whether they received information following their diagnosis (44/46=95.7%). Nearly three-quarters of these participants indicated they did receive information (Yes: 32/44=72.7%; No: 10/44=22.7%; Unsure: 1/44=2.3%; Refused: 1/44=2.3%). Of the 32 participants who received information, 31 reported whether they found the information helpful (31/32=96.9), of whom 30 indicated they did find the information helpful (Yes: 30/31=96.8%; Unsure: 1/31=3.3%). All 32 participants who received information reported whether it assisted them in talking about their infection with their sexual partners, of whom the majority indicated it did (Yes: 27/32=84.4; No: 2/32=6.3%; Unsure: 3/32=9.4%).

Only 82 participants responded to the question regarding the result of their last test for HIV (82/121=67.8%). Among these participants, 18 reported the result was positive (18/82=22.0%). Sixty-one participants reported the result was negative (61/81=74.4%), two reported they did not know (2/82=2.4%), and one reported he did not receive the result (1/82=1.2%). Table 16 shows participants' laboratory-confirmed HIV status stratified by participants' self-reported history of physician diagnoses and/or self-reported results of most recent serological testing. The one HIV-positive participant who reported that he had never been told by a doctor he had HIV did not respond to the item regarding the result of his last HIV test; however, he did report being tested for HIV in 2004.

Among laboratory-confirmed HIV-positive participants, 13 reported the date they first tested HIV-positive (13/18=72.2%), with dates ranging from 1986

to 2005. Fourteen HIV-positive participants responded to the question regarding ever taking anti-HIV medication, among whom 11 indicated yes (Yes: 11/14=78.6%; No: 3/14=21.4%). Only ten of these HIV-positive participants reported the date they began taken anti-HIV medication, with dates ranging from 1994 to 2006. However, all 11 HIV-positive participants who indicated ever taking anti-HIV medication specified whether they were currently taking the medication, among whom eight indicated they were (Yes: 8/11=44.4%) and three indicated they were not (No: 3/11=27.3%). Among the 14 HIV-positive respondents who reported whether they were tested for syphilis after they tested HIV-positive, eight indicated they were tested (8/14=57.1%), two indicated they were not (2/14=14.3%) and four did not know (4/14=28.6%).

Only 73 participants responded to the question regarding the result of their last test for hepatitis C (73/121=60.3%). Among these participants, ten reported the result was positive (10/73=13.7%). Fifty-six of these participants reported the result was negative (56/73=76.7%), five reported they did not know (5/73=68.4%), and two reported they did not receive the result (2/73=2.7%). Table 16 shows participants' laboratory-confirmed HCV status stratified by participants' self-reported history of physician diagnoses and/or self-reported results of most recent serological testing. Among laboratory-confirmed HCV-positive participants, eight reported the date they first tested positive for hepatitis C, with dates ranging from 1991 to 2005.

Table 16 illustrates that, among the three participants who were laboratory-confirmed syphilis positive, only one reported he had never been told

by a doctor he had syphilis. Unlike the items pertaining to HIV and HCV testing results, the questionnaire did not contain an item that elicited the result of participants' last test for syphilis.

Reasons indicated by participants for receiving or not receiving HIV, Gc/Ct, and syphilis testing are shown in Table 17 and Table 18, respectively. Table 19 shows participants' responses to questions pertaining to their knowledge and opinions regarding HIV and STI.

Ninety-five participants responded to the question regarding whether they had been vaccinated against hepatitis B (95/121=78.5%), among whom 48 indicated yes (48/95=50.5%) and 32 indicated no (32/33.7%); 13 did not know (13.7%) and two selected "Refused" (2/95=2.1%). Participants who reported being vaccinated against hepatitis B were included in the analysis of the question regarding how many shots they received; of the 46 participants who responded, the majority reported receiving three shots for hepatitis B vaccination (1 shot: 5/46=10.9%; 2 shots: 9/46=19.6%; 3 shots: 22/46=47.8%; I do not know: 10/46=21.7%).

Ninety-three participants responded to the question regarding whether they had been vaccinated against hepatitis A (93/121=76.9%). Of these participants, 35 indicated they had been vaccinated (35/93=37.6%), 32 indicated they had not (32/93=34.4%), 25 did not know (25/93=26.9%) and one selected "Refused" (2/95=2.1%). Participants who reported being vaccinated against hepatitis A were included in the analysis of the question regarding how many shots they received; 35 participants responded and the majority reported

receiving three shots for hepatitis A vaccination (1 shot: 5/35=14.3%; 2 shots: 5/35=14.3%; 3 shots: 18/35=51.4%; I do not know: 7/35=2.0%).

3.6. Univariate analysis of MSM data

Univariate analyses were conducted to test associations between respondent variables and four dichotomous variables. The first was location of interview, in order to determine if any non-random differences existed between participants who completed the questionnaire in a bar and outside a bar. The second was ethnicity, dichotomized by Aboriginal status, as evidence suggests that Aboriginal populations in Canada are disproportionately affected by HIV. The final two were HIV status and HCV status, in order to explore respondent variables associated with these infections.

The results of the univariate analyses are shown by grouping respondent variables by independent items and key-dependent items. Thus, Table 20 shows the results of univariate analysis of associations between location of interview and independent items, while Table 21 shows the results of univariate analysis of associations between location of interview and key-dependent items. Similarly, other univariate analyses are shown as follows: Table 22: Ethnicity by independent items; Table 23: Ethnicity by key-dependent items; Table 24: HIV status by independent items; Table 25: HIV status by key-dependent items; Table 26: HCV status by independent items; Table 27: HCV key-dependent items.

As shown in Tables 20 and 21, several significant differences were found between participants who completed the questionnaire in a bar and those who

completed it in other locations. For one, laboratory testing results indicate that significantly more participants who completed the questionnaire outside a bar were infected with HIV (X^2=8.8, df=1; OR=7.80; 95% CI: 1.68-36.23; p=0.003) and HCV, respectively (X^2=16.1, df=1; p<0.001) (Table 20).

With respect to demographic differences, Table 20 illustrates that significantly fewer participants who completed the questionnaire outside a bar were non-Aboriginal (X^2=7.5, df=1; OR=0.32; 95% CI: 0.14-0.73; p=0.011), completed high school (X^2=19.3, df=1; OR=0.18; 95% CI: 0.39-0.78; p=0.012), and earned more than $10,000 in the past year (X^2=16.8, df=1; OR=0.14; 95% CI: 0.37-0.52; p<0.001). Significantly fewer participants who completed the questionnaire outside a bar reported looking for sex in gay bars (X^2=23.5, df=1; OR=0.12; 95% CI: 0.05-0.30; p<0.001), and significantly more reported accessing a primary care nurse in the past year (X^2=9.4, df=1; OR=6.14; 95% CI: 1.71-22.02; p=0.011).

Significantly more participants who completed the questionnaire outside a bar had ever injected drugs (X^2=13.6, df=1; OR=4.46; 95% CI: 1.96-10.10; p<0.001), including cocaine, crystal meth, Talwin and Ritalin, crack, morphine, Oxycontin, and other opiates, specifically (Table 20). Significantly more participants who completed the questionnaire outside a bar had used several non-injection drugs, including amyl nitrite (poppers), crystal meth, other opiates, tranquilizers, barbiturates, and gas or solvents, as well as to have used tranquilizers before sex (Table 20).

Significantly more participants who completed the questionnaire outside a bar reported having one or more female sex partners (X^2=8.7, df=1; OR=8.30; 95% CI: 1.81-38.11; p=0.009) (Table 20), as well as one or more client male sex partners, i.e., to be involved in the sex trade (X^2=8.5, df=1; OR=4.13; 95% CI: 1.54-11.03; p=0.004) (Table 21). However, significantly fewer of these participants reported having a regular male partner (X^2=5.4, df=1; OR=0.32; 95% CI: 0.12-0.86; p=0.025). Furthermore, significantly fewer of these participants reported having receptive anal intercourse with a casual partner (X^2=5.4, df=1; OR=0.31; 95% CI: 0.12-0.84; p=0.029) or HIV-unknown regular partner (X^2=5.4, df=1; OR=0.06; 95% CI: <0.001-0.82; p=0.041). Significantly more participants who completed the questionnaire outside a bar reported always using condoms for oral sex with casual partners (X^2=7.4, df=1; OR=12.15; 95% CI: 1.42-103.83; p=0.012)

As shown in Table 22, significantly more Aboriginal participants were confirmed HCV-positive (X^2=7.3, df=1; OR=11.11; 95% CI: 1.37-100.00; p=0.007), but not HIV-positive. Significantly fewer Aboriginal participants had been diagnosed with genital warts (X^2=5.0, df=1; OR=0.12; 95% CI: 0.01-1.04; p=0.036).

With respect to demographics, significantly fewer Aboriginal participants reported completing high school (X^2=5.5, df=1; OR=0.37; 95% CI: 0.16-0.85; p=0.024), and reported earning $10,000 or more in the past year (X^2=8.2, df=1; OR=0.23; 95% CI: 0.08 -0.65; p=0.008). Regarding drug use, significantly more Aboriginal participants reported injecting Talwin and Ritalin (X^2=6.4, df=1;

OR=10.00; 95% CI: 1.23 -100.00; p=0.012), but significantly fewer reported using non-injection Ketamine (X^2=9.4, df=1; OR=0.19; 95% CI: 0.06-0.57; p=0.004), as well as non-injection heroin (X^2=7.5, df=1; OR=0.08; 95% CI: 0.01-0.73; p=0.013).

Table 23 shows that significantly more Aboriginal participants reported having a client sex partner. However, compared to Non-Aboriginal participants, a significantly greater proportion of Aboriginal participants reported that their primary care provider had discussed safer sex (X^2=6.6, df=1;OR=4.35; 95% CI: 1.37-14.29; p=0.014). Significantly more Aboriginal participants had used a condom at last anal intercourse (X^2=8.2, df=1;OR=10.00; 95% CI: 1.82-50.00; p=0.008) and had used condoms for receptive anal intercourse with an HIV-negative regular partner (X^2=5.1, df=1; p=0.044). Significantly fewer Aboriginal participants reported oral sex to ejaculation with a casual partner (X^2=4.8, df=1;OR=0.27; 95% CI: 0.08-0.89; p=0.040).

As shown in Table 24 and Table 25, few significant differences were found between laboratory-confirmed HIV-positive and HIV-negative participants. With respect to demographic differences (Table 24), significantly fewer HIV-positive participants had completed high school (X^2=5.1, df=1;OR=0.26; 95% CI: 0.08-0.88; p=0.031). Significantly fewer HIV-positive participants reported not accessing health services in the past year (X^2=6.3, df=1;OR=0.73; 95% CI: 0.63-0.83; p=0.010). Accordingly, significantly more HIV-positive participants reported accessing a doctor, primary care nurse, and community health centre, respectively (Table 24).

Table 24 illustrates that significantly fewer HIV-positive participants reported looking for sex in rave or circuit parties (X^2=6.0, df=1; OR=0.71; 95% CI: 0.61-0.83; p=0.017). Regarding differences in drug use, significantly more participants who were confirmed HIV-positive had ever used LSD, tranquilizers, and barbiturates (Table 24). HIV infection was positively associated with injection drug use, with the odds of ever injecting drugs over three times higher among HIV-positive participants (X^2=5.5, df=1OR=3.5; 95% CI: 1.18-10.31; p=0.032) (Table 24).

Being confirmed HIV-positive was strongly associated with reporting having sex with an HIV-positive regular partner (X^2=20.7, df=1; OR=52.5; 95% CI: 4.86-566.92; p<0.001). No significant differences by HIV status were observed in sexual behaviour (Table 25).

As shown in Table 26, significantly fewer participants who were confirmed to be HCV-positive had completed high school (X^2=4.7, df=1;OR=0.28; 95% CI: 0.08-0.93; p=0.034). HCV status was also associated with income, with significantly fewer HCV-positive participants reporting earning $10,000 or more in the past year (X^2=8.4, df=1;OR=0.12; 95% CI: 0.02-0.60; p=0.008). Significantly more HCV-positive participants reported having a primary care provider (X^2=4.5, df=1;OR=3.96; 95% CI: 1.03-15.19; p=0.048) and reported accessing a primary care nurse in the past year (X^2=7.9, df=1;OR=4.66; 95% CI: 1.51-14.39; p=0.009).

Injection drug use was positively associated with HCV status, with the odds of ever having injected drugs ten times higher among HCV-positive

participants (X^2=14.8, df=1;OR=10.00; 95% CI: 2.65-34.46; p<0.001). Significantly more participants with HCV infection reported ever injecting cocaine, crystal meth, morphine, Oxycontin, respectively. Significantly more HCV-positive participants had used non-injection morphine, cocaine, and tranquilizers, respectively, before sex (Table 26).

As shown in Table 26, significantly fewer HCV-positive participants had one or more male sex partners in the last six months (X^2=5.5, df=1;OR=0.22; 95% CI: 0.06-0.84; p=0.033). However, significantly more HCV-positive participants reported having client partners (X^2=5.2, df=1; OR=4.32; 95% CI: 1.16-16.12; p=0.046) (Table 27). Like Aboriginal participants, significantly fewer HCV-positive participants reported having receptive oral sex to ejaculation with a casual partner (X^2=4.5, df=1;OR=0.61; 95% CI: 0.47-0.79; p=0.041).

4. RESULTS: PILOT STUDY OF WSW

4.1. Laboratory screening

Forty WSM participants provided blood specimens (40/50=80%). Laboratory screening results were linked to questionnaire data from 40 participants (40/40=100%). Determinate results from anti-HIV and anti-HCV testing were available for all 40 specimens; determinate results for anti-*Treponema Pallidum* testing were available for 39 specimens (39/40=97.5%). Among specimens with determinate results, six were anti-HIV reactive (6/40=15%), 17 were anti-HCV reactive (17/40=42.5%), and one was anti-*Treponema Pallidum* reactive (1/39=2.6%). Five specimens were both anti-HIV reactive and anti-HCV reactive (5/40=12.5%). The specimen that was anti-*Treponema Pallidum* was also anti-HCV reactive (1/39=2.6%).

4.2. Questionnaire component

4.3. Data entry error

In the 14 questionnaires reviewed, a total of 13 errors were identified. As there are 528 data elements in the questionnaire, a total of 7392 data elements were reviewed. The 13 errors identified therefore reflect a data entry error rate of 0.929 errors per questionnaire or 0.00018 errors per 100 data elements.

4.4. Errors of commission and cases included in the analyses

Response error rates for key-dependent items on the WSM questionnaire are shown in Table 28. As noted, the number of "eligible" participants for each key-

dependent item represents the number of cases that was included in the analysis of that item. On average, three participants (mean=3.2; S.D.=2.8) per key-dependent item responded although the item did not apply to them on the basis of their previous responses (range=0, 15). The mean response error rate was 6.34% (S.D.=5.6%; range=0%, 30.0%). The response error rate was above 10% for 20 items and above 20% for five items.

4.5. Errors of omission and denominators used in presentation of results

It should be noted that, although the calculation of rates of errors of omission was outside the scope of the thesis, errors of omission were common. To avoid making assumptions about participants who made errors of omission, these participants were not included in the calculation of proportions. Therefore, all results presented here use the total number of eligible respondents as the denominator for each item, i.e., the number of participants who were entered into the analysis who gave a response. Consequently, items that may be expected to have the same denominator frequently have different denominators. Results presented here in table format continually note the number of respondents to each item (N=number of respondents) and, where prudent, the denominator is emphasized in the text.

4.6. Recruitment Method and Location of Interview

Fifty questionnaires were completed and entered into the SPSS® Data Entry Module for analysis. The greatest proportion of surveys was completed at Sage House (13/50=26.0%), followed by Sunshine House (8/50=16.0%), Nine Circles

Community Health Centre (8/50=16.0%), Robin's Donuts (6/50=12.0%), Ray (5/50=10.0%), the Yale Hotel (3/50=6.0%), Portage Place shopping mall (2/50=4.0%), Club 200 (2/50=4.0%), Mount Carmel Clinic (1/50=2.0%), Tim Horton's (1/50=2.0%), and a bookstore (1/50=2.0%).

Of the fifty women who participated, almost half were recruited by word-of-mouth (24/50=48.0%). The rest saw a poster for the study (12/50=24.0%), were approached by study personnel (8/50=16.0%), or were recruited by RDS (4/50=8.0%). The method of recruitment was not recorded for two participants (2/50=4.0%). Participants who reported seeing study posters recalled those placed at Sage House (4/12=33.3), Nine Circles Community Health Centre (3/12=25.0%), Sunshine House (1/12=8.3%), Club 200 (11/12=8.3%), and a bookstore (1/12=8.3%). One participant reported seeing a poster in a mailbox, although this would not have been placed there by study personnel.

4.7. Questionnaire Part 1: Personal and social background

The demographic characteristics of WSW participants are shown in Table 30. The age of participants ranged from 16 to 48 years, with a mean age of 32 (S.D.=8.7). All participants reported living in Winnipeg, with the exception of one who reported living in Steinbach, Manitoba.

All but three participants reported that English was the language they first learned and still understand. Of the three participants who reported other languages, two specified Cree (2/3=66.6%) and one specified Ojibway (1/3=33.3%).

All participants reported the ethnic or cultural group of their ancestors, with the majority reporting groups that were coded as Aboriginal (36/50=72.0%). Reported groups that were coded as Aboriginal were "Aboriginal," "Cree," "First Nation," "Metis," "Native," Oji-Cree," "Ojibway," "Saulteaux," "Sioux," "Anisinabe," and "Native American." Eight participants reported no Aboriginal ancestor groups and were categorized as Non-Aboriginal (8/50=16.0%). Reported groups that were coded as Non-Aboriginal were "Canadian," "Caucasian," "English," "Jamaican," "Manitoban," "White," "German," "Mexican," "Scottish," "Welsh," "Irish," "Dutch," "and "Polish."

Forty-six participants used the space provided to specify the ethnic or cultural group they most identify with (46/50=92.0%). However, one participant gave a response that could not be grouped for analysis ("all") and this was excluded. Of the remaining 45 participants, 31 reported they identified most with an ethnic or cultural group that was coded as Aboriginal (31/48=64.6%). These groups were "Aboriginal," "First Nation," "First Nation Aboriginal, " Metis," "Native American," "Oji-Cree," "Ojibway," "Saulteaux," and "Sioux." Groups that were categorized as Non-Aboriginal were "Canadian," "Canadian Welsh," "Dutch," "English," and "Jamaican." Ethnic or cultural groups participants most identified with that were coded as Non-Aboriginal were "Canadian," "Canadian Welsh," "Dutch," "English," and "Jamaican."

Over half of participants (29/50=58.0%) identified their sexual orientation as bisexual (29/50=58.0%). Only two participants identified as lesbian or homosexual (2/50=4.0%), while seven identified as straight or heterosexual

(7/50=14.0%). Participants who did not choose from the available options specified "try-sexual" (1/50=2.0%), "just tried it one or two times" (1/50=2.0%), "swinger" (1/50=2.0%), "lesbian/homosexual and bisexual" (1/50=2.0%) and "unsure" (1/50=2.0%).

Table 30 shows the types of health services and facilities accessed by participants in the past year. Among the 22 participants who reported receiving medical attention at a community health centre, more than three-quarters specified those used for study recruitment, specifically Mount Carmel Clinic (11/22=50.0) and Nine Circles (6/22=27.3%). Five participants reported receiving medical attention at a correctional facilities, most commonly Portage Correction Centre (3/5=60.0%) and/or the Remand Centre (2/5=40.0%). Four participants had received medical attention at one correctional centre and one participant had received medical attention at two.

Forty-nine participants indicated whether they have a doctor or nurse they consider to be their primary care provider (49/50=98.0%). Of these 49 respondents, 30 reported they did have a primary care provider (Yes: 30/49=61.2%; No: 19/40=38.8%). Among those with a primary care provider, the majority reported that their primary care provider knows their sexual orientation (18/30=60.0%). Approximately three-quarters indicated their primary care provider has discussed safer sex methods with them (22/30=75.9%). Among those who responded to the item, less than half reported that their primary care provider has asked them about new sex partners (14/30=46.7%).

4.8. Questionnaire Part 2: Drug Use and Sex Life

Places where participants reported looking for sex in the past six months and the frequency this occurred are shown in Tables 31 and 32, respectively. The places most commonly cited by respondents were straight bars (18/45=40.0%) and community organizations (11/41=26.8%), followed by telephone chat-lines (9/42=21.4%). Approximately one-fifth of participants reported looking for sex over the Internet (8/41=19.5%).

The frequency distribution of the number of places WSW reported looking for sex is shown in Table 33. On average, participants looked for sex in two places in the past six months (mean=2.1; S.D.=2.5; range=0, 9).

Table 34 illustrates participants' use of injection drugs, including time of use. As in the previous analysis, the percentages represented in Table 34 use the number of respondents to each item as the denominator for that item and not the total number of participants. Thirty-three participants reported injecting one or more drugs in their lifetime (N=33). With respect to lifetime use among the total number of participants, cocaine was the injection drug most frequently reported (N=28), followed by Talwin/Ritalin (N=15), and crack/rock cocaine (N=14). Among the 11 participants who reported injecting in the past six months, the drug reported most frequently was crack/rock cocaine (6/11=54.5.0%). The mean number of drugs injected among participants who injected in the past six months was less than two, with only two participants reporting injecting three drugs (mean=1.8; S.D.=0.8; range=1, 3).

Table 35 shows participants' use of non-injection drugs. With respect to use in the past six months, the greatest numbers of participants reported using alcohol (N=40) and marijuana (N=34), and non-injection cocaine (N=30). On average, participants reported using three non-injection drugs in the past six months (mean 3.3; S.D.=2.4; range=0, 10).

Table 36 illustrates participants' use of drugs two hours or less before sex with a female partner. The drugs used before sex cited by the greatest number of participants were alcohol (N=31), marijuana (N=22), and cocaine (N=21). Several participants reported using cocaine more than half the time before sex (N=9).

4.9. Questionnaire Part 3-7: Female Sex Partners

Table 37 illustrates how many female sex partners respondents had overall and of each partner type ("casual," "regular," "client," and "sex worker"). Only 42 participants responded to the question regarding their number of female sex partners in the past six months (42/50=84.0%). Among these 42 participants, 39 reported having at least one female partner in the last six months (39/42=92.8%). Of those who responded to the items on partner type, the greatest number reported having one or more regular partners (N=29), followed by casual partners (N=22), client partners (N=6), and sex worker partners (N=2).

Table 38 illustrates participants' responses to items regarding female sex partners in general. Among participants who had a female partner (N=39), just over half reported having a female partner whom they knew was HIV-negative (20/39=51.3%). A large proportion reported having a female partner whose HIV

status was unknown (17/39=43.6%). Less than ten percent reported having an HIV-positive female partner (3/39=7.7%).

As shown in Table 38, only a small number of respondents indicated having a female partner whom they met outside Manitoba or outside Canada, or having a partner who was traveling in Manitoba. However, among those who had partners under these circumstances, all indicated having unprotected sex.

Table 39 shows participants' sexual behaviour stratified by the partner types reported. Among respondents who had a casual partner, the majority reported receiving oral sex (18/22=81.8%), giving oral sex (17/22=77.3%), and having vaginal-vaginal sex (12/21=57.1%), respectively. One-quarter of respondents with a casual partner reported sharing sex toys (5/20=25%). The pattern of behaviour was similar with regular partners, with a slightly smaller majority of respondents reporting receiving oral sex (20/29=69.0%) and an greater majority reporting giving oral sex (27/29=93.0%) and having vaginal-vaginal sex (18/28=64.3%). More respondents reported sharing sex toys with regular partners (10/29=34.0%) than with casual partners.

Among the six participants with female client partners, the greatest number of respondents indicated they received money from female client partners (4/6=66.6%). The same number of respondents reported receiving drugs (2/6=33.3%) as reported receiving other goods or services (2/5=40.0%), although the number of respondents to the questionnaire items differs. It may be noted on Table 39 that among the six respondents with female client partners, four reported sharing sex toys with female client partners (4/6=66.6%). Only two

participants reported having female sex worker partners, although both indicated sharing sex toys (2/2=100%).

As shown in Table 39, less than half of respondents indicated that they discussed HIV, syphilis, or other STI with a casual or regular partner, respectively. Slightly more than half of respondents with regular partners reported sex partner concurrency, i.e., indicated having sex with someone else while they had a regular partner (15/28=53.6%).

Table 40 shows respondents' use of barrier protection stratified by sexual behaviour and partner type. In general, respondents' use of barrier protection was low across all partner types and sexual behaviours, with the greatest relative proportions of respondents reporting "never" using barrier protection. Among the five participants who reported sharing sex toys with casual partners, three reported they never used a barrier with sex toys (3/5=60.0%) and two reported they "never" cleaned sex toys before sharing them with casual partners (2/5=40.0%). Among the ten participants who reported sharing sex toys with regular partners, four reported they never used a barrier with sex toys (4/10=40.0%) and four reported they "never" cleaned sex toys before sharing them with regular partners (4/10=40.0%). The use of barriers with sex toys and the practice of cleaning sex toys was similarly low among the small number of respondents who reported sharing sex toys with client or sex worker partners (Table 40).

4.10. Questionnaire Part 8-15: Male Sex Partners

Table 41 illustrates participants' use of drugs two hours or less before sex with a male partner. As with female partners, the drugs used most often before sex, regardless of frequency, were alcohol (N=28), marijuana (N=21), and cocaine (22). However, a greater number of respondents reported using cocaine "more than half of the time" before sex with a male partner (N=12).

Table 42 illustrates how many male sex partners respondents had overall and of each partner type ("casual," "regular," "client," and "sex worker"). Only 39 participants responded to the item regarding the total number of male sex partners they had in the past six months (39/50=78.0%). Among these 39 respondents, 35, or 89.7%, had at least one male sex partner in the past six months, while four had none (4/39=10.3%). Overall, the greatest proportion of participants reported having only one male partner in the last six months (17/50=34.0%). Of those with male partners who responded to the items on male partner type, the greatest number reported having one or more regular partners (N=27), followed by casual partners (N=14), client partners (N=15), and sex worker partners (N=1), respectively.

Table 43 illustrates participants' responses to the small number of items regarding male sex partners that were not stratified by partner type. Among participants with male partners who responded to the item, more than a third reported having anal intercourse with a male partner in the past six months (12/34=35.3.0%). Of the 12 participants reporting anal intercourse, 11 indicated with how many partners they had anal intercourse in the past six

months (11/12=91.6%). The majority of these participants (9/11=82.8.0%) had anal intercourse with one partner, while one participant had anal intercourse with three partners (1/11=0.09.0%) and another participant with ten partners (1/11=9.1%).

The majority of participants who had anal intercourse reported having unprotected anal intercourse with at least one male partner in the past six months (10/12=83.3.0%). Among those who responded, the majority specified having unprotected anal intercourse with a male partner whose HIV status was unknown (4/7=57.1%). One participant reported having unprotected anal intercourse with an HIV-positive male partner (1/9=11.1%). Among those who responded, a minority reported using a condom the last time they had anal intercourse with a man (1/9=11.1%).

Table 44 shows participants' sexual behaviour stratified by the male partner types reported. Among respondents who had casual male partners, the majority reported having vaginal intercourse (12/14=85.7%) and anal intercourse (3/5=60.0%), respectively, with casual male partners. Among respondents who had regular male partners, none had HIV-positive regular partners, but several had regular partners who HIV status was unknown (6/26=23.1%). Respondents who had HIV-unknown regular male partners reported having vaginal intercourse (6/6=100%) and anal intercourse (4/4=100%) with these partners. The majority of respondents who had regular male partners reported partner concurrency, i.e., having sex with other partners while having a regular male partner (14/25=56.0%).

As may be noted in Table 44, vaginal intercourse was common among respondents reporting having client male partners (9/15=60.0%). However, no respondents who had client male partners reported having anal intercourse with client partners. Among respondents who had client partners, all reported receiving money in exchange for sex (15/15=100.0%). The majority reported receiving drugs in exchange for sex from client partners (9/15=60.0%), while a large proportion reported receiving other goods or services (6/15=40.0%). Only one participant reported having a male sex worker partner.

Table 44 illustrates the proportion of respondents who discussed HIV, syphilis, or STI with male partner types. Half or more of respondents reporting discussing HIV, syphilis, and STI, respectively, with regular partners, compared to a third or less reporting discussing each infection, respectively, with casual partners. Among participants with client male partners, none reported discussing HIV, while only one participant reported discussing syphilis (1/14=7.1%) and one reported discussing STI (1/15=6.7%). The participant with a sex worker male partner reported discussing STI, but not HIV or syphilis.

Table 45 shows the use of condoms/barrier protection stratified by sexual behaviour and partner type, with regular partners further stratified by HIV status. The majority of respondents reported using condoms "always" for vaginal intercourse with casual male partners (7/11=63.6%). However, across other sexual behaviours and partner types, the proportion of respondents reporting "always" using condoms was consistently less than half. Notably, almost three-quarters of respondents indicated they "never" used condoms for vaginal

intercourse with regular HIV-negative male partners (13/18=72.2%). Condom use with regular partners was similarly low for oral sex, almost three-quarters of respondents "never" used condoms for oral sex with regular partners generally (14/19=73.7%), compared to only a third of respondents who "never" used condoms for oral sex with casual male partners (2/6=33.3%). Among respondents with client partners, only half reported "always" using condoms for vaginal intercourse (4/8=50.0%).

4.11. Questionnaire Part 16: Health care, HIV, hepatitis and STI

Table 46 illustrates participants' self-reported testing history for BBP and STI. It should be noted that many data were missing from the section on BBP/STI testing and the number of respondents differs for each item. With respect to testing received in the past two years, the greatest proportions of respondents were tested for HIV (15/37=40.5%), followed by Gc (14/36=38.9%), Ct (14/36=38.9%), hepatitis B (9/30=30.0%), hepatitis C (9/30=30.0) and syphilis (10/36=27.8%).

Table 47 shows the 35 participants who reported receiving diagnoses of BBP and/or STI and the time they reported this occurred. The median number of infections self-reported was one and ranged from zero to four. All 35 participants who reported being diagnosed with one or more infection whether they received information about their infection following their diagnosis (35/35=100.0%). Less than half of these participants indicated they did receive information about their infection (Yes: 16/35=45.7%; No: 17/35=48.6%; Unsure: 2/35=5.7%). Of the 16 participants who received information, the majority indicated they found the

information helpful (Yes: 13/16=81.3%; No: 2/16=12.5%; Unsure: 1/16=6.3%). The same proportion indicated the information they received assisted them in talking about their infection with their sexual partners (Yes: 13/16=81.3%; No: 2/16=12.5%; Unsure: 1/16=6.3%).

Only 40 participants responded to the question regarding the result of their last test for HIV (40/50=80.0%). Among these participants, eight reported the result was positive (8/40=20.0%), 31 participants reported the result was negative (31/40=77.5.0%) and one reported she did not receive the result (1/40=2.5.0%). Table 48 shows participants' laboratory-confirmed HIV status stratified by participants' self-reported history of physician diagnoses and/or self-reported results of most recent serological testing.

Among laboratory-confirmed HIV-positive participants, three reported the date they first tested HIV-positive, among whom one first tested positive in 2000 and two first tested positive in 2001. Only two HIV-positive participants reported whether they had ever taken anti-HIV medication; both responded they had not. Three HIV-positive participants reported whether they were tested for syphilis after they tested HIV-positive, among whom two had been tested (2/3=75.0%) and one did not know.

Forty-two participants responded to the question regarding the result of their last test for hepatitis C (42/50=84.0%). Among these participants, eighteen reported the result was positive (18/42=42.9.0%). Twenty-two of these participants reported the result was negative (22/42=52.4.0%) and two reported they did not know (2/42=4.8.0%). Table 48 shows participants' laboratory-

confirmed HCV status stratified by participants' self-reported history of physician diagnoses and/or self-reported results of most recent serological testing. Among laboratory-confirmed HCV-positive participants, ten reported the date they first tested positive for hepatitis C, with dates ranging from 1987 to 2004 (10/18=55.6).

Table 48 illustrates that the one participant who was laboratory-confirmed syphilis positive reported she had never been told by a doctor she had syphilis. Unlike the items pertaining to HIV and HCV testing results, the questionnaire did not contain an item that elicited the result of the participant's last test for syphilis.

Reasons indicated by participants for receiving or not receiving HIV, Gc/Ct, and syphilis testing are shown in Table 49 and Table 50, respectively. Participants' responses to questions pertaining to their knowledge and opinions regarding HIV and STI are shown in Table 51.

Twenty-two participants reported they had been vaccinated against hepatitis B (22/50=44.0%), while 14 participants reported they had been vaccinated against hepatitis A. Among participants vaccinated for hepatitis B, the majority reported receiving three shots (1 shot: 4/22=18.2; 2 shots: 4/22=18.2.0%; 3 shots: 12/22=54.5; I do not know: 2/22=9.2.0%). Thirteen participants vaccinated for hepatitis A reported the number of shots they received, among whom the majority received three shots (1 shot: 2/13=15.4.0%; 2 shots: 3/13=23.1.0%; 3 shots: 7/13=53.8; I do not know: 1/13=7.7.0%).

4.12. Univariate analysis of WSW data

Univariate analyses were conducted to test associations between respondent variables and HIV status and HCV status. As very few significant associations were observed, these data are not shown. All significant associations observed were among measures of sexual behaviour and all but one of these associations indicated a negative association between laboratory confirmation of positive status and reporting of specific modes of sexual contact. With respect to HCV status, fewer HCV-positive participants than HCV-negative participants reported having oral sex with a regular female partner (X^2=6.4, df=1; p=0.035) and oral sex with an HIV-negative female partner (X^2=7.5, df=1; p=0.015); odds ratios could not be produced for these comparisons as all HCV-negative participants reported having oral sex with these partner types. When compared by HIV status, significantly fewer HIV-positive participants reported having vaginal-vaginal sex with a regular female partner (X^2=6.4, df=1; p=0.047).

Only one positive association was observed between laboratory-confirmed positive HCV status and sexual behaviour, with significantly more HCV-positive participants reporting having anal intercourse with a male sex partner (X^2=6.7, df=1; p=0.013).

Confirmation of positive HCV and/or HIV status was not associated with any other respondent variables, including ever injecting drugs. Among laboratory-confirmed HIV-positive participants, four reported injecting and two reported never injecting, while among laboratory-confirmed HIV-negative participants, 24 reported injecting and ten reported never injecting (ns, p=1.00).

Among laboratory-confirmed HCV-positive participants, 13 reported injecting and four reported never injecting, compared to laboratory-confirmed HCV-negative participants, among whom 15 reported injecting and eight reported never injecting (ns, p=0.505). Among the five participants who were confirmed to be co-infected with HIV and HCV, four reported ever injecting and one reported never injecting (ns, p=0.650).

5. DISCUSSION

This thesis has reported the results of two studies: the Winnipeg M-Track study, one of the first in a series of PHAC second-generation HIV surveillance studies of MSM, and a pilot study of WSW, undertaken by Manitoba Health using a modified version of the PHAC M-Track questionnaire. The last aim of the thesis is to discuss the implications of these two studies in light of the results presented. Several conclusions pertaining to the design and implementation of the M-Track surveillance system may be drawn from the results, many of which apply equally to the pilot study of WSW. Accordingly, the discussion focuses on describing the lessons learned from both studies and from the use of the PHAC M-Track questionnaire. Selected results are highlighted to illustrate where questionnaire design and study implementation may have influenced the data collected. To conclude, the risk of HIV among the MSM and WSW sampled is discussed in the context of the study results.

5.1. Study implementation

5.1.1. Sample size

The studies described here used three non-random methods to recruit participants: "venue-based" convenience sampling in bars and community health centres, RDS, and advertising (i.e., participants contacted study coordinator after seeing a poster). At the planning phase, it was anticipated that most participants would be recruited via venue-based sampling in bars, as the first M-Track study was successful in recruiting 1957 participants in bars in Montreal between February and August, 2005 [90]. However, recruitment in bars in Winnipeg was relatively unsuccessful, possibly due in part to the late study implementation (late November, 2007, to March, 2008). This was a period of extreme cold weather, particularly in January and February, and the study administrators observed that bars were not busy at this time. While not conclusive, it may be noted that the number of MSM participants recruited into the study dropped sharply in January and February, coinciding with the lowest temperatures in Winnipeg during the study period, and subsequently rose as temperatures increased in March.

It was also anticipated at the planning phase that many participants would be recruited through RDS, particularly as previous studies of injection drug users in Winnipeg have been successful in recruiting participants using this method [129]. However, recruitment through RDS proved to be unsuccessful among both MSM and WSW: the 14 MSM seeds recruited a total of only seven participants, while the six WSW seeds recruited only six participants. It is difficult to interpret why

RDS recruitment was unsuccessful in the context of MSM and WSW. Notably, a study of street youth that was undertaken at the same time in Winnipeg achieved much higher rates of participant recruitment through RDS [129].

The lack of success in recruiting through RDS may simply suggest that, for whatever reason, seeds were not motivated to recruit participants. If a lack of motivation is to blame, the cause of this cannot be inferred. This said, others have noted that study participants cannot be expected to recruit others to participate unless their own experience was positive [130]. Some negative comments from participants in the M-Track study were received, generally remarking that the survey took too long to complete.

As a result of the low rates of recruitment from bars and RDS, the target sample sizes of 250 for MSM and 100 for WSW were not met. The achieved sample sizes of 121 and 50 do not allow study findings to be generalized to the underlying MSM and WSW populations in Winnipeg. To determine the sample size required to be able to generalize to all MSM and WSW in Winnipeg, it is useful to estimate the size of these populations. On this note, a recent population-based survey of sexual behaviour among 6399 respondents aged 16-44 in Great Britain found that 4.9% of women reported having a same-sex partner in their lifetime and 2.8% in the past five years [112]. Assuming the population of interest for M-Track is those with same-sex partners in the past five years, and applying the same estimate of 2.8% to both WSW and MSM, to the city of Winnipeg (2006 Census population 633,450; 134,760 women aged 15-44; 131,670 men aged 15-44) yields a WSW population of 3773 and an MSM

population of 3687. This means the required sample size to generalize study findings at a 95% confidence level and 5% confidence interval is 349 for WSW and 348 for MSM [131].

5.2. Differences between MSM by location of interview

As noted, the studies described here used four non-random methods to recruit participants. To investigate the effect of sampling bias among MSM, and in order to divide the sample as evenly as possible into two groups, MSM participants were compared on the basis of the location where they completed the questionnaire. The first group comprised participants who completed the questionnaire in a bar (group "Bar") and the second comprised participants who completed the questionnaire in a community health centre or another location outside the bar, such as a coffee shop (group "Not Bar"). Among participants in the "Not Bar" group, 83% completed the questionnaire in a community health centre.

A number of significant differences were found to exist between participants in the "Bar" and "Not Bar" groups. First, significantly fewer participants who completed the questionnaire outside the bar reported looking for sex in gay bars. This result was understandable, as the bars used for study recruitment were gay bars and it follows that a greater proportion of participants who completed the questionnaire in a gay bar reported looking for sex in gay bars. Second, significantly more participants who completed the questionnaire outside the bar reported accessing a primary care nurse in the past year. This

also stands to reason, as many of the community health centres where questionnaires were completed act as a point of access for primary care nurses.

The remaining differences between the "Bar" and "Not Bar" participants appear to reflect a more meaningful disparity in the risk profiles of participants reached in bars and those reached chiefly in community health centres. Significantly more participants in the "Not Bar" group were infected with HIV and HCV, respectively: 29.1% of "Not Bar" participants were confirmed to be HIV-positive, compared to only 5% of participants in the "Bar" group ($p=0.003$). Furthermore, all 18 participants confirmed to be HCV-positive were in the "Not Bar" group, making for an HCV prevalence of 33.3% in that group, compared to 0% in the "Bar" group ($p<0.001$).

On demographic and drug use variables, participants in the "Not Bar" group also appear to be a higher-risk group. A significantly greater proportion of participants in the "Not Bar" group were Aboriginal, did not complete high school, and earned less than $10,000 in the past year. Significantly more of these participants had ever injected drugs, including cocaine, crystal meth, Talwin and Ritalin, crack, morphine, Oxycontin, and "other" opiates. Furthermore, significantly more of these participants had used certain drugs via non-injection, including amyl nitrite, crystal meth, "other" opiates, tranquilizers, barbiturates, and gas or solvents, as well as to have used tranquilizers before sex.

While demographic and drug-related risk indicators were consistently more prevalent in the "Not Bar" group, risk indicators related to sexual behaviour were unevenly distributed between the "Bar and "Not Bar" groups. For example,

significantly more participants in the "Not Bar" group reported having one or more female sex partners and reported having one or more client male sex partners, i.e., to be involved in the sex trade. Yet, significantly fewer of these participants reported having a regular male partner. Furthermore, significantly more participants in the "Not Bar" group reported always using condoms with casual partners and significantly fewer reported having RA with a casual or HIV-unknown partner.

While the pattern of risk behaviours among MSM in the "Not Bar" group may seem unique, the profile of this group is extremely consistent with a recent description of a subset of participants in the INSPIRE project, a multi-centre study of HIV-positive injection drug users in the U.S. [132]. In this study, HIV-positive injection drug users reporting both male and female sex partners (MSMW) were compared to those reporting only male partners (MSM) or only female partners (MSW). Compared to MSM, MSMW were found to be significantly more likely to report involvement in the sex trade, yet significantly less likely to report unprotected receptive anal intercourse with HIV-negative or HIV-unknown male partners. MSMW were also significantly more likely than MSM to inject cocaine and to use non-injection crack and cocaine. While MSMW in the INSPIRE group were not found to be less likely to report having a regular male partner, as was observed in the "Not Bar" group studied here, the study's authors noted that bisexual men have been found elsewhere to be less likely than gay men to have a regular male partner [133].

Thus, the MSMW in the INSPIRE group share with the participants in this study's "Not Bar" group the tendencies to inject cocaine, to be HIV-positive, to report both male and female sex partners, and to be involved in the sex trade. Generally speaking, the two subsets also share tendencies toward HIV-risk reduction behaviours: MSMW in INSPIRE were less likely to report unprotected receptive anal intercourse with HIV-negative or HIV-unknown male partners, while significantly fewer participants in the "Not Bar" group were reported having receptive anal intercourse with a casual or HIV-unknown partner. In having significantly lower odds of reporting having a regular male partner, participants in the "Not Bar" group are different from MSMW in the INSPIRE group, but similar to bisexual men described elsewhere.

The finding that MSM in the "Not Bar" group have a distinct risk profile, consistent with descriptions of HIV-positive IDU MSMW and bisexual men in other settings, raises important questions in the context of behavioural HIV surveillance systems such as M-Track. It is clear from these findings that MSM are a heterogeneous group and the use of a single sampling strategy, such as venue-based recruitment in bars, is unlikely to yield data that will represent all MSM subgroups. Both sexual behaviour and HIV prevalence may be expected to vary with the sampling strategies used to recruit MSM. Recruiting MSM from bars alone may result in a lower HIV prevalence estimate, and perhaps one that is closer to the true prevalence among the underlying population of MSM. In this sample, HIV prevalence was 5% among the "Bar" group, much closer to the prevalence found in large Canadian studies of MSM than the 29% prevalence

found in the "Not Bar" group [90, 97, 98]. Yet, by recruiting in bars alone, surveillance systems may miss important variations in HIV risk behaviours among MSM, such as injection drug use and sex trade involvement. One possibility is that MSM/IDU may need to be reached using different sampling strategies and, as suggested elsewhere, studied as the distinct risk group they appear to be [132].

5.3. Questionnaire design

5.4. Response error

As described, the M-Track questionnaire contains complex skip patterns and instructions to participants. It was observed during data entry that many MSM and WSW participants made errors of commission, that is, they responded to items that did not apply to them. Detailed analysis of commission errors indicated that the error rate was above 10% for 33 items and above 20% for six items on the MSM questionnaire. On the WSW questionnaire, the error rate was above 10% for 20 items and above 20% for five items, with an additional two items having an error rate of exactly 20%.

One limitation to the method used here to calculate error of commission rates should be noted. Error of commission rates were calculated by subtracting the number of eligible respondents from the total number of participants who responded. This method is not sensitive to the number of eligible participants who did not respond to an item that applied to them, i.e., who made an error of omission. If a participant who was eligible to respond to an item did not respond, then this "opens a space" for an ineligible participant to respond without raising the error of commission rate. Consequently, for every item, the calculated error

of commission rate will be 0.008%, or 1/121, too low for every eligible participant who did not respond to the item, i.e., made an error of omission. Errors of omission were not calculated, although they may be observed for each item by comparing the number of eligible participants entered into the analyses (Appendices 3 and 4) with the number of respondents for each item, noted in every table. With this limitation noted, the error of commission rates calculated here should be considered a conservative estimate.

With respect to the MSM questionnaire, all six questionnaire items with commission error rates above 20% pertained to regular male sex partners as stratified by HIV status. While no conclusions can be drawn from this pattern, it raises some questions that may warrant further study. For one, the series of items on regular partners is the only series that stratifies partners by HIV status. In the M-Track questionnaire's current order, this series appears after items on casual partners, which are not stratified by HIV status. Authors designing U.S. Census surveys have hypothesized that, because perception is sensitive to expectations, early questionnaire items that do not contain skip instructions may give participants the impression they should respond to items sequentially and cause them to overlook later skip instructions [134]. It follows from this hypothesis that M-Track participants may have difficulty responding to questionnaire items stratified by HIV status after responding to items that are not stratified this way.

The high error rate observed for questions on regular partners stratified by HIV status also raises the question whether these items are suitable for self-administered surveys. It should be noted that, in the study by Golden and

colleagues, which found incorporating perceived partner HIV status increased the specificity and predictive value of HIV risk assessments, all data were collected by clinicians [46].

On the WSW questionnaire, four out of seven items with error rates 20% or higher were items eliciting partner HIV status, further suggesting that these items in particular may promote response error. The remaining three items pertained to casual male partners and client male partners. While, again, no conclusions may be drawn from the high error rates for these items, it may be relevant that some qualitative research has shown not all participants make the same distinction between casual and client partners [135]. It is possible that, in a self-administered survey, items referring to casual and client partners may pose a problem for participants who do not distinguish their partners as such.

The high rates of commission errors observed among MSM and WSW may be the result of low literacy. This is a plausible explanation, as over 50% of MSM participants did not complete high school, and over 75% of WSW, including 18% of WSW who completed only elementary school. Previous research has shown that low literacy increases error rates on self-administered surveys, with error defined as neglecting to follow skip instructions and/or giving logically inconsistent answers. Al-Tayyib and colleagues measured participants' ability to read and correctly pronounce 66 common medical terms, then presented two self-administered questionnaires, one on alcohol and drug use and one on sexual behaviour. The authors subsequently compared error rates between participants assigned different literacy levels. On the alcohol and drug use

questionnaire, overall error rates decreased significantly as literacy levels increased. Skip errors were the most common error across all literacy levels and were committed by 39.7% of participants assigned the highest literacy level (grade nine and above). Among respondents at the literacy level of grade nine and above, still only 53.8% completed the sexual behaviour questionnaire without making skip errors or giving logically inconsistent responses. These findings, and those presented here, suggest that self-administration of the M-Track questionnaire may not be appropriate for participants with low or even moderate literacy.

Recently, surveys of HIV risk behaviours have begun to use audio computer-assisted self-interview (ACASI) [136, 137]. In surveys using ACASI, participants listen to recorded questions through headphones, eliminating the literacy requirement of self-administered paper questionnaires. The ACASI program automatically skips to the next item that is appropriate for the participants, reducing the burden on the participant and preventing errors of commission. The ACASI program also requires the participant to respond to one item before going onto the next, which decreases errors of omission and the need to accommodate for missing data. ACASI also automatically downloads participants' responses, making data entry unnecessary. Participants have rated ACASI as being easy to use [136] and reviews suggest the program tends to increase the reporting of high-risk behaviours, such as injection drug use [137].

In this study, a data filtering process was used which simulates the ACASI requirement that a participant respond to one item before going onto the next.

Here, participants were only entered into the analysis if they gave logical responses to key items. Future M-Track surveys may consider the use of ACASI to facilitate questionnaire administration, data entry, and data analysis, and to enhance data quality.

5.5. Knowledge of serostatus measures

The MSM and WSW questionnaires each contained items that aimed to capture participants' knowledge of their serostatus, including two items pertaining to HIV, two pertaining to HCV, and one pertaining to syphilis. These included the items "What was the result of your last HIV test?" and "What was the result of your last test for hepatitis C?", as well as the item "Have you ever been told by a doctor you have any of the following?," under which HIV, HCV, and syphilis were each listed among a number of BBP/STI. With respect to the latter item, it was recognized only during the analyses that the wording "Have you ever been told by a doctor you have HIV/HCV/syphilis?" could elicit a negative response from sero-positive participants who have been tested and are aware of their status, but were given their test result from another health care professional (e.g., a public health nurse). Consequently, this item lacks sensitivity and it is not possible to infer participants' knowledge of their HIV, HCV, or syphilis serostatus from this item alone. As this is the only item that elicits participants' knowledge of their history of syphilis infection, awareness of serostatus cannot be ascertained among participants who were laboratory-confirmed syphilis-positive. Future M-Track questionnaires may consider improving the sensitivity of this item

by expanding it to include all health professionals who may inform individuals of their HIV test results.

The item "What was the result of your last test for hepatitis C?" is also not a sensitive measure of knowledge of HCV serostatus. This is because the potential exists that participants who have a resolved HCV infection may answer legitimately that their last test for hepatitis C was negative. In this study, only anti-HCV testing was performed; it is unknown whether any participants were treated for HCV and resolved their infection. In the sample of MSM, five participants confirmed to be HCV-positive indicated the result of their last HCV test was negative. It is impossible to draw any conclusions regarding these participants knowledge of their HCV status. Future M-Track questionnaires will need to include an improved item that is sensitive to participants who are aware they have tested positive for hepatitis C in the past.

The item "What was the result of your last HIV test?" may be a more sensitive measure of knowledge of HIV status. In this sample, however, due to item non-response, it is equally difficult to infer knowledge of serostatus among laboratory-confirmed HIV-positive participants. Among the 18 MSM participants confirmed to be HIV-positive, only 13 responded to the item regarding the result of their last HIV test, all of whom indicated that the result was positive. The one HIV-positive participant reported that he had never been told by a doctor he had HIV did not respond to the item regarding the result of his last HIV test, although he reported being tested for HIV in 2004. Similarly, among WSW, the one HIV-positive participant who reported she had never been told by a doctor she had

HIV did not respond to the item regarding the result of her last test for HIV, although she reported being tested for HIV twice in the past two years. These patterns of non-response suggest that not only should future M-Track questionnaires include sensitive items on knowledge of serostatus, but anticipate non-response to single items.

Again with respect to the item "Have you ever been told by a doctor you have any of the following?," a feature of questionnaire design may have affected the data collected. As may be seen in the questionnaire, a response grid was used for reporting history of BBP/STI, which may potentially reduce accuracy of self-report data if a participant checks the box one above or below the box intended. Among MSM, two participants who were confirmed to be HIV-negative reported that they had been told by a doctor they had HIV. Of these HIV-negative participants, one indicated the result of his last HIV test was positive and one indicated the result was negative. With respect to the latter participant, who indicated he had been told by a doctor he had HIV, but reported his last HIV test result was negative, this discrepancy may be due to non-intentional response error. It is possible this participant did not intend to indicate he had been told he had HIV, but rather genital herpes (one box above) or hepatitis A (one box below). In addition to modifying this item to include other health professionals, the design of the M-Track questionnaire (i.e., the use of response grids) may need to be changed to reduce the potential for response error.

5.6. Injection drug use measures

In both samples, a high number of participants reported injecting one or more drugs in their lifetime: 51 among MSM and 33 among WSW. However, as noted, participants were instructed to skip the section on injection drug use if they had never injected drugs, yet there was no place for participants to indicate "Never to all" to confirm the reason for skipping the section. To avoid making assumptions, participants who skipped the section in its entirety were excluded from the analysis of each item on injection drug use. Consequently, for each individual item on injection drug use, the proportion of participants represented as ever having injected the drug are likely to be high, as participants who skipped the section are likely to belong in the "Never injected" group. Furthermore, it is difficult to determine the appropriate denominator for the measure "ever injected drugs," as this variable was constructed by collapsing responses to the series of items injection drugs, whereby participants who reported injecting at least one drug at any time were coded as having injected drugs.

With the above limitations noted, if it is assumed that all participants who skipped the section on injection drug use did so as instructed, and have never injected drugs, the prevalence of injection drug use was 42.1% among MSM (51/121=42.1%) and 66.0% among WSW (33/50=66.0%).

5.7. Demographic and risk profile of MSM and WSW participants

This concluding section reviews selected results relevant to the demographic and BBP/STI risk profile among the MSM and WSW studied. Significant differences between participants are highlighted and descriptive analyses are summarized to

reflect patterns that may generate hypotheses for future research among MSM and WSW in Winnipeg.

5.8. Ethnicity

In this study, a large proportion of participants reported having Aboriginal ancestors, including 53.7% of MSM and 72.0% of WSW. Among MSM, a number of significant differences were found between Aboriginal and Non-Aboriginal participants. Consistent with descriptions of Aboriginal MSM elsewhere [83], significantly fewer Aboriginal participants here had completed high school and earned $10,000 or more in the past year, respectively. In this sample, no differences were found between Aboriginal and Non-Aboriginal participants with respect to ever injecting, yet significantly more Aboriginal participants had injected Talwin and Ritalin and significantly more Aboriginal participants were confirmed HCV-positive ($p<0.001$). Given that injection drug use is the greatest risk factor for HCV [138], these findings are further aligned with reports that MSM IDU are significantly more likely to be Aboriginal [139]. Also consistent with other reports, significantly more Aboriginal participants reported having a client partner, i.e., were involved in the sex trade [83, 140]. While HIV infection was no more prevalent among Aboriginal participants here, the prevalence of HIV has been shown to be higher among men involved in the sex trade [140].

In this study, significantly more Aboriginal MSM reported engaging in certain protective sexual behaviours. Significantly more Aboriginal participants had used a condom at last anal sex and had used condoms for receptive anal

intercourse with HIV-negative partners, and significantly fewer reported unprotected oral sex to ejaculation with a casual partner. Generally, there is limited evidence regarding determinants of condom use among Aboriginal people [141]. Aboriginal MSM have been found to be no more or less likely to have unprotected insertive or receptive anal sex with male partners [142], while Aboriginal IDU have been found to be no more or less likely to use condoms with casual or regular partners [143]. These findings regarding condom use among Aboriginal MSM here are unique. It is interesting, although not necessarily relevant, that significantly more Aboriginal MSM in this sample reported that their primary care giver had discussed safer sex.

With respect to WSW, no statistical comparisons were made between Aboriginal and Non-Aboriginal participants and further study is needed to determine whether Aboriginal WSW are at greater risk of BBP and STI than other WSW. Research in other Canadian settings has described elevated HIV risk among Aboriginal females in the context of injection drug use, sex trade involvement, and poverty [143-146]. Among the WSW studied here, over 75% of whom were Aboriginal, 66.0% had ever injected drugs and 30.0% were involved in the sex trade. A large majority of WSW (64%) reported being unsure of their income for the past year, while another 24% reported earning under $20,000. These findings suggest there may be significant overlap between Aboriginal populations of WSW, IDU, and sex trade workers, which warrants further investigation as it relates to HIV risk.

It should be noted that both Aboriginal MSM and Aboriginal WSW were observed here to have high rates of HIV/HCV co-infection. Although these differences were not statistically significant in this sample, among the eight MSM who were HIV/HCV co-infected, seven were Aboriginal (7/8=87.5%), while, all five WSW participants who were co-infected were Aboriginal. Previous research has shown that Aboriginal injection drug users are almost three times as likely to be HIV/HCV co-infected, while female IDU and IDU involved in the sex trade are more than twice as likely to be co-infected [145]. To date, some research has described the relationship between injection drug use, sex trade involvement, and Aboriginal status among MSM [139], yet this area is understudied as it pertains to WSW, particularly in the context of HIV/HCV co-infection.

5.9. Variables associated with HIV and HCV infection

In this study, the prevalence of HIV among MSM and WSW was high: 18.9% of specimens from MSM were anti-HIV reactive and 15% of specimens from WSW. No significant positive associations were observed between sexual risk behaviours and laboratory-confirmed HIV infection among MSM or WSW. Rather, among MSM, HIV infection was positively associated with injection drug use. Among WSW, HIV infection was not positively associated with injection drug use, although statistical power was low and a large proportion of participants reported injecting.

Prevalence of HCV infection was also extremely high among MSM (18/93=19.4%), and even more so among WSW (17/40=42.5%). Like HIV infection, HCV infection among MSM was positively associated with injection

drug use, with significantly more HCV-positive MSM ten times reporting ever having injected drugs, including cocaine, crystal meth, morphine, and Oxycontin.

Like HIV-positive MSM, significantly fewer HCV-positive MSM had completed high school. Significantly fewer HCV-positive participants reported earning $10,000 or more in the past year, a finding that supports a documented association between HCV and low income among MSM [147]. As has been found among injection drug users generally [148], a significantly greater proportion of HCV-positive MSM was involved in the sex trade, with four times greater odds of reporting having client partners.

Among WSW, significantly more HCV-positive participants reported having anal sex with a male sex partner. Notably, in a study of young, low-income women, Page-Schafer and colleagues found the same association, with women infected with HCV more than twice as likely to report ever having anal sex [149].

5.10. Other variables associated with HIV/HCV serostatus

5.10.1. Protective sexual behaviours

Among MSM, being confirmed HIV-positive was strongly associated with reporting having sex with an HIV-positive partner. This finding is consistent with the evidence that many MSM limit their sex partners to those whose HIV status is concordant with theirs [53-58]. As some studies have suggested that HIV-negative MSM who serosort are at higher risk for HIV [55, 59], this trend will need to be monitored in behavioural surveillance among larger samples of MSM.

There is little evidence to describe the sexual behaviour of HIV-positive WSW and it is unknown whether WSW engage in serosorting as it applies to MSM. In this study, significantly fewer HIV-positive WSW reported having vaginal-vaginal sex with a female partner, but they did not differ from other WSW in any other sexual behaviour. However, in a similar pattern, significantly fewer HCV-positive WSW than HCV-negative WSW reported having oral sex with a regular female partner ($p=0.035$) and reported oral sex with an HIV-negative female partner, respectively ($p=0.015$). Some negative associations between HCV infection and sexual behaviours were observed among MSM also, with significantly fewer HCV-positive participants reporting one or more male sex partners in the last six months and reporting having receptive oral sex to ejaculation with a casual partner. Qualitative research with WSW and MSM is needed to determine whether diagnosis of HIV and/or HCV influences patterns of sexual behaviour with different partner types.

5.10.2. Health services use

Among MSM, significantly fewer HIV-positive participants reported not accessing health services in the past year, and significantly more HIV-positive participants reported accessing a doctor, primary care nurse, and community health centre, respectively. Significantly more HCV-positive MSM reported having a primary care provider, a difference that was not significant among HIV-positive participants. Like HIV-positive participants, significantly more HCV-positive participants reported accessing a primary care nurse in the past year.

It may be noted that some variations in patterns of health care use were observed between MSM and WSW, which may generate hypotheses for future research with these groups. Slightly more WSW than MSM reported having a primary care provider (MSM: 55.7%; WSW 61.2%), while slightly more MSM than WSW reported that their primary care provider knows their sexual orientation (MSM: 66.1%; WSW: 60.0%). A moderately greater proportion of WSW reported their primary care provider has asked them about new sex partners (WSW: 46.7%; MSM: 39.7%), yet over three-quarters of WSW (75.9%) indicated their primary care provider has discussed safer sex methods with them, compared to just over half of MSM (53.1%).

5.11. Conclusions: Markers of risk among MSM and WSW studied

The MSM and WSW in Winnipeg that are represented here are at high risk of HIV and HCV from injection drug use. The proportion of participants who reported ever injecting drugs was alarmingly high and, among MSM, the prevalence of HIV and HCV was highest among those who reported injecting. High-risk injection practices, such as needle-sharing, were not examined here and these practices may warrant further study among MSM/IDU and WSW/IDU populations. It is clear from this research that MSM and WSW are heterogeneous groups, in which high-risk subsets, such as MSM/IDU and WSW/IDU, must be examined independently.

Based on study results, sexual transmission of HIV and other STI poses a serious risk for the MSM and WSW studied. Prevalent syphilis infection was detected in both samples, despite their small size, and this uniquely reflects high-

risk sexual practices. Self-reported history of bacterial STI also suggests participants have been placed at risk of HIV transmission. Among WSW, approximately a third of participants reported being diagnosed with Ct and Gc, respectively. In comparison, self-report of Ct and Gc was less common among MSM, yet reflected high-risk sexual practices among 15% of participants.

High-risk sexual practices were reported by both MSM and WSW. Among MSM, only half of participants reported using condoms for receptive anal intercourse with casual partners and condom use was observed to be less common with regular partners. Among WSW, a large majority reported having at least one male sex partner and few participants reported consistent condom use with male partners. Consistent with previous descriptions of WSW, many participants here reported having anal intercourse with male partners, including unprotected anal intercourse. It was also noted that many WSW share sex toys without using barrier protection and without cleaning the toys before sharing. Particularly in the context of other high-risk sexual practices, such as anal intercourse with male partners, these sexual practices have the potential for disease transmission.

5.12. Future directions

The underlying populations of MSM and WSW in Winnipeg are not represented here and further research that may be generalizeable to these populations is needed. From the studies reported, it is clear that Winnipeg is home to a number of high-risk MSM and WSW, many of whom are Aboriginal, involved in the sex trade, affected by poverty and low levels of education, and mono- or co-infected

with HIV and HCV. It may be methodologically challenging to study these populations and sampling strategies and survey designs may need to be modified to accommodate them. To reach certain high-risk MSM and WSW, surveys undertaken in bars and requiring high levels of literacy may not be adequate. The methodological challenges will need to be met in order to fully understand the risk of HIV among the heterogeneous populations of MSM and WSW.

Table 1: Response error rates for MSM questionnaire key-dependent items sorted by error rate.

Question	A Participants Who Responded	B Participants Meeting Response Criteria	C (=A-B) Number Missed Skip	D (=C ÷ 121) Error %
232-During the past 6 months, did you fuck these [REGULAR MALE partner(s) of unknown HIV status] partners (anal sex)?	46	16	30	25%
234-During the past 6 months, did these [REGULAR MALE partner(s) of unknown HIV status] partners fuck you (anal sex)?	43	16	27	22%
227-During the past 6 months, did you fuck these [REGULAR HIV-positive male] partners (anal sex)?	34	7	27	22%
229-During the past 6 months, did these [REGULAR HIV-positive male] partners fuck you (anal sex)?	33	7	26	21%
239-During the past 6 months, did these [REGULAR male partner(s) of negative HIV status] fuck you (anal sex)?	58	33	25	21%
237-During the past 6 months, did you fuck these [REGULAR male partner(s) of negative HIV status] (anal sex)?	58	33	25	21%
198-Did you have unprotected anal sex at least once with this or these partner(s)[new male partner you met while traveling outside of Canada]?	28	6	22	18%
200-Did you have unprotected anal sex at least once with this or these partner(s)[new male partner who was traveling in Manitoba, but not a resident of the province]?	42	21	21	17%
196-Did you have unprotected anal sex at least once with this or these partner(s) [traveling outside of Manitoba, but in Canada]?	34	14	20	17%
176-Has your primary care provider ever discussed safer sex methods with you?	84	64	20	17%
191-[During the past 6 months, have you had unprotected anal sex (no condom) with at least one man] **Who you knew at the time was HIV positive?**	54	35	19	16%
175-Has your primary care provider ever asked about any new sex partners?	83	64	19	16%
174-Does [your primary care provider] know your sexual orientation?	83	64	19	16%
193-[During the past 6 months, have you had unprotected anal sex (no condom) with at least one man] **Who you knew at the time was HIV negative?**	53	35	18	15%
192-[During the past 6 months, have you had unprotected anal sex (no condom) with at least one man] **Whose HIV status you did not know at the time?**	53	35	18	15%

Question	A Participants Who Responded	B Participants Meeting Response Criteria	C (=A-B) Number Missed Skip	D (=C ÷ 121) Error %
255-During the past 6 months, did these [SEX WORKER] partners fuck you (anal sex)?	19	3	16	13%
253-During the past 6 months, did you fuck these partners (anal sex)?	19	3	16	13%
224-During the past 6 months, have any of your REGULAR MALE partners come in your mouth without a condom on?	74	58	16	13%
262-In the past 6 months, have you discussed other STIs with any of these [SEX WORKER] partners (e.g., chlamydia, gonorrhea)?	18	3	15	12%
261-In the past 6 months, have you discussed syphilis with any of these [SEX WORKER] partners?	18	3	15	12%
260-In the past 6 months, have you discussed HIV with any of these [SEX WORKER] partners?	18	3	15	12%
259-During the past 6 months, have you given these [SEX WORKER] partners other goods or services in exchange for sex?	18	3	15	12%
258-During the past 6 months, have you given these [SEX WORKER] partners drugs in exchange for sex?	18	3	15	12%
257-During the past 6 months, have you given these [SEX WORKER] partners money in exchange for sex?	18	3	15	12%
212-During the past 6 month, have any of your CASUAL MALE partners come in your mouth without a condom on?	74	59	15	12%
207-[have you had unprotected anal sex (no condom) with at least one CASUAL MALE partner] **Who you knew at the time was HIV positive?**	42	27	15	12%
251-In the past 6 months, have you discussed other STIs with any CLIENT MALE sex partners (e.g., chlamydia, gonorrhea)?	47	33	14	12%
249-In the past 6 months, have you discussed HIV with any of your CLIENT MALE sex partners?	47	33	14	12%
247-During the past 6 months, have these [CLIENT MALE]partners given you drugs in exchange for sex?	47	33	14	12%
246-During the past 6 months, have these [CLIENT MALE] partners given you money in exchange for sex?	47	33	14	12%
213-In the past 6 months how frequently would you say that one of your CASUAL male partners came in your mouth without a condom on?	36	22	14	12%
287-If yes, did you have unprotected anal or vaginal sex at least once with this or these partner(s) [traveling in Manitoba, but not a resident of the province]?	16	3	13	11%
248-During the past 6 months, have these [CLIENT MALE] partners given you other goods or services in exchange for sex?	46	33	13	11%

Question	A Participants Who Responded	B Participants Meeting Response Criteria	C (=A-B) Number Missed Skip	D (=C ÷ 121) Error %
244-During the past 6 months, did these [CLIENT MALE] partners fuck you (anal sex)?	45	33	12	10%
242-During the past 6 months, did you fuck these [CLIENT MALE] partners (anal sex)?	45	33	12	10%
235-If yes [REGULAR MALE partner(s) of unknown HIV status fuck you] how often was a condom used?	19	7	12	10%
208-[have you had unprotected anal sex (no condom) with at least one CASUAL MALE partner] **Whose HIV status you did not know at the time?**	39	27	12	10%
240-If yes [REGULAR male partner(s) of negative HIV status] fuck you, how often was a condom used?	33	22	11	9%
238-If yes [you fuck REGULAR male partner(s) of negative HIV status] how often was a condom used?	33	22	11	9%
236-During the past 6 months, have you had sex (oral or anal) with regular male partner(s) of negative HIV status?	79	68	11	9%
228-If yes [you fuck these REGULAR HIV-positive male partners] how often was a condom used?	17	6	11	9%
225-In the past 6 months how frequently would you say that one of your REGULAR MALE sex partners came in your mouth without a condom on?	41	30	11	9%
210-During the past 6 months, have you sucked the cock of any of your CASUAL MALE partners?	83	72	11	9%
209-[have you had unprotected anal sex (no condom) with at least one CASUAL MALE partner] **Who you knew at the time was HIV negative?**	38	27	11	9%
202-During the past 6 months, did you fuck these [CASUAL] partners (anal sex)?	83	72	11	9%
190-During the past 6 months, have you had unprotected anal sex (no condom) with at least one man?	74	63	11	9%
285-If yes, did you have unprotected anal or vaginal sex at least once with this or these partner(s) [traveling outside of Canada]?	13	3	10	8%
250-In the past 6 months, have you discussed syphilis with any of your CLIENT MALE sex partners?	43	33	10	8%
204-During the past 6 months, did these [CASUAL] partners fuck you (anal sex)?	82	72	10	8%
283-If yes, did you have unprotected anal or vaginal sex at least once with this or these partner(s) [traveling outside of Manitoba, but in Canada]?	13	4	9	7%
243-If yes [you fuck CLIENT MALE partners] how often was a condom used?	21	12	9	7%
230-If yes [REGULAR HIV-positive male partners fuck you] how often was a condom used?	13	4	9	7%
226-During the past 6 months, have you had sex (oral or anal) with REGULAR HIV-positive male partner(s)?	77	68	9	7%

Question	A Participants Who Responded	B Participants Meeting Response Criteria	C (=A-B) Number Missed Skip	D (=C ÷ 121) Error %
216-In the past 6 months, have you discussed other STIs with any CASUAL MALE sex partners (e.g., chlamydia, gonorrhea)?	81	72	9	7%
215-In the past 6 months, have you discussed syphilis with any of your CASUAL MALE sex partners?	81	72	9	7%
214-In the past 6 months, have you discussed HIV with any of your CASUAL MALE sex partners?	81	72	9	7%
206-During the past 6 months, have you had unprotected anal sex (no condom) with at least one CASUAL MALE partner?	81	72	9	7%
293-In the past 6 months, have you had vaginal sex with any of these [CASUAL FEMALE] partners?	28	20	8	7%
291-In the past 6 months, have you performed oral sex on any of these [CASUAL FEMALE] partners, where you went down on them?	28	20	8	7%
335-In the past 6 months, have you discussed other STIs with any of these [SEX WORKER FEMALE] partners (e.g., chlamydia, gonorrhea)?	11	4	7	6%
334-In the past 6 months, have you discussed syphilis with any of these [SEX WORKER FEMALE] partners?	11	4	7	6%
333-In the past 6 months, have you discussed HIV with any of these [SEX WORKER FEMALE] partners?	11	4	7	6%
331-In the past 6 months, have you had anal sex with any of these [SEX WORKER FEMALE] partners?	11	4	7	6%
325-In the past 6 months, have you discussed other STIs with any CLIENT FEMALE partners (e.g., chlamydia, gonorrhea)?	10	3	7	6%
324-In the past 6 months, have you discussed syphilis with any of your CLIENT FEMALE partners?	10	3	7	6%
323-In the past 6 months, have you discussed HIV with any of your CLIENT FEMALE partners?	10	3	7	6%
321-In the past 6 months, have you had anal sex with any of these partners?	10	3	7	6%
317-In the past 6 months, have you performed oral sex on any of these [CLIENT FEMALE] partners, where you went down on them?	10	3	7	6%
315-During the past 6 months, have these [CLIENT FEMALE] partners given you drugs in exchange for sex?	10	3	7	6%
299-In the past 6 months, have you discussed other STIs with any of these [CASUAL FEMALE] partners (e.g., chlamydia, gonorrhea)?	27	20	7	6%
297-In the past 6 months, have you discussed HIV with any of these [CASUAL FEMALE]partners?	27	20	7	6%
289-In the past 6 months, have you received oral sex from any of these [CASUAL FEMALE] partners, where they sucked your cock?	27	20	7	6%
256-If yes[[SEX WORKER fucks you] how often was a condom used?	9	2	7	6%

Question	A Participants Who Responded	B Participants Meeting Response Criteria	C (=A-B) Number Missed Skip	D (=C ÷ 121) Error %
254-If yes [you fuck SEX WORKER] how often was a condom used?	9	2	7	6%
245-If yes CLIENT MALE partners fuck you] how often was a condom used?	18	11	7	6%
233-If yes [you fuck REGULAR MALE partner(s) of unknown HIV status] how often was a condom used?	20	13	7	6%
329-In the past 6 months, have you had vaginal sex with any of these [SEX WORKER FEMALE] partners?	10	4	6	5%
327-In the past 6 months, have you received oral sex from any of these [SEX WORKER FEMALE] partners, where they sucked your cock?	10	4	6	5%
319-In the past 6 months, have you had vaginal sex with any of these [CLIENT FEMALE] partners?	9	3	6	5%
316-During the past 6 months, have these [CLIENT FEMALE] partners given you other goods or services in exchange for sex?	9	3	6	5%
314-During the past 6 months, have these [CLIENT FEMALE] partners given you money in exchange for sex?	9	3	6	5%
298-In the past 6 months, have you discussed syphilis with any of these [CASUAL FEMALE] partners?	26	20	6	5%
295-In the past 6 months, have you had anal sex with any of these [CASUAL FEMALE] partners?	26	20	6	5%
223-In the past 6 months, when you sucked the cock of your REGULAR MALE partners, how often was a condom used?	64	58	6	5%
221-During the time you had a regular male partner, did you also have sex with anyone else?	74	68	6	5%
218-In the past 6 months, have you discussed HIV with any of your REGULAR MALE sex partners?	74	68	6	5%
211-In the past 6 months, when you sucked the cock of these [CASUAL MALE] partners, how often was a condom used?	65	59	6	5%
332-If yes [to anal sex with SEX WORKER FEMALE], how often was barrier protection used?	5	0	5	4%
482-If [vaccinated for Hep A], how many shots did you receive?	41	35	6	5%
328-If Yes [received oral sex from SEX WORKER FEMALE] how often was barrier protection used?	7	2	5	4%
306-If yes [vaginal sex with REGULAR FEMALE] how often was a condom used?	25	20	5	4%
305-In the past 6 months, have you had vaginal sex with any of these[REGULAR FEMALE] partners?	28	23	5	4%
301-In the past 6 months, have you performed oral sex on any of these [REGULAR FEMALE] partners, where you went down on them?	28	23	5	4%
290-If Yes [performed oral sex on CASUAL FEMALE partners], how often was barrier protection used?	16	11	5	4%

Question	A Participants Who Responded	B Participants Meeting Response Criteria	C (=A-B) Number Missed Skip	D (=C ÷ 121) Error %
288-If yes [received oral sex from CASUAL FEMALE] partners, how often was a condom used?	18	13	5	4%
222-During the past 6 months, have you sucked the cock of any REGULAR MALE partners?	73	68	5	4%
219-In the past 6 months, have you discussed syphilis with any of your REGULAR MALE sex partners?	73	68	5	4%
322-If Yes [anal sex with CLIENT FEMALE] how often was barrier protection used?	5	1	4	3%
318-If Yes [performed oral sex on CLIENT FEMALE] how often was barrier protection used?	5	1	4	3%
312-During the time you had a regular female partner, did you also have sex with anyone else?	27	23	4	3%
311- In the past 6 months, have you discussed other STIs with any of these [REGULAR FEMALE] partners (e.g., chlamydia, gonorrhea)?	27	23	4	3%
309-In the past 6 months, have you discussed HIV with any of these [REGULAR FEMALE] partners?	27	23	4	3%
307-In the past 6 months, have you had anal sex with any of these [REGULAR FEMALE] partners?	27	23	4	3%
304-If yes [received oral sex from REGULAR FEMALE] how often was a condom used?	23	19	4	3%
303-In the past 6 months, have you received oral sex from any of these [REGULAR FEMALE] partners, where they sucked your cock?	27	23	4	3%
294-If yes [vaginal sex with CASUAL FEMALE] how often was a condom used?	23	19	4	3%
231-During the past 6 months, have you had sex (oral or anal) with REGULAR MALE partner(s) of unknown HIV status?	72	68	4	3%
217-During the past 6 months, with how many REGULAR MALE partner(s) have you had sex (oral or anal)?	103	99	4	3%
203-If yes [fuck CASUAL] partners] how often was a condom used?	43	39	4	3%
201-During the past 6 months, with how many CASUAL MALE partners have you had sex (oral or anal)?	103	99	4	3%
195-During the past 6 months, have you had sex (oral or anal) with a new male partners you met while traveling outside of Manitoba, but in Canada?	103	99	4	3%
330-If Yes [vaginal sex with SEX WORKER FEMALE] how often was barrier protection used?	6	3	3	2%
320-If Yes [vaginal sex with CLIENT FEMALE] how often was barrier protection used?	6	3	3	2%
308-If yes [anal sex with REGULAR FEMALE] how often was a condom used?	11	8	3	2%
296-If yes [anal sex with CASUAL FEMALE] how often was a condom used?	11	8	3	2%

Question	A Participants Who Responded	B Participants Meeting Response Criteria	C (=A-B) Number Missed Skip	D (=C ÷ 121) Error %
286-During the past 6 months, have you had sex (oral, anal, or vaginal) with a new female partner who was traveling in Manitoba, but not a resident of the province?	41	38	3	2%
326-During the past 6 months, with how many FEMALE SEX WORKER partners have you had sex (vaginal, oral or anal)?	40	38	2	2%
310-In the past 6 months, have you discussed syphilis with any of these [REGULAR FEMALE] partners?	25	23	2	2%
302-If Yes [performed oral sex on REGULAR FEMALE] how often was barrier protection used?	19	17	2	2%
300-During the past 6 months, with how many REGULAR FEMALE partner(s) have you had sex (vaginal, oral, or anal)?	40	38	2	2%
282-During the past 6 months, have you had sex (oral, anal, or vaginal) with a new female partner you met while traveling outside of Manitoba, but in Canada?	40	38	2	2%
220-In the past 6 months, have you discussed other STIs with any REGULAR MALE sex partners (e.g., chlamydia, gonorrhea)?	70	68	2	2%
205-If yes [CASUAL partners fuck you] how often was a condom used?	39	37	2	2%
197-During the past 6 months, have you had sex (oral or anal) with a new male partner you met while traveling outside of Canada?	101	99	2	2%
188-During the past 6 months, have you had anal sex with a man?	101	99	2	2%
313-During the past 6 months, with how many CLIENT FEMALE partners have you had sex (vaginal, oral or anal)?	39	38	1	1%
292-During the past 6 months, with how many CASUAL FEMALE partners have you had sex (vaginal, oral or anal)?	39	38	1	1%
284-During the past 6 months, have you had sex (oral, anal, or vaginal) with a new female partner you met while traveling outside of Canada?	39	38	1	1%
427-Did you feel you received enough assistance to help you talk about your infection(s) [ANY] with your sexual partners?	53	63	0	0%
426-Did you feel the information you received helped you deal with your infection(s) [ANY]?	46	63	0	0%
425-At the time of your diagnosis [ANY INFECtION], did you receive any health care information pertaining to your infection(s)?	50	70	0	0%
481-If [vaccinated for hep B], how many shots did you get?	47	48	0	0%
252-During the past 6 months, with how many SEX WORKER MALE partners have you had sex (oral or anal)?	94	99	0	0%

Question	A Participants Who Responded	B Participants Meeting Response Criteria	C (=A-B) Number Missed Skip	D (=C ÷ 121) Error %
241-During the past 6 months, with how many CLIENT MALE partners have you had sex (oral or anal)?	97	99	0	0%
199-During the past 6 months, have you had sex (oral or anal) with a new male partner who was traveling in Manitoba, but not a resident of the province?	99	99	0	0%
194-The last time you had anal sex with a man in the past 6 months did you or your partner use a condom?	50	63	0	0%
189-During the past 6 months, with how many men have you had anal sex?	56	63	0	0%

Table 2: Demographic characteristics of MSM participants

Characteristic (N=Number of Respondents)*	Number (%)†
Live in Winnipeg (N=121)	
Yes	113 (93.4)
No	8 (6.6)
Refused	0 (0)
Age (N=120)	
<25	27 (22.3)
25-34	48 (39.7)
35-44	27 (22.3)
≥45	15 (12.4)
Refused	3 (2.5)
Language you first learned and still understand (N=120)	
English	105 (86.8)
French	2 (1.7)
Other	12 (9.9)
Refused	1 (0.8)
Ancestors' ethnic or cultural group (N=119)	
Aboriginal	65 (53.7)
Non-Aboriginal	37 (30.6)
Unsure	11 (9.1)
Refused	6 (5.0)
Ethnic or cultural group you most identify with (N=113)	
Aboriginal	46 (38.0)
Non-Aboriginal	52 (43.0)
Unsure	9 (7.4)
Refused	6 (5.0)
Highest level of education completed (N=118)	
Elementary/primary school	2 (1.7)
Some secondary/high school	60 (49.6)
Completed secondary/high school	21 (17.4)
Some college or university	21 (17.4)
Completed college or university	12 (9.9)
Completed graduate education (e.g., Masters, PhD, MD degrees)	2 (1.7)
Personal income last year (N=118)	
No personal income	6 (5.0)
$1-$9,999	29 (24.0)
$10,000-$19,999	15 (12.4)
$20,000-$29,999	19 (15.7)
≥$30,000	16 (13.2)
Unsure	30 (24.8)
Refused	3 (2.5)
How do you define yourself (sexual orientation) (N=120)	
Gay or homosexual	53 (43.8)
Straight or heterosexual	11(9.1)
Bisexual	32 (26.4)
Two-spirited	16 (13.2)
Other	5 (4.1)
Refused	3 (2.5)

Characteristic (N=Number of Respondents)*	Number (%)†
Marital status (N=119)	
Married: spouse is opposite sex	1 (0.8)
Commonlaw: partner is same sex	19 (15.7)
Commonlaw: partner is opposite sex	6 (5.0)
Divorced	3 (2.5)
Single	88 (72.7)
Unsure	1 (0.8)
Refused	1 (0.8)

*Refused is treated as a response
†All percentages are calculated using the number of respondents as the denominator unless otherwise specified

Table 3: Health services use among MSM participants

Health services accessed in last year	**Number (%)***
Accessed health services in the last year	97 (80.2)
Did not access health services in the last year	24 (19.8)
Health professionals accessed in last year	
Doctor	75 (62.0)
Primary care nurse	23 (19.0)
Public health nurse	23 (19.0)
Emergency room nurse	20 (16.5)
Places where received medical attention	
Hospital	29 (24.0)
Emergency room:<6 hour visit	15 (12.4)
Emergency room: 6-24 hour visit	15 (12.4)
Admitted to hospital	11 (9.1)
Community health centre	37 (30.6)
Nine Circles Community Health Centre	30 (24.8)
Mount Carmel Clinic	6 (5.0)
Aboriginal Health and Wellness Centre	0 (0)
Centre de Sante St. Boniface	4 (3.3)
Health Action Centre	2 (1.7)
Hope Centre	0 (0)
Nor' West Community Health Centre	0 (0)
WRHA Health Access Centre: River East	0 (0)
WRHA Health Access Centre: 601 Aikins	1 (0.8)
Correctional facility	19 (15.7)
Remand Centre	13 (10.7)
Manitoba Youth Centre	0 (0)
Headingley Correctional Centre	10 (8.3)
Agassiz Youth Centre	0 (0)
Portage Correctional Centre	0 (0)
Brandon Correctional Centre	0 (0)
Dauphin Correctional Centre	0 (0)
Milner Ridge Correctional Centre	1 0.8)
Stony Mountain Institutional	2 (1.7)
Rockwood Institution	0 (0)
Walk-in clinic	67 (55.4)
Research study	4 (3.3)
Canadian Blood Services donation	4 (3.3)
Needle exchange program	7 (5.8)
Addictions treatment program	6 (5.0)
Other	11 (9.1)

*Questions pertaining to health services access asked participants to "check all that apply". All percentages are calculated using the total number of participants (121) as the denominator

Table 4: Places MSM looked for sex

Place (N=Number of Respondents)	Yes (%)*
Gay Bar (N=110)	60 (54.5)
Straight Bar (N=102)	34 (33.3)
Raves/Circuit parties (N=98)	22 (22.4)
After-hours clubs/parties (N=100)	32 (32.0)
Saunas (N=98)	24 (24.5)
Sex Parties (N=97)	16 (16.5)
Parks (N=97)	21 (21.6)
Public Restrooms (N=95)	5 (5.3)
Bicycle Paths (N=96)	8 (8.3)
Coffee Shops (N=95)	12 (12.6)
Internet (N=96)	28 (28.9)
Community organizations (N=97)	8 (8.2)
Gay associations (N=97)	8 (8.2)
Recreational groups (N=96)	5 (5.2)
Telephone chat lines (N=98)	25 (25.5)
Community events for gays and lesbians (N=98)	17 (17.3)
Personal ads (N=95)	3 (3.2)
Gym/Health club (N=96)	6 (6.3)
Other (N=84)	12 (14.3)

*Percentages are calculated using the number of respondents as the denominator

Table 5: Places and frequency MSM participants looked for sex

Place (N=Number of Respondents)*†	<Once a month (%)*	Once a month (%)	2-3 times a month (%)	>Once a week (%)	Unsure/ Refused (%)
Gay Bar (N=53)	16 (30.2)	6 (11.3)	15 (28.3)	8 (15.1)	8 (15.1)
Straight Bar (N=32)	10 (31.3)	8 (2.5)	8 (2.5)	3 (9.4)	3 (9.4)
Raves/ Circuit parties (N=18)	6 (33.3)	3 (16.7)	3 (16.7)	2 (11.1)	4 (22.2)
After-hours clubs/parties (N=27)	9 (33.3)	5 (18.5)	7 (25.8)	3 (11.1)	3 (11.1)
Saunas (N=22)	11 (50.0)	3 (13.6)	4 (18.1)	2 (9.1)	2 (9.1)
Sex Parties (N=13)	4 (30.8)	3 (23.1)	3 (23.1)	1 (7.7)	2 (15.4)
Parks (N=19)	11 (57.9)	2 (10.5)	2 (10.5)	3 (15.8)	1 (5.3)
Bathrooms (N=6)	4 (66.7)	0 (0)	0 (0)	1 (16.7)	1 (16.7)
Bicycle Paths (N=7)	3 (42.9)	0 (0)	2 (28.6)	1 (14.3)	1 (14.3)
Coffee Shops (N=10)	6 (60.0)	0 (0)	1 (10.0)	1 (10.0)	2 (20.0)
Internet (N=22)	11 (50.0)	3 (13.6)	1 (4.5)	6 (27.3)	1 (4.5)
Community organizations (N=6)	5 (83.3)	0 (0)	0 (0)	0 (0)	1 (16.7)
Gay associations (N=5)	1 (20.0)	2 (40.0)	1 (20.0)	1 (20.0)	1 (20.0)
Recreational groups (N=4)	2 (50.0)	0 (0)	1 (25.0)	0 (0)	1 (25.0)
Telephone chat lines (N=20)	4 (20.0)	4 (20.0)	4 (20.0)	5 (25.0)	3 (15.0)
Community events for gays/lesbians (N=12)	6 (50.0)	2 (16.7)	3 (25.0)	1 (8.3)	0 (0)
Personal ads (N=2)	1 (50.0)	0 (0)	0 (0)	0 (0)	1 (50.0)
Gym/Health club (N=5)	1 (20.0)	1 (20.0)	2 (40.0)	1 (40.0)	1 (20.0)
Other (N=11)	2 (18.2)	1 (9.1)	4 (36.4)	1 (9.1)	3 (27.3)

*Percentages are calculated using the number of respondents as the denominator

†Other places participants reported looking for sex were “bus depot,” “friend’s house,” “previous safe sex partners,” “riverbank,” “skate park,” “street,” “stroll,” “under bridge,” and “walking around.”

Table 6: Count of places MSM participants looked for sex

Number of places	Number of participants	Percent	Cumulative percent
0	29	24.0	24.0
1	25	20.7	44.6
2	16	13.2	57.9
3	12	9.9	67.8
4	11	9.1	76.9
5	7	5.8	82.6
6	7	5.8	88.4
7	6	5.0	93.4
8	2	1.7	95.0
9	2	1.7	96.7
11	2	1.7	98.3
15	1	0.8	99.2
19	1	0.8	100.0
Total	121	100	

Table 7: MSM injection drug use

Drug (N=Number of Respondents)*	Never (%)	Yes, but not in the past six months (%)	Yes, in the past six months (%)	Refused (%)
Steroids (N=71)	67 (94.4)	3 (4.2)	0 (0)	1 (1.4)
Heroin (N=73)	62 (84.9)	7 (9.6)	3 (4.1)	1 (1.4)
Cocaine (N=74)	45 (60.8)	15 (20.3)	13 (17.6)	1 (1.4)
Crystal meth (N=72)	52 (72.2)	10 (13.9)	9 (12.5)	1 (1.4)
Talwin and Ritalin (N=52)	51 (73.9)	8 (11.6)	9 (13.0)	1 (1.4)
Crack/rock cocaine (N=72)	57 (79.2)	6 (8.3)	8 (11.1)	1 (1.4)
Morphine (N=68)	55 (80.9)	4 (5.9)	8 (11.8)	1 (1.5)
Oxycontin (N=68)	59 (86.8)	4 (5.9)	4 (5.9)	1 (1.5)
Other opiates (N=69)	61 (88.4)	4 (5.8)	3 (4.3)	1 (1.4)
Special K/Ketamine (N=68)	63 (92.6)	2 (2.9)	2 (2.9)	1 (1.5)
Ecstasy (N=69)	60 (87.0)	3 (4.3)	5 (7.2)	1 (1.4)
Barbiturates (N=68)	62 (91.2)	3 (4.4)	2 (2.9)	1 (1.5)
Other amphetamines or stimulants (N=65)	59 (90.8)	3 (4.6)	1 (3.1)	1 (1.5)
Other 1 (N=58)	51 (87.9)	3 (5.2)	3 (5.2)	1 (1.7)
Other 2 (N=4)	2 (50.0)	0 (0)	1 (25.0)	1 (25.0)
Other 3 (N=4)	2 (50.0)	0 (0)	1 (25.0)	1 (25.0)

*Percentages are calculated using the number of respondents as the denominator

Table 8: MSM non-injection drug use

Drug (N=Number of Respondents)*†	Never (%)*	Yes, but not in the past six months (%)	Yes, in the past six months (%)	Refused (%)
Alcohol (N=106)	3 (2.8)	9 (8.5)	92 (86.8)	2 (1.9)
Marijuana (N=104)	12 (11.5)	8 (7.7)	82 (78.8)	2 (1.9)
Poppers (N=98)	48 (49.0)	19 (19.4)	27 (27.6)	4 (4.1)
Special K/Ketamine (N=89)	66 (74.2)	10 (11.2)	11 (12.4)	2 (2.2)
Ecstasy (N=93)	55 (59.1)	17 (18.3)	19 (20.4)	2 (2.2)
Crystal meth (N=90)	56 (62.2)	16 (17.8)	16 (17.8)	2 (2.2)
Other speed/amphetamines/stimulants (N=88)	70 (79.5)	10 (11.4)	6 (6.8)	2 (2.3)
Viagra, Cialis, or other erectile drugs (N=89)	74 (83.1)	9 (10.1)	5 (5.6)	1 (1.1)
Cocaine/crack/free base (N=93)	32 (34.4)	15 (16.1)	45 (48.4)	1 (1.1)
Oxycontin (N=89)	79 (88.8)	4 (4.5)	5 (5.6)	1 (1.1)
Heroin (N=88)	81 (92.0)	4 (4.5)	2 (2.3)	1 (1.1)
Morphine (N=87)	71 (81.6)	5 (5.7)	10 (11.5)	1 (1.1)
Other opiates (Percocet, Dilaudid) (N=88)	78 (88.6)	4 (4.5)	5 (5.7)	1 (1.1)
GHB (N=88)	77 (87.5)	6 (6.8)	4 (4.5)	1 (1.1)
LSD/acid, mescaline (N=89)	54 (60.7)	24 (27.0)	10 (11.2)	1 (1.1)
Tranquilizers (N=88)	63 (71.6)	8 (9.1)	16 (18.2)	1 (1.1)
Barbiturates (N=88)	68 (77.3)	11 (12.5)	8 (9.1)	1 (1.1)
Mushrooms (N=93)	42 (45.2)	41 (44.1)	9 (9.7)	1 (1.8)
Gas/Solvents (N=88)	69 (78.4)	5 (5.7)	13 (14.8)	1 (1.1)
Other (N=55)	47 (85.5)	2 (3.6)	5 (9.1)	1 (1.8)

*Percentages are calculated using the number of respondents as the denominator

†Other drugs participants reported using before sex with a male partner were methadone, solvents, and Tylenol 3.

Table 9: MSM drug use before sex with a male partner*

Drug (N=Number of Respondents)†	Never: 0 (%)	Less than half the time: 1-49 (%)	More than half the time: 50-100 (%)
Alcohol (N=95)	14 (14.7)	38 (40.0)	43 (45.3)
Marijuana (N=88)	24 (27.3)	35 (39.8)	29 (33.0)
Poppers (N=72)	43 (59.7)	20 (27.8)	9 (12.5)
Special K/Ketamine (N=61)	56 (91.8)	5 (8.2)	0 (0)
Ecstasy (N=66)	54 (81.8)	8 (12.1)	4 (6.1)
Crystal meth (N=64)	55 (85.9)	4 (6.3)	5 (7.8)
Other speed/amphetamines/stimulants (N=63)	58 (92.1)	5 (7.9)	0
Viagra, Cialis, or other erectile drugs (N=63)	56 (88.9)	6 (9.5)	1 (1.6)
Cocaine/crack/free base (N=75)	44 (58.7)	18 (24.0)	13 (17.3)
Heroin (N=63)	59 (93.7)	4 (6.3)	0 (0)
Other opiates (Percocet, Dilaudid, Oxycontin) (N=63)	58 (92.1)	4 (6.3)	1 (1.6)
GHB (N=61)	57 (93.4)	4 (6.6)	0 (0)
Psychedelics (LSD/acid, mescaline, mushrooms) (N=63)	60 (95.2)	2 (3.2)	1 (1.6)
Tranquilizers or Benzodiazepines (Valium, Ritrovil) (N=57)	55 (85.9)	8 (12.5)	1 (1.6)
Other 1 (N=58)	51 (87.9)	5 (8.6)	2 (3.4)
Other 2 (N=10)	7 (70.0)	3 (30.0)	0 (0)

*There was no Refused option for this question
†Percentages are calculated using the number of respondents as the denominator

Table 10: MSM number of male sex partners overall and by partner type

Male Sex Partners (N=Number of Respondents)*	Number
Number of Male Partners Overall (N=113)	
None	13 (11.5)
Only 1	22 (19.5)
2 to 5	39 (34.5)
6 to 9	18 (15.9)
10 to 19	9 (8.0)
20 to 29	3 (2.7)
30 to 39	1 (0.9)
40 to 49	3 (2.7)
50 or more	4 (3.5)
Don't know	1 (0.9)
Refused	0 (0.0)
Number of Male Partners by Partner Type	
Casual (N=96)	
None	24 (25.0)
Only 1	14 (14.6)
2 to 5	32 (33.3)
6 to 9	13 (13.5)
10 to 19	4 (4.2)
20 to 29	3 (3.1)
30 to 39	1 (1.0)
40 to 49	3 (3.1)
50 or more	2 (2.1)
Don't know	0 (0.0)
Refused	0 (0.0)
Regular (N=96)	
None	30 (31.3)
Only 1	34 (35.4)
2 to 5	25 (26.0)
6 or more	7 (7.3)
Don't know	0 (0.0)
Client (N=90)	
None	57 (63.3)
Only 1	5 (5.6)
2 to 5	13 (14.4)
6 to 9	4 (4.4)
10 to 19	3 (3.3)
20 to 29	1 (1.1)
30 to 39	1 (1.1)
40 to 49	2 (2.2)
50 or more	4 (4.4)
Don't know	0 (0.0)
Refused	0 (0.0)
Sex Worker (N=88)	
None	85 (96.6)
Only 1	1 (1.1)
2 to 5	1 (1.1)

Male Sex Partners (N=Number of Respondents)*	Number
6 to 9	1 (1.1)
Sex worker (cont.) (N=88)	
10 to 19	0 (0.0)
20 to 29	0 (0.0)
30 to 39	0 (0.0)
40 to 49	0 (0.0)
50 or more	0 (0.0)
Don't know	0 (0.0)
Refused	0 (0.0)

*Percentages are calculated using the number of respondents as the denominator

Table 11: MSM behaviour with male sex partners not stratified by partner type

Variable (N=Number of Respondents)*	No (%)	Yes (%)	Unsure (%)	Refused (%)
Anal sex with a male partner (N=95)	29 (30.5)	63 (66.3)	1 (1.1)	2 (2.1)
Unprotected anal sex with ≥ 1 male partner (N=60)	23 (38.3)	35 (58.3)	1 (1.7)	1 (1.7)
Unprotected anal sex, ≥ 1 male partner, HIV positive (N=33)	20 (60.6)	9 (27.3)	4 (12.1)	0 (0)
Unprotected anal sex, ≥ 1 male partner, HIV status unknown (N=34)	13 (38.2)	15 (44.1)	5 (14.7)	1 (2.9)
Unprotected anal sex, ≥ 1 male partner, HIV negative (N=35)	12 (34.3)	17 (48.6)	5 (14.3)	1 (2.9)
Used condom for last anal sex (N=42)	16 (38.1)	24 (57.1)	2 (3.2)	0 (0)
Oral or anal sex with new male partner met while traveling outside MB (N=97)	82 (84.5)	14 (14.4)	0 (0)	1 (1.0)
Unprotected anal sex with new male partner met while traveling outside MB (N=13)	7 (53.8)	6 (42.9)	0 (0)	0 (0)
Oral or anal sex with new male partner met while traveling outside CAN (N=95)	88 (92.6)	6 (6.3)	1 (1.1)	0 (0)
Unprotected anal sex with new male partner met while traveling outside CAN (N=6)	2 (33.2)	4 (66.7)	0 (0)	0 (0)
Oral or anal sex with new male partner who was traveling in, but not a resident of, MB (N=94)	70 (74.5)	21 (22.3)	3 (3.2)	0 (0)
Unprotected anal sex with new male partner who was traveling in, not a resident of, MB (N=21)	14 (66.7)	7 (33.3)	0 (0)	0 (0)

*Percentages are calculated using the number of respondents as the denominator

Table 12: MSM sexual behaviour by male partner type

Partner Type (N=Number of Respondents)	No (%)	Yes (%)	Unsure (%)	Refused (%)
Casual Male Partners				
Insertive anal sex (N=72)	30 (41.7)	39 (54.2)	0 (0)	3 (4.2)
Receptive anal sex (N=71)	32 (45.1)	37 (52.1)	0 (0)	2 (2.8)
Unprotected anal sex, any casual partner (N=68)	41 (60.3)	27 (39.7)	0 (0)	0 (0)
Unprotected anal sex, partner HIV positive (N=27)	25 (92.6)	2 (7.4)	0 (0)	0 (0)
Unprotected anal sex, partner HIV status unknown (N=24)	14 (58.3)	10 (41.7)	0 (0)	0 (0)
Unprotected anal sex, partner HIV negative (N=24)	14 (58.3)	10 (41.7)	0 (0)	0 (0)
Gave oral sex to casual partner(s)(N=70)	10 (14.3)	59 (84.3)	0 (0)	1 (1.4)
Partner came in mouth (N=59)	36 (61.0)	22 (37.3)	0 (0)	1 (1.7)
Discussed HIV (N=69)	39 (59.5)	29 (42.0)	1 (1.4)	0 (0)
Discussed syphilis (N=69)	49 (71.0)	19 (27.5)	1 (1.4)	0 (0)
Discussed other STI (N=69)	46 (66.7)	22 (31.9)	1 (1.4)	0 (0)
Regular Male Partners				
Oral or anal sex, partner HIV positive (N=65)	54 (83.1)	7 (10.8)	4 (6.2)	0 (0)
Insertive anal sex, partner HIV positive (N=7)	1 (14.3)	6 (85.7)	0 (0)	0 (0)
Receptive anal sex, partner HIV positive (N=7)	3 (42.9)	4 (57.1)	0 (0)	0 (0)
Oral or anal sex, partner HIV status unknown (N=60)	39 (65.0)	16 (26.7)	5 (8.3)	0 (0)
Insertive anal sex, partner HIV status unknown (N=16)	3 (18.8)	13 (81.3)	0 (0)	0 (0)
Receptive anal sex, partner HIV status unknown (N=16)	8 (53.3)	7 (46.7)	0 (0)	0 (0)
Oral or anal sex, partner HIV negative (N=67)	24 (35.8)	33 (49.3)	9 (13.4)	1 (1.5)
Insertive anal sex, partner HIV negative (N=33)	11 (33.3)	22 (66.7)	0 (0)	0 (0)
Receptive anal sex, partner HIV negative (N=33)	11 (33.3)	22 (66.7)	0 (0)	0 (0)
Gave oral sex to regular partner(s) (N=64)	5 (7.8)	58 (90.6)	1 (1.6)	0 (0)
Partner came in mouth (N=58)	27 (46.6)	30 (51.7)	0 (0)	1 (1.7)
Discussed HIV (N=65)	23 (35.4)	40 (61.5)	2 (3.1)	0 (0)
Discussed syphilis (N=64)	34 (53.1)	28 (43.8)	2 (3.1)	0 (0)
Discussed other STI (N=61)	29 (47.5)	31 (50.8)	1 (1.6)	0 (0)
Had sex with other partners (concurrency) (N=65)	28 (43.1)	35 (53.8)	2 (3.1)	0 (0)
Client Male Partners				
Insertive anal sex (N=32)	20 (65.6)	12 (37.5)	0 (0)	0 (0)
Receptive anal sex (N=32)	21 (65.6)	11 (34.4)	0 (0)	0 (0)
Partner gave money in exchange for sex (N=33)	2 (6.1)	31 (93.9)	0 (0)	0 (0)
Partner gave drugs in exchange for sex (N=33)	16 (48.5)	17 (51.5)	0 (0)	0 (0)
Partner gave goods or services in exchange for sex (N=32)	19 (59.4)	13 (40.6)	0 (0)	0 (0)
Discussed HIV (N=33)	22 (66.7)	10 (30.3)	1 (3.0)	0 (0)
Discussed syphilis (N=30)	25 (83.3)	5 (16.7)	0 (0)	0 (0)
Discussed other STI (N=33)	27 (81.8)	6 (18.2)	0 (0)	0 (0)
Sex Worker Male Partners				
Insertive anal sex (N=3)	1 (33.3)	2 (66.7)	0 (0)	0 (0)
Receptive anal sex (N=3)	1 (33.3)	2 (66.7)	0 (0)	0 (0)
Gave partner money in exchange for sex (N=3)	2 (66.7)	1 (33.3)	0 (0)	0 (0)
Gave partner drugs in exchange for sex (N=3)	2 (66.7)	1 (33.3)	0 (0)	0 (0)
Gave partner other goods or services in exchange for sex (N=3)	2 (66.7)	1 (33.3)	0 (0)	0 (0)
Discussed HIV (N=3)	2 (66.7)	1 (33.3)	0 (0)	0 (0)
Discussed syphilis (N=3)	2 (66.7)	1 (33.3)	0 (0)	0 (0)
Discussed other STI (N=3)	2 (66.7)	1 (33.3)	0 (0)	0 (0)

*Percentages are calculated using the number of respondents as the denominator

Table 13: MSM condom use by sexual behaviour and partner type

Partner Type (N=Number of Respondents)*	Never: 0% (%)	Rarely: <25% (%)	Sometimes: 25-49% (%)	Most of the time: 50-74% (%)	Almost every time: 75-99% (%)	All the time: 100% (%)
Casual Male						
Used condom for insertive anal sex (N=37)	2 (5.4)	3 (8.1)	5 (13.5)	3 (8.1)	8 (21.6)	16 (43.2)
Used condom for receptive anal sex (N=34)	2 (5.9)	3 (8.8)	3 (8.8)	4 (11.8)	4 (11.8)	18 (52.9)
Used condom for giving oral sex (N=57)	27 (47.4)	12 (21.1)	3 (5.3)	4 (7.0)	1 (1.8)	10 (17.5)
Partner came in mouth without a condom (N=19)	0 (0)	3 (15.8)	8 (42.1)	2 (10.5)	4 (21.1)	2 (10.5)
Regular Male						
Used condom for insertive anal sex, partner HIV positive (N=6)	3 (50.0)	0 (0)	2 (33.2)	0 (0)	0 (0)	1 (16.7)
Used condom for receptive anal sex, partner HIV positive (N=4)	1 (25.0)	1 (25.0)	2 (50.0)	0 (0)	0 (0)	0 (0)
Used condom for insertive anal sex, partner HIV status unknown (N=12)	2 (16.7)	1 (8.3)	4 (33.3)	1 (8.3)	1 (8.3)	3 (25.0)
Used condom for receptive anal sex, partner HIV status unknown (N=6)	0 (0)	1 (16.7)	4 (66.7)	1 (16.7)	0 (0)	0 (0)
Used condom for insertive anal sex, partner HIV negative (N=21)	6 (28.6)	2 (9.5)	1 (4.8)	2 (9.5)	3 (14.3)	7 (33.3)
Used condom for receptive anal sex, partner HIV negative (N=22)	7 (31.8)	2 (9.1)	2 (9.1)	1 (4.5)	3 (13.6)	7 (31.8)
Used condom for giving oral sex (N=58)	35 (60.3)	10 (17.2)	4 (6.9)	2 (3.4)	2 (3.4)	5 (8.6)
Partner came in mouth without a condom (N=28)	3 (10.7)	6 (21.4)	6 (21.4)	1 (3.6)	6 (21.4)	6 (21.4)
Client Male						
Used condom for insertive anal sex (N=10)	0 (0)	1 (10.0)	1 (10.0)	2 (20.0)	3 (30.0)	3 (30.0)
Used condom for receptive anal sex (N=10)	0 (0)	1 (10.0)	1 (10.0)	1 (10.0)	5 (50.0)	2 (20.0)
Sex Worker Male						
Used condom for insertive anal sex (N=2)	0 (0)	0 (0)	1 (50.0)	0 (0)	1 (50.0)	0 (0)
Used condom for receptive anal sex (N=2)	0 (0)	0 (0)	1 (50.0)	0 (0)	1 (50.0)	0 (0)

*Percentages are calculated using the number of respondents as the denominator

Table 14: MSM self-reported testing for BBP/STI

MSM self-reported testing for BBP/STI*	Never Tested	Tested in past two years	I do not know	Refused
Gonorrhea (N=101)	29 (28.7)	31 (30.7)	15 (14.9)	8 (7.9)
Chlamydia (N=99)	30 (30.3)	27 (27.3)	16 (16.2)	7 (7.1)
Genital or anal warts (N=97)	45 (46.4)	16 (16.5)	13 (13.4)	9 (9.3)
Syphilis (N=103)	40 (38.8)	25 (24.3)	16 (15.5)	7 (6.8)
Genital Herpes (N=94)	42 (44.7)	16 (17.0)	15 (16.0)	7 (7.4)
HIV (N=106)	19 (17.9)	41 (38.6)	11 (10.4)	7 (10.4)
Hepatitis A (N=97)	25 (25.8)	24 (24.7)	18 (18.6)	7 (7.2)
Hepatitis B (N=98)	25 (25.5)	27 (28.4)	16 (16.3)	7 (7.1)
Hepatitis C (N=95)	24 (25.3)	26 (27.3)	12 (12.6)	7 (7.4)
Hepatitis unknown (N=69)	33 (47.8)	9 (13.0)	11 (15.9)	6 (8.7)
Other STI (N=51)	30 (58.8)	2 (3.9)	9 (17.6)	6 (11.8)

*Percentages are calculated using the number of respondents as the denominator

Table 15: MSM self-reported diagnoses of BBP and STI

BBP/STI (N=Number of Respondents)*	No (%)	Yes, in the past 6 months (%)	Yes, between 6 and 12 months ago (%)	Yes, more than 12 months ago (%)
Gonorrhea (N=94)	80 (84.2)	5 (5.3)	1 (1.1)	8 (8.5)
Chlamydia (N=95)	80 (84.2)	3 (3.2)	1 (1.1)	11 (11.6)
Genital or anal warts (N=90)	84 (93.3)	2 (2.2)	0 (0)	4 (4.4)
Syphilis (N=91)	83 (91.2)	2 (2.2)	4 (4.4)	2 (2.2)
Genital herpes (N=85)	82 (96.5)	2 (2.4)	0 (0)	1 (1.2)
HIV (N=89)	72 (80.9)	4 (4.5)	0 (0)	13 (10.7)
Hepatitis A (N=92)	78 (89.7)	2 (2.3)	0 (0)	7 (8.0)
Hepatitis B (N=88)	81 (92.0)	2 (2.3)	1 (1.1)	4 (4.5)
Hepatitis C (N=88)	73 (83.0)	3 (3.4)	1 (1.1)	11 (12.5)
Hepatitis unknown (N=85)	82 (96.5)	2 (2.4)	0 (0)	1 (1.2)
I had a disease but I forget the name (N=84)	83 (98.8)	1 (1.2)	0 (0)	0 (0)
Other STI/STD (N=75)	74 (98.7)	0 (0)	0 (0)	1 (1.3)

*Percentages are calculated using the number of respondents as the denominator

Table 16: Laboratory testing results by self-reported history of diagnosis/most recent test result

	What was the result of your most recent HIV test?			
Laboratory result	I did not receive the result	I do not know	I was HIV-negative	I was HIV-positive
HIV negative (77)	1	0	48	1
HIV positive (18)	0	0	0	13
	What was the result of your most recent hepatitis C test?			
	I did not receive the result	I do not know	I was HCV-negative	I was HCV-positive
HCV negative (75)	2	3	38	2
HCV positive (18)	0	0	5	7
	Have you ever been told by a doctor you have (HIV)?			
	No	Yes, past 6 months	Yes, 6-12 months ago	Yes, >12 months ago
HIV negative (77)	54	1	0	1
HIV positive (18)	1	3	0	10
	Have you ever been told by a doctor you have (HCV)?			
	No	Yes, past 6 months	Yes, 6-12 months ago	Yes, >12 months ago
HCV negative (75)	49	2	0	1
HCV positive (18)	6	1	1	7
	Have you ever been told by a doctor you have (syphilis)?			
	No	Yes, past 6 months	Yes, 6-12 months ago	Yes, >12 months ago
Syphilis negative (88)	62	2	1	2
Syphilis positive (3)	2	0	1	0

Table 17: MSM reasons for seeking diagnostic testing for BBP and STI

BBP/STI and Reason Tested*	Yes (%)*
HIV	
I had symptoms that made me worry	19 (15.7)
My doctor/nurse suggested it	25 (20.7)
It is part of my regular testing pattern	28 (23.1)
A sex partner had HIV	13 (10.7)
I was being tested for syphilis	12 (9.9)
I was being tested for other STI	20 (16.5)
I did something that put me at risk	33 (27.3)
I saw an ad/poster/article about HIV	12 (9.9)
I was notified by public health that I could have been exposed	8 (6.6)
Other	15 (12.4)
Syphilis	
I had symptoms that made me worry	16 (13.2)
My doctor/nurse suggested it	21 (17.4)
It is part of my regular testing pattern	22 (18.2)
A sex partner had syphilis	8 (6.6)
I was being tested for HIV	15 (12.4)
I did something that put me at risk	25 (20.7)
I saw an ad/poster/article about syphilis	16 (13.2)
I was notified by public health that I could have been exposed	8 (6.6)
Other	4 (3.3)
Gonorrhea or chlamydia	
I had symptoms that made me worry	23 (19.0)
My doctor/nurse suggested it	17 (14.0)
It is part of my regular testing pattern	24 (19.8)
A sex partner had an STI	6 (5.0)
I was being tested for HIV	15 (12.4)
I did something that put me at risk	22 (18.2)
I saw an ad/poster/article about STIs	9 (7.4)
I was notified by public health that I could have been exposed	9 (7.4)
Other	4 (3.3)

* The section on reasons tested asked participants to 'check all that apply'; all percentages are calculated using the total number of participants as the denominator (121)

Table 18: MSM reasons for not testing for BBP and STI

BBP/STI and Reason Not Tested*	Yes (%)*
Syphilis	
I have not had any symptoms	18 (14.9)
I am not at risk for getting syphilis	7 (5.8)
I never thought about it	16 (13.2)
I do not want to know	8 (6.6)
If I tested positive, nothing can be done	3 (2.5)
I do not want my sexual partners contacted	4 (3.3)
I am worried about the impact on my sex life	5 (4.1)
I know that I have never had sex with an infected person	6 (5.0)
If I tested positive, I do not want to get the treatment for syphilis	3 (2.5)
I do not know where to get the test	4 (3.3)
I do not want my sexual partners contacted	4 (3.3)
Other	3 (2.5)
Gonorrhea or chlamydia	
I have not had any symptoms	14 (11.6)
I am not at risk for getting STIs	3 (2.5)
I never thought about it	6 (5.0)
I do not want to know	6 (5.0)
If I tested positive, nothing can be done	2 (1.7)
I am worried about the impact on my sex life	4 (3.3)
I know that I have never had sex with an infected person	4 (3.3)
I do not know where to get the test	1 (0.8)
I do not want my sexual partners contacted	4 (3.3)
Other	0 (0)
HIV	
I am at low risk for HIV infection	18 (14.9)
I am afraid of needles	2 (1.7)
I don't think I can get HIV	2 (1.7)
I think I am HIV-negative	8 (6.6)
I never thought about it	6 (5.0)
I don't think the test is always right	2 (1.7)
I am healthy so I don't need to be tested	4 (3.3)
I do not know where to get the test	3 (2.5)
I am worried about being discriminated against	7 (5.8)
It could affect my relationships	4 (3.3)
Doesn't matter if I'm infected because of my age	1 (0.8)
Because anonymous testing is not available	2 (1.7)
My doctor did not offer the test	4 (3.3)
f I tested positive, nothing can be done	4 (3.3)
I do not want to know	11 (9.1)
I think I am HIV-positive	8 (6.6)
I always have safer sex	9 (7.4)
I am worried about the impact on my sex life	2 (1.7)
I did not have sex with an infected person	5 (4.1)
I could not deal with knowing I was infected	6 (5.0)
I am afraid of having my name reported	6 (5.0)
It could affect my career or insurance	4 (1.7)

BBP/STI and Reason Not Tested*	Yes (%)*
I want to be tested, just haven't done it yet	4 (3.3)
I don't have a doctor	3 (2.5)
I have asked, but my doctor has refused	2 (1.7)
I don't want my partner's name reported	2 (1.7)
Other	2 (1.7)

* The section on reasons not tested asked participants to 'check all that apply'; all percentages are calculated using the total number of participants as the denominator (121)

Table 19: MSM knowledge and opinions about BBP and STI

Knowledge/opinion statement (N=Number of Respondents)*	No (%)	Yes (%)	Don't know (%)	Refused (%)
People can protect themselves from HIV, the virus that causes AIDS, by using a condom correctly every time they have anal sex (N=119)	19 (16.0)	95 (79.8)	4 (3.4)	1 (0.8)
Having sex with only one faithful, uninfected partner can reduce the risk of HIV transmission (N=118)	28 (23.7)	80 (67.8)	8 (6.8)	2 (1.7)
A healthy-looking person can have HIV (N=119)	12 (10.1)	102 (85.7)	5 (4.2)	0 (0.0)
Syphilis can be transmitted through unprotected oral sex (N=101)	11 (10.9)	85 (84.2)	5 (5.0)	0 (0.0)
I would always have symptoms if I contracted a sexually transmitted infection (STI) (N=119)	71 (59.7)	26 (21.8)	22 (18.5)	0 (0.0)
I would always have symptoms if I was infected with hepatitis C (N=119)	60 (50.4)	29 (24.4)	30 (25.2)	0 (0.0)
There is treatment currently available for hepatitis C (N=119)	23 (19.3)	70 (58.8)	26 (21.8)	0 (0.0)
To the best of your knowledge, can syphilis be transmitted the following ways:				
Through giving oral sex (sucking) (N=114)	3 (2.6)	72 (63.2)	38 (33.3)	1 (0.9)
Through receiving oral sex (being sucked) (N=114)	12 (10.5)	64 (56.1)	37 (32.5)	1 (0.9)
Through oral-anal sex (rimming) (N=113)	5 (4.4)	64 (56.6)	42 (37.2)	2 (1.8)
Through receptive anal sex without a condom (N=113)	2 (1.8)	83 (73.5)	27 (23.9)	1 (0.9)
Through insertive anal sex without a condom (N=112)	1 (0.9)	79 (70.5)	31 (27.7)	1 (0.9)
Through vaginal sex without a condom (N=114)	2 (1.8)	81 (71.1)	29 (25.4)	2 (1.8)

*Percentages are calculated using the number of respondents as the denominator

Table 20: Odds ratios and 95% confidence intervals for univariate analysis of associations between location of interview and independent items.

Variable name	Bar	Not Bar	OR (95% CI)	P	
Aboriginal ethnicity					
Aboriginal	19 (47.5)	46 (74.2)			
Non-aboriginal	21 (52.5)	16 (25.8)	0.32 (0.14-0.73)	0.011	*
Ethnic group most identified with:					
Aboriginal	11 (29.7)	35 (57.4)			
Non-Aboriginal	26 (70.3)	26 (42.6)	0.31 (0.13-0.75)	0.012	*
Education					
< grade 12	14 (28.6)	48 (69.6)			
> grade 12	35 (71.4)	21 (30.4)	0.18 (0.39-0.78)	0.000	*
Income					
Under $10,000	8 (19.0)	27 (62.8)			
$10,000 or more	34 (81.0)	16 (37.2)	0.14 (0.52-0.37)	0.000	*
Marital status					
Married or commonlaw	14 (28.0)	12 (17.9)			
Not married or commonlaw	36 (72.0)	55 (82.1)	1.78 (0.74-4.29)	0.261	
Health services access					
Previous 12 months	38 (76.0)	59 (83.1)			
Not in previous 12 months	12 (24.0)	12 (16.9)	0.64 (0.26-1.58)	0.362	
Has a family doctor/primary care provider					
No	21 (47.7)	21 (33.9)			
Yes	23 (52.3)	41 (66.1)	1.78 (0.81-3.93)	0.164	
Received medical attention: Doctor					
No	21 (42.0)	24 (34.3)			
Yes	29 (58.0)	46 (65.7)	1.39 (0.66-2.93)	0.446	
Received medical attention: Primary care nurse					
No	47 (94.0)	51 (71.8)			
Yes	3 (6.0)	20 (28.2)	6.14 (1.71-22.02)	0.002	*
Received medical attention: Public health nurse					
No	40 (80.0)	58 (81.7)			
Yes	10 (20.0)	13 (18.3)	0.90 (0.36-2.24)	0.818	
Received medical attention: Emergency room nurse					
No	43 (86.0)	58 (81.7)			
Yes	7 (14.0)	13 (18.3)	1.38 (0.51-3.74)	0.624	
Received medical attention: Walk-in clinic					
No	20 (40.0)	34 (47.9)			
Yes	30 (60.0)	37 (52.1)	0.73 (0.35-1.51)	0.459	
Received medical attention: Community Health Centre					
No	38 (76.0)	46 (64.8)			
Yes	12 (24.0)	25 (35.2)	1.72 (0.77-3.87)	0.231	
Received medical attention: Jail					
No	43 (86.0)	59 (83.1)			
Yes	7 (14.0)	12 (16.9)	1.25 (0.45-3.44)	0.801	
< 6 hour visit to emergency room					
No	41 (82.0)	65 (91.5)			
Yes	9 (18.0)	6 (8.5)	0.42 (0.14-1.27)	0.161	

Variable name	Bar	Not Bar	OR (95% CI)	P	
6 to 24 hour visit to emergency room					
No	47 (94.0)	59 (83.1)			
Yes	3 (6.0)	12 (16.9)	3.19 (0.85-11.95)	0.095	
Admitted to hospital					
No	47 (94.0)	63 (88.7)			
Yes	3 (6.0)	8 (11.3)	1.99 (0.50-7.91)	0.522	
Number of male sex partners					
None	4 (8.7)	9 (13.6)			
One or more	42 (91.3)	57 (86.4)	0.60 (0.17-2.09)	0.554	
Number of female sex partners					
None	8 (47.1)	3 (9.7)			
One or more	9 (52.9)	28 (90.3)	8.30 (1.81-38.11)	0.009	*
Ever injected drugs					
No	38 (77.6)	31 (43.7)			
Yes	11 (22.4)	40 (56.3)	4.46 (1.96-10.10)	<0.001	*
Ever injected steroids					
No	27 (93.1)	40 (96.7)			
Yes	2 (6.9)	1 (2.4)	0.34 (0.03-3.91)	0.566	
Ever injected heroin					
No	26 (89.7)	36 (83.7)			
Yes	3 (10.3)	7 (16.3)	1.69 (0.40-7.14)	0.730	
Ever injected cocaine					
No	25 (80.6)	20 (47.6)			
Yes	6 (19.4)	22 (52.4)	4.59 (1.56-13.46)	0.007	*
Ever injected crystal meth					
No	26 (92.9)	26 (31.5)			
Yes	2 (7.1)	17 (11.5)	8.5 (1.78-40.56)	0.003	*
Ever injected Talwin and Ritalin					
No	28 (100)	23 (57.5)			
Yes	0 (0)	17 (42.5)	n/a	<0.001	*
Ever injected crack					
No	28 (96.6)	29 (69.0)			
Yes	1 (3.4)	13 (31.0)	12.55 (1.54-102.42)	0.005	*
Ever injected morphine					
No	27 (96.4)	28 (71.8)			
Yes	1 (3.6)	11 (28.2)	10.61 (1.28-87.87)	0.010	*
Ever injected Oxycontin					
No	28 (100)	31 (79.5)			
Yes	0 (0)	8 (20.5)	n/a	0.017	*
Ever injected other opiates					
No	28 (100)	33 (82.5)			
Yes	0 (0)	7 (17.5)	n/a	0.036	*
Ever injected Ketamine					
No	28 (100)	35 (89.7)			
Yes	0 (0)	4 (10.3)	n/a	0.134	
Ever injected Ecstasy					
No	24 (82.8)	36 (92.3)			
Yes	5 (17.4)	3 (7.7)	0.40 (0.09-1.83)	0.272	
Ever injected barbiturates					

Variable name	Bar	Not Bar	OR (95% CI)	P	
No	27 (97.4)	35 (89.7)			
Yes	1 (3.8)	4 (10.3)	3.09 (0.33-29.22)	0.391	
Ever injected other amphetamines					
No	27 (100)	32 (86.5)			
Yes	0 (0)	5 (13.5)	n/a	0.068	
Ever used alcohol					
No	1 (2.7)	2 (3.0)			
Yes	36 (97.3)	65 (97.0)	0.90 (0.08-10.30)	1.000	
Ever used marijuana					
No	6 (17.1)	6 (9.0)			
Yes	29 (82.9)	61 (91.0)	2.10 (0.62-7.09)	0.331	
Ever used poppers					
No	11 (33.3)	37 (60.7)			
Yes	22 (67.7)	24 (39.3)	0.32 (0.13-0.79)	0.017	*
Ever used ketamine					
No	20 (71.4)	46 (78.0)			
Yes	8 (28.8)	13 (22.0)	0.71 (0.25-1.97)	0.594	
Ever used Ecstasy					
No	18 (60.0)	37 (60.7)			
Yes	12 (40.0)	24 (39.3)	0.97 (0.40-2.38)	1.000	
Ever used crystal meth					
No	25 (86.2)	31 (52.5)			
Yes	4 (13.8)	28 (47.5)	5.65 (1.75-18.24)	0.002	*
Ever used other amphetamines					
No	25 (86.2)	45 (78.9)			
Yes	4 (13.8)	12 (21.1)	1.67 (0.49-5.72)	0.561	
Ever used Viagra					
No	25 (89.3)	49 (81.7)			
Yes	3 (10.3)	11 (18.3)	1.87 (0.48-7.32)	0.534	
Ever used cocaine					
No	14 (43.8)	18 (30.0)			
Yes	18 (56.3)	42 (70.0)	1.82 (0.75-4.42)	0.251	
Ever used Oxycontin					
No	29 (96.7)	50 (86.2)			
Yes	1 (3.3)	8 (13.8)	4.64 (0.55-39.0)	0.158	
Ever used heroin					
No	27 (93.1)	54 (93.1)			
Yes	2 (6.9)	4 (6.9)	1.00 (0.172-5.81)	1.000	
Ever used morphine					
No	27 (93.1)	44 (77.2)			
Yes	2 (6.9)	13 (22.8)	4.0 (0.84-19.06)	0.078	
Ever used other opiates					
No	29 (100)	49 (52.0)			
Yes	0 (0)	9 (15.5)	n/a	0.026	*
Ever used GHB					
No	27 (93.1)	50 (86.2)			
Yes	2 (6.9)	8 (13.8)	2.16 (0.43-10.90)	0.485	
Ever used LSD					
No	20 (66.7)	34 (58.6)			

Variable name	Bar	Not Bar	OR (95% CI)	P	
Yes	10 (33.3)	24 (41.4)	1.41 (0.56-3.55)	0.498	
Ever used tranquilizers					
No	27 (93.1)	36 (62.1)			
Yes	2 (6.9)	22 (37.9)	8.25 (1.78-38.14)	0.002	*
Ever used barbiturates					
No	27 (93.1)	41 (70.7)			
Yes	2 (6.9)	17 (29.3)	5.60 (1.20-26.20)	0.026	*
Ever used mushrooms					
No	16 (50.0)	26 (43.3)			
Yes	16 (50.0)	34 (56.7)	1.31 (0.55-3.09)	0.661	
Ever used gas or solvents					
No	29 (100)	40 (69.0)			
Yes	0 (0)	18 (31.0)	n/a	<0.001	*
Used alcohol before sex					
No	7 (16.7)	7 (13.2)			
Yes	35 (83.3)	46 (86.8)	1.31 (0.42-4.09)	0.773	
Used marijuana before sex					
No	10 (25.6)	14 (13.4)			
Yes	29 (74.4)	35 (71.4)	0.86 (0.33-2.23)	0.813	
Used poppers before sex					
No	20 (58.8)	23 (60.5)			
Yes	14 (41.2)	15 (39.5)	0.93 (0.36-2.39)	1.000	
Used ketamine before sex					
No	29 (93.5)	27 (90.0)			
Yes	2 (6.5)	3 (10.0)	1.61 (0.25-10.40)	0.671	
Used Ecstasy before sex					
No	29 (85.3)	25 (78.1)			
Yes	5 (14.7)	7 (21.9)	1.62 (0.46-5.76)	0.532	
Used crystal meth before sex					
No	30 (90.9)	25 (80.6)			
Yes	3 (9.1)	6 (19.4)	2.40 (0.54-10.58)	0.296	
Used other amphetamines before sex					
No	31 (100)	27 (84.4)			
Yes	0 (0)	5 (15.6)	n/a	0.053	
Used Viagra before sex					
No	30 (96.8)	26 (81.3)			
Yes	1 (3.2)	6 (18.8)	6.92 (0.78-61.32)	0.104	
Used cocaine before sex					
No	23 (69.7)	21 (50.0)			
Yes	10 (30.3)	21 (50.0)	2.3 (0.88-5.99)	0.102	
Used heroin before sex					
No	31 (100)	28 (87.5)			
Yes	0 (0)	4 (12.5)	n/a	0.113	
Used other opiates before sex					
No	31 (100)	27 (84.4)			
Yes	0 (0)	5 (15.6)	n/a	0.053	
Used GHB before sex					
No	30 (96.8)	27 (90.0)			
Yes	1 (3.2)	30 (10.0)	3.33 (0.33-33.99)	0.354	

Variable name	Bar	Not Bar	OR (95% CI)	P	
Used psychedelics before sex					
No	32 (100)	28 (90.3)			
Yes	0 (0)	3 (9.7)	n/a	0.113	
Used tranquilizers before sex					
No	30 (96.8)	25 (75.8)			
Yes	1 (3.2)	8 (24.2)	9.6 (1.12-82.05)	0.027	*
Ever diagnosed: gonorrhea					
No	30 (81.1)	50 (87.7)			
Yes	7 (18.9)	7 (12.3)	0.60 (0.19-1.88)	0.391	
Ever diagnosed: chlamydia					
No	33 (86.8)	47 (82.5)			
Yes	5 (13.2)	10 (17.5)	1.40 (0.44-4.49)	0.775	
Ever diagnosed: genital or anal warts					
No	33 (91.7)	51 (94.4)			
Yes	3 (8.3)	3 (5.6)	0.65 (0.12-3.40)	0.680	
Ever diagnosed: syphilis					
No	33 (89.2)	50 (92.6)			
Yes	4 (10.8)	4 (7.4)	0.66 (0.15-2.83)	0.711	
Ever diagnosed: herpes					
No	33 (91.7)	49 (100)			
Yes	3 (8.3)	0 (0)	n/a	0.072	
Ever diagnosed: HIV					
No	32 (94.1)	40 (72.7)			
Yes	2 (5.9)	15 (27.3)	6.00 (1.28-28.18)	0.013	*
Ever diagnosed: hepatitis A					
No	31 (88.6)	47 (90.4)			
Yes	4 (11.4)	5 (9.6)	0.82 (0.21-3.31)	1.000	
Ever diagnosed: hepatitis B					
No	33 (94.3)	48 (90.6)			
Yes	2 (5.7)	5 (9.4)	1.72 (0.31-9.40)	0.698	
Ever diagnosed: hepatitis C					
No	33 (94.3)	40 (75.5)			
Yes	2 (5.7)	13 (24.5)	5.36 (1.13-25.48)	0.023	*
Last HIV test result:					
I was HIV negative	27 (96.4)	34 (66.7)			
I was HIV positive	1 (3.6)	17 (33.3)	13.5 (1.69-107.96)	0.002	*
Last hepatitis C test result:					
I was HCV negative	23 (100)	33 (76.7)			
I was HCV positive	0 (0)	10 (23.3)	n/a	0.011	*
Lab result: HIV					
HIV negative	38 (95.0)	39 (70.9)			
HIV positive	2 (5.0)	16 (29.1)	7.80 (1.68-36.23)	0.003	*
Lab result: hepatitis C					
HCV negative	39 (100)	36 (66.7)			
HCV positive	0 (0)	18 (33.3)	n/a	<0.001	*
Lab result: HIV and hepatitis C co-infected					
No	50 (100)	63 (88.7)			
Yes	0 (0)	8 (11.3)	n/a	0.020	
Lab result: Syphilis					

Variable name	Bar	Not Bar	OR (95% CI)	P
Syphilis negative	37 (94.9)	51 (50.3)		
Syphilis positive	2 (5.1)	1 (1.9)	0.36 (0.32-4.15)	0.574
Looked for sex: Gay bars				
No	8 (17.8)	42 (64.6)		
Yes	37 (82.2)	23 (35.4)	0.12 (0.05-0.30)	<0.001 *
Looked for sex: Straight bars				
No	26 (66.7)	42 (66.7)		
Yes	13 (33.3)	21 (33.3)	1.00 (0.43-2.33)	1.000
Looked for sex: Rave/circuit parties				
No	25 (67.6)	51 (83.6)		
Yes	12 (32.4)	10 (16.4)	0.41 (0.16-1.07)	0.082
Looked for sex: After hours clubs/parties				
No	25 (65.8)	43 (69.4)		
Yes	13 (34.2)	19 (30.6)	0.85 (0.36-2.01)	0.826
Looked for sex: Saunas/baths				
No	25 (67.6)	49 (80.3)		
Yes	12 (32.4)	12 (19.7)	0.51 (0.20-1.30)	0.225
Looked for sex: Sex parties				
No	30 (78.9)	51 (86.4)		
Yes	8 (21.1)	8 (13.6)	0.59 (0.20-1.73)	0.404
Looked for sex: Park				
No	32 (86.5)	44 (73.3)		
Yes	5 (13.5)	16 (26.7)	2.33 (0.77-7.01)	0.204
Looked for sex: Public restrooms				
No	34 (94.4)	56 (94.9)		
Yes	2 (5.6)	3 (5.1)	0.91 (0.15-5.73)	1.000
Looked for sex: Bicycle paths				
No	33 (89.2)	55 (93.2)		
Yes	4 (10.8)	4 (6.8)	0.60 (0.14-2.56)	0.707
Looked for sex: Coffee shops				
No	33 (89.2)	50 (86.2)		
Yes	4 (10.8)	8 (13.8)	1.32 (0.37-4.74)	0.760
Looked for sex: Internet				
No	24 (66.7)	44 (73.3)		
Yes	12 (33.3)	16 (26.7)	0.73 (0.30-1.79)	0.497
Looked for sex: Community organization				
No	34 (89.5)	55 (93.2)		
Yes	4 (10.5)	4 (6.8)	0.62 (0.15-2.64)	0.708
Looked for sex: Gay associations				
No	33 (86.8)	56 (94.9)		
Yes	5 (13.2)	3 (3.1)	0.35 (0.08-1.58)	0.256
Looked for sex: Recreational groups				
No	34 (91.9)	57 (96.6)		
Yes	3 (8.1)	2 (3.4)	0.40 (0.06-2.50)	0.370
Looked for sex: Telephone chat lines				
No	29 (78.4)	44 (72.1)		
Yes	8 (21.6)	17 (27.9)	1.40 (0.54-3.67)	0.634
Looked for sex: Community events for Gay & Lesbian				
No	28 (73.7)	53 (88.3)		

Variable name	Bar	Not Bar	OR (95% CI)	P
Yes	10 (26.3)	7 (11.7)	0.37 (0.13-1.08)	0.099
Looked for sex: Personal ads				
No	33 (91.7)	59 (100)		
Yes	3 (8.3)	0 (0)	n/a	0.052
Looked for sex: Gym/health club				
No	32 (88.9)	58 (96.7)		
Yes	4 (11.1)	2 (3.3)	0.28 (0.05-1.59)	0.193

Table 21: Odds ratios and 95% confidence intervals for univariate analysis of associations between location of interview and key-dependent items.

Variable name	Bar	Not Bar	OR (95% CI)	P
Family doctor knows your sexual orientation				
No	4 (22.2)	14 (77.8)		
Yes	10 (27.0)	27 (73.0)	0.77 (0.21-2.91)	1.000
Family doctor has asked about new sex partner(s)s				
No	15 (65.2)	21 (55.3)		
Yes	8 (34.8)	17 (44.7)	1.52 (0.52-4.43)	0.592
Family doctor has discussed safer sex				
No	13 (56.5)	15 (38.5)		
Yes	10 (43.5)	24 (61.5)	2.08 (0.73-5.93)	0.195
Anal sex in past six months				
No	11 (27.5)	18 (34.6)		
Yes	29 (72.5)	34 (65.4)	0.72 (0.29-1.76)	0.505
Sex with new male partner(s) while outside MB				
No	34 (82.9)	48 (87.3)		
Yes	7 (17.1)	7 (12.7)	0.71 (0.23-2.21)	0.572
Sex with new male partner(s) while outside Canada				
No	39 (92.9)	49 (94.2)		
Yes	3 (7.1)	3 (5.8)	0.80 (0.15-4.16)	1.000
Sex with new male partner(s) not a resident of MB				
No	13 (72.2)	15 (78.9)		
Yes	5 (27.8)	4 (21.1)	0.69 (0.15-3.14)	0.714
UAI with new male partner(s) while outside MB				
No	3 (42.9)	4 (66.7)		
Yes	4 (57.1)	2 (33.3)	0.38 (0.04-3.61)	0.592
UAI with new male partner(s) while outside Canada				
No	1 (33.3)	1 (33.3)		
Yes	2 (66.7)	2 (66.7)	1.0 (0.03-29.81)	1.000
UAI with new male partner(s) not a resident of MB				
No	8 (66.7)	6 (66.7)		
Yes	4 (33.3)	3 (33.3)	1.0 (0.16-6.26)	1.000
Casual male sex partner(s)				
None	8 (19.5)	16 (29.1)		
One or more	33 (80.5)	39 (70.9)	0.59 (0.23-1.55)	0.345
Regular male sex partner(s)				
None	7 (17.9)	23 (40.4)		
One or more	32 (82.1)	34 (59.6)	0.32 (0.12-0.86)	0.025*
Client male sex partner(s)				
None	30 (81.1)	27 (50.9)		
One or more	7 (18.9)	26 (49.1)	4.13 (1.54-11.03)	0.004*
Sex worker male partner(s)				
None	31 (93.9)	54 (98.2)		
One or more	2 (6.1)	1 (1.8)	0.29 (0.03-3.30)	0.553
UAI in past six months				
No	8 (29.6)	15 (48.4)		

Variable name	Bar	Not Bar	OR (95% CI)	P
Yes	19 (70.4)	16 (51.6)	0.45 (0.15-1.33)	0.184
Used condom for last anal sex				
No	5 (27.8)	11 (50.0)		
Yes	13 (72.2)	11 (50.0)	0.39 (0.10-1.45)	0.203
UAI with HIV-positive partner(s)				
No	10 (62.5)	10 (76.9)		
Yes	6 (37.5)	3 (23.1)	0.50 (0.10-2.58)	0.454
UAI with HIV-unknown partner(s)				
No	7 (50.0)	6 (42.9)		
Yes	7 (50.0)	8 (57.1)	1.33 (0.30-5.91)	1.000
UAI with HIV-negative partner(s)				
No	4 (26.7)	8 (57.1)		
Yes	11 (73.3)	6 (42.9)	0.27 (0.06-1.30)	0.139
IA with casual partner(s)				
No	11 (34.4)	19 (51.4)		
Yes	21 (65.6)	18 (48.6)	0.50 (0.19-1.31)	0.224
RA with casual partner(s)				
No	10 (31.3)	22 (59.5)		
Yes	22 (68.8)	15 (40.5)	0.31 (0.12-0.84)	0.029*
UAI with casual partner(s)				
No	16 (48.5)	25 (71.4)		
Yes	17 (51.5)	10 (28.6)	0.38 (0.14-1.03)	0.082
Oral sex with casual				
No	4 (12.1)	6 (16.7)		
Yes	29 (87.9)	30 (83.3)	0.69 (0.18-2.70)	0.737
Discuss HIV with casual partner(s)				
No	16 (51.6)	23 (62.2)		
Yes	15 (48.4)	14 (37.8)	0.65 (0.25-1.71)	0.463
Discuss syphilis with casual partner(s)				
No	19 (63.3)	30 (78.9)		
Yes	11 (36.7)	8 (21.1)	0.46 (0.16-1.35)	0.182
Discuss STI with casual partner(s)				
No	18 (58.1)	28 (75.7)		
Yes	13 (41.9)	9 (24.3)	0.45 (0.16-1.25)	0.193
Used condoms for IA with casual partner(s)				
Not always	13 (65.0)	8 (47.1)		
Always	7 (35.0)	9 (52.9)	2.08 (0.56-7.85)	0.222
Used condoms for RA with casual partner(s)				
Not always	10 (52.6)	6 (40.0)		
Always	9 (47.4)	9 (60.0)	1.67 (0.42-6.56)	0.510
UAI with casual HIV-postive partner(s)				
No	16 (94.1)	9 (90.0)		
Yes	1 (5.9)	1 (10.0)	1.78 (0.10-31.98)	1.000
UAI with casual HIV-unknown partner(s)				
No	10 (66.7)	4 (44.4)		
Yes	5 (33.3)	5 (55.6)	2.5 (0.46-13.65)	0.403
UAI with casual HIV-negative partner(s)				
No	9 (56.3)	5 (62.5)		
Yes	7 (43.8)	3 (37.5)	0.77 (0.14-4.39)	1.000

Variable name	Bar	Not Bar	OR (95% CI)	P
Used condoms for oral sex with casual partner(s)				
Not always	27 (96.4)	20 (69.0)		
Always	1 (3.6)	9 (31.0)	12.15 (1.42-103.83)	0.012*
Casual partner has come in mouth without a condom				
No	16 (55.2)	20 (69.0)		
Yes	13 (44.8)	9 (31.0)	0.55 (0.19-1.62)	0.417
Sex with HIV-positive regular partner(s)				
No	28 (96.6)	26 (81.3)		
Yes	1 (3.4)	6 (18.8)	6.46 (0.73-57.35)	0.106
Sex with HIV-unknown regular partner(s)				
No	23 (79.3)	16 (61.5)		
Yes	6 (20.7)	10 (38.5)	2.39 (0.72-7.92)	0.234
Sex with HIV-negative regular partner(s)				
No	10 (34.5)	14 (50.0)		
Yes	19 (65.5)	14 (50.0)	0.53 (0.18-1.53)	0.289
IA with HIV-positive regular partner(s)				
No	0 (0)	1 (16.7)		
Yes	1 (100)	5 (83.3)	n/a	1.000
RA with HIV-positive regular partner(s)				
No	0 (0)	3 (50.0)		
Yes	1 (100)	3 (50.0)	n/a	1.000
IA with HIV-unknown regular partner(s)				
No	1 (16.7)	2 (20.0)		
Yes	5 (83.3)	8 (80.0)	0.80 (0.06-11.30)	1.000
RA with HIV-unknown regular partner(s)				
No	1 (16.7)	7 (77.8)		
Yes	5 (83.3)	2 (22.2)	0.06 (0.00-0.82)	0.041*
IA with HIV-negative regular partner(s)				
No	6 (31.6)	5 (35.7)		
Yes	13 (68.4)	9 (64.3)	0.831 (0.19-3.58)	1.000
RA with HIV-negative regular partner(s)				
No	6 (31.6)	5 (35.7)		
Yes	13 (68.4)	9 (64.3)	0.831 (0.19-3.58)	1.000
Oral sex with regular				
No	1 (3.3)	4 (2.6)		
Yes	29 (96.7)	29 (87.9)	0.25 (0.03-2.37)	0.357
Discuss HIV with regular partner(s)				
No	15 (48.4)	8 (25.0)		
Yes	16 (51.6)	24 (75.0)	2.81 (0.97-8.17)	0.070
Discuss syphilis with regular partner(s)				
No	16 (55.2)	18 (54.5)		
Yes	13 (44.8)	15 (45.5)	1.03 (0.38-2.80)	1.000
Discuss STI with regular partner(s)				
No	14 (48.3)	15 (48.4)		
Yes	15 (51.7)	16 (51.6)	1.0 (0.36-2.74)	1.000
Used condoms for IA with HIV-positive regular partner(s)				
Not always	1 (100)	4 (80.0)		
Always	0 (0)	1 (20.0)	n/a	1.000
Used condoms for RA with HIV-positive regular partner(s)				

Variable name	Bar	Not Bar	OR (95% CI)	P
Not always	1 (100)	3 (100)		
Always	0 (0)	0 (0)	n/a	n/a
Used condoms for IA with HIV-unknown regular partner(s)				
Not always	4 (100)	5 (62.5)		
Always	0 (0)	3 (37.5)	n/a	0.491
Used condoms for RA with HIV-unknown regular partner(s)				
Not always	4 (100)	2 (100)		
Always	0 (0)	0 (0)	n/a	n/a
Used condoms for IA with HIV-negative regular partner(s)				
Not always	9 (69.2)	5 (62.5)		
Always	4 (30.8)	3 (37.5)	1.35 (0.21-8.62)	1.000
Used condoms for RA with HIV-negative regular partner(s)				
Not always	10 (76.9)	5 (55.6)		
Always	3 (23.1)	4 (44.4)	2.67 (0.42-16.83)	0.376
Used condoms for oral sex with regular partner(s)				
Not always	28 (96.6)	25 (86.2)		
Always	1 (3.4)	4 (13.8)	4.48 (0.47-42.79)	0.352
Regular partner has come in mouth without a condom				
No	13 (44.8)	14 (50.0)		
Yes	16 (55.2)	14 (50.0)	0.81 (0.29-2.30)	0.793
Other sex partners concurrent with regular partner				
No	16 (51.6)	12 (37.5)		
Yes	15 (48.4)	20 (62.5)	1.78 (0.65-4.85)	0.315
IA with client partner				
No	4 (57.1)	16 (64.0)		
Yes	3 (42.9)	9 (36.0)	0.75 (0.14-4.13)	1.000
Used condoms for IA with client partner				
Not always	3 (100)	4 (57.1)		
Always	0 (0)	3 (42.9)	n/a	0.475
RA with client partner				
No	5 (71.4)	16 (64.0)		
Yes	2 (28.6)	9 (36.0)	1.46 (0.24-8.78)	1.000
Used condoms for RA with client partner				
Not always	2 (100)	6 (75.0)		
Always	0 (0)	2 (25.0)	n/a	1.000
Received money from client partner				
No	1 (14.3)	1 (3.8)		
Yes	6 (85.7)	25 (96.2)	4.17 (0.23-76.01)	0.384
Received drugs from client partner				
No	5 (71.4)	11 (42.3)		
Yes	2 (28.6)	15 (57.7)	3.41 (0.56-20.94)	0.225
Received other goods or services from client partner				
No	4 (57.1)	15 (60.0)		
Yes	3 (42.9)	10 (40.0)	0.89 (0.16-4.85)	1.000
Discussed HIV with client partner				
No	4 (57.1)	18 (72.0)		
Yes	3 (42.9)	7 (28.0)	0.52 (0.09-2.93)	0.648
Discussed syphilis with client partner				
No	4 (80.0)	21 (84.0)		

Variable name	Bar	Not Bar	OR (95% CI)	P
Yes	1 (20.0)	4 (16.0)	0.76 (0.07-8.73)	1.000
Discussed STI with client partner				
No	5 (71.4)	22 (84.6)		
Yes	2 (28.6)	4 (15.4)	0.46 (0.06-3.21)	0.584
IA with sex worker partner				
No	1 (50.0)	0 (0)		
Yes	1 (50.0)	1 (100)	n/a	1.000
Used condoms for IA with sex worker partner				
Not always	1 (100)	1 (100)		
Always	0 (0)	0 (0)	n/a	n/a
RA with sex worker partner				
No	1 (50.0)	0 (0)		
Yes	1 (50.0)	1 (100)	n/a	1.000
Used condoms for RA with sex worker partner				
Not always	1 (100)	1 (100)		
Always	0 (0)	0 (0)	n/a	n/a
Gave money to sex worker partner				
No	1 (50.0)	1 (100)		
Yes	1 (50.0)	0 (0)	n/a	1.000
Gave drugs to sex worker partner				
No	2 (100)	0 (0)		
Yes	0 (0)	1 (100)	n/a	n/a
Gave other goods or services to sex worker partner				
No	1 (50.0)	1 (100)		
Yes	1 (50.0)	0 (0)	n/a	1.000
Discussed HIV with sex worker partner				
No	1 (50.0)	1 (100)		
Yes	1 (50.0)	0 (0)	n/a	1.000
Discussed syphilis with sex worker partner				
No	1 (50.0)	1 (100)		
Yes	1 (50.0)	0 (0)	n/a	1.000
Discussed STI with sex worker partner				
No	1 (50.0)	1 (100)		
Yes	1 (50.0)	0 (0)	n/a	1.000

Table 22: Odds ratios and 95% confidence intervals for univariate analysis of associations between Aboriginal status and independent items.

Variable name	Non-Aboriginal	Aboriginal	OR (95% CI)	P
Education				
< grade 12	13 (35.1)	38 (59.4)		
> grade 12	24 (64.9)	26 (4.6)	0.37 (0.16-0.85)	0.024*
Income				
Under $10,000	7 (21.9)	23 (54.8)		
$10,000 or more	25 (78.1)	19 (45.2)	0.23 (0.08-0.65)	0.008*
Marital status				
Married or commonlaw	8 (22.2)	15 (23.8)		
Not married or commonlaw	28 (77.8)	48 (76.2)	0.92 (0.34-2.44)	1
Health services access				
Previous 12 months	28 (75.7)	54 (83.1)		
Not in previous 12 months	9 (24.3)	11 (16.9)	0.63 (0.23-1.69)	0.439
Has a family doctor/primary care provider				
No	11 (33.3)	23 (39.0)		
Yes	22 (66.7)	36 (61.0)	0.78 (0.32-1.92)	0.657
Received medical attention: Doctor				
No	16 (44.4)	18 (27.7)		
Yes	20 (55.6)	47 (72.3)	2.08 (0.89-5.00)	0.123
Received medical attention: Primary care nurse				
No	30 (81.1)	53 (81.5)		
Yes	7 (18.9)	12 (18.5)	0.97 (0.34-2.70)	1
Received medical attention: Public health nurse				
No	32 (86.5)	50 (76.9)		
Yes	5 (13.5)	15 (23.1)	1.92 (0.64-5.88)	0.305
Received medical attention: Emergency room nurse				
No	34 (91.9)	50 (76.9)		
Yes	3 (8.1)	15 (23.1)	3.45 (0.92-12.50)	0.064
Received medical attention: Walk-in clinic				
No	17 (45.9)	31 (47.7)		
Yes	20 (54.1)	34 (52.3)	0.93 (0.41-2.08)	1
Received medical attention: Community Health Centre				
No	26 (70.3)	43 (66.2)		
Yes	11 (29.7)	22 (33.8)	1.20 (0.51-2.86)	0.826
Received medical attention: Jail				
No	32 (86.5)	53 (81.5)		
Yes	5 (13.5)	12 (18.5)	1.45 (0.47-4.55)	0.591
< 6 hour visit to emergency room				
No	32 (86.5)	57 (87.7)		
Yes	5 (13.5)	8 (12.3)	0.90 (0.27-2.94)	1
6 to 24 hour visit to emergency room				
No	34 (91.9)	55 (84.6)		
Yes	3 (8.1)	10 (15.4)	2.04 (0.53-7.69)	0.366
Admitted to hospital				
No	35 (94.6)	58 (89.2)		

Variable name	Non-Aboriginal	Aboriginal	OR (95% CI)	P
Yes	2 (5.4)	7 (10.8)	2.13 (0.41-11.11)	0.482
Vaccinated for hepatitis A				
No	10 (50.0)	17 (44.7)		
Yes	10 (50.0)	21 (55.3)	1.23 (0.42-3.70)	0.785
Vaccinated for hepatitis B				
No	11 (45.8)	16 (35.6)		
Yes	13 (54.2)	29 (64.4)	1.54 (0.56-4.17)	0.446
Number of male sex partners				
None	4 (12.5)	6 (9.7)		
One or more	28 (87.5)	56 (90.3)	1.33 (0.35-5.00)	0.73
Number of female sex partners				
None	2 (15.4)	6 (21.4)		
One or more	11 (84.6)	22 (78.6)	0.67 (0.12-3.85)	1
Ever injected drugs				
No	24 (64.9)	32 (49.2)		
Yes	13 (35.1)	33 (50.8)	1.89 (0.83-4.35)	0.151
Ever injected steroids				
No	19 (95.0)	40 (95.2)		
Yes	1 (5.0)	2 (4.8)	0.95 (0.08-11.11)	1
Ever injected heroin				
No	16 (76.2)	38 (88.4)		
Yes	5 (23.8)	5 (11.6)	0.42 (0.11-1.67)	0.275
Ever injected cocaine				
No	13 (59.1)	25 (59.5)		
Yes	9 (40.9)	17 (40.5)	0.98 (0.34-2.78)	1
Ever injected crystal meth				
No	15 (75.0)	30 (71.4)		
Yes	5 (25.0)	12 (28.6)	1.20 (0.36-4.00)	1
Ever injected Talwin and Ritalin				
No	19 (95.0)	26 (65.0)		
Yes	1 (5.0)	14 (35.0)	10.00 (1.23-100.00)	0.012*
Ever injected crack				
No	17 (77.3)	33 (80.5)		
Yes	5 (22.7)	8 (19.5)	0.83 (0.23-2.94)	0.755
Ever injected morphine				
No	15 (78.9)	32 (80.0)		
Yes	4 (21.1)	8 (20.0)	0.93 (0.24-3.57)	1
Ever injected Oxycontin				
No	17 (89.5)	34 (85.0)		
Yes	2 (10.5)	6 (15.0)	1.49 (0.27-8.33)	1
Ever injected other opiates				
No	16 (84.2)	37 (90.2)		
Yes	3 (15.8)	4 (9.8)	0.58 (0.12-2.86)	0.668
Ever injected Ketamine				
No	16 (84.2)	39 (97.5)		
Yes	3 (15.8)	1 (2.5)	0.14 (0.01-1.41)	0.094
Ever injected Ecstasy				
No	16 (84.2)	37 (92.5)		

Variable name	Non-Aboriginal	Aboriginal	OR (95% CI)	P
Yes	3 (15.8)	3 (7.5)	0.43 (0.08-2.38)	0.376
Ever injected barbiturates				
No	16 (84.2)	38 (95.0)		
Yes	3 (15.8)	2 (5.0)	0.28 (0.04-1.85)	0.316
Ever injected other amphetamines				
No	15 (83.3)	36 (94.7)		
Yes	3 (16.7)	2 (5.3)	0.28 (0.04-1.82)	0.314
Ever used alcohol				
No	0 (0)	1 (1.7)		
Yes	31 (100)	57 (98.3)	n/a	1
Ever used marijuana				
No	2 (7.4)	9 (15.0)		
Yes	25 (92.6)	51 (85.0)	0.45 (0.09-2.27)	0.491
Ever used poppers				
No	9 (33.3)	32 (58.2)		
Yes	18 (66.7)	23 (41.8)	0.36 (0.14-0.94)	0.059
Ever used Ketamine				
No	14 (53.8)	43 (86.0)		
Yes	12 (46.2)	7 (14.0)	0.19 (0.06-0.57)	0.004*
Ever used Ecstasy				
No	13 (52.0)	36 (66.7)		
Yes	12 (48.0)	18 (33.3)	0.54 (0.21-1.43)	0.225
Ever used crystal meth				
No	15 (62.5)	34 (65.4)		
Yes	9 (37.5)	18 (34.6)	0.88 (0.32-2.38)	0.803
Ever used other amphetamines				
No	19 (76.0)	43 (84.3)		
Yes	6 (24.0)	8 (15.7)	0.59 (0.18-1.92)	0.53
Ever used Viagra				
No	20 (83.3)	45 (83.3)		
Yes	4 (16.7)	9 (16.7)	1.00 (0.28-3.57)	1
Ever used cocaine				
No	12 (46.2)	15 (28.3)		
Yes	14 (53.8)	38 (71.7)	2.17 (0.82-5.88)	0.136
Ever used Oxycontin				
No	23 (88.5)	45 (88.2)		
Yes	3 (11.5)	6 (11.8)	1.02 (0.23-4.55)	1
Ever used heroin				
No	20 (80.0)	50 (98.0)		
Yes	5 (20.0)	1 (2.0)	0.08 (0.01-0.73)	0.013*
Ever used morphine				
No	20 (80.0)	40 (80.0)		
Yes	5 (20.0)	10 (20.0)	1.00 (0.30-3.33)	1
Ever used other opiates				
No	22 (88.0)	45 (88.2)		
Yes	3 (12.0)	6 (11.8)	0.98 (0.22-4.35)	1
Ever used GHB				
No	20 (80.0)	46 (90.2)		

Variable name	Non-Aboriginal	Aboriginal	OR (95% CI)	P
Yes	5 (20.0)	5 (9.8)	0.43 (0.11-1.67)	0.282
Ever used LSD				
No	14 (56.0)	32 (61.5)		
Yes	11 (44.0)	20 (38.5)	0.79 (0.30-2.08)	0.804
Ever used tranquilizers				
No	19 (76.0)	34 (68.0)		
Yes	6 (24.0)	16 (32.0)	1.49 (0.50-3.85)	0.594
Ever used barbituates				
No	20 (80.0)	38 (74.5)		
Yes	5 (20.0)	13 (25.5)	1.37 (0.43-4.35)	0.776
Ever used mushrooms				
No	9 (34.6)	28 (51.9)		
Yes	17 (65.4)	26 (48.1)	0.49 (0.19-1.30)	0.161
Ever used gas or solvents				
No	22 (88.0)	38 (74.5)		
Yes	3 (12.0)	13 (25.5)	2.50 (0.65-10.00)	0.237
Used alcohol before sex				
No	3 (11.1)	8 (15.1)		
Yes	24 (88.9)	45 (84.9)	0.70 (0.17-2.86)	0.742
Used marijuana before sex				
No	4 (16.7)	14 (28.0)		
Yes	20 (83.3)	36 (72.0)	0.52 (0.15-1.79)	0.39
Used poppers before sex				
No	12 (54.5)	24 (63.2)		
Yes	10 (45.5)	14 (36.8)	0.70 (0.24-2.04)	0.589
Used Ketamine before sex				
No	16 (84.2)	30 (96.8)		
Yes	3 (15.8)	1 (3.2)	0.18 (0.02-1.85)	0.147
Used Ecstasy before sex				
No	16 (76.2)	28 (82.4)		
Yes	5 (23.8)	6 (17.6)	0.68 (0.18-2.63)	0.731
Used crystal meth before sex				
No	17 (85.0)	29 (87.9)		
Yes	3 (15.0)	4 (12.1)	0.78 (0.16-3.85)	1
Used other amphetamines before sex				
No	18 (94.7)	30 (90.9)		
Yes	1 (5.3)	3 (9.1)	1.79 (0.17-20.00)	1
Used Viagra before sex				
No	17 (89.5)	30 (90.9)		
Yes	2 (10.5)	3 (9.1)	0.85 (0.13-5.56)	1
Used cocaine before sex				
No	13 (68.4)	24 (55.8)		
Yes	6 (31.6)	19 (44.2)	1.72 (0.55-5.26)	0.41
Used heroin before sex				
No	18 (90.0)	32 (97.0)		
Yes	2 (10.0)	1 (3.0)	0.28 (0.02-3.33)	0.59
Used other opiates before sex				
No	18 (90.0)	30 (93.8)		

Variable name	Non-Aboriginal	Aboriginal	OR (95% CI)	P
Yes	2 (10.0)	2 (6.2)	0.60 (0.35-4.55)	0.634
Used GHB before sex				
No	17 (85.0)	31 (100)		
Yes	3 (15.0)	0 (0)	n/a	0.055
Used psychedelics before sex				
No	18 (90.0)	32 (100)		
Yes	2 (10.0)	0 (0)	n/a	0.143
Used tranquilizers before sex				
No	17 (89.5)	29 (85.3)		
Yes	2 (10.5)	5 (14.7)	1.47 (0.26-8.33)	1
Ever diagnosed: gonorrhea				
No	27 (81.8)	41 (87.2)		
Yes	6 (18.2)	6 (12.8)	0.66 (0.19-2.27)	0.539
Ever diagnosed: chlamydia				
No	28 (84.8)	39 (81.3)		
Yes	5 (15.2)	9 (18.7)	1.30 (0.39-4.35)	0.771
Ever diagnosed: genital or anal warts				
No	26 (83.9)	45 (97.8)		
Yes	5 (16.1)	1 (2.2)	0.12 (0.01-1.04)	0.036*
Ever diagnosed: syphilis				
No	31 (96.9)	40 (87.0)		
Yes	1 (3.1)	6 (13.0)	4.55 (0.53-33.33)	0.23
Ever diagnosed: herpes				
No	30 (93.8)	39 (97.5)		
Yes	2 (6.2)	1 (2.5)	0.38 (0.03-4.35)	0.581
Ever diagnosed: HIV				
No	26 (83.9)	33 (73.3)		
Yes	5 (16.1)	12 (26.7)	1.89 (0.59-5.88)	0.402
Ever diagnosed: hepatitis A				
No	28 (90.3)	37 (86.0)		
Yes	3 (9.7)	6 (14.0)	1.52 (0.35-6.67)	0.726
Ever diagnosed: hepatitis B				
No	30 (93.8)	38 (88.4)		
Yes	2 (6.2)	5 (11.6)	1.96 (0.36-11.11)	0.692
Ever diagnosed: hepatitis C				
No	27 (90.0)	33 (73.3)		
Yes	3 (10.0)	12 (26.7)	3.23 (0.83-12.50)	0.139
Last HIV test result:				
I was HIV negative	16 (76.2)	37 (75.5)		
I was HIV positive	5 (23.8)	12 (24.5)	1.04 (0.31-3.45)	1
Last hepatitis C test result:				
I was HCV negative	14 (93.3)	34 (79.1)		
I was HCV positive	1 (6.7)	9 (20.9)	3.70 (0.43-33.33)	0.427
Lab result: HIV				
HIV negative	24 (82.8)	41 (77.4)		
HIV positive	5 (17.2)	12 (22.6)	1.41 (0.44-4.55)	0.777
Lab result: hepatitis C				
HCV negative	27 (96.4)	37 (71.2)		

Variable name	Non-Aboriginal	Aboriginal	OR (95% CI)	P
HCV positive	1 (3.6)	15 (28.8)	11.11 (1.37-100.00)	0.007*
Lab result: HIV and hepatitis C co-infected				
No	58 (89.2)	36 (97.3)		
Yes	7 (10.8)	1 (2.7)	4.34 (0.51-33.33)	0.253
Lab result: Syphilis				
Syphilis negative	29 (100)	47 (94.0)		
Syphilis positive	0 (0)	3 (6.0)	n/a	0.294
Looked for sex: Gay bars				
No	12 (34.3)	32 (54.2)		
Yes	23 (65.7)	27 (45.8)	0.44 (0.19-1.04)	0.087
Looked for sex: Straight bars				
No	21 (65.6)	36 (65.5)		
Yes	11 (34.4)	19 (34.5)	1.01 (0.40-2.50)	1
Looked for sex: Rave/circuit parties				
No	22 (71.0)	44 (83.0)		
Yes	9 (29.0)	9 (17.0)	0.50 (0.17-1.43)	0.271
Looked for sex: After hours clubs/parties				
No	21 (70.0)	39 (69.6)		
Yes	9 (30.0)	17 (30.4)	1.02 (0.39-2.70)	1
Looked for sex: Saunas/baths				
No	25 (80.6)	38 (70.4)		
Yes	6 (19.4)	16 (29.6)	1.75 (0.61-5.00)	0.441
Looked for sex: Sex parties				
No	26 (86.7)	46 (85.2)		
Yes	4 (13.3)	8 (14.8)	1.12 (0.31-4.17)	1
Looked for sex: Park				
No	27 (90.0)	39 (42.4)		
Yes	3 (10.0)	15 (11.6)	3.45 (0.91-12.50)	0.094
Looked for sex: Public restrooms				
No	28 (93.3)	49 (90.4)		
Yes	2 (6.7)	3 (5.8)	0.85 (0.13-5.56)	1
Looked for sex: Bicycle paths				
No	28 (93.3)	47 (88.7)		
Yes	2 (6.7)	6 (11.3)	1.79 (0.34-9.09)	0.705
Looked for sex: Coffee shops				
No	27 (90.0)	44 (84.6)		
Yes	3 (10.0)	8 (15.4)	1.64 (0.40-6.67)	0.738
Looked for sex: Internet				
No	22 (73.3)	38 (71.1)		
Yes	8 (26.7)	15 (28.3)	1.09 (0.40-2.94)	1
Looked for sex: Community organization				
No	27 (90.0)	49 (90.7)		
Yes	3 (10.0)	5 (9.3)	0.92 (0.20-4.17)	1
Looked for sex: Gay associations				
No	28 (93.3)	50 (92.6)		
Yes	2 (6.7)	4 (7.4)	1.12 (0.19-6.67)	1
Looked for sex: Recreational groups				
No	26 (86.7)	52 (98.1)		

Variable name	Non-Aboriginal	Aboriginal	OR (95% CI)	P
Yes	4 (13.3)	1 (1.9)	0.13 (0.01-1.18)	0.055
Looked for sex: Telephone chat lines				
No	23 (76.7)	38 (70.4)		
Yes	7 (23.3)	16 (29.6)	1.39 (0.50-3.85)	0.616
Looked for sex: Community events for Gay & Lesbian				
No	26 (83.9)	46 (85.2)		
Yes	5 (16.1)	8 (14.8)	0.90 (0.27-3.03)	1
Looked for sex: Personal ads				
No	28 (96.6)	52 (98.1)		
Yes	1 (3.4)	1 (1.9)	0.54 (0.03-9.09)	1
Looked for sex: Gym/health club				
No	26 (89.7)	51 (94.4)		
Yes	3 (10.3)	3 (5.6)	0.51 (0.10-2.70)	0.417

Table 23: Odds ratios and 95% confidence intervals for univariate analysis of associations between Aboriginal status and key-dependent items.

Variable name	Non-Aboriginal	Aboriginal	OR (95% CI)	P	
Family doctor knows your sexual orientation					
No	3 (17.6)	9 (27.3)			
Yes	14 (82.4)	24 (72.7)	0.57 (0.13-2.44)	0.510	
Family doctor has asked about new sex partner(s)s					
No	12 (57.1)	20 (58.8)			
Yes	9 (42.9)	14 (41.2)	0.93 (0.31-2.78)	1.000	
Family doctor has discussed safer sex					
No	14 (66.7)	11 (31.4)			
Yes	7 (33.3)	24 (68.6)	4.35 (1.37-14.29)	0.014	*
Anal sex in past six months					
No	10 (38.5)	12 (22.6)			
Yes	16 (61.5)	41 (77.4)	2.13 (0.77-5.88)	0.183	
Sex with new male partner(s) while outside MB					
No	24 (88.9)	47 (83.9)			
Yes	3 (11.1)	9 (16.1)	1.54 (0.38-6.25)	0.743	
Sex with new male partner(s) while outside Canada					
No	23 (88.5)	52 (94.5)			
Yes	3 (11.5)	3 (5.5)	0.44 (0.08-2.38)	0.380	
Sex with new male partner(s) not a resident of MB					
No	10 (83.3)	14 (66.7)			
Yes	2 (16.7)	7 (33.3)	2.50 (0.43-14.29)	0.429	
UAI with new male partner(s) while outside MB					
No	1 (33.3)	5 (62.5)			
Yes	2 (66.7)	3 (37.5)	0.30 (0.02-5.00)	0.545	
UAI with new male partner(s) while outside Canada					
No	2 (66.7)	0 (0)			
Yes	1 (33.3)	3 (100)	n/a	0.400	
UAI with new male partner(s) not a resident of MB					
No	3 (75.0)	8 (57.1)			
Yes	1 (25.0)	6 (42.9)	2.27 (0.18-25.00)	1.000	
Casual male sex partner(s)					
None	42 (76.4)	13 (23.6)			
One or more	20 (71.4)	8 (28.6)	1.30 (0.46-3.57)	0.790	
Regular male sex partner(s)					
None	8 (28.6)	17 (30.4)			
One or more	20 (71.6)	39 (69.6)	0.92 (0.34-2.50)	1.000	
Client male sex partner(s)					
None	21 (84.0)	27 (52.9)			
One or more	4 (16.0)	24 (47.1)	4.76 (1.41-16.67)	0.011	*
Sex worker male partner(s)					
None	27 (100)	46 (95.8)			
One or more	0 (0)	2 (4.2)	n/a	0.533	
UAI in past six months					
No	3 (21.4)	19 (50.0)			

Variable name	Non-Aboriginal	Aboriginal	OR (95% CI)	P	
Yes	11 (78.6)	19 (50.0)	0.27 (0.07-1.14)	0.112	
Used condom for last anal sex					
No	8 (72.7)	5 (21.7)			
Yes	3 (27.3)	18 (78.3)	10.00 (1.82-50.00)	0.008	*
UAI with HIV-positive partner(s)					
No	5 (71.4)	10 (58.8)			
Yes	2 (28.6)	7 (41.2)	1.75 (0.26-11.11)	0.669	
UAI with HIV-unknown partner(s)					
No	5 (50.0)	5 (35.7)			
Yes	5 (50.0)	9 (64.3)	1.79 (0.34-9.09)	0.678	
UAI with HIV-negative partner(s)					
No	4 (36.4)	6 (42.9)			
Yes	7 (63.6)	8 (57.1)	0.76 (0.15-3.85)	1.000	
IA with casual partner(s)					
No	9 (47.4)	16 (39.0)			
Yes	10 (52.6)	25 (61.0)	1.41 (0.47-4.17)	0.583	
RA with casual partner(s)					
No	11 (57.9)	17 (41.5)			
Yes	8 (42.1)	24 (58.5)	1.92 (0.65-5.88)	0.275	
UAI with casual partner(s)					
No	10 (52.6)	25 (64.1)			
Yes	9 (47.4)	14 (35.9)	0.63 (0.20-1.89)	0.568	
Oral sex with casual					
No	0 (0)	7 (17.1)			
Yes	19 (100)	34 (82.9)	n/a	0.086	
Discussed HIV with casual partner(s)					
No	12 (63.2)	20 (50)			
Yes	7 (36.8)	20 (50)	1.72 (0.56-5.26)	0.409	
Discussed syphilis with casual partner(s)					
No	14 (77.8)	28 (68.3)			
Yes	4 (22.2)	13 (31.7)	1.61 (0.45-5.88)	0.545	
Discussed STI with casual partner(s)					
No	12 (63.2)	27 (67.5)			
Yes	7 (36.8)	13 (32.5)	0.83 (0.26-2.56)	0.775	
Used condoms for IA with casual partner(s)					
Not always	7 (70.0)	11 (47.8)			
Always	3 (30.0)	12 (52.2)	2.56 (0.52-12.50)	0.283	
Used condoms for RA with casual partner(s)					
Not always	4 (57.1)	10 (43.5)			
Always	3 (42.9)	13 (56.5)	1.72 (0.31-10.00)	0.675	
UAI with casual HIV-postive partner(s)					
No	9 (100)	12 (87.5)			
Yes	0 (0)	2 (14.3)	n/a	0.502	
UAI with casual HIV-unknown partner(s)					
No	4 (57.1)	7 (50.0)			
Yes	3 (42.9)	7 (50.0)	1.33 (0.21-8.33)	1.000	
UAI with casual HIV-negative partner(s)					
No	2 (28.6)	9 (69.2)			

Variable name	Non-Aboriginal	Aboriginal	OR (95% CI)	P
Yes	5 (71.4)	4 (30.8)	0.18 (0.02-1.33)	0.160
Used condoms for oral sex with casual partner(s)				
Not always	17 (94.4)	24 (72.7)		
Always	1 (5.6)	9 (27.3)	6.25 (0.74-50.00)	0.080
Casual partner has come in mouth without a condom				
No	8 (42.1)	24 (72.7)		
Yes	11 (57.9)	9 (27.3)	0.27 (0.08-0.89)	0.040 *
Sex with HIV-positive regular partner(s)				
No	14 (82.4)	33 (89.2)		
Yes	3 (17.6)	4 (10.8)	0.56 (0.11-2.86)	0.665
Sex with HIV-unknown regular partner(s)				
No	13 (76.5)	22 (71.0)		
Yes	4 (23.5)	9 (29.0)	1.33 (0.34-5.26)	0.747
Sex with HIV-negative regular partner(s)				
No	7 (46.7)	16 (44.4)		
Yes	8 (53.3)	20 (55.6)	1.10 (0.33-3.70)	1.000
IA with HIV-positive regular partner(s)				
No	0 (0)	1 (25.0)		
Yes	3 (100)	3 (75.0)	n/a	1.000
RA with HIV-positive regular partner(s)				
No	1 (33.3)	2 (50.0)		
Yes	2 (66.7)	2 (50.0)	0.50 (0.02-11.11)	1.000
IA with HIV-unknown regular partner(s)				
No	0 (0)	1 (11.1)		
Yes	4 (100)	8 (88.9)	n/a	1.000
RA with HIV-unknown regular partner(s)				
No	2 (50.0)	5 (62.5)		
Yes	2 (50.0)	3 (37.5)	0.60 (0.05-6.67)	1.000
IA with HIV-negative regular partner(s)				
No	3 (37.5)	7 (35.0)		
Yes	5 (62.5)	13 (65.0)	1.11 (0.20-6.25)	1.000
RA with HIV-negative regular partner(s)				
No	2 (25.0)	7 (35.0)		
Yes	6 (75.0)	13 (65.0)	0.62 (0.10-3.85)	1.000
Oral sex with regular				
No	0 (0)	4 (10.3)		
Yes	16 (100)	35 (89.7)	n/a	0.311
Discussed HIV with regular partner(s)				
No	6 (31.6)	12 (32.4)		
Yes	13 (68.4)	25 (67.6)	0.96 (0.29-3.13)	1.000
Discussed syphilis with regular partner(s)				
No	11 (61.1)	18 (48.6)		
Yes	7 (38.9)	19 (51.4)	1.67 (0.53-5.26)	0.407
Discussed STI with regular partner(s)				
No	6 (37.5)	18 (48.6)		
Yes	10 (62.5)	19 (51.4)	0.63 (0.19-2.08)	0.554
Used condoms for IA with HIV-postive regular partner(s)				
Not always	2 (100)	2 (100)		n/a

Variable name	Non-Aboriginal	Aboriginal	OR (95% CI)	P	
Always	0 (0)	0 (0)	n/a		
Used condoms for RA with HIV-positive regular partner(s)					
Not always	6 (100)	6 (46.2)			
Always	0 (0)	7 (53.8)	n/a	n/a	
Used condoms for IA with HIV-unknown regular partner(s)					
Not always	3 (75.0)	5 (71.4)			
Always	1 (25.0)	2 (28.6)	1.20 (0.07-20.00)	1.000	
Used condoms for RA with HIV-unknown regular partner(s)					
Not always	2 (100)	2 (100)			
Always	0 (0)	0 (0)	n/a	n/a	
Used condoms for IA with HIV-negative regular partner(s)					
Not always	4 (80.0)	7 (58.3)			
Always	1 (20.0)	5 (41.7)	2.86 (0.24-33.33)	0.395	
Used condoms for RA with HIV-negative regular partner(s)					
Not always	6 (100)	6 (46.2)			
Always	0 (0)	7 (53.8)	n/a	0.044	*
Used condoms for oral sex with regular partner(s)					
Not always	15 (93.8)	31 (88.6)			
Always	1 (6.3)	4 (11.4)	1.92 (0.20-20.00)	1.000	
Regular partner has come in mouth without a condom					
No	4 (25.0)	19 (55.9)			
Yes	12 (75.0)	15 (44.1)	0.26 (0.07-0.98)	0.067	
Other sex partners concurrent with regular partner					
No	11 (61.1)	14 (37.8)			
Yes	7 (38.9)	23 (62.2)	2.56 (0.81-8.33)	0.150	
IA with client partner					
No	1 (25.0)	16 (69.6)			
Yes	3 (75.0)	7 (30.4)	0.15 (0.01-1.67)	0.128	
Used condoms for IA with client partner					
Not always	2 (100)	4 (66.7)			
Always	0 (0)	2 (33.3)	n/a	1.000	
RA with client partner					
No	1 (25.0)	17 (70.8)			
Yes	3 (75.0)	7 (29.2)	0.14 (0.01-1.56)	0.116	
Used condoms for RA with client partner					
Not always	2 (100)	5 (71.4)			
Always	0 (0)	2 (28.6)	n/a	1.000	
Received money from client partner					
No	0 (0)	1 (4.2)			
Yes	4 (100)	23 (95.8)	n/a	1.000	
Received drugs from client partner					
No	2 (50.0)	10 (41.7)			
Yes	2 (50.0)	14 (58.3)	1.41 (0.17-11.11)	1.000	
Received other goods or services from client partner					
No	2 (50.0)	13 (56.5)			
Yes	2 (50.0)	10 (43.5)	0.77 (0.09-6.25)	1.000	
Discussed HIV with client partner					
No	3 (75.0)	14 (60.9)			

Variable name	Non-Aboriginal	Aboriginal	OR (95% CI)	P
Yes	1 (25.0)	9 (39.1)	1.79 (0.17-20.00)	1.000
Discussed syphilis with client partner				
No	2 (66.7)	18 (81.8)		
Yes	1 (33.3)	4 (18.2)	0.44 (0.03-6.25)	0.504
Discussed STI with client partner				
No	3 (75.0)	19 (79.2)		
Yes	1 (25.0)	5 (20.8)	0.79 (0.07-9.09)	1.000
IA with sex worker partner				
No	0 (0)	2 (100)		
Yes	0 (0)	0 (0)	n/a	n/a
Used condoms for IA with sex worker partner				
Not always	0 (0)	2 (100)		
Always	0 (0)	0 (0)	n/a	n/a
RA with sex worker partner				
No	0 (0)	2 (100)		
Yes	0 (0)	0 (0)	n/a	n/a
Used condoms for RA with sex worker partner				
Not always	0 (0)	2 (100)		
Always	0 (0)	0 (0)	n/a	n/a
Gave money to sex worker partner				
No	0 (0)	1 (50.0)		
Yes	0 (0)	1 (50.0)	n/a	n/a
Gave drugs to sex worker partner				
No	0 (0)	1 (50.0)		
Yes	0 (0)	1 (50.0)	n/a	n/a
Gave other goods or services to sex worker partner				
No	0 (0)	1 (50.0)		
Yes	0 (0)	1 (50.0)	n/a	n/a
Discussed HIV with sex worker partner				
No	0 (0)	1 (50.0)		
Yes	0 (0)	1 (50.0)	n/a	n/a
Discussed syphilis with sex worker partner				
No	0 (0)	1 (50.0)		
Yes	0 (0)	1 (50.0)	n/a	n/a
Discussed STI with sex worker partner				
No	0 (0)	1 (50.0)		
Yes	0 (0)	1 (50.0)	n/a	n/a

Table 24: Odds ratios and 95% confidence intervals for univariate analysis of associations between HIV laboratory-confirmed serostatus and independent items.

Variable name	HIV negative	HIV positive	OR (95% CI)	P
Education				
< grade 12	35 (46.1)	13 (76.5)		
> grade 12	41 (53.9)	4 (23.5)	0.26 (0.08-0.88)	0.031 *
Income				
Under $10,000	25 (43.9)	6 (46.2)		
$10,000 or more	32 (56.1)	7 (53.8)	0.91 (0.27-3.06)	1.000
Marital status				
Married or commonlaw	19 (25.3)	3 (17.6)		
Not married or commonlaw	56 (74.7)	14 (82.4)	1.58 (0.41-6.16)	0.754
Health services access				
Previous 12 months	56 (72.7)	18 (100)		
Not in previous 12 months	21 (27.3)	0 (0)	n/a	0.010 *
Has a family doctor/primary care provider				
No	32 (47.8)	4 (22.2)		
Yes	35 (52.2)	14 (77.8)	3.20 (0.95-10.73)	0.063
Received medical attention: Doctor				
No	31 (40.8)	2 (11.1)		
Yes	45 (59.2)	16 (88.9)	5.51 (1.18-25.70)	0.026 *
Received medical attention: Primary care nurse				
No	67 (87.0)	9 (50.0)		
Yes	10 (13.0)	9 (50.0)	6.70 (2.15-20.91)	0.001 *
Received medical attention: Public health nurse				
No	64 (83.1)	11 (61.1)		
Yes	13 (16.9)	7 (38.9)	3.13 (1.02-9.60)	0.054
Received medical attention: Emergency room nurse				
No	64 (83.1)	12 (66.7)		
Yes	13 (16.9)	6 (33.3)	2.46 (0.078-7.75)	0.186
Received medical attention: Walk-in clinic				
No	36 (46.8)	9 (50.0)		
Yes	41 (53.2)	9 (50.0)	0.88 (0.32-2.45)	1.000
Received medical attention: Community Health Centre				
No	56 (72.7)	7 (38.9)		
Yes	21 (27.3)	11 (61.1)	4.19 (1.43-12.24)	0.011 *
Received medical attention: Jail				
No	63 (81.8)	14 (77.8)		
Yes	14 (18.2)	4 (22.2)	1.29 (0.37-4.50)	0.741
< 6 hour visit to emergency room				
No	66 (85.7)	17 (94.4)		
Yes	11 (14.3)	1 (5.6)	0.35 (0.04-2.93)	0.452
6 to 24 hour visit to emergency room				
No	68 (88.3)	13 (72.2)		
Yes	9 (11.7)	5 (27.8)	2.91 (0.84-10.08)	0.132
Admitted to hospital				
No	72 (93.5)	14 (77.8)		

Variable name	HIV negative	HIV positive	OR (95% CI)	P
Yes	5 (6.5)	4 (22.2)	4.11 (0.98-17.26)	0.063
Vaccinated for hepatitis A				
No	22 (50.0)	2 (22.2)		
Yes	22 (50.0)	7 (77.8)	3.50 (0.65-18.76)	0.160
Vaccinated for hepatitis B				
No	21 (41.2)	3 (25.0)		
Yes	30 (58.8)	9 (75.0)	2.10 (0.51-8.69)	0.345
Number of male sex partners				
None	8 (11.1)	4 (22.2)		
One or more	64 (88.9)	14 (77.8)	0.44 (0.12-0.66)	0.248
Number of female sex partners				
None	7 (22.6)	2 (25.0)		
One or more	24 (77.4)	6 (75.0)	0.88 (0.14-5.34)	1.000
Ever injected drugs				
No	49 (63.6)	6 (33.3)		
Yes	28 (36.4)	12 (66.7)	3.50 (1.18-10.31)	0.032 *
Ever injected steroids				
No	46 (95.8)	9 (90.0)		
Yes	2 (4.2)	1 (10.0)	2.56 (0.21-31.27)	0.439
Ever injected heroin				
No	44 (89.8)	8 (72.7)		
Yes	5 (10.2)	3 (27.3)	3.30 (0.66-16.63)	0.154
Ever injected cocaine				
No	35 (67.3)	3 (33.3)		
Yes	17 (32.7)	6 (66.7)	4.12 (092-18.49)	0.070
Ever injected crystal meth				
No	39 (79.6)	4 (40.0)		
Yes	10 (20.4)	6 (60.0)	5.85 (1.38-24.77)	0.018
Ever injected Talwin and Ritalin				
No	35 (74.5)	7 (77.8)		
Yes	12 (25.5)	2 (22.2)	0.83 (0.15-4.57)	1.000
Ever injected crack				
No	41 (83.7)	6 (60.0)		
Yes	8 (16.3)	4 (40.0)	3.42 (0.78-14.93)	0.189
Ever injected morphine				
No	39 (84.8)	6 (66.7)		
Yes	7 (15.2)	3 (33.3)	2.79 (0.56-13.83)	0.340
Ever injected Oxycontin				
No	41 (91.1)	6 (60.0)		
Yes	4 (8.9)	4 (40.0)	6.83 (1.34-34.85)	0.029 *
Ever injected other opiates				
No	42 (91.3)	7 (70.0)		
Yes	4 (8.7)	3 (30.0)	4.50 (0.82-25.57)	0.099
Ever injected Ketamine				
No	43 (93.5)	8 (88.9)		
Yes	3 (6.5)	1 (11.1)	1.79 (0.17-19.47)	0.522
Ever injected Ecstasy				
No	42 (89.4)	9 (100)		
Yes	5 (10.6)	0 (0)	n/a	0.580

Variable name	HIV negative	HIV positive	OR (95% CI)	P
Ever injected barbiturates				
No	43 (93.5)	8 (88.9)		
Yes	3 (6.5)	1 (11.1)	1.79 (0.17-19.47)	0.522
Ever injected other amphetamines				
No	43 (95.6)	5 (62.5)		
Yes	2 (4.4)	3 (37.5)	12.90 (1.72-96.73)	0.020
Ever used alcohol				
No	3 (4.6)	0 (0)		
Yes	62 (95.4)	16 (100)	n/a	1.000
Ever used marijuana				
No	8 (12.3)	2 (12.5)		
Yes	57 (87.7)	14 (87.5)	0.98 (0.19-5.15)	1.000
Ever used poppers				
No	31 (53.4)	7 (43.8)		
Yes	27 (46.6)	9 (56.2)	1.48 (0.48-4.50)	0.578
Ever used Ketamine				
No	42 (76.4)	12 (75.0)		
Yes	13 (23.6)	4 (25.0)	1.08 (0.30-3.92)	1.000
Ever used Ecstasy				
No	35 (61.4)	12 (75.0)		
Yes	22 (38.6)	4 (25.0)	0.53 (0.15-1.85)	0.387
Ever used crystal meth				
No	37 (64.9)	8 (53.3)		
Yes	20 (35.1)	7 (46.7)	1.62 (0.51-5.12)	0.550
Ever used other amphetamines				
No	45 (84.9)	12 (75.0)		
Yes	8 (15.1)	4 (25.0)	1.88 (0.48-7.30)	0.453
Ever used Viagra				
No	47 (85.5)	12 (75.0)		
Yes	8 (14.5)	4 (25.0)	0.96 (0.50-7.62)	0.448
Ever used cocaine				
No	23 (38.3)	4 (25.0)		
Yes	37 (61.7)	12 (75.0)	1.87 (0.54-6.48)	0.390
Ever used Oxycontin				
No	51 (91.1)	13 (81.3)		
Yes	5 (8.9)	3 (18.7)	2.35 (0.50-11.15)	0.364
Ever used heroin				
No	52 (94.5)	15 (19.8)		
Yes	3 (5.5)	1 (6.2)	1.16 (0.11-11.94)	1.000
Ever used morphine				
No	47 (85.5)	9 (56.3)		
Yes	8 (14.5)	7 (43.7)	4.57 (1.32-15.79)	0.031
Ever used other opiates				
No	52 (94.5)	11 (68.8)		
Yes	3 (5.5)	5 (31.2)	7.88 (1.64-39.96)	0.012
Ever used GHB				
No	50 (90.9)	13 (81.3)		
Yes	5 (9.1)	3 (18.7)	2.31 (0.49-10.94)	0.368
Ever used LSD				

Variable name	HIV negative	HIV positive	OR (95% CI)	P
No	37 (67.3)	6 (37.5)		
Yes	18 (32.7)	10 (62.5)	3.43 (1.08-10.91)	0.043 *
Ever used tranquilizers				
No	42 (76.4)	7 (43.8)		
Yes	13 (23.6)	9 (56.3)	4.15 (1.29-13.35)	0.029 *
Ever used barbituates				
No	45 (81.8)	9 (56.3)		
Yes	10 (18.2)	7 (43.7)	3.50 (1.05-11.65)	0.048 *
Ever used mushrooms				
No	29 (50.9)	5 (31.3)		
Yes	28 (49.1)	11 (68.8)	2.28 (0.71-7.40)	0.257
Ever used gas or solvents				
No	43 (76.8)	13 (81.3)		
Yes	13 (23.2)	3 (18.8)	0.76 (0.19-3.10)	1.000
Used alcohol before sex				
No	10 (15.9)	1 (9.1)		
Yes	53 (84.1)	10 (90.9)	1.89 (0.22-16.42)	1.000
Used marijuana before sex				
No	15 (26.8)	4 (33.3)		
Yes	41 (73.2)	8 (66.7)	0.73 (0.19-2.79)	0.727
Used poppers before sex				
No	28 (60.9)	4 (40.0)		
Yes	18 (39.1)	6 (60.0)	2.33 (0.58-9.43)	0.298
Used Ketamine before sex				
No	38 (92.7)	8 (100)		
Yes	3 (7.3)	0 (0)	n/a	1.000
Used Ecstasy before sex				
No	35 (81.4)	8 (88.9)		
Yes	8 (18.6)	1 (11.1)	0.55 (0.06-5.02)	1.000
Used crystal meth before sex				
No	36 (87.8)	7 (77.8)		
Yes	5 (12.2)	2 (22.2)	2.06 (0.33-12.81)	0.595
Used other amphetamines before sex				
No	39 (95.1)	7 (77.8)		
Yes	2 (4.9)	2 (22.2)	5.57 (0.67-46.35)	0.144
Used Viagra before sex				
No	38 (92.7)	7 (77.8)		
Yes	3 (7.3)	2 (22.2)	3.62 (0.51-25.76)	0.216
Used cocaine before sex				
No	31 (63.3)	4 (36.4)		
Yes	8 (36.7)	7 (63.6)	3.01 (0.77-11.73)	0.174
Used heroin before sex				
No	38 (92.7)	9 (100)		
Yes	3 (7.3)	0 (0)	n/a	1.000
Used other opiates before sex				
No	38 (95.0)	8 (88.9)		
Yes	2 (5.0)	1 (11.1)	2.38 (0.19-29.48)	0.464
Used GHB before sex				
No	37 (92.5)	8 (100)		

Variable name	HIV negative	HIV positive	OR (95% CI)	P	
Yes	3 (7.5)	0 (0)	n/a	1.000	
Used psychedelics before sex					
No	39 (95.1)	9 (100)			
Yes	2 (4.9)	0 (0)	n/a	1.000	
Used tranquilizers before sex					
No	37 (88.1)	6 (75.0)			
Yes	5 (11.9)	2 (25.0)	2.47 (0.39-15.73)	0.310	
Ever diagnosed: gonorrhea					
No	53 (86.9)	9 (69.2)			
Yes	8 (13.1)	4 (30.8)	2.94 (0.73-11.85)	0.206	
Ever diagnosed: chlamydia					
No	54 (87.1)	10 (76.9)			
Yes	8 (12.9)	3 (23.1)	2.03 (0.46-8.97)	0.392	
Ever diagnosed: genital or anal warts					
No	55 (96.5)	11 (84.6)			
Yes	2 (3.5)	2 (15.4)	5.00 (0.64-39.39)	0.154	
Ever diagnosed: syphilis					
No	53 (93.0)	11 (78.6)			
Yes	4 (7.0)	3 (21.4)	3.61 (0.71-18.48)	0.133	
Ever diagnosed: herpes					
No	54 (96.4)	10 (90.9)			
Yes	2 (3.6)	1 (9.1)	2.70 (0.22-32.68)	0.421	
Ever diagnosed: HIV					
No	54 (96.4)	1 (7.1)			
Yes	2 (3.6)	13 (92.9)	351.00 (29.52-4173.17)	0.001	*
Ever diagnosed: hepatitis A					
No	52 (92.9)	11 (78.6)			
Yes	4 (7.1)	3 (21.4)	3.55 (0.69-18.14)	0.137	
Ever diagnosed: hepatitis B					
No	55 (96.5)	10 (76.9)			
Yes	2 (3.5)	3 (23.1)	8.25 (1.22-55.82)	0.041	*
Ever diagnosed: hepatitis C					
No	51 (92.7)	6 (42.9)			
Yes	4 (7.3)	8 (57.1)	17.00 (3.92-73.82)	0.001	*
Last HIV test result:					
I was HIV negative	48 (98.0)	0 (0)			
I was HIV positive	1 (2.0)	13 (100)	n/a	0.001	*
Last hepatitis C test result:					
I was HCV negative	36 (94.7)	7 (50.0)			
I was HCV positive	2 (5.3)	7 (50.0)	18.00 (3.07-105.44)	0.001	*
Lab result: hepatitis C					
HCV negative	65 (86.7)	10 (55.6)			
HCV positive	10 (13.3)	8 (44.4)	5.20 (1.66-16.31)	0.006	
Lab result: Syphilis					
Syphilis negative	70 (95.9)	17 (100)			
Syphilis positive	3 (4.1)	0 (0)	n/a	1.000	
Looked for sex: Gay bars					
No	31 (43.7)	9 (56.3)			
Yes	40 (56.3)	7 (43.8)	0.60 (0.20-1.80)	0.414	

Variable name	HIV negative	HIV positive	OR (95% CI)	P
Looked for sex: Straight bars				
No	42 (62.7)	13 (76.7)		
Yes	25 (37.3)	4 (23.5)	0.52 (0.15-1.76)	0.395
Looked for sex: Rave/circuit parties				
No	47 (71.2)	16 (100)		
Yes	19 (28.8)	0 (0)	0.71 (0.61-0.83)	0.017 *
Looked for sex: After hours clubs/parties				
No	43 (64.2)	14 (82.4)		
Yes	24 (35.8)	3 (17.6)	0.38 (0.10-1.47)	0.244
Looked for sex: Saunas/baths				
No	46 (69.7)	15 (93.8)		
Yes	20 (30.3)	1 (6.2)	0.15 (0.02-1.24)	0.058
Looked for sex: Sex parties				
No	53 (82.8)	16 (100)		
Yes	11 (17.2)	0 (0)	n/a	0.109
Looked for sex: Parks				
No	51 (78.5)	12 (75.0)		
Yes	14 (21.5)	4 (25.0)	1.21 (0.34-4.35)	0.746
Looked for sex: Public restrooms				
No	59 (92.2)	15 (100)		
Yes	5 (7.8)	0 (0)	n/a	0.577
Looked for sex: Bicycle paths				
No	57 (87.7)	15 (100)		
Yes	8 (12.3)	0 (0)	n/a	0.341
Looked for sex: Coffee shops				
No	54 (84.4)	15 (100)		
Yes	10 (15.6)	0 (0)	n/a	0.194
Looked for sex: Internet				
No	44 (68.8)	11 (68.8)		
Yes	20 (31.3)	5 (31.3)	1.00 (0.31-3.26)	1.000
Looked for sex: Community organization				
No	58 (90.6)	16 (100)		
Yes	6 (9.4)	0 (0)	n/a	0.340
Looked for sex: Gay associations				
No	58 (89.2)	15 (93.8)		
Yes	7 (10.8)	1 (6.3)	0.55 (0.06-4.84)	1.000
Looked for sex: Recreational groups				
No	59 (92.2)	16 (100)		
Yes	5 (7.8)	0 (0)	n/a	0.577
Looked for sex: Telephone chat lines				
No	49 (74.2)	12 (75.0)		
Yes	17 (25.8)	4 (25.0)	0.96 (0.27-3.38)	1.000
Looked for sex: Community events for Gay & Lesbian				
No	50 (76.9)	15 (93.8)		
Yes	15 (23.1)	1 (6.3)	0.22 (0.03-1.82)	0.174
Looked for sex: Personal ads				
No	60 (95.2)	16 (100)		
Yes	3 (4.8)	0 (0)	n/a	1.000
Looked for sex: Gym/health club				

Variable name	HIV negative	HIV positive	OR (95% CI)	P
No	58 (90.6)	16 (100)		
Yes	6 (9.4)	0 (0)	n/a	0.340

Table 25: Odds ratios and 95% confidence intervals for univariate analysis of associations between HIV laboratory-confirmed serostatus and key-dependent items.

Variable name	HIV negative	HIV positive	OR (95% CI)	P
Family doctor knows your sexual orientation				
No	8 (26.7)	2 (15.4)		
Yes	22 (73.3)	11 (84.5)	2.00 (0.36-11.06)	0.696
Family doctor has asked about new sex partner(s)				
No	21(61.8)	4 (30.8)		
Yes	13 (38.2)	9 (69.2)	3.63 (1.01-14.25)	0.101
Family doctor has discussed safer sex				
No	18 (52.9)	3 (21.4)		
Yes	16 (47.1)	11 (78.6)	4.13 (0.97-17.47)	0.060
Anal sex in past six months				
No	18 (30.5)	5 (38.5)		
Yes	41 (69.5)	8 (61.5)	0.70 (0.20-2.44)	0.743
Sex with new male partner(s) while outside MB				
No	52 (83.9)	13 (92.9)		
Yes	10 (16.1)	1 (7.1)	0.40 (0.05-3.41)	0.678
Sex with new male partner(s) while outside Canada				
No	58 (95.1)	13 (92.9)		
Yes	3 (4.9)	1 (7.1)	1.49 (0.14-15.47)	0.571
Sex with new male partner(s) not a resident of MB				
No	21 (75.0)	3 (75.0)		
Yes	7 (25.0)	1 (25.0)	1.00 (0.09-11.24)	1.000
UAI with new male partner(s) while outside MB				
No	5 (50.0)	1 (100)		
Yes	5 (50.0)	0 (0)	n/a	1.000
UAI with new male partner(s) while outside Canada				
No	1 (33.3)	0 (0)		
Yes	2 (66.7)	1 (100)	n/a	1.000
UAI with new male partner(s) not a resident of MB				
No	10 (62.5)	1 (50.0)		
Yes	6 (37.5)	1 (50.0)	1.67 (0.09-31.87)	1.000
Casual male sex partner(s)				
None	16 (25.4)	4 (30.8)		
One or more	47 (74.6)	9 (69.2)	0.77 (0.21-2.83)	0.734
Regular male sex partner(s)				
None	18 (21.5)	4 (28.6)		
One or more	43 (70.5)	10 (71.4)	1.05 (0.29-3.77)	1.000
Client male sex partner(s)				
None	38 (64.4)	8 (57.1)		
One or more	21 (35.6)	6 (42.9)	1.36 (0.42-4.44)	0.759
Sex worker male partner(s)				
None	54 (94.7)	14 (100)		
One or more	3 (5.3)	0 (0)	n/a	1.000
UAI in past six months				
No	13 (33.3)	3 (50.0)		

Variable name	HIV negative	HIV positive	OR (95% CI)	P
Yes	26 (66.7)	3 (50.0)	0.50 (0.09-2.83)	0.650
Used condom for last anal sex				
No	12 (40.0)	2 (50.0)		
Yes	18 (60.0)	2 (50.0)	0.67 (0.08-5.40)	1.000
UAI with HIV-positive partner(s)				
No	15 (71.4)	1 (33.3)		
Yes	6 (28.6)	2 (66.7)	5.00 (0.38-66.01)	0.249
UAI with HIV-unknown partner(s)				
No	10 (47.6)	1 (50.0)		
Yes	11 (52.4)	1 (50.0)	0.91 (0.05-16.54)	1.000
UAI with HIV-negative partner(s)				
No	7 (31.8)	1 (50.0)		
Yes	15 (68.2)	1 (50.0)	0.47 (0.03-8.60)	1.000
IA with casual partner(s)				
No	19 (42.2)	5 (62.5)		
Yes	26 (57.8)	3 (37.5)	0.44 (0.09-2.06)	0.444
RA with casual partner(s)				
No	17 (38.6)	6 (66.7)		
Yes	27 (61.4)	3 (33.3)	0.32 (0.07-1.43)	0.154
UAI with casual partner(s)				
No	22 (51.2)	8 (88.9)		
Yes	21 (48.8)	1 (11.1)	0.13 (0.02-1.14)	0.062
Oral sex with casual				
No	7 (15.2)	2 (25.0)		
Yes	39 (84.8)	6 (75.0)	0.54 (0.09-3.23)	0.607
Discuss HIV with casual partner(s)				
No	25 (55.6)	5 (62.5)		
Yes	20 (44.4)	3 (37.5)	0.75 (0.16-3.52)	1.000
Discuss syphilis with casual partner(s)				
No	29 (69.5)	8 (88.9)		
Yes	15 (34.1)	1 (11.1)	0.2 (0.03-2.11)	0.248
Discuss STI with casual partner(s)				
No	29 (64.4)	6 (75.0)		
Yes	16 (35.6)	2 (25.0)	0.60 (0.11-3.35)	0.701
Uses condoms for IA with casual partner(s)				
Not always	15 (60.0)	2 (66.7)		
Always	10 (40.0)	1 (33.3)	0.75 (0.06-9.42)	1.000
Uses condoms for RA with casual partner(s)				
Not always	12 (50.0)	1 (33.3)		
Always	12 (50.0)	2 (66.7)	2.0 (0.16-25.12)	1.000
UAI with casual HIV-positive partner(s)				
No	19 (90.5)	1 (100)		
Yes	2 (9.5)	0 (0)	n/a	1.000
UAI with casual HIV-unknown partner(s)				
No	11 (57.9)	0 (0)		
Yes	8 (42.1)	1 (100)	n/a	0.450
UAI with casual HIV-negative partner(s)				
No	9 (47.4)	1 (100)		
Yes	10 (52.6)	0 (0)	n/a	1.000

Variable name	HIV negative	HIV positive	OR (95% CI)	P
Uses condoms for oral sex with casual partner(s)				
Not always	32 (86.5)	5 (83.3)		
Always	5 (13.5)	1 (16.7)	1.28 (0.12-13.35)	1.000
Casual partner has come in mouth without a condom				
No	25 (65.8)	5 (83.3)		
Yes	13 (34.2)	1 (16.7)	0.39 (0.04-3.65)	0.647
Sex with HIV-positive regular partner(s)				
No	42 (97.7)	4 (44.4)		
Yes	1 (2.3)	5 (55.6)	52.5 (4.86-566.92)	<0.001
Sex with HIV-unknown regular partner(s)				
No	28 (75.7)	4 (57.1)		
Yes	9 (24.3)	3 (42.9)	2.33 (0.44-12.45)	0.369
Sex with HIV-negative regular partner(s)				
No	16 (39.0)	5 (62.5)		
Yes	25 (61.0)	3 (37.5)	0.38 (0.08-1.83)	0.263
IA with HIV-positive regular partner(s)				
No	0 (0)	1 (20.0)		
Yes	1 (100)	4 (80.0)	n/a	1.000
RA with HIV-positive regular partner(s)				
No	0 (0)	3 (60.0)		
Yes	1 (100)	2 (40.0)	n/a	1.000
IA with HIV-unknown regular partner(s)				
No	0 (0)	0 (0)		
Yes	9 (100)	3 (100)	n/a	n/a
RA with HIV-unknown regular partner(s)				
No	3 (37.5)	2 (66.7)		
Yes	5 (62.5)	1 (33.3)	0.30 (0.02-4.91)	0.545
IA with HIV-negative regular partner(s)				
No	9 (36.0)	1 (33.3)		
Yes	16 (64.0)	2 (66.7)	1.13 (0.09-14.2)	1.000
RA with HIV-negative regular partner(s)				
No	7 (28.0)	2 (66.7)		
Yes	18 (72.0)	1 (33.3)	0.19 (0.02-2.5)	0.234
Oral sex with regular				
No	2 (4.9)	1 (11.1)		
Yes	39 (95.1)	8 (88.9)	0.41 (0.03-5.09)	0.456
Discuss HIV with regular partner(s)				
No	16 (39.0)	2 (20.0)		
Yes	25 (61.0)	8 (80.0)	2.56 (0.48-13.62)	0.462
Discuss syphilis with regular partner(s)				
No	21 (51.2)	6 (60.0)		
Yes	20 (48.8)	4 (40.0)	0.70 (0.17-2.85)	0.731
Discuss STI with regular partner(s)				
No	18 (47.4)	5 (55.6)		
Yes	20 (52.6)	4 (44.4)	0.72 (0.17-3.10)	0.724
Uses condoms for IA with HIV-positive regular partner(s)				
Not always	1 (100)	3 (75.0)		
Always	0 (100)	1 (25.0)	1.33 (0.76-2.34)	1.000
Uses condoms for RA with HIV-positive regular partner(s)				

Variable name	HIV negative	HIV positive	OR (95% CI)	P
Not always	1 (100)	2 (100)		
Always	0 (0)	0 (0)	n/a	n/a
Uses condoms for IA with HIV-unknown regular partner(s)				
Not always	6 (75.0)	2 (66.7)		
Always	2 (25.0)	1 (33.3)	1.5 (0.08-26.86)	1.000
Uses condoms for RA with HIV-unknown regular partner(s)				
Not always	4 (100)	1 (100)		
Always	0 (0)	0 (0)	n/a	n/a
Uses condoms for IA with HIV-negative regular partner(s)				
Not always	12 (80.0)	1 (50.0)		
Always	3 (20.0)	1 (50.0)	4.0 (0.19-84.20)	0.426
Uses condoms for RA with HIV-negative regular partner(s)				
Not always	14 (77.8)	4 (22.2)		
Always	0 (0)	1 (0)	n/a	0.263
Uses condoms for oral sex with regular partner(s)				
Not always	37 (94.9)	6 (75.0)		
Always	2 (5.1)	2 (25.0)	6.17 (0.73-52.49)	0.129
Regular partner has come in mouth without a condom				
No	19 (50.0)	4 (50.0)		
Yes	19 (50.0)	4 (50.0)	1.00 (0.29-4.60)	1.000
Other sex partners concurrent with regular partner				
No	17 (42.5)	5 (50.0)		
Yes	23 (57.5)	5 (50.0)	0.74 (0.18-2.97)	0.732
IA with client partner				
No	13 (65.0)	4 (66.7)		
Yes	7 (35.0)	2 (33.3)	0.93 (0.14-.640)	1.000
Used condoms for IA with client partner				
Not always	5 (83.3)	1 (50.0)		
Always	1 (16.7)	1 (50.0)	5 (0.15-166.59)	0.464
RA with client partner				
No	13 (61.9)	4 (80.0)		
Yes	8 (38.1)	1 (20.0)	0.41 (0.04-4.31)	0.628
Used condoms for RA with client partner				
Not always	6 (75.0)	1 (100)		
Always	2 (25.0)	0 (0)	n/a	1.000
Received money from client partner				
No	2 (9.5)	0 (0)		
Yes	19 (90.5)	6 (100)	n/a	1.000
Received drugs from client partner				
No	9 (42.9)	3 (50.0)		
Yes	12 (57.1)	3 (50.0)	0.75 (0.12-4.62)	1.000
Received other goods or services from client partner				
No	13 (65.0)	3 (50.0)		
Yes	7 (35.0)	3 (50.0)	1.86 (0.29-11.76)	0.644
Discussed HIV with client partner				
No	16 (76.2)	4 (80.0)		
Yes	5 (23.8)	1 (20.0)	0.80 (0.07-8.91)	1.000
Discussed syphilis with client partner				
No	16 (88.9)	6 (100)		

Variable name	HIV negative	HIV positive	OR (95% CI)	P
Yes	2 (11.1)	0 (0)	n/a	1.000
Discussed STI with client partner				
No	18 (85.7)	6 (100)		
Yes	3 (14.3)	0 (0)	n/a	1.000
IA with sex worker partner				
No	1 (33.3)	0 (0)		
Yes	2 (66.7)	0 (0)	n/a	n/a
Used condoms for IA with sex worker partner				
Not always	2 (100)	0 (0)		
Always	0 (0)	0 (0)	n/a	n/a
RA with sex worker partner				
No	1 (33.3)	0 (0)		
Yes	2 (66.7)	0 (0)	n/a	n/a
Used condoms for RA with sex worker partner				
Not always	2 (100)	0 (0)		
Always	0 (0)	0 (0)	n/a	n/a
Gave money to sex worker partner				
No	2 (66.7)	0 (0)		
Yes	1 (33.3)	0 (0)	n/a	n/a
Gave drugs to sex worker partner				
No	2 (66.7)	0 (0)		
Yes	1 (33.3)	0 (0)	n/a	n/a
Gave other goods or services to sex worker partner				
No	2 (66.7)	0 (0)		
Yes	1 (33.3)	0 (0)	n/a	n/a
Discussed HIV with sex worker partner				
No	2 (66.7)	0 (0)		
Yes	1 (33.3)	0 (0)	n/a	n/a
Discussed syphilis with sex worker partner				
No	2 (66.7)	0 (0)		
Yes	1 (33.3)	0 (0)	n/a	n/a
Discussed STI with sex worker partner				
No	2 (66.7)	0 (0)		
Yes	1 (33.3)	0 (0)	n/a	n/a

Table 26: Odds ratios and 95% confidence intervals for univariate analysis of associations between HCV laboratory-confirmed serostatus and independent items.

Variable name	HCV negative	HCV positive	OR (95% CI)	P
Education				
< grade 12	35 (47.3)	13 (76.5)		
> grade 12	39 (52.7)	4 (23.5)	0.28 (0.08-0.93)	0.034*
Income				
Under $10,000	21 (37.5)	10 (83.3)		
$10,000 or more	35 (62.5)	2 (16.7)	0.12 (0.02-0.60)	0.008*
Marital status				
Married or commonlaw	19 (25.7)	2 (12.5)		
Not married or commonlaw	55 (74.3)	14 (87.5)	2.42 (0.50-11.63)	0.342
Health services access				
Previous 12 months	58 (77.3)	14 (77.8)		
Not in previous 12 months	17 (22.7)	4 (22.2)	0.98 (0.28-3.35)	1.000
Has a family doctor/primary care provider				
No	32 (47.8)	3 (18.8)		
Yes	35 (52.2)	13 (81.3)	3.96 (1.03-15.19)	0.048*
Received medical attention: Doctor				
No	27 (36.5)	6 (33.3)		
Yes	47 (63.5)	12 (66.7)	1.15 (0.39-3.41)	1.000
Received medical attention: Primary care nurse				
No	64 (85.3)	10 (55.6)		
Yes	11 (14.7)	8 (44.4)	4.66 (1.51-14.39)	0.009*
Received medical attention: Public health nurse				
No	59 (78.7)	14 (77.8)		
Yes	1 (21.3)	4 (22.2)	1.05 (0.31-3.64)	1.000
Received medical attention: Emergency room nurse				
No	60 (80.0)	14 (77.8)		
Yes	15 (20.0)	4 (22.2)	1.14 (0.33-3.98)	1.000
Received medical attention: Walk-in clinic				
No	34 (45.3)	10 (55.6)		
Yes	41 (54.7)	8 (44.4)	0.66 (0.24-1.87)	0.600
Received medical attention: Community Health Centre				
No	53 (70.7)	9 (50.0)		
Yes	22 (29.3)	9 (50.0)	2.41 (0.84-6.88)	0.105
Received medical attention: Jail				
No	62 (82.7)	13 (72.2)		
Yes	13 (17.3)	5 (27.8)	1.83 (0.56-6.04)	0.329
< 6 hour visit to emergency room				
No	65 (86.7)	17 (94.4)		
Yes	10 (13.3)	1 (5.6)	0.38 (0.05-3.20)	0.695

Variable name	HCV negative	HCV positive	OR (95% CI)	P
6 to 24 hour visit to emergency room				
No	66 (88.8)	13 (72.2)		
Yes	9 (12.0)	5 (27.8)	2.82 (0.81-9.79)	0.136
Admitted to hospital				
No	70 (93.3)	14 (77.8)		
Yes	5 (6.7)	4 (22.2)	4.00 (0.95-16.79)	0.067
Vaccinated for hepatitis A				
No	18 (42.9)	4 (44.4)		
Yes	24 (57.1)	5 (55.6)	0.94 (0.22-4.00)	1.000
Vaccinated for hepatitis B				
No	17 (34.0)	5 (45.5)		
Yes	33 (66.0)	6 (54.5)	0.62 (0.17-2.32)	0.504
Number of male sex partners				
None	6 (8.5)	5 (29.4)		
One or more	65 (91.5)	12 (70.6)	0.22 (0.06-0.84)	0.033*
Number of female sex partners				
None	8 (28.6)	0 (0)		
One or more	20 (71.4)	9 (100)	n/a	0.160
Ever injected drugs				
No	50 (66.7)	3 (16.7)		
Yes	25 (33.3)	15 (83.3)	10.00 (2.65-34.46)	0.001*
Ever injected steroids				
No	42 (95.5)	12 (92.3)		
Yes	2 (4.5)	1 (7.7)	1.75 (0.15-21.00)	0.547
Ever injected heroin				
No	40 (88.9)	11 (78.6)		
Yes	5 (11.1)	3 (21.4)	2.18 (0.45-10.59)	0.379
Ever injected cocaine				
No	35 (74.5)	2 (15.4)		
Yes	12 (25.5)	11 (84.6)	16.04 (3.10-82.96)	0.001*
Ever injected crystal meth				
No	35 (79.5)	7 (50.0)		
Yes	9 (20.5)	7 (50.0)	3.89 (1.08-13.96)	0.043*
Ever injected Talwin and Ritalin				
No	33 (78.6)	8 (61.5)		
Yes	9 (21.4)	5 (38.5)	2.29 (0.60-8.74)	0.279
Ever injected crack				
No	39 (84.8)	7 (58.3)		
Yes	7 (15.2)	5 (41.7)	3.98 (0.98-16.16)	0.102
Ever injected morphine				
No	38 (90.5)	6 (50.0)		
Yes	4 (9.5)	6 (50.0)	9.50 (2.06-43.89)	0.005*
Ever injected Oxycontin				

Variable name	HCV negative	HCV positive	OR (95% CI)	P
No	39 (92.9)	7 (58.3)		
Yes	3 (7.1)	5 (41.7)	9.29 (1.80-47-96)	0.010*
Ever injected other opiates				
No	39 (92.9)	9 (69.2)		
Yes	3 (7.1)	4 (30.8)	5.78 (1.10-30.48)	0.460
Ever injected Ketamine				
No	39 (92.9)	11 (91.7)		
Yes	3 (7.1)	1 (8.3)	1.18 (0.11-12.52)	1.000
Ever injected Ecstasy				
No	39 (90.7)	11 (91.7)		
Yes	4 (9.3)	1 (8.3)	0.89 (0.09-8.76)	1.000
Ever injected barbiturates				
No	39 (92.9)	11 (91.7)		
Yes	3 (7.1)	1 (8.3)	1.18 (0.11-12.52)	1.000
Ever injected other amphetamines				
No	39 (95.1)	8 (72.7)		
Yes	2 (4.9)	3 (27.3)	7.31 (1.05-51.10)	0.057
Ever used alcohol				
No	2 (3.2)	1 (5.9)		
Yes	61 (96.8)	16 (94.1)	0.53 (0.05-6.16)	0.517
Ever used marijuana				
No	6 (9.8)	2 (11.1)		
Yes	55 (90.2)	16 (88.9)	0.87 (0.16-4.79)	1.000
Ever used poppers				
No	25 (45.5)	11 (64.7)		
Yes	30 (54.5)	6 (35.3)	0.46 (0.15-0.40)	0.267
Ever used Ketamine				
No	39 (72.2)	13 (86.7)		
Yes	15 (27.8)	2 (13.3)	0.40 (0.08-1.99)	0.326
Ever used Ecstasy				
No	32 (59.3)	13 (76.5)		
Yes	22 (40.7)	4 (23.5)	0.45 (0.13-1.56)	0.255
Ever used crystal meth				
No	34 (63.0)	9 (56.3)		
Yes	20 (37.0)	7 (43.8)	1.32 (0.43-4.10)	0.771
Ever used other amphetamines				
No	42 (82.4)	13 (81.3)		
Yes	9 (17.6)	3 (18.8)	1.08 (0.25-4.58)	1.000
Ever used Viagra				
No	43 (81.1)	14 (87.5)		
Yes	10 (18.9)	2 (12.5)	0.61 (0.12-3.15)	0.718
Ever used cocaine				
No	22 (38.6)	3 (17.6)		

Variable name	HCV negative	HCV positive	OR (95% CI)	P
Yes	35 (61.4)	14 (82.4)	2.93 (0.76-11.39)	0.148
Ever used Oxycontin				
No	49 (90.7)	13 (81.3)		
Yes	5 (9.3)	3 (18.8)	2.26 (0.48-10.73)	0.372
Ever used heroin				
No	49 (92.5)	16 (100)		
Yes	4 (7.5)	0 (0)	n/a	0.566
Ever used morphine				
No	45 (84.9)	9 (56.3)		
Yes	8 (15.1)	7 (43.8)	4.38 (1.26-15.14)	0.033*
Ever used other opiates				
No	49 (92.5)	12 (75.0)		
Yes	4 (7.5)	4 (25.0)	4.08 (0.89-18.72)	0.077
Ever used GHB				
No	47 (88.7)	14 (87.5)		
Yes	6 (11.3)	2 (12.5)	1.12 (0.20-6.18)	1.000
Ever used LSD				
No	31 (58.5)	10 (62.5)		
Yes	22 (41.5)	6 (37.5)	0.85 (0.27-2.67)	1.000
Ever used tranquilizers				
No	40 (74.1)	7 (46.7)		
Yes	14 (25.9)	8 (53.3)	3.27 (1.00-10.66)	0.060
Ever used barbiturates				
No	42 (79.2)	10 (62.5)		
Yes	11 (20.8)	6 (37.5)	2.29 (0.68-7.69)	0.196
Ever used mushrooms				
No	25 (45.5)	7 (43.8)		
Yes	30 (54.5)	9 (56.3)	1.07 (0.35-3.29)	1.000
Ever used gas or solvents				
No	44 (81.5)	10 (62.5)		
Yes	10 (18.5)	6 (37.5)	2.64 (0.78-8.97)	0.172
Used alcohol before sex				
No	9 (14.8)	2 (18.2)		
Yes	52 (85.2)	9 (81.8)	0.78 (0.14-4.21)	0.670
Used marijuana before sex				
No	15 (26.3)	4 (36.4)		
Yes	42 (73.7)	7 (63.6)	0.63 (0.16-2.44)	0.486
Used poppers before sex				
No	28 (59.6)	4 (44.4)		
Yes	19 (40.4)	5 (55.6)	1.84 (0.44-7.76)	0.475
Used Ketamine before sex				
No	40 (93.0)	6 (100)		
Yes	3 (7.0)	0 (0)	n/a	1.000

Variable name	HCV negative	HCV positive	OR (95% CI)	P
Used Ecstasy before sex				
No	37 (82.2)	6 (85.7)		
Yes	8 (17.8)	1 (14.3)	0.77 (0.08-7.32)	1.000
Used crystal meth before sex				
No	38 (88.4)	5 (71.4)		
Yes	5 (11.6)	2 (28.6)	3.04 (0.46-20.05)	0.250
Used other amphetamines before sex				
No	41 (95.3)	5 (71.4)		
Yes	2 (4.7)	2 (28.6)	8.20 (0.94-71.73)	0.089
Used Viagra before sex				
No	40 (93.0)	5 (71.4)		
Yes	3 (7.0)	2 (28.6)	5.33 (0.71-40.06)	0.138
Used cocaine before sex				
No	32 (66.7)	3 (25.0)		
Yes	16 (33.3)	9 (75.0)	6.00 (1.43-25.27)	0.019*
Used heroin before sex				
No	40 (93.0)	7 (100)		
Yes	3 (7.0)	0 (0)	n/a	1.000
Used other opiates before sex				
No	40 (95.2)	6 (85.7)		
Yes	2 (4.8)	1 (14.3)	3.33 (0.26-42.66)	0.377
Used GHB before sex				
No	38 (92.7)	7 (100)		
Yes	3 (7.3)	0 (0)	n/a	1.000
Used psychedelics before sex				
No	41 (95.3)	7 (100)		
Yes	2 (4.7)	0 (0)	n/a	1.000
Used tranquilizers before sex				
No	38 (92.7)	5 (55.6)		
Yes	3 (7.3)	4 (44.4)	10.13 (1.74-59.11)	0.015*
Ever diagnosed: gonorrhea				
No	49 (84.5)	11 (78.6)		
Yes	9 (15.5)	3 (21.4)	1.49 (0.34-6.40)	0.691
Ever diagnosed: chlamydia				
No	52 (88.1)	11 (78.66)		
Yes	7 (11.9)	3 (21.4)	2.03 (0.45-9.09)	0.392
Ever diagnosed: genital or anal warts				
No	51 (92.7)	13 (100)		
Yes	4 (7.3)	0 (0)	n/a	1.000
Ever diagnosed: syphilis				
No	49 (87.5)	13 (100)		
Yes	7 (12.5)	0 (0)	n/a	0.333
Ever diagnosed: herpes				

Variable name	HCV negative	HCV positive	OR (95% CI)	P
No	50 (94.3)	12 (100)		
Yes	3 (5.7)	0 (0)	n/a	1.000
Ever diagnosed: HIV				
No	46 (85.2)	7 (50.0)		
Yes	8 (14.8)	7 (50.0)	5.75 (1.59-20.87)	0.009*
Ever diagnosed: hepatitis A				
No	49 (90.7)	12 (85.7)		
Yes	5 (9.3)	2 (14.3)	1.63 (0.28-9.47)	0.627
Ever diagnosed: hepatitis B				
No	52 (94.5)	11 (84.6)		
Yes	3 (5.5)	2 (15.4)	3.15 (0.47-21.15)	0.241
Ever diagnosed: hepatitis C				
No	49 (94.2)	6 (40.0)		
Yes	3 (5.8)	9 (60.0)	24.50 (5.16-116.31)	0.001*
Last HIV test result:				
I was HIV negative	42 (85.7)	5 (41.7)		
I was HIV positive	7 (14.3)	7 (58.3)	8.40 (2.07-34.03)	0.003
Last hepatitis C test result:				
I was HCV negative	38 (95.0)	5 (41.7)		
I was HCV positive	2 (5.0)	7 (58.3)	26.60 (4.78-165.37)	0.001*
Lab result: HIV				
HIV negative	65 (86.7)	10 (55.6)		
HIV positive	10 (13.3)	8 (44.4)	5.20 (1.66-16.32)	0.006*
Lab result: Syphilis				
Syphilis negative	68 (95.8)	17 (100)		
Syphilis positive	3 (4.2)	0 (0)	n/a	1.000
Looked for sex: Gay bars				
No	29 (42.0)	10 (62.5)		
Yes	40 (58.0)	6 (37.5)	0.44 (0.14-1.33)	0.170
Looked for sex: Straight bars				
No	43 (66.2)	11 (64.7)		
Yes	22 (33.8)	6 (35.3)	1.07 (0.35-3.27)	1.000
Looked for sex: Rave/circuit parties				
No	46 (71.9)	15 (93.8)		
Yes	18 (28.1)	1 (6.3)	0.17 (0.02-1.39)	0.100
Looked for sex: After hours clubs/parties				
No	44 (67.7)	11 (64.7)		
Yes	21 (32.3)	6 (35.3)	1.14 (0.37-3.51)	1.000
Looked for sex: Saunas/baths				
No	45 (70.3)	14 (87.5)		
Yes	19 (29.7)	2 (12.5)	0.34 (0.07-1.64)	0.214
Looked for sex: Sex parties				
No	53 (85.5)	14 (87.5)		

Variable name	HCV negative	HCV positive	OR (95% CI)	P
Yes	9 (14.5)	2 (12.5)	0.84 (0.16-4.34)	1.000
Looked for sex: Parks				
No	49 (77.8)	12 (75.0)		
Yes	14 (22.2)	4 (25.0)	1.17 (0.33-4.18)	0.752
Looked for sex: Public restrooms				
No	56 (91.8)	16 (100)		
Yes	5 (8.2)	0 (0)	n/a	0.577
Looked for sex: Bicycle paths				
No	54 (87.1)	16 (100)		
Yes	8 (12.9)	0 (0)	n/a	0.195
Looked for sex: Coffee shops				
No	53 (86.9)	15 (93.8)		
Yes	8 (13.1)	1 (6.3)	0.44 (0.05-3.82)	0.675
Looked for sex: Internet				
No	44 (71.0)	11 (68.8)		
Yes	18 (29.0)	5 (31.3)	1.11 (0.34-3.66)	1.000
Looked for sex: Community organization				
No	56 (90.3)	16 (100)		
Yes	6 (9.7)	0 (0)	n/a	0.336
Looked for sex: Gay associations				
No	56 (88.9)	15 (93.8)		
Yes	7 (11.1)	1 (6.2)	0.53 (0.06-4.68)	1.000
Looked for sex: Recreational groups				
No	57 (91.9)	16 (100)		
Yes	5 (8.1)	0 (0)	n/a	0.577
Looked for sex: Telephone chat lines				
No	47 (73.4)	12 (75.0)		
Yes	17 (26.6)	4 (25.0)	0.92 (0.26-3.25)	1.000
Looked for sex: Community events for Gay & Lesbian				
No	50 (79.4)	14 (87.5)		
Yes	13 (20.6)	2 (12.5)	0.55 (0.11-2.73)	0.723
Looked for sex: Personal ads				
No	59 (95.2)	16 (100)		
Yes	3 (4.8)	0 (0)	n/a	1.000
Looked for sex: Gym/health club				
No	75 (90.5)	16 (100)		
Yes	6 (9.5)	0 (0)	n/a	0.338

Table 27: Odds ratios and 95% confidence intervals for univariate analysis of associations between HCV laboratory-confirmed serostatus and key-dependent items.

Variable name	HCV negative	HCV positive	OR (95% CI)	P
Family doctor knows your sexual orientation				
No	8 (25.8)	2 (16.7)		
Yes	23 (74.2)	10 (83.3)	1.74 (0.31-9.96)	0.698
Family doctor has asked about new sex partner(s)				
No	19 (55.9)	15 (44.1)		
Yes	6 (50.0)	6 (50.0)	1.27 (0.34-4.74)	0.749
Family doctor has discussed safer sex				
No	16 (47.1)	5 (38.5)		
Yes	18 (52.9)	8 (61.5)	1.42 (0.37-5.24)	0.746
Anal sex in past six months				
No	20 (33.3)	3 (27.3)		1.000
Yes	40 (66.7)	8 (72.7)	1.33 (0.32-5.58)	
Sex with new male partner(s) while outside MB				
No	54 (85.7)	10 (83.3)		
Yes	9 (14.3)	2 (16.7)	1.20 (0.23-6.4)	1.000
Sex with new male partner(s) while outside Canada				
No	60 (95.2)	10 (90.9)		
Yes	3 (4.8)	1 (9.1)	2.0 (0.19-21.18)	0.482
Sex with new male partner(s) not a resident of MB				
No	20 (74.1)	4 (80.0)		
Yes	7 (25.9)	1 (20.0)	0.71 (0.07-7.52)	1.000
UAI with new male partner(s) while outside MB				
No	4 (44.4)	2 (100)		
Yes	5 (55.6)	0 (0)	n/a	0.455
UAI with new male partner(s) while outside Canada				
No	1 (33.3)	0 (0)		
Yes	2 (66.7)	1 (100)	n/a	1.000
UAI with new male partner(s) not a resident of MB				
No	10 (62.5)	1 (50.0)		
Yes	6 (37.5)	1 (50.0)	1.67 (0.09-31.87)	1.000
Casual male sex partner(s)				
None	18 (28.1)	1 (9.1)		
One or more	46 (71.9)	10 (90.9)	3.91 (0.47-32.82)	0.271
Regular male sex partner(s)				
None	18 (29.0)	4 (33.3)		
One or more	44 (71.0)	8 (66.7)	0.82 (0.22-3.06)	0.742
Client male sex partner(s)				
None	41 (68.3)	4 (33.3)		
One or more	19 (31.7)	8 (66.7)	4.32 (1.16-16.12)	0.046 *
Sex worker male partner(s)				
None	55 (94.8)	3 (5.2)		
One or more	12 (100)	0 (0)	n/a	1.000
UAI in past six months				
No	11 (30.6)	4 (50.0)		

Variable name	HCV negative	HCV positive	OR (95% CI)	P
Yes	25 (69.4)	4 (50.0)	0.44 (0.93-2.09)	0.414
Used condom for last anal sex				
No	13 (44.8)	1 (20.0)		
Yes	16 (55.2)	4 (80.0)	3.25 (0.32-32.75)	0.379
UAI with HIV-positive partner(s)				
No	13 (65.0)	3 (75.0)		
Yes	7 (35.0)	1 (25.0)	0.62 (0.05-7.12)	1.000
UAI with HIV-unknown partner(s)				
No	8 (42.1)	3 (75.0)		
Yes	11 (57.9)	1 (25.0)	0.24 (0.02-2.78)	0.317
UAI with HIV-negative partner(s)				
No	6 (30.0)	2 (50.0)		
Yes	14 (70.0)	2 (50.0)	0.43 (0.05-3.79)	0.578
IA with casual partner(s)				
No	19 (43.2)	5 (55.6)		
Yes	25 (56.8)	4 (44.4)	0.61 (0.14-2.58)	0.715
RA with casual partner(s)				
No	17 (38.6)	6 (66.7)		
Yes	27 (61.4)	3 (33.3)	0.32 (0.07-1.43)	0.154
UAI with casual partner(s)				
No	23 (53.5)	7 (5.2)		
Yes	20 (46.5)	2 (22.2)	0.33 (0.06-1.77)	0.272
Oral sex with casual				
No	7 (15.9)	2 (20.0)		
Yes	37 (84.1)	8 (80.0)	0.76 (0.13-4.34)	0.667
Discuss HIV with casual partner(s)				
No	27 (61.4)	3 (33.3)		
Yes	17 (38.6)	6 (66.7)	3.18 (0.70-14.42)	0.154
Discuss syphilis with casual partner(s)				
No	29 (67.4)	8 (80.0)		
Yes	14 (32.6)	2 (20.0)	0.52 (0.10-2.77)	0.704
Discuss STI with casual partner(s)				
No	30 (68.2)	5 (55.6)		
Yes	14 (31.8)	4 (44.4)	1.71 (0.40-7.38)	0.469
Used condoms for IA with casual partner(s)				
Not always	16 (66.7)	1 (25.0)		
Always	8 (33.3)	3 (75.0)	6.0 (0.54-67.28)	0.269
Used condoms for RA with casual partner(s)				
Not always	12 (50.0)	1 (33.3)		
Always	12 (50.0)	2 (66.7)	2.0 (0.16-25.12)	1.000
UAI with casual HIV-postive partner(s)				
No	18 (90.0)	2 (100)		
Yes	2 (10.0)	0 (0)	n/a	1.000
UAI with casual HIV-unknown partner(s)				
No	9 (50.0)	2 (100)		
Yes	9 (50.0)	0 (0)	n/a	0.479
UAI with casual HIV-negative partner(s)				
No	9 (50.0)	1 (50.0)		
Yes	9 (50.0)	1 (50.0)	1.0 (0.05-18.57)	1.000

Variable name	HCV negative	HCV positive	OR (95% CI)	P
Used condoms for oral sex with casual partner(s)				
Not always	32 (91.4)	5 (62.5)		
Always	3 (8.6)	3 (37.5)	6.40 (1.0-41.0)	0.670
Casual partner has come in mouth without a condom				
No	22 (61.1)	8 (100)		
Yes	14 (38.9)	0 (0)	n/a	0.041 *
Sex with HIV-positive regular partner(s)				
No	39 (90.7)	6 (75.0)		
Yes	4 (9.3)	2 (25.0)	3.25 (0.49-21.79)	0.234
Sex with HIV-unknown regular partner(s)				
No	29 (76.3)	3 (60.0)		
Yes	9 (23.7)	2 (40.0)	2.15 (0.31-14.94)	0.589
Sex with HIV-negative regular partner(s)				
No	17 (42.5)	3 (37.5)		
Yes	23 (57.5)	5 (62.5)	1.23 (0.26-5.88)	1.000
IA with HIV-positive regular partner(s)				
No	0 (0)	1 (50.0)		
Yes	4 (100)	1 (50.0)	n/a	0.333
RA with HIV-positive regular partner(s)				
No	2 (50.0)	1 (50.0)		
Yes	2 (50.0)	1 (50.0)	1.0 (0.34-29.81)	1.000
IA with HIV-unknown regular partner(s)				
No	0 (0)	0 (0)		
Yes	9 (100)	2 (100)	n/a	n/a
RA with HIV-unknown regular partner(s)				
No	2 (25.0)	2 (100)		
Yes	6 (75.0)	0 (0)	n/a	0.133
IA with HIV-negative regular partner(s)				
No	8 (34.8)	2 (40.0)		
Yes	15 (65.2)	3 (60.0)	0.80 (0.11-5.82)	1.000
RA with HIV-negative regular partner(s)				
No	6 (21.6)	3 (60.0)		
Yes	17 (73.9)	2 (40.0)	0.24 (0.03-1.77)	0.290
Oral sex with regular				
No	2 (4.9)	1 (12.5)		
Yes	39 (95.1)	7 (87.5)	0.36 (0.03-4.51)	0.421
Discuss HIV with regular partner(s)				
No	16 (37.2)	1 (14.3)		
Yes	27 (62.8)	6 (85.7)	3.56 (0.39-32.27)	0.398
Discuss syphilis with regular partner(s)				
No	20 (47.6)	6 (75.0)		
Yes	22 (52.4)	2 (25.0)	0.30 (0.06-1.68)	0.250
Discuss STI with regular partner(s)				
No	17 (44.7)	5 (62.5)		
Yes	21 (55.3)	3 (37.5)	0.49 (0.10-2.33)	0.451
Used condoms for IA with HIV-positive regular partner(s)				
Not always	3 (75.0)	1 (100)		
Always	1 (25.0)	0 (0)	n/a	1.000
Used condoms for RA with HIV-positive regular partner(s)				

Variable name	HCV negative	HCV positive	OR (95% CI)	P
Not always	2 (100)	1 (100)		
Always	0 (0)	0 (0)	n/a	n/a
Used condoms for IA with HIV-unknown regular partner(s)				
Not always	7 (87.5)	1 (50.0)		
Always	1 (12.5)	1 (50.0)	7.0 (0.22-226.01)	0.378
Used condoms for RA with HIV-unknown regular partner(s)				
Not always	5 (100)	5 (100)		
Always	0 (0)	0 (0)	n/a	n/a
Used condoms for IA with HIV-negative regular partner(s)				
Not always	11 (78.6)	2 (66.7)		
Always	3 (21.4)	1 (33.3)	1.83 (0.12-27.80)	1.000
Used condoms for RA with HIV-negative regular partner(s)				
Not always	13 (76.5)	1 (50.0)		
Always	4 (23.5)	1 (50.0)	3.25 (0.16-64.61)	0.468
Used condoms for oral sex with regular partner(s)				
Not always	36 (92.3)	6 (85.7)		
Always	3 (7.7)	1 (14.3)	2.0 (0.18-22.55)	0.496
Regular partner has come in mouth without a condom				
No	17 (44.7)	5 (71.4)		
Yes	21 (55.3)	2 (28.6)	0.32 (0.06-1.88)	0.243
Other sex partners concurrent with regular partner				
No	19 (46.3)	2 (25.0)		
Yes	22 (53.7)	6 (75.0)	2.59 (0.47-14.38)	0.438
IA with client partner				
No	10 (55.6)	7 (87.5)		
Yes	8 (44.4)	1 (12.5)	0.18 (0.02-1.77)	0.190
Used condoms for IA with client partner				
Not always	5 (71.4)	1 (100)		
Always	2 (28.6)	0 (0)	n/a	1.000
RA with client partner				
No	12 (66.7)	5 (62.5)		
Yes	6 (33.3)	3 (37.5)	1.2 (0.21-6.80)	1.000
Used condoms for RA with client partner				
Not always	6 (100)	1 (33.3)		
Always	0 (0)	2 (66.7)	n/a	0.083
Received money from client partner				
No	1 (5.3)	1 (12.5)		
Yes	18 (94.7)	7 (87.5)	0.389 (0.21-7.11)	0.513
Received drugs from client partner				
No	10 (52.6)	2 (25.0)		
Yes	9 (47.4)	6 (75.0)	3.33 (0.53-20.91)	0.236
Received other goods or services from client partner				
No	11 (61.1)	5 (62.5)		
Yes	7 (38.9)	3 (37.5)	0.94 (0.17-5.25)	1.000
Discussed HIV with client partner				
No	15 (78.9)	5 (71.4)		
Yes	4 (21.1)	2 (28.6)	1.5 (0.21-10.82)	0.529
Discussed syphilis with client partner				
No	14 (87.5)	8 (100)		

Variable name	HCV negative	HCV positive	OR (95% CI)	P
Yes	2 (12.5)	0 (0)	n/a	0.536
Discussed STI with client partner				
No	16 (84.2)	8 (100)		
Yes	3 (15.8)	0 (0)	n/a	0.532
IA with sex worker partner				
No	1 (33.3)	0 (0)		
Yes	2 (66.7)	0 (0)	n/a	n/a
Used condoms for IA with sex worker partner				
Not always	2 (100)	0 (0)		
Always	0 (0)	0 (0)	n/a	n/a
RA with sex worker partner				
No	1 (33.3)	0 (0)		
Yes	2 (66.7)	0 (0)	n/a	n/a
Used condoms for RA with sex worker partner				
Not always	2 (100)	0 (0)		
Always	0 (0)	0 (0)	n/a	n/a
Gave money to sex worker partner				
No	2 (66.7)	0 (0)		
Yes	3 (33.3)	0 (0)	n/a	n/a
Gave drugs to sex worker partner				
No	2 (66.7)	0 (0)		
Yes	3 (33.3)	0 (0)	n/a	n/a
Gave other goods or services to sex worker partner				
No	2 (66.7)	0 (0)		
Yes	3 (33.3)	0 (0)	n/a	n/a
Discussed HIV with sex worker partner				
No	2 (66.7)	0 (0)		
Yes	3 (33.3)	0 (0)	n/a	n/a
Discussed syphilis with sex worker partner				
No	2 (66.7)	0 (0)		
Yes	3 (33.3)	0 (0)	n/a	n/a
Discussed STI with sex worker partner				
No	2 (66.7)	0 (0)		
Yes	3 (33.3)	0 (0)	n/a	n/a

Table 28: Response error rates for WSW questionnaire key-dependent items sorted by error rate.

Question	A Participants Who Responded	B Participants Meeting Response Criteria	C (=A-B) Number Missed Skip	D (=C ÷ 121) Error %
527-During the past 6 months, did you have anal sex with any of these [REGULAR HIV-NEGATIVE MALE] partners?	20	5	15	30%
307-During the past 6 months, did you have anal sex with any of these [CLIENT MALE] partners?	19	6	13	26%
504-During the past 6 months, did you have vaginal-vaginal sex with them [HIV-POSITIVE FEMALE]?	16	3	13	26%
498-During the past 6 months, did you perform oral sex on them [HIV-POSITIVE FEMALE]?	15	3	12	24%
282-During the past 6 months, did you have anal sex with any of these [CASUAL MALE] partners?	16	5	11	22%
286-In the past 6 months have you had unprotected anal with at least one CASUAL MALE partner?	13	3	10	20%
519-In the past 6 months have you had sex with REGULAR MALE partners of unknown HIV status?	37	27	10	20%
514-During the past 6 months, have you had sex with REGULAR HIV-POSITIVE male partner(s)?	36	27	9	18%
524-In the past 6 months have you had sex with a REGULAR MALE partner of negative HIV status?	36	27	9	18%
297-During, have any of your REGULAR MALE partners come in your mouth without a condom on?	28	20	8	16%
506-During the past 6 months, did you perform oral sex on them [HIV-UNKNOWN FEMALE]?	25	17	8	16%
512-During the past 6 months, did you have vaginal-vaginal sex with them [HIV-NEGATIVE FEMALE]?	28	20	8	16%
522-During the past 6 months, did you have anal sex with any of these [REGULAR HIV-UNKNOWN MALE] partners?	12	4	8	16%
280-If yes, did you have unprotected anal or vaginal sex at least once with this or these partner(s) [traveling in Manitoba but not a resident of the province]?	10	3	7	14%
511-During the past 6 months, did you perform oral sex on them [HIV-NEGATIVE FEMALE]?	27	20	7	14%
171-Do you have a doctor (or a nurse) that you consider your family doctor (primary care provider)?	36	30	6	12%
172-Does (s)he know your sexual orientation?	36	30	6	12%
195-If yes, did you have unprotected oral, anal, or vaginal sex at least once with this or these partner(s) [traveling outside of Canada]?	8	2	6	12%
507-During the past 6 months, did you have vaginal-vaginal sex with them [HIV-UNKNOWN FEMALE]?	23	17	6	12%
520-During the past 6 months, did you have vaginal sex with any of these [REGULAR HIV-UNKNOWN MALE] partners?	12	6	6	12%
173-Has your primary care provider ever asked you about any new sex partners?	35	30	5	10%

Question	A Participants Who Responded	B Participants Meeting Response Criteria	C (=A-B) Number Missed Skip	D (=C ÷ 121) Error %
197-If yes, did you have unprotected oral, anal, or vaginal sex at least once with this or these partner(s) [traveling in Manitoba, but not a resident of the province]?	6	1	5	10%
285-During the past 6 months, with how many CASUAL MALE partners have you had sex (vaginal, oral or anal)?	39	34	5	10%
304-During the past 6 months, have these [CLIENT MALE] partners given you money in exchange for sex?	20	15	5	10%
305-During the past 6 months, have these [CLIENT MALE] partners given you drugs in exchange for sex?	20	15	5	10%
306-During the past 6 months, have these [CLIENT MALE] partners given you other goods or services in exchange for sex?	20	15	5	10%
309-During the past 6 months, have you had vaginal sex with any of these [CLIENT MALE] partners?	20	15	5	10%
311-In the past 6 months, have you discussed HIV with any of these [CLIENT MALE]partners?	20	15	5	10%
313-In the past 6 months, have you discussed other STIs with any of these [CLIENT MALE] partners (e.g., chlamydia, gonorrhea)?	20	15	5	10%
496-If yes, how often was barrier protection used [for performing oral sex with HIV-POSITIVE FEMALE]?	8	3	5	10%
513-If Yes, how often was barrier protection used [for vaginal-vaginal sex with HIV-NEGATIVE FEMALE]?	15	10	5	10%
521-If Yes, how often was a condom used [for vaginal sex with REGULAR HIV-UNKNOWN MALE]?	11	6	5	10%
209-If Yes, how often did you use a barrier between the toy and you/your [CASUAL FEMALE] partner?	9	5	4	8%
231-In the past 6 months, have you performed oral sex on any of these [CLIENT FEMALE] partners, where you went down on them?	6	2	4	8%
237-In the past 6 months, have you had vaginal-vaginal sex with any of these [SEXWORKER FEMALE]partners?	6	2	4	8%
239-In the past 6 months, have you shared a sex toy (---) with any of these [SEXWOKER FEMALE] partners?	6	2	4	8%
250-During the past 6 months, have you given these [SEXWORKER FEMALE] partners money in exchange for sex?	6	2	4	8%
252-During the past 6 months, have you given these [SEXWORKER FEMALE] partners other goods or services in exchange for sex?	6	2	4	8%
253-In the past 6 months, have you discussed HIV with any of these [SEXWORKER FEMALE] partners?	6	2	4	8%
254-In the past 6 months, have you discussed syphilis with any of these [SEXWORKER FEMALE]	6	2	4	8%

Question	A Participants Who Responded	B Participants Meeting Response Criteria	C (=A-B) Number Missed Skip	D (=C ÷ 121) Error %
partners?				
255-In the past 6 months, have you discussed other STIs with any of these [SEXWORKER FEMALE] partners (e-g-chlamydia, gonorrhea)?	6	2	4	8%
278-If yes [to 277, sex with partner outside Canada] did you have unprotected anal or vaginal sex at least once with this or these partner(s) [traveling outside Canada]?	4	0	4	8%
292-During the past 6 months, with how many REGULAR MALE partner(s) have you had sex (vaginal, oral, or anal)?	38	34	4	8%
298-If yes, how frequently has one of your REGULAR MALE partners come in your mouth without a condom on?	17	13	4	8%
308-If Yes [to vaginal sex with CLIENT MALE] how often was a condom used?	13	9	4	8%
312-In the past 6 months, have you discussed syphilis with any of these [CLIENT MALE] partners?	19	15	4	8%
315-In the past 6 months, have you received oral sex from any of these [SEXWORKER MALE] partners, where they went---?	5	1	4	8%
317-In the past 6 months, have you had vaginal sex with any of these [SEXWORKER MALE]partners?	5	1	4	8%
319-In the past 6 months, have you had anal sex with any of these [SEXWORKER MALE]partners?	5	1	4	8%
321-In the past 6 months, have you discussed HIV with any of these [SEXWORKER MALE] partners?	5	1	4	8%
322-In the past 6 months, have you discussed syphilis with any of these [SEXWORKER MALE] partners?	5	1	4	8%
323-In the past 6 months, have you discussed other STIs with any of these [SEXWORKER MALE] partners (e.g., chlamydia, gonorrhea)?	5	1	4	8%
193-If yes, did you have unprotected oral, anal, or vaginal sex at least once with this or these partner(s) [traveling outside of Manitoba, but in Canada]?	9	6	3	6%
207-If [shared sex toy with casual female] how often did you clean the toy before sharing it?	8	5	3	6%
214-In the past 6 months have you discussed HIV with any of your REGULAR FEMALE partners?	32	29	3	6%
218-In the past 6 months, have you performed oral sex on any of these [REGULAR FEMALE] partners (...)?	32	29	3	6%
220-In the past 6 months, have you received oral sex from any of these partners (...)?	32	29	3	6%
223-In the past 6 months, have you shared a sex toy (...) with any of these [REGULAR FEMALE]partners?	32	29	3	6%
225-In the past 6 months, have you performed oral sex on any of these [CLIENT FEMALE] partners, where you went---?	9	6	3	6%
227-In the past 6 months, have you shared a sex toy (...)	9	6	3	6%

Question	A Participants Who Responded	B Participants Meeting Response Criteria	C (=A-B) Number Missed Skip	D (=C ÷ 121) Error %
with any of these [CLIENT FEMALE]partners?				
228-If yes, how often was barrier protection used [for performing oral sex with REGULAR FEMALE]?	4	1	3	6%
229-In the past 6 months, have you received oral sex from any of these [CLIENT FEMALE]partners (...)?	9	6	3	6%
233-If yes, how often was barrier protection used [for vaginal-vaginal sex with CLIENT FEMALE]?	6	3	3	6%
234-In the past 6 months, have you received oral sex from any of these [SEXWORKER FEMALE]partners (...)?	5	2	3	6%
241-During the past 6 months, have these [CLIENT FEMALE] partners given you money in exchange for sex?	9	6	3	6%
242-During the past 6 months, have these [CLIENT FEMALE] partners given you drugs in exchange for sex?	9	6	3	6%
244-In the past 6 months, have you discussed HIV with any of these [CLIENT FEMALE] partners?	9	6	3	6%
245-In the past 6 months, have you discussed syphilis with any of these [CLIENT FEMALE] partners?	9	6	3	6%
246-In the past 6 months, have you discussed other STIs with any of these [CLIENT FEMALE] partners (e-g-chlamydia, gonorrhea)?	9	6	3	6%
251-During the past 6 months, have you given these [SEXWORKER FEMALE] partners drugs in exchange for sex?	5	2	3	6%
275-During the past 6 months, have you had sex (oral, anal, or vaginal) with a new male partner you met while traveling outside of Manitoba, but in Canada?	37	34	3	6%
276-If yes [to 275, sex with partner outside MB], did you have unprotected anal or vaginal sex at least once with this or these partner(s) [traveling outside of Manitoba, but in Canada?	6	3	3	6%
277-During the past 6 months, have you had sex (oral, anal, or vaginal) with a new male partner you met while traveling outside of Canada?	37	34	3	6%
284-During the past six months, did you have vaginal sex with any of these [CASUAL MALE] partners?	17	14	3	6%
295-During the past 6 months, have you sucked the cock of any of these [REGULAR MALE] partners?	30	27	3	6%
299-In the past 6 months, have you discussed HIV with any of these [REGULAR MALE]partners?	30	27	3	6%
314-During the past 6 months, with how many MALE SEX WORKER partners have you had sex (vaginal, oral or anal)?	37	34	3	6%
318-If Yes, how often was barrier protection used [for vaginal sex with SEXWORKER MALE]?	4	1	3	6%
509-If Yes, how often was barrier protection used [for vaginal-vaginal sex with HIV-UNKNOWN FEMALE]?	10	7	3	6%
515-During the past 6 months, did you have vaginal sex	3	0	3	6%

Question	A Participants Who Responded	B Participants Meeting Response Criteria	C (=A-B) Number Missed Skip	D (=C ÷ 121) Error %
with any of these [REGULAR HIV POSITIVE MALE] partners?				
523-If Yes, how often was a condom used [for anal sex with REGULAR HIV-UNKNOWN MALE]?	7	4	3	6%
185-During the past 6 months, have you had anal sex with a man?	36	34	2	4%
187-During the past 6 months, have you had unprotected anal sex (no condom) with at least one man?	14	12	2	4%
192-During the past 6 months, have you had sex (oral, anal, or vaginal) with a new female partner you met while traveling outside of Manitoba, but in Canada?	41	39	2	4%
196-During the past 6 months, have you had sex (oral, anal, or vaginal) with a new female partner who was traveling in Manitoba, but not a resident of the province?	41	39	2	4%
198-During the past 6 months, with how many CASUAL FEMALE partners have you had sex (oral or anal)?	41	39	2	4%
213-During the past 6 months, with how many REGULAR FEMALE partner(s) have you had sex (oral or anal)?	41	39	2	4%
217-During the time you had a regular female partner, did you also have sex with anyone else?	31	29	2	4%
219-If yes, often was barrier protection used [for performing oral sex with REGULAR FEMALE]?	22	20	2	4%
222-In the past 6 months, have you had vaginal-vaginal sex with any of these [REGULAR FEMALE] partners?	31	29	2	4%
224-If yes, how often did you clean the toy before sharing it [with REGULAR FEMALE]?	12	10	2	4%
226-If yes, how often did you use a barrier between the toy and you/your [REGULAR FEMALE] partner?	12	10	2	4%
230-If yes, how often was barrier protection used [for receiving oral sex with CLIENT FEMALE]?	5	3	2	4%
232-In the past 6 months, have you had vaginal-vaginal sex with any of these [CLIENT FEMALE] partners?	8	6	2	4%
243-During the past 6 months, have these [CLIENT FEMALE] partners given you other goods or services in exchange for sex?	8	6	2	4%
248-If yes, how often was barrier protection used [for receiving oral sex with SEXWORKER FEMALE]?	4	2	2	4%
249-If yes, how often was barrier protection used [for vaginal-vaginal sex with SEXWORKER FEMALE]?	4	2	2	4%
279-During the past 6 months, have you had sex (oral, anal, or vaginal) with a new male partner who was traveling in Manitoba, but not a resident of the province?	36	34	2	4%
281-If yes, how often was a condom used [for anal sex with CASUAL MALE]?	5	3	2	4%
289-In the past 6 months, have you discussed HIV with any of these [CASUAL MALE] partners?	16	14	2	4%

Question	A Participants Who Responded	B Participants Meeting Response Criteria	C (=A-B) Number Missed Skip	D (=C ÷ 121) Error %
290-In the past 6 months, have you discussed syphilis with any of these [CASUAL MALE]partners?	16	14	2	4%
291-In the past 6 months, have you discussed other STIs with any of these [CASUAL MALE]partners (e.g., chlamydia, gonorrhea)?	16	14	2	4%
293-During the past 6 months, have any of these [CASUAL MALE] partners come in your mouth without a condom on?	8	6	2	4%
294-If Yes, how frequently has one of your CASUAL MALE partners come in your mouth without a condom on?	4	2	2	4%
296-If yes, when you sucked the cock of your REGULAR MALE partners, how often was a condom used?	22	20	2	4%
303-During the past 6 months, with how many CLIENT MALE partners have you had sex (vaginal, oral or anal)?	36	34	2	4%
310-If Yes, how often was a condom used [for anal sex with CLIENT MALE]?	2	0	2	4%
316-If Yes, how often was barrier protection used [for receiving oral sex with SEXWORKER MALE]?	3	1	2	4%
497-Do you have ANY FEMALE sex partners that you know are HIV-positive?	41	39	2	4%
499-If yes, how often was barrier protection used [for vaginal-vaginal sex with HIV-POSITIVE FEMALE]?	3	1	2	4%
505-Do you have ANY FEMALE sex partners whose HIV status you're unsure about?	41	39	2	4%
508-Do you have ANY FEMALE partners that you are sure are HIV negative?	41	39	2	4%
510-If Yes, how often was barrier protection used [for performing orals sex with HIV-NEGATIVE FEMALE]?	17	15	2	4%
528-If Yes, how often was a condom used [for anal sex with REGULAR HIV-NEGATIVE MALE]?	7	5	2	4%
188-[During the past 6 months, have you had unprotected anal sex (no condom) with at least one man] **Who you knew at the time was HIV positive?**	11	10	1	2%
199-In the past 6 months, have you performed oral sex on any of these [CASUAL FEMALE] partners?	23	22	1	2%
201-In the past 6 months, have you received oral sex from any of these [CASUAL FEMALE] partners?	23	22	1	2%
202-If yes, how often was barrier protection used [for receiving oral sex with CASUAL FEMALE]?	13	12	1	2%
215-In the past 6 months, have you discussed syphilis with any of your REGULAR FEMALE partners?	30	29	1	2%
216-In the past 6 months, have you discussed other STIs with any REGULAR FEMALE partners (e-g-chlamydia, gonorrhea)?	30	29	1	2%
235-If yes, how often did you clean the toy before sharing it [with CLIENT FEMALE]?	4	3	1	2%

Question	A Participants Who Responded	B Participants Meeting Response Criteria	C (=A-B) Number Missed Skip	D (=C ÷ 121) Error %
238-If yes, how often did you use a barrier between the toy and you/your [CLIENT FEMALE]partner?	4	3	1	2%
288-If yes, how often was a condom used [for performing oral sex with CASUAL MALE]?	7	6	1	2%
301-In the past 6 months, have you discussed other STIs with any of these [REGULAR MALE] partners (e.g., chlamydia, gonorrhea)?	28	27	1	2%
302-During the time you had a regular male partner, did you also have sex with anyone else?	28	27	1	2%
320-If Yes [to anal sex with SEXWORKER MALE], how often was barrier protection used?	1	0	1	2%
414-If [received information post diagnosis] did it help you deal with your infection(s)?	36	35	1	2%
500-If yes, how often was barrier protection used [for performing oral sex with HIV-UNKNOWN FEMALE]?	13	12	1	2%
516-If Yes [to vaginal sex with REGULAR HIV-POSITIVE MALE], how often was a condom used?	1	0	1	2%
517-During the past 6 months, did you have anal sex with any of these [REGULAR HIV POSITIVE MALE] partners?	1	0	1	2%
518-If Yes [to anal sex with REGULAR HIV-POSITIVE MALE] how often was a condom used?	1	0	1	2%
525-During the past 6 months, did you have vaginal sex with any of these [REGULAR HIV-NEGATIVE MALE]partners?	20	19	1	2%
526-If Yes, how often was a condom used [for vaginal sex with REGULAR HIV-NEGATIVE MALE]?	19	18	1	2%
529-If yes, how often did you use a barrier between the toy and you/your [SEXWORKER FEMALE] partner?	2	1	1	2%
530-If yes, how often did you clean the toy before sharing it [with SEXWORKER FEMALE]?	2	1	1	2%
186-During the past 6 months, with how many men have you had anal sex?	11	12	0	0%
189-[During the past 6 months, have you had unprotected anal sex (no condom) with at least one man] **Whose HIV status you did not know at the time?**	9	10	0	0%
190-[During the past 6 months, have you had unprotected anal sex (no condom) with at least one man] **Who you knew at the time was HIV negative?**	10	10	0	0%
191-The last time you had anal sex with a man in the past 6 months did you or your partner use a condom?	11	12	0	0%
194-During the past 6 months, have you had sex (oral, anal, or vaginal) with a new female partner you met while traveling outside of Canada?	39	39	0	0%
200-If yes, how often was a barrier protection used [for performing oral sex with CASUAL FEMALE]?	16	17	0	0%

Question	A Participants Who Responded	B Participants Meeting Response Criteria	C (=A-B) Number Missed Skip	D (=C ÷ 121) Error %
203-In the past 6 month have you had vaginal-vaginal sex with any CASUAL FEMALE partners?	22	22	0	0%
208-In the past 6 months, have you shared a sex toy (...) with any of these [CASUAL FEMALE] partners?	21	22	0	0%
210-In the past 6 months, have you discussed HIV with any of these [CASUAL FEMALE] partners?	21	22	0	0%
211-In the past 6 months, have you discussed syphilis with any of these [CASUAL FEMALE] partners?	22	22	0	0%
212-In the past 6 months, have you discussed other STIs with any of these [CASUAL FEMALE] partners (e-g-chlamydia, gonorrhea)?	21	22	0	0%
221-If yes, how often was barrier protection used [for receiving oral sex with REGULAR FEMALE]?	18	27	0	0%
236-During the past 6 months, with how many CLIENT FEMALE partners have you had sex (oral, anal, or vaginal)?	39	39	0	0%
240-If yes, how often was barrier protection used [for performing oral sex with SEXWORKER FEMALE]?	2	2	0	0%
247-During the past 6 months, with how many SEX WORKER FEMALE partners have you had sex (oral, anal, or vaginal)?	39	39	0	0%
283-If Yes, how often was barrier protection used [for vaginal sex with CASUAL MALE]?	12	12	0	0%
287-In the past 6 months, have you sucked the cock of any of these [CASUAL MALE]partners?	9	14	0	0%
300-In the past 6 months, have you discussed syphilis with any of these [REGULAR MALE] partners?	27	27	0	0%
415- If [received information post diagnosis] did you receive enough assistance to help talk/...with your sex partners?	35	35	0	0%
469-If [vaccinated for Hep B], how many shots did you get?	22	22	0	0%
470-If [vaccinated for Hep A], how many shots did you get?	13	13	0	0%
501-[During the past 6 months, have you had unprotected anal sex with CASUAL MALE] **Who you knew at the time was HIV positive?**	2	3	0	0%
502-[During the past 6 months, have you had unprotected anal sex with CASUAL MALE] **Whose HIV status you did not know at the time?**	3	3	0	0%
503-[During the past 6 months, have you had unprotected anal sex with CASUAL MALE] **Who you knew at the time was HIV negative?**	3	3	0	0%

Table 29: Demographic characteristics of WSW participants

Characteristic (N=Number of Respondents)* †	Number (%)†
Live in Winnipeg (N=50)	
Yes	1 (2.0)
No	49 (98.0)
Refused	0 (0.0)
Age (N=50)	
<25	15 (30.0)
25-34	15 (30.0)
35-44	15 (30.0)
≥45	5 (10.0)
Refused	0 (0.0)
Language you first learned and still understand (N=50)	
English	47 (94.0)
French	0 (0.0)
Other	3 (6.0)
Refused	0 (0)
Ancestors' ethnic or cultural group (N=50)	0 (0)
Aboriginal	36 (72.0)
Non-Aboriginal	8 (16.0)
Unsure	5 (10.0)
Refused	1‡ (2.0)
Ethnic or cultural group you most identify with (N=48)	
Aboriginal	31 (64.6)
Non-Aboriginal	14 (29.1)
Unsure	2 (4.2)
Refused	1 (2.1)
Highest level of education completed (N=50)	
Elementary/primary school	9 (18.0)
Some secondary/high school	29 (58.0)
Completed secondary/high school	5 (10.0)
Some college or university	6 (12.0)
Completed college or university	0 (0)
Completed graduate education (e.g., Masters, PhD, MD degrees)	1 (2.0)
Personal income last year (N=50)	
No personal income	2 (4.0)
$1-$9,999	5 (10.0)
$10,000-$19,999	5 (10.0)
$20,000-$29,999	3 (6.0)
≥$30,000	1 (2.0)
Unsure	32 (64.0)
Refused	2 (4.0)
How do you define yourself (sexual orientation) (N=50)	
Lesbian or homosexual	2 (4.0)
Gay or homosexual	1 (2.0)
Straight or heterosexual	7 (14.0)
Bisexual	29 (58.0)
Two-spirited	7 (14.0)
Other	4 (8.0)

Refused	0 (0)
Marital status (N=50)	
Married: spouse is opposite sex	1 (2.0)
Commonlaw: partner is same sex	4 (8.0)
Commonlaw: partner is opposite sex	7 (14.0)
Divorced	2 (4.0)
Single	35 (70.0)
Unsure	1 (2.0)
Refused	0 (0)

*Refused is treated as a response
†Percentages are calculated using the number of respondents as the denominator
‡This participant did not choose the "Refused" option but specified "None"

Table 30: Health services use among WSW participants*

Health services accessed in last year	**Number (%)†**
Accessed health services in the last year	41 (82.0)
Did not access health services in the last year	9 (18.0)
Health professionals accessed in last year	
Doctor	36 (72.0)
Primary care nurse	12 (24.0)
Public health nurse	4 (8.0)
Emergency room nurse	4 (8.0)
Facilities where received medical attention:	
Hospital	13 (26.0)
Emergency room:<6 hour visit	5 (10.0)
Emergency room: 6-24 hour visit	3 (6.0)
Admitted to hospital	5 (10.0)
Community health centre	22 (44.0)
Nine Circles Community Health Centre	6 (12.0)
Mount Carmel Clinic	11 (22.0)
Aboriginal Health and Wellness Centre	1 (2.0)
Centre de Sante St. Boniface	1 (2.0)
Health Action Centre	1 (2.0)
Hope Centre	3 (6.0)
Nor' West Community Health Centre	0 (0)
Women's Health Clinic	0 (0)
WRHA Health Access Centre: River East	1 (2.0)
WRHA Health Access Centre: 601 Aikins	0 (0)
Correctional facility	5 (10.0)
Remand Centre	2 (4.0)
Manitoba Youth Centre	0 (0)
Headingley Correctional Centre	0 (0)
Agassiz Youth Centre	0 (0)
Portage Correctional Centre	3 (6.0)
Brandon Correctional Centre	0 (0)
The Pas Correctional Centre	0 (0)
Dauphin Correctional Centre	1 (2.0)
Milner Ridge Correctional Centre	0 (0)
Stony Mountain Institutional	0 (0)
Rockwood Institution	0 (0)
Walk-in clinic	21 (42.0)
Research study	6 (6.0)
Canadian Blood Services donation	0 (0)
Needle exchange program	3 (6.0)
Addictions treatment program	3 (6.0)
Other	12 (24.0)

*Most questions pertaining to health services access asked participants to 'check all that apply'.

†Percentages are calculated using the number of respondents as the denominator

Table 31: Places WSW looked for sex

Place (N=Number of Respondents)*	Yes (%)
Gay Bar (N=44)	5 (11.4)
Straight Bar (N=45)	18 (40.0)
Raves/Circuit parties (N=43)	3 (7.0)
After-hours clubs/parties (N=42)	8 (19.0)
Saunas (N=42)	2 (4.8)
Sex Parties (N=42)	6 (14.3)
Parks (N=42)	3 (7.1)
Public Restrooms (N=41)	3 (7.3)
Bicycle Paths (N=41)	0 (0)
Coffee Shops (N=41)	5 (12.2)
Internet (N=41)	8 (19.5)
Community organizations (N=41)	11 (26.8)
Gay associations (N=40)	4 (10.0)
Recreational groups (N=40)	6 (15.0)
Telephone chat lines (N=42)	9 (21.4)
Community events for gays and lesbians (N=40)	8 (20.0)
Personal ads (N=39)	2 (5.1)
Gym/Health club (N=40)	0 (0)
Other (N=30)	2 (6.7)

*Percentages are calculated using the number of respondents as the denominator

Table 32: Places and frequency WSW participants looked for sex

Place (N=Number of Respondents)*	<Once a month (%)	Once a month (%)	2-3 times a month (%)	Once a week or more (%)	Unsure/ Refused (%)
Gay Bar (N=5)	3 (60.0)	2 (40.0)	0 (0)	0 (0)	0 (0)
Straight Bar (N=16)	4 (25.0)	3 (18.8)	4 (25.0)	3 (18.8)	2 (12.5)
Raves/ Circuit parties (N=3)	1 (33.3)	0 (0)	0 (0)	1 (33.3)	1 (33.3)
After-hours clubs/parties (N=8)	2 (25.0)	1 (12.5)	2 (25.0)	2 (25.0)	1 (12.5)
Saunas (N=1)	1 (100.0)	0 (0)	0 (0)	0 (0)	0 (0)
Sex Parties (N=6)	3 (50.0)	2 (33.3)	0 (0)	1 (16.7)	0 (0)
Parks (N=4)	1 (25.0)	0 (0)	3 (75.0)	0 (0)	0 (0)
Bathrooms (N=2)	1 (50.0)	0 (0)	1 (50.0)	0 (0)	0 (0)
Bicycle Paths (N=0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Coffee Shops (N=4)	3 (75.0)	0 (0)	0 (0)	1 (25.0)	0 (0)
Internet (N=8)	2 (25.0)	2 (25.0)	2 (25.0)	2 (25.0)	0 (0)
Community organizations (N=9)	6 (66.7)	1 (11.1)	1 (11.1)	0 (0)	1 (11.1)
Gay associations (N=2)	1 (50.0)	1 (50.0)	0 (0)	0 (0)	0 (0)
Recreational groups (N=5)	1 (20.0)	2 (40.0)	0 (0)	1 (20.0)	0 (0)
Telephone chat lines (N=8)	3 (37.5)	2 (25.0)	2 (25.0)	1 (12.5)	0 (0)
Community events for gays and lesbians (N=7)	2 (28.6)	2 (28.6)	2 (28.6)	0 (0)	1 (14.3)
Personal ads (N=1)	0 (0)	1 (100.0)	0 (0)	0 (0)	0 (0)
Gym/Health club (N=0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Other (N=3)	0 (0)	0 (0)	0 (0)	1 (50.0)	1 (50.0)

*Percentages are calculated using the number of respondents as the denominator

Table 33: Count of places WSW participants looked for sex

Number of places	Number of participants	Percent	Cumulative Percent
0	21	42.0	42.0
1	8	16.0	58.0
2	5	10.0	68.0
3	3	6.0	74.0
4	2	4.0	78.0
5	5	10.0	88.0
6	2	4.0	92.0
7	2	4.0	96.0
8	1	2.0	98.0
9	1	2.0	100
Total	50	100	

Table 34: WSW injection drug use

Drug (N=Number of Respondents)*	Never	Yes, but not in the past six months	Yes, in the past six months	Refused
Steroids (N=29)	28 (96.6)	1 (3.4)	0 (0)	0 (0)
Heroin (N=29)	25 (86.2)	4 (13.8)	0 (0)	0 (0)
Cocaine (N=33)	5 (15.2)	25 (75.8)	3 (9.1)	0 (0)
Crystal meth (N=28)	24 (85.7)	4 (14.3)	0 (0)	0 (0)
Talwin and Ritalin (N=35)	20 (57.1)	11 (31.4)	4 (11.4)	0 (0)
Crack/rock cocaine (N=29)	15 (51.7)	8 (27.6)	6 (20.7)	0 (0)
Morphine (N=32)	21 (65.6)	8 (25.0)	3 (9.4)	0 (0)
Oxycontin (N=29)	26 (89.7)	2 (6.9)	1 (3.4)	0 (0)
Other opiates (N=30)	27 (90.0)	0 (0)	3 (10.0)	0 (0)
Special K/Ketamine (N=28)	28 (100.0)	0 (0)	0 (0)	0 (0)
Ecstasy (N=29)	27 (93.1)	1 (3.4)	1 (3.4)	0 (0)
Barbiturates (N=30)	26 (86.7)	3 (10.0)	1 (3.3)	0 (0)
Other amphetamines or stimulants (N=26)	25 (96.2)	1 (3.8)	0 (0)	0 (0)
Other 1 (N=26)	23 (88.5)	2 (7.7)	1 (3.8)	0 (0)
Other 2 (N=1)	1 (100.0)	0 (0)	0 (0)	0 (0)
Other 3 (N=1)	1 (100.0)	0 (0)	0 (0)	0 (0)

*Percentages are calculated using the number of respondents as the denominator

Table 35: WSW non-injection drug use

Drug (N=Number of Respondents)*†	Never (%)	Yes, but not in the past six months (%)	Yes, in the past six months (%)
Alcohol (N=48)	3 (6.3)	5 (10.4)	40 (83.3)
Marijuana (N=46)	4 (8.7)	8 (17.4)	34 (73.9)
Poppers (N=41)	31 (75.6)	3 (7.1)	7 (17.1)
Special K/Ketamine (N=42)	38 (90.5)	3 (7.1)	1 (2.4)
Ecstasy (N=42)	34 (81.0)	5 (11.9)	3 (7.1)
Crystal meth (N=40)	29 (72.5)	7 (17.5)	4 (10.0)
Other speed/amphetamines/stimulants (N=42)	35 (83.3)	5 (11.9)	2 (4.8)
Viagra, Cialis, or other erectile drugs (N=41)	40 (97.6)	1 (2.4)	0 (0)
Cocaine/crack/free base (N=46)	10 (21.7)	6 (13.0)	30 (65.2)
Oxycontin (N=43)	39 (90.7)	0 (0)	4 (9.3)
Heroin (N=42)	40 (95.2)	2 (4.8)	0 (0)
Morphine (N=43)	38 (88.4)	5 (11.6)	0 (0)
Other opiates (Percocet, Dilaudid) (N=41)	38 (92.7)	1 (2.4)	2 (4.9)
GHB (N=42)	41 (97.6)	1 (2.4)	0 (0)
LSD/acid/mescaline (N=43)	36 (83.7)	7 (16.3)	0 (0)
Tranquilizers (N=44)	28 (63.6)	4 (9.1)	12 (27.3)
Barbiturates (N=43)	31 (72.1)	2 (4.7)	10 (23.3)
Mushrooms (N=43)	31 (72.1)	8 (18.6)	4 (9.3)
Gas/Solvents (N=44)	36 (81.8)	3 (6.8)	5 (11.4)
Other (N=33)	27 (81.8)	2 (6.1)	4 (12.1)

*Percentages are calculated using the number of respondents as the denominator

†Other drugs participants reported using before sex with a male partner were barbiturates, solvents, Tylenol 3, and Talwin and Ritalin.

Table 36: WSW drug use before sex with a female partner

Drug* (N=Number of Respondents)†‡	Never (0%)	Less than half the time: 1-49% (%)	More than half the time: 50-100% (%)
Alcohol (N=31)	9 (22.5)	17 (42.5)	14 (35.0)
Marijuana (N=31)	9 (29.0)	10 (32.3)	12 (38.7)
Poppers (N=25)	19 (76.0)	2 (8.0)	4 (16.0)
Special K/Ketamine (N=21)	21 (100.0)	0 (0)	0 (0)
Ecstasy (N=22)	18 (81.8)	4 (18.2)	0 (0)
Crystal meth (N=23)	18 (78.3)	4 (17.4)	1 (4.3)
Other speed/amphetamines/stimulants (N=20)	20 (100.0)	0 (0)	0 (0)
Viagra, Cialis, or other erectile drugs (N=22)	21 (95.5)	0 (0)	1 (4.5)
Cocaine/crack/free base (N=33)	12 (36.4)	12 (36.4)	9 (27.3)
Heroin (N=21)	21 (100.0)	0 (0)	0 (0)
Other opiates (Percocet, Dilaudid, Oxycontin) (N=23)	21 (91.3)	2 (8.7)	0 (0)
GHB (N=21)	21 (100.0)	0 (0)	0 (0)
Psychedelics (LSD/acid), mescaline, mushrooms) (N=21)	21 (100.0)	0 (0)	0 (0)
Tranquilizers or Benzodiazepines (Valium, Ritrovil) (N=31)	25 (80.6)	4 (12.9)	2 (8.3)
Other 1 (N=24)	21 (87.5)	1 (4.2)	2 (8.3)
Other 2 (N=8)	8 (100.0)	0 (0)	0 (0)

*There was no Refused option for this question

†Percentages are calculated using the number of respondents as the denominator

‡Other drugs participants reported using before sex with a female partner were methadone, solvents, and Tylenol 3.

Table 37: WSW number of sex partners by partner type

Partner type (N=Number of Respondents)*	Number (%)
Female Partners-General (N=42)	
None	1 (2.4)
Only 1	26 (61.9)
2 to 5	12 (28.6)
6 or more	1 (2.4)
Don't know	1 (2.4)
Refused	1 (2.4)
Casual (N=38)	
None	16 (42.1)
Only 1	14 (36.8)
2 to 5	7 (18.4)
6 to 9	1 (2.6)
10 to 19	0 (0)
20 to 29	0 (0)
30 to 39	0 (0)
40 to 49	0 (0)
50 or more	0 (0)
Don't know	0 (0)
Regular (N=38)	
None	9 (23.7)
Only 1	21 (55.3)
2 to 5	7 (18.4)
6 to 9	1 (2.6)
10 to 19	0 (0)
20 to 29	0 (0)
30 to 39	0 (0)
40 to 49	0 (0)
50 or more	0 (0)
Don't know	0 (0)
Client (N=36)	
None	30 (83.3)
Only 1	2 (5.6)
2 to 5	3 (8.3)
6 to 9	1 (2.8)
10 to 19	0 (0)
20 to 29	0 (0)
30 to 39	0 (0)
40 to 49	0 (0)
50 or more	0 (0)
Don't know	0 (0)
Sex Worker (N=36)	
None	34 (94.4)
Only 1	0 (0)
2 to 5	1 (2.8)
6 to 9	1 (2.8)
10 to 19	0 (0)

Partner type (N=Number of Respondents)*	Number (%)
Sex Worker (cont.)	
20 to 29	0 (0)
30 to 39	0 (0)
40 to 49	0 (0)
50 or more	0 (0)
Don't know	0 (0)

*Percentages are calculated using the number of respondents as the denominator

Table 38: WSW behaviour with female sex partners

Variable (N=Number of Respondents)*	No (%)	Yes (%)	Unsure (%)	Refused (%)
Oral, anal, or vaginal sex with new female partner met while traveling outside Manitoba (N=39)	32 (82.1)	6 (15.4)	0 (0)	1 (2.6)
Unprotected sex with new female partner met while traveling outside Manitoba (N=6)	0 (0)	6 (100)	0 (0)	0 (0)
Oral, anal, or vaginal sex with new female partner met while traveling outside Canada (N=38/)	36 (94.7)	2 (5.3)	0 (0)	0 (0)
Unprotected oral, anal, or vaginal sex with new female partner met while traveling outside Canada (N=2)	0 (0)	2 (100)	0 (0)	0 (0)
Oral, anal, or vaginal sex with new female partner who was traveling in, but not a resident of, Manitoba (N=39)	36 (92.3)	1 (2.6)	1 (2.6)	1 (2.6)
Unprotected oral, anal, or vaginal sex with new female partner who was traveling in, but not a resident of, Manitoba (N=1)	0 (0.0)	1 (100)	0 (0)	0 (0)
Female partner, HIV positive (N=39)	33 (84.6)	3 (7.7)	3 (7.7)	0 (0)
Gave oral sex, female partner HIV positive (N=3)	0 (0)	3 (100)	0 (0)	0 (0)
Vaginal-vaginal sex, female partner HIV positive (N=3)	2 (66.7)	1 (33.3)	0 (0)	0 (0)
Female partner, HIV status unknown (N=39)	19 (48.7)	17 (43.6)	2 (5.1)	1 (2.6)
Gave oral sex, female partner HIV unknown (N=17)	5 (29.4)	12 (70.6)	0 (0)	0 (0)
Vaginal-vaginal sex, female partner HIV unknown (N=16)	9 (56.3)	7 (43.8)	0 (0)	0 (0)
Female partner, HIV negative (N=39)	15 (38.5)	20 (51.3)	3 (7.7)	1 (2.6)
Gave oral sex, female partner HIV negative (N=19)	4 (21.1)	15 (78.9)	0 (0)	0 (0)
Vaginal-vaginal sex, female partner HIV negative (N=19)	9 (47.4)	10 (52.6)	0 (0)	0 (0)

*Percentages are calculated using the number of respondents as the denominator

Table 39: WSW sexual behaviour by female partner type

Partner Type (N=Number of Respondents)*	No (%)	Yes (%)	Unsure (%)	Refused (%)
Casual Female				
Gave oral sex (N=22)	5 (22.7)	17 (77.3)	0 (0)	0 (0)
Received oral sex (N=22)	4 (18.2)	18 (81.8)	0 (0)	0 (0)
Vaginal-vaginal sex (N=21)	9 (42.9)	12 (57.1)	0 (0)	0 (0)
Shared sex toy (N=20)	15 (75.0)	5 (25.0)	0 (0)	0 (0)
Discussed HIV (N=20)	11 (55.0)	8 (40.0)	1 (5.0)	0 (0)
Discussed syphilis (N=21)	15 (71.4)	6 (28.6)	0 (0)	0 (0)
Discussed STI (N=20)	14 (70.0)	6 (30.0)	0 (0)	0 (0)
Regular Female				
Gave oral sex (N=29)	6 (20.7)	20 (69.0)	2 (6.9)	1 (3.4)
Received oral sex (N=29)	2 (6.9)	27 (93.1)	0 (0)	0 (0)
Vaginal-vaginal sex (N=28)	8 (28.6)	18 (64.3)	1 (3.6)	1 (3.6)
Shared sex toy (N=29)	18 (62.1)	10 (34.5)	0 (0)	1 (3.6)
Discussed HIV (N=29)	16 (55.2)	13 (44.8)	0 (0)	0 (0)
Discussed syphilis 27)	18 (66.7)	9 (33.3)	0 (0)	0 (0)
Discussed STI (N=27)	17 (63.0)	10 (37.0)	0 (0)	0 (0)
Had sex with other partners while maintaining regular partner (N=concurrency) (N=28)	12 (42.9)	15 (53.6)	0 (0)	1 (3.6)
Client Female				
Gave oral sex (N=6)	3 (50.0)	3 (50.0)	0 (0)	0 (0)
Received oral sex (N=6)	2 (33.3)	3 (50.0)	0 (0)	1 (16.7)
Vaginal-vaginal sex (N=5)	2 (40.0)	3 (60.0)	0 (0)	0 (0)
Shared sex toy (N=6)	2 (33.3)	4 (50.0)	0 (0)	0 (0)
Partner gave money in exchange for sex (N=6)	2 (33.3)	4 (66.7)	0 (0)	0 (0)
Partner gave drugs in exchange for sex (N=6)	4 (66.7)	2 (33.3)	0 (0)	0 (0)
Partner gave other goods or services in exchange for sex (N=5)	3 (60.0)	2 (40.0)	0 (0)	0 (0)
Discussed HIV (N=6)	3 (50.0)	2 (33.3)	1 (16.7)	0 (0)
Discussed syphilis (N=6)	3 (50.0)	2 (33.3)	1 (16.7)	0 (0)
Discussed STI (N=6)	3 (50.0)	2 (33.3)	1 (16.7)	0 (0)
Sex Worker				
Gave oral sex (N=2)	0 (0)	1 (50.0)	1 (50.0)	0 (0)
Received oral sex (N=2)	0 (0)	2 (100.0)	0 (0)	0 (0)
Vaginal-vaginal sex (N=2)	2 (100.0)	0 (0)	0 (0)	0 (0)
Shared sex-toy (N=2)	1 (50.0)	1 (50.0)	0 (0)	0 (0)
Gave partner money in exchange for sex (N=2)	1 (50.0)	1 (50.0)	0 (0)	0 (0)
Gave partner drugs in exchange for sex (N=2)	1 (50.0)	1 (50.0)	0 (0)	0 (0)
Gave partner other goods or services in exchange for sex (N=2)	1 (50.0)	1 (50.0)	0 (0)	0 (0)
Discussed HIV (N=2)	1 (50.0)	1 (50.0)	0 (0)	0 (0)
Discussed syphilis (N=2)	1 (50.0)	0 (0)	1 (50.0)	0 (0)
Discussed STI (N=2)	1 (50.0)	0 (0)	1 (50.0)	0 (0)

*Percentages are calculated using the number of respondents as the denominator

Table 40: WSW condom/barrier use by sexual behaviour and female partner type

Partner type (N=Number of Respondents)*	Never (0%)	Rarely (<25%)	Sometimes (25-49%)	Most of the time (50-74%)	Almost every time (75-99%)	All the time (100%)
HIV-positive						
Used barrier for giving oral sex (N=3)	3 (100.0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Used barrier for vaginal-vaginal sex (N=1)	1 (100.0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
HIV Unknown						
Used barrier for giving oral sex (N=10)	9 (90.0)	0 (0)	1 (10.0)	0 (0)	0 (0)	0
Used barrier for vaginal-vaginal sex (N=7)	7 (100.0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
HIV Negative						
Used barrier for giving oral sex (N=15)	10 (66.7)	0 (0)	2 (13.3)	0 (0)	0 (0)	3 (20.0)
Used barrier for vaginal-vaginal sex (N=10)	7 (70.0)	0 (0)	1 (10.0)	0 (0)	0 (0)	2 (20.0)
Casual						
Used barrier for vaginal-vaginal sex (N=12)	9 (75.0)	0 (0)	1 (8.3)	0 (0)	0 (0)	2 (16.7)
Used barrier for sharing sex-toy (N=5)	3 (60.0)	0 (0)	2 (40.0)	0 (0)	0 (0)	0 (0)
Cleaned sex toy before sharing it (N=5)	2 (40.0)	0 (0)	1 (20.0)	0 (0)	0 (0)	2 (40.0)
Used barrier for giving oral sex (N=15/17)	11 (73.3)	0 (0)	2 (13.3)	0 (0)	0 (0)	2 (13.3)
Regular						
Used barrier for vaginal-vaginal sex (N=177)	11 (64.7)	0 (0)	3 (17.6)	0 (0)	0 (0)	3 (17.6)
Used barrier for sharing sex-toy (N=10)	4 (40.0)	0 (0)	3 (30.0)	0 (0)	0 (0)	3 (30.0)
Cleaned sex toy before sharing it (N=10)	4 (40.0)	0 (0)	1 (10.0)	0 (0)	1 (10.0)	4 (40.0)
Used barrier for giving oral sex (N=190)	15 (78.9)	0 (0)	1 (5.3)	0 (0)	0 (0)	3 (15.8)
Client						
Used barrier for vaginal-vaginal sex (N=3)	2 (66.7)	0 (0)	1 (33.3)	0 (0)	0 (0)	0 (0)
Used barrier for sharing sex-toy (N=3)	1 (33.3)	0 (0)	2 (66.7)	0 (0)	0 (0)	0 (0)
Cleaned sex-toy before sharing it (N=3)	0 (0)	0 (0)	1 (33.3)	1 (33.3)	0 (0)	1 (33.3)
Used barrier for giving oral sex (N=0)	.	.	.	.	.	.
Used barrier for receiving oral sex (N=3)	2 (66.7)	1 (33.3)	0 (0)	0 (0)	0 (0)	0 (0)
Sex Worker						
Used barrier for vaginal-vaginal sex (N=2)	1 (50.0)	0 (0)	1 (50.0)	0 (0)	0 (0)	0 (0)

Used barrier for giving oral sex (N=1)	1 (100.0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Used barrier for receiving oral sex (N=2)	1 (50.0)	0 (0)	1 (50.0)	0 (0)	0 (0)	0 (0)
Used barrier for sharing sex-toy (N=1)	0 (0)	0 (0)	1 (100.0)	0 (0)	0 (0)	0 (0)
Cleaned sex-toy before sharing it (N=1)	0 (0)	0 (0)	1 (100.0)	0 (0)	0 (0)	0 (0)

*Percentages are calculated using the number of respondents as the denominator

Table 41: WSW drug use before sex with a male partner*

Drug* (N=Number of Respondents)†	Never: 0% (%)	Less than half the time: 1-49% (%)	More than half the time: 50-100% (%)
Alcohol (N=36)	8 (22.2)	13 (36.1)	15 (41.7)
Marijuana (N=30)	11 (36.7)	8 (26.7)	11 (36.7)
Poppers (N=21)	18 (85.7)	2 (9.5)	1 (4.8)
Special K/Ketamine (N=18)	18 (100.0)	0 (0)	0 (0)
Ecstasy (N=19)	16 (84.2)	3 (15.8)	0 (0)
Crystal meth (N=18)	18 (100.0)	0 (0)	0 (0)
Other speed/amphetamines/stimulants (N=18)	18 (100.0)	0 (0)	0 (0)
Viagra, Cialis, or other erectile drugs (N=18)	18 (100.0)	0 (0)	0 (0)
Cocaine/crack/free base (N=31)	9 (29.0)	10 (32.3)	12 (38.7)
Heroin (N=18)	18 (100.0)	0 (0)	0 (0)
Other opiates (Percocet, Dilaudid, Oxycontin) (N=18)	18 (100.0)	0 (0)	0 (0)
GHB (N=17)	17 (100.0)	0 (0)	0 (0)
Psychedelics (LSD/acid, mescaline, mushrooms) (N=18)	17 (94.4)	0 (0)	1 (5.6)
Tranquilizers or Benzodiazepines (Valium, Ritrovil) (N=22)	16 (72.7)	3 (13.6)	3 (13.6)
Other 1 (N=22)	19 (86.4)	1 (4.5)	2 (9.1)
Other 2 (N=2)	2 (100.0)	0 (0)	0 (0)

*There was no Refused option for this question.

†Percentages are calculated using the number of respondents as the denominator

Table 42: WSW number of male sex partners by partner type

Male partner type (N=Number of Respondents)*	Number (%)
General (N=39)	
None	3 (6.0)
Only one	17 (43.6)
2 to 5	8 (20.5)
6 to 9	3 (7.7)
10 to 19	0 (0)
20 to 29	3 (7.7)
30 to 39	1 (2.6)
40 to 49	0 (0)
50 or more	2 (5.1)
Don't know	2 (5.1)
Refused	0 (0)
Casual (N=34)	
None	20 (58.8)
Only 1	5 (14.7)
2 to 5	5 (14.7)
6 to 9	2 (5.9)
10 to 19	1 (2.9)
20 to 29	1 (2.9)
30 to 39	0 (0)
40 to 49	0 (0)
50 or more	0 (0)
Don't know	0 (0)
Regular (N=34)	
None	7 (20.6)
Only 1	23 (67.6)
2 to 5	4 (11.8)
6 or more	0 (0)
Client (N=32)	
None	14 (43.8)
Only 1	3 (9.4)
2 to 5	5 (15.6)
6 or more	7 (21.9)
Don't know	3 (9.4)
Sex Worker (N=33)	
None	30 (90.9)
Only 1	1 (3.0)
2 to 5	0 (0)
6 or more	0 (0)
Don't know	2 (6.1)

*Percentages are calculated using the number of respondents as the denominator

Table 43: WSW behaviour with male sex partners

Variable (N=Number of Respondents)*	No (%)	Yes (%)	Unsure (%)	Refused (%)
Oral or anal sex with new male partner met while traveling outside Manitoba (N=34)	31 (91.2)	3 (8.8)	0 (0)	0 (0)
Unprotected oral, anal, or vaginal sex with new male partner met while traveling outside Manitoba (N=3)	2 (66.7)	1 (33.3)	0 (0)	0 (0)
Oral or anal sex with new male partner met while traveling outside Canada (N=34)	34 (100.0)	0 (0)	0 (0)	0 (0)
Unprotected oral, anal, or vaginal sex with new male partner met while traveling outside Canada (N=0)	.	.	.	.
Oral or anal sex with new male partner who was traveling in, but not a resident of, Manitoba (N=3)	27 (81.8)	3 (9.1)	2 (6.1)	1 (3.0)
Unprotected oral, anal, or vaginal sex with new male partner who was traveling in, but not a resident of, Manitoba (N=3)	3 (100.0)	0 (0)	0 (0)	0 (0)
Anal sex with a male partner (N=34)	21 (61.8)	12 (35.3)	0 (0)	1 (2.9)
Unprotected anal sex with ≥ 1 male partner (N=12)	2 (16.7)	10 (83.3)	0 (0)	0 (0)
Unprotected anal sex, ≥ 1 male partner, HIV positive (N=9)	8 (88.9)	1 (11.1)	0 (0)	0 (0)
Unprotected anal sex, ≥ 1 male partner, HIV status unknown (N=7)	3 (42.9)	4 (57.1)	0 (0)	0 (0)
Unprotected anal sex, ≥ 1 male partner, HIV negative (N=8)	4 (50.0)	2 (25.0)	2 (25.0)	0 (0)
Used condom for last anal sex (N=9)	8 (88.9)	1 (11.1)	0 (0)	0 (0)

*Percentages are calculated using the number of respondents as the denominator

Table 44: WSW sexual behaviour by male partner type

Partner Type (N=Number of Respondents)*	No (%)	Yes (%)	Unsure (%)	Refused (%)
Casual Male Partners (N=14)				
Anal sex, any casual partner (N=5/5)	2 (40.0)	3 (60.0)	0 (0)	0 (0)
Unprotected anal sex, any casual partner (N=3)	2	1 (33.3)	0 (0)	0 (0)
Unprotected anal sex, casual partner HIV positive (N=1)	1 (100.0)	0 (0)	0 (0)	0 (0)
Unprotected anal sex, cas. ptnr HIV status unknown (N=2)	2 (100.0)	0 (0)	0 (0)	0 (0)
Unprotected anal sex, cas.ptnr HIV negative (N=2)	1 (50.0)	1 (50.0)	0 (0)	0 (0)
Vaginal sex, any casual partner (N=14)	1 (7.1)	12 (85.7)	0 (0)	1 (7.1)
Gave oral sex, any casual partner (N=8)	2 (25.0)	6 (75.0)	0 (0)	0 (0)
Partner came in mouth without a condom (N=6)	4 (66.7)	2 (33.3)	0 (0)	0 (0)
Discussed HIV (N=13)	9 (69.2)	4 (30.8)	0 (0)	0 (0)
Discussed syphilis (N=13)	10 (76.9)	3 (23.1)	0 (0)	0 (0)
Discussed other STI (N=13)	10 (76.9)	3 (23.1)	0 (0)	0 (0)
Regular Male Partners (N=27)				
Sex, partner HIV positive (N=25)	25 (100.0)	0 (0)	0 (0)	0 (0)
Vaginal sex, partner HIV positive (N=0)	.	.	.	.
Anal sex, partner HIV positive (N=0)	.	.	.	.
Sex, partner HIV status unknown (N=26)	18 (69.2)	6 (23.1)	1 (3.8)	1 (3.8)
Vaginal sex, partner HIV status unknown (N=6)	0 (0)	6 (100.0)	0 (0)	0 (0)
Anal sex, partner HIV status unknown (N=4)	0 (0)	4 (100.0)	0 (0)	0 (0)
Sex, partner HIV negative (N=25)	6 (24.0)	18 (72.0)	1 (4.0)	0 (0)
Vaginal sex, partner HIV negative (N=19)	0 (0)	18 (94.7)	1 (5.3)	0 (0)
Anal sex, partner HIV negative (N=5)	0 (0)	5 (0)	0 (0)	0 (0)
Gave oral sex to regular partner(N=s) (N=27)	6 (22.2)	20 (74.1)	0 (0)	1 (3.7)
Partner came in mouth (N=20)	7 (35.0)	13 (65.0)	0 (0)	0 (0)
Discussed HIV (N=27)	7 (25.9)	20 (74.1)	0 (0)	0 (0)
Discussed syphilis (N=24)	12 (50.0)	12 (50.0)	0 (0)	0 (0)
Discussed other STI (N=25)	11 (44.0)	14 (56.0)	0 (0)	0 (0)
Had sex with other partners while maintaining regular partner (N=concurrency) (N=25)	11 (44.0)	14 (56.0)	0 (0)	0 (0)
Client Male Partners (N=15)				
Vaginal sex (N=15)	6 (40.0)	9 (60.0)	0 (0)	0 (0)
Anal sex (N=6)	6 (100.0)	0 (0)	0 (0)	0 (0)
Partner gave money in exchange for sex (N=15)	0 (0)	15 (100.0)	0 (0)	0 (0)
Partner gave drugs in exchange for sex (N=15)	6 (40.0)	9 (60.0)	0 (0)	0 (0)
Partner gave other goods or services in exchange for sex (N=15)	9 (60.0)	6 (40.0)	0 (0)	0 (0)
Discussed HIV (N=15/15)	15 (100.0)	0 (0)	0 (0)	0 (0)
Discussed syphilis (N=14/15)	13 (92.9)	1 (7.1)	0 (0)	0 (0)
Discussed other STI (N=15/15)	14 (93.3)	1 (6.7)	0 (0)	0 (0)
Sex Worker Male Partners (N=1)				
Vaginal sex (N=1)	0 (0)	1 (100.0)	0 (0)	0 (0)
Anal sex (N=1)	1 (100.0)	0 (0)	0 (0)	0 (0)
Received oral sex (N=1)	0 (0)	1 (100.0)	0 (0)	0 (0)
Discussed HIV (N=1)	1 (100.0)	0 (0)	0 (0)	0 (0)
Discussed syphilis (N=1)	1 (100.0)	0 (0)	0 (0)	0 (0)
Discussed other STI (N=1)	0 (0)	1 (100.0)	0 (0)	0 (0)

*Percentages are calculated using the number of respondents as the denominator

Table 45: WSW condom use by sexual behaviour and male partner type

Partner type (N=Number of Respondents)*	Never 0%	Rarely <25%	Sometimes 25-49%	Most of the time 50-74%	Almost every time 75-99%	All the time: 100%
Casual Male						
Used condom for anal sex (N=3)	1 (33.3)	0 (0)	0 (0)	0 (0)	1 (33.3)	1 (33.3)
Used condom for vaginal sex (N=11)	3 (27.3)	0 (0)	0 (0)	0 (0)	1 (9.1)	7 (63.6)
Used condom for giving oral sex (N=6)	2 (33.3)	0	2 (33.3)	1 (16.7)	0 (0)	1 (16.7)
Frequency partner came in mouth without a condom (N=2)	0 (0)	1 (50.0)	1 (50.0)	0 (0)	0 (0)	0 (0)
Regular Male						
Used condom for vaginal sex, partner HIV positive (N=0)	.	.	.	.	.	.
Used condom for anal sex, partner HIV positive (N=0)	.	.	.	.	.	.
Used condom for vaginal sex, partner HIV status unknown (N=6)	2 (33.3)	0 (0)	2 (33.3)	1 (16.7)	0 (0)	1 (16.7)
Used condom for anal sex, partner HIV status unknown (N=4)	0 (0)	0 (0)	3 (75.0)	0 (0)	0 (0)	1 (25.0)
Used condom for vaginal sex, partner HIV negative (N=18)	13 (72.2)	0 (0)	1 (5.6)	0 (0)	0 (0)	4 (22.2)
Used condom for anal sex, partner HIV negative (N=5)	3 (60.0)	0 (0)	2 (40.0)	0 (0)	0 (0)	0 (0)
Used condom for giving oral sex (N=19)	14 (73.7)	0 (0)	3 (15.8)	1 (5.3)	0 (0)	1 (5.3)
Partner came in mouth without a condom (N=13)	2 (15.4)	1 (7.7)	8 (61.5)	0 (0)	0 (0)	2 (15.4)
Client Male						
Used condom for vaginal sex (N=8/9)	1 (12.5)	1 (12.5)	1 (12.5)	0 (0)	1 (12.5)	4 (50.0)
Used condom for anal sex (N=0)	.	.	.	.	.	.
Sex Worker Male						
Used barrier for receiving oral sex (N=1)	1 (100.0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Used condom for vaginal sex (N=1)	1 (100.0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Used condom for anal sex (N=0)	.	.	.	.	.	.

*Percentages are calculated using the number of respondents as the denominator

Table 46: WSW self-reported testing for BBP/STI

BBP/STI (N=Number of Respondents)*	Never Tested	Tested in past 2 years	I don't know	Refused
Gonorrhea (N=36)	3 (8.3)	14 (38.9)	1 (2.8)	2 (5.6)
Chlamydia (N=36)	3 (8.3)	14 (38.9)	1 (2.8)	2 (5.6)
Genital or anal warts (N=34)	20 (58.8)	5 (14.7)	2 (5.9)	2 (5.9)
Syphilis (N=36)	8 (22.2)	10 (27.8)	4 (11.1)	2 (5.6)
Genital Herpes (N=34)	18 (52.9)	5 (14.7)	4 (11.8)	2 (5.9)
HIV (N=37)	5 (17.2)	15 (40.5)	0 (0.0)	1 (2.7)
Hepatitis A (N=29)	6 (20.7)	7 (24.1)	2 (6.9)	1 (3.4)
Hepatitis B (N=30)	5 (16.7)	9 (30.0)	1 (3.3)	1 (3.3)
Hepatitis C (N=30)	3 (10.0)	9 (30.0)	1 (3.3)	1 (3.3)
Hepatitis unknown (N=14)	8 (57.1)	0 (0)	1 (7.1)	2 (14.3)
Other STI (N=11)	6 (54.5)	0 (0)	1 (9.1)	1 (9.1)

*Percentages are calculated using the number of respondents as the denominator

Table 47: WSW self-reported diagnoses of BBP and STI

BBP/STI (N=Number of Respondents)*	No (%)	Yes, in the past 6 months (%)	Yes, between 6 and 12 months ago (%)	Yes, more than 12 months ago (%)
Gonorrhea (N=40)	25 (62.5)	0 (0)	0 (0)	15 (37.5)
Chlamydia (N=40)	24 (60.0)	0 (0)	0 (0)	16 (40.0)
Genital or anal warts (N=33)	32 (97.0)	0 (0)	0 (0)	1 (3.0)
Syphilis (N=34)	33 (97.1)	0 (0)	0 (0)	1 (2.9)
Genital Herpes (N=33)	32 (97.0)	0 (0)	0 (0)	1 (3.0)
HIV (N=35)	28 (80.0)	1 (2.9)	0 (0)	6 (17.1)
Hepatitis A (N=30)	27 (90.0)	0 (0)	1 (3.3)	2 (6.7)
Hepatitis B (N=29)	27 (93.1)	0 (0)	0 (0)	2 (6.9)
Hepatitis C (N=38)	18 (47.4)	1 (2.6)	1 (2.6)	18 (47.4)
Hepatitis unknown (N=25)	25 (100.0)	0 (0)	0 (0)	0 (0)
I had a disease but I forget the name (N=27)	25 (92.6)	0 (0)	1 (3.7)	1 (3.7)
Other STI/STD (N=22)	21 (95.5)	0 (0)	0 (0)	1 (4.5)

*Percentages are calculated using the number of respondents as the denominator

Table 48: WSW Laboratory results by self-reported diagnosis/most recent test result

	What was the result of your most recent HIV test?			
Laboratory result	I did not receive the result	I do not know	I was HIV-negative	I was HIV-positive
HIV negative (N=34)	1	0	24	1
HIV positive (N=6)	0	0	2	3
	What was the result of your most recent hepatitis C test?			
	I did not receive the result	I do not know	I was HCV-negative	I was HCV-positive
HCV negative (N=23)	0	2	14	2
HCV positive (N=17)	0	0	3	13
	Have you ever been told by a doctor you have (HIV)?			
	No	Yes, past 6 months	Yes, 6-12 months ago	Yes, >12 months ago
HIV negative (N=34)	22	0	0	0
HIV positive (N=6)	1	1	0	2
	Have you ever been told by a doctor you have (HCV)?			
	No	Yes, past 6 months	Yes, 6-12 months ago	Yes, >12 months ago
HCV negative (N=23)	11	0	0	3
HCV positive (N=17)	3	1	1	11
	Have you ever been told by a doctor you have (syphilis)?			
	No	Yes, past 6 months	Yes, 6-12 months ago	Yes, >12 months ago
Syphilis negative (N=38)	26	0	0	1
Syphilis positive (N=1)	1	0	0	0

Table 49: WSW reasons for seeking diagnostic testing for BBP and STI

BBP/STI and Reason Tested	Yes (%)*
HIV	
I had symptoms that made me worry	2 (4.0)
My doctor/nurse suggested it	8 (16.0)
It is part of my regular testing pattern	16 (32.0)
A sex partner had HIV	5 (10.0)
I was being tested for syphilis	6 (12.0)
I was being tested for other STI	8 (16.0)
I did something that put me at risk	9 (18.0)
I saw an ad/poster/article about HIV	1 (2.0)
I was notified by public health that I could have been exposed	1 (2.0)
Other	11 (22.0)
Syphilis	
I had symptoms that made me worry	2 (4.0)
My doctor/nurse suggested it	10 (20.0)
It is part of my regular testing pattern	13 (26.0)
A sex partner had syphilis	1 (2.0)
I was being tested for HIV	5 (10.0)
I did something that put me at risk	6 (12.0)
I saw an ad/poster/article about syphilis	5 (10.0)
I was notified by public health that I could have been exposed	1 (2.0)
Other	7 (14.0)
Gonorrhea or chlamydia	
I had symptoms that made me worry	11 (22.0)
My doctor/nurse suggested it	7 (14.0)
It is part of my regular testing pattern	15 (30.0)
A sex partner had an STI	6 (12.0)
I was being tested for HIV	4 (8.0)
I did something that put me at risk	12 (12.0)
I saw an ad/poster/article about STIs	0 (0)
I was notified by public health that I could have been exposed	2 (4.0)
Other	6 (12.0)

* The section on reasons tested asked participants to 'check all that apply'; all percentages are calculated using the total number of participants as the denominator (50)

Table 50: WSW reasons for not testing for BBP and STI

BBP/STI and Reason Not Tested	Yes (%)*
Syphilis	
I have not had any symptoms	2 (4.0)
I am not at risk for getting syphilis	0 (0)
I never thought about it	8 (16.0)
I do not want to know	0 (0)
If I tested positive, nothing can be done	1 (2.0)
I do not want my sexual partners contacted	0 (0)
I am worried about the impact on my sex life	0 (0)
I know that I have never had sex with an infected person	0 (0)
If I tested positive, I do not want to get the treatment for syphilis	0 (0)
I do not know where to get the test	1 (2.0)
I do not want my sexual partners contacted	0 (0)
Other	6 (12.0)
Gonorrhea or chlamydia	
I have not had any symptoms	1 (2.0)
I am not at risk for getting STIs	1 (2.0)
I never thought about it	2 (4.0)
I do not want to know	2 (4.0)
If I tested positive, nothing can be done	0 (0)
I am worried about the impact on my sex life	2 (4.0)
I know that I have never had sex with an infected person	0 (0)
I do not know where to get the test	0 (0)
I do not want my sexual partners contacted	1 (2.0)
Other	4 (8.0)
HIV	
I am at low risk for HIV infection	2 (4.0)
I am afraid of needles	1 (2.0)
I don't think I can get HIV	0 (0)
I think I am HIV-negative	2 (4.0)
I never thought about it	1 (2.0)
I don't think the test is always right	0 (0)
I am healthy so I don't need to be tested	0 (0)
I do not know where to get the test	0 (0)
I am worried about being discriminated against	1 (2.0)
It could affect my relationships	1 (2.0)
Doesn't matter if I'm infected because of my age	0 (0)
Because anonymous testing is not available	0 (0)
My doctor did not offer the test	1 (2.0)
f I tested positive, nothing can be done	1 (2.0)
I do not want to know	1 (2.0)
I think I am HIV-positive	0 (0)
I always have safer sex	0 (0)
I am worried about the impact on my sex life	1 (2.0)
I did not have sex with an infected person	1 (2.0)
I could not deal with knowing I was infected	2 (4.0)
I am afraid of having my name reported	0 (0)
It could affect my career or insurance	0 (0)

BBP/STI and Reason Not Tested	Yes (%)*
I want to be tested, just haven't done it yet	1 (2.0)
I don't have a doctor	1 (2.0)
I have asked, but my doctor has refused	0 (0)
I don't want my partner's name reported	0 (0)
Other	14 (28.0)

* The section on reasons not tested asked participants to 'check all that apply'; all percentages are calculated using the total number of participants as the denominator (121)

Table 51: WSW knowledge and opinions about BBP and STI

Knowledge/opinion statement (N=Number of Respondents)*	No (%)	Yes (%)	Don't know (%)	Refused (%)
People can protect themselves from HIV, the virus that causes AIDS, by using a condom correctly every time they have anal sex (N=47)	8 (17.0)	31 (66.0)	6 (12.8)	2 (4.3)
Having sex with only one faithful, uninfected partner can reduce the risk of HIV transmission (N=47)	15 (31.9)	28 (59.6)	3 (6.4)	1 (2.1)
A healthy-looking person can have HIV (N=47)	2 (4.3)	43 (91.5)	1 (2.1)	1 (2.1)
Syphilis can be transmitted through unprotected oral sex (N=47)	2 (4.3)	32 (68.1)	12 (25.5)	1 (2.1)
I would always have symptoms if I contracted a sexually transmitted infection (STI) (N=47)	29 (61.7)	12 (25.5)	5 (10.6)	1 (2.1)
I would always have symptoms if I was infected with hepatitis C (N=46)	31 (67.4)	10 (21.7)	4 (8.7)	1 (2.2)
There is treatment currently available for hepatitis C (N=46)	3 (6.4)	34 (72.3)	9 (19.1)	1 (2.1)
To the best of your knowledge, can syphilis be transmitted the following ways:				
Through giving oral sex (sucking) (N=44)	3 (6.8)	21 (47.7)	20 (45.5)	0 (0)
Through receiving oral sex (being sucked) (N=44)	3 (6.8)	17(38.6)	24 (54.5)	0 (0)
Through oral-anal sex (rimming) (N=44)	1 (2.3)	19 (43.2)	24 (54.5)	0 (0)
Through receptive anal sex without a condom (N=44)	0 (0)	25 (56.8)	19 (43.2)	0 (0)
Through insertive anal sex without a condom (N=44)	0 (0)	26 (59.1)	18 (40.9)	0 (0)
Through vaginal sex without a condom (N=44)	0 (0)	29 (65.9)	15 (34.1)	0 (0)

*Percentages are calculated using the number of respondents as the denominator

Appendix 1: M-Track core and site-specific questionnaire items and data entry fields

Origin	Questionnaire item (abbreviated) or data entry field
Core	001-Site where Interview took place (city name)
Core	002-Date of interview:
Core	003-Questionnaire Number
Core	004-Encrypted Survey ID Number
Core	005-Phase Number
Core	006-Interviewer:
Site	007-Type of recruitment:
Site	008-Poster location.
Core	009-Time questionnaire started: (hh:mm)
Core	010-Time questionnaire ended: (hh:mm)
Site	011-If RDS: Coupon receipt # :
Site	012-Coupon # number provided to participant:
Core	013-Location of interview:
Core	014-In what year were you born? 1 9
Core	015-Do you live in Winnipeg?
Core	016-Refused for Year of birth
Core	017-Where do you live?
Core	018-What are the first three characters of your postal code?
Core	019-3 character postal Code Refused
Core	020-What is the language you first learned and still understand?
Core	021-Please specify [language you first learned and still understand]
Core	022-Which Ethnic or Cultural Group [ancestors belong]
Core	023-Which Ethnic or Cultural Group [ancestors belong]
Recode	024-Aboriginal ancestry
Core	025-Which Ethnic or Cultural Group [ancestors belong]
Core	026-Which Ethnic or Cultural Group [ancestors belong]
Core	027-Which Ethnic or Cultural Group [ancestors belong]
Core	028-Ethnic or cultural group most identified Please Specify:
Recode	029-Aboriginal Identity
Core	030-Most ethnic or cultural group [refused]
Core	031-What is the highest level of education that you have completed?
Core	032-Last year, what was your personal income from all sources, before taxes?
Core	033-How do you define yourself [sexual orientation]
Core	034-please specify [sexual orientation]
Site	035-How many gay, lesbian, bisexual, or two-spirited people do you know?
Core	036-What is your current marital status?
Site	037-I have not accessed health services in the last year*
Site	038-Doctor
Site	039-Primary care nurse (in doctor's office or clinic)
Site	040-Public Health nurse
Site	041-Emergency room nurse
Site	042-Walk-in clinic
Site	043-Community Health Centre: If "Yes"...please specify below:
Site	044-Nine Circles CHC

Origin	Questionnaire item (abbreviated) or data entry field
Site	045-Mount Carmel Clinic
Site	046-Aboriginal Health and Wellness Centre
Site	047-Centre de Sante St. Boniface
Site	048-Health Action Centre
Site	049-Hope Centre
Site	050-Nor' West CHC
Site	051-Women's Health Clinic
Site	052-Youville clinic
Site	053-WRHA Health Access Centre: River East
Site	054-WRHA Health Access Centre: 601 Aikins
Core	055-SEX_IN_GAYBAR_CAT [places looked for sex binary]
Core	056-SEX_IN_STBAR_CAT [places looked for sex binary]
Core	057-SEX_IN_RAVE_CAT [places looked for sex binary]
Core	058-SEX_IN_CLUBS_CAT [places looked for sex binary]
Core	059-SEX_IN_SAUNA_CAT [places looked for sex binary]
Core	060-SEX_IN_SEXPARTIES_CAT [places looked for sex binary]
Core	061-SEX_IN_PARKS_CAT [places looked for sex binary]
Core	062-SEX_IN_BATHRM [places looked for sex binary]
Core	063-SEX_IN_PATHS [places looked for sex binary]
Core	064-SEX_IN_COFFEE_CAT [places looked for sex binary]
Core	065-SEX_IN_INTERNET_CAT [places looked for sex binary]
Core	066-SEX_IN_COMMUNITY [places looked for sex binary]
Core	067-SEX_IN_GAYASSOC [places looked for sex binary]
Core	068-SEX_IN_RECREATION [places looked for sex binary]
Core	069-SEX_IN_TELEPHONE [places looked for sex binary]
Core	070-SEX_IN_EVENTS [places looked for sex binary]
Core	071-SEX_IN_ADS [places looked for sex binary]
Core	072-SEX_IN_GYM [places looked for sex binary]
Core	073-SEX_IN_OTHER1 [places looked for sex binary]
Core	074-SEX_IN_OTHER2 [places looked for sex binary]
Core	075-Gay bars [places looked for sex frequency]
Core	076-Straight bars [places looked for sex frequency]
Core	077-Rave/circuit parties [places looked for sex frequency]
Core	078-After-hours clubs/parties [places looked for sex frequency]
Core	079-Saunas/baths [places looked for sex frequency]
Core	080-Sex parties [places looked for sex frequency]
Core	081-Parks [places looked for sex frequency]
Core	082-Public restrooms [places looked for sex frequency]
Core	083-Bicycle paths [places looked for sex frequency]
Core	084-Coffee shops [places looked for sex frequency]
Core	085-Internet (chat rooms/personal ads) [places looked for sex frequency]
Core	086-Community organizations [places looked for sex frequency]
Core	087-Gay associations [places looked for sex frequency]
Core	088-Recreational groups [places looked for sex frequency]
Core	089-Telephone chat line [places looked for sex frequency]
Core	090-Community events for gays and lesbians [places looked for sex frequency]
Core	091-Personal ads [places looked for sex frequency]
Core	092-Gym/Health Club [places looked for sex frequency]
Core	093-Other 1 [places looked for sex]

Origin	Questionnaire item (abbreviated) or data entry field
Core	094-Other 2 [places looked for sex]
Core	095-Steroids [drugs injected]
Core	096-Heroin [drugs injected]
Core	097-Cocaine [drugs injected]
Core	098-Crystal meth [drugs injected]
Core	099-Talwin and Ritalin [drugs injected]
Core	100-Injected Talwin and Ritalin [drugs injected]
Core	101-Crack/rock cocaine [drugs injected]
Core	102-Morphine [drugs injected]
Core	103-Oxycontin [drugs injected]
Core	104-Other opiates (Percocet, Dilaudid) [drugs injected]
Core	105-Special K/ketamine [drugs injected]
Core	106-Ecstasy [drugs injected]
Core	107-Barbiturates [drugs injected]
Core	108-Other amphetamines or stimulants [drugs injected]
Core	109-Other 3 [other drugs injected]
Core	110-Other 1 [other drugs injected]
Core	111-Other 2 [other drugs injected]
Recode	112-Ever injected
Site	113-Alcohol [non-injection drugs]
Site	114-Marijuana [non-injection drugs]
Site	115-Poppers [non-injection drugs]
Site	116-Special K/Ketamine [non-injection drugs]
Site	117-Ecstasy [non-injection drugs]
Site	118-Crystal Meth (speed, crank, Tina) [non-injection drugs]
Site	119-Other speed/amphetamines/ stimulants [non-injection drugs]
Site	120-Viagra, Levitra, Cialis,or other erectile drugs [non-injection drugs]
Site	121-Cocaine/crack/free base [non-injection drugs]
Site	122-Oxycontin [non-injection drugs]
Site	123-Heroin (smack) [non-injection drugs]
Site	124-Morphine [non-injection drugs]
Site	125-Other opiates (Percocet, Dilaudid) [non-injection drugs]
Site	126-GHB ("G") [non-injection drugs]
Site	127-LSD (acid)/ mescaline [non-injection drugs]
Site	128-Tranquilizers (Valium, Ritrovil) [non-injection drugs]
Site	129-Barbiturates [non-injection drugs]
Site	130-Mushrooms [non-injection drugs]
Site	131-Other [non-injection drugs]
Site	132-Gas/Solvents [non-injection drugs]
Core	133-Alcohol [before sex with male]
Core	134-Marijuana/ hash/pot/grass [before sex with male]
Core	135-Poppers [before sex with male]
Core	136-Special K/Ketamine [before sex with male]
Core	137-Ecstasy/MDMA [before sex with male]
Core	138-Crystal Meth [before sex with male]
Core	139-Other amphetamines/ stimulants [before sex with male]
Core	140-Viagra, Levitra, Cialis, or other erectile drugs [before sex with male]
Core	141-Cocaine/crack/free base [before sex with male]
Core	142-Heroin (smack) [before sex with male]

Origin	Questionnaire item (abbreviated) or data entry field
Core	143-Other opioids(Percocet,Dilaudid,Oxycontin) [before sex with male]
Core	144-GHB ("G") [before sex with male]
Core	145-Psychedelics(LSD,acid,mescaline,mushrooms) [before sex with male]
Core	146-Other 2 [other non-injection drugs]
Core	147-Tranquilizers or Benzos (Valium, Ritrovil)
Core	148-Other 1 [other non-injection drugs]
Site	149-<6 hour visit to the emergency room
Site	150-6-24 hour visit to emergency room
Site	151-Admitted to hospital (24 hours)
Site	152-Jail (correctional facility) If "Yes" please specify below:
Site	153-Remand Centre
Site	154-MB Youth Centre
Site	155-Headingley Correctional Centre
Site	156-Agassiz Youth Centre
Site	157-Portage Correctional Centre
Site	158-Brandon Correctional Centre
Site	159-The Pas Correctional Centre
Site	160-Dauphin Correctional Centre
Site	161-Milner Ridge Correctional Centre
Site	162-Stony Mountain Institution
Site	163-Rockwood Institution
Site	164-Hospital - - If "Yes", please specify below:
Site	165-Received testing research study
Site	166-Canadian Blood Services donation
Site	167-Needle exchange program
Site	168-As part of addictions treatment program
Site	169-Other [other places received medical attention]
Site	170-Please specify [other places received medical attention]
Site	171-Other Please specify [other places received medical attention]
Site	172-Unsure Refused Not stated [places received medical attention]
Site	173-Do you have a doctor (or a nurse) that you consider your family doctor (primary care provider)?
Site	174-Does (s)he know your sexual orientation?
Site	175-Has your primary care provider ever asked you about any new sex partners?
Site	176-Has your primary care provider ever discussed safer sex methods with you?
Core	177-Other 1 Specify:[places looked for sex]
Core	178-Other 2 Specify: [places looked for sex]
Core	179-Other 1 Specify: [other drugs injected]
Core	180-Other 2 Specify: [other drugs injected]
Core	181-Other 3 Specify: [other drugs injected]
Core	182-One drug you use most frequently [injected]
Site	183-Specify: [other non-injection drugs]
Site	184-One Drug used most frequently [non-injection]
Core	185-Other 1 Specify:[other drugs used before sex]
Core	186-Other 2 Specify:[other drugs used before sex]
Core	187-During the past 6 months, with how many men have you had sex? (oral or anal)
Core	188-During the past 6 months, have you had anal sex with a man?
Core	189-If Yes: a) During the past 6 months, with how many men have you had anal sex?
Core	190-b) During the past 6 months, have you had unprotected anal sex (no condom) with at least one man?
Core	191-c) Who you knew at the time was HIV positive?

Origin	Questionnaire item (abbreviated) or data entry field
Core	192-d) Whose HIV status you did not know at the time?
Core	193-e) Who you knew at the time was HIV negative?
Core	194-f) The last time you had anal sex with a man in the past 6 months did you or your partner use a condom?
Core	195-...have you had sex ... with a new male partner you met while traveling outside of MB, but in CAN?
Core	196-a) If yes, did you have unprotected anal sex at least once with this or these partner(s)?
Core	197-...have you had sex ... with a new male partner you met while traveling outside of CAN?
Core	198-a) If yes, did you have unprotected anal sex at least once with this or these partner(s)?
Core	199-...have you had sex ... with a new male partner who was traveling in MB, but not a resident of the province?
Core	200-a) If yes, did you have unprotected anal sex at least once with this or these partner(s)?
Core	201-During the past 6 months, with how many CASUAL MALE partners have you had sex (oral or anal)?
Core	202-During the past 6 months, did you fuck these partners (anal sex)?
Core	203-a) If yes, how often was a condom used:
Core	204-During the past 6 months, did these partners fuck you (anal sex)?
Core	205-a) If yes, how often was a condom used:
Core	206-During the past 6 months, have you had unprotected anal sex...with at least one CASUAL MALE partner?
Core	207-a) Who you knew at the time was HIV positive?
Core	208-b) Whose HIV status you did not know at the time?
Core	209-c) Who you knew at the time was HIV negative?
Site	210-During the past 6 months, have you sucked the cock of any of your CASUAL MALE partners?
Site	211-a) If Yes, In the past 6 months, when you sucked the cock of these partners, how often was a condom used?
Site	212-During the past 6 month, have any of your CASUAL MALE partners come in your mouth without a condom on?
Site	213-a) How frequently would you say...CASUAL MALE sex partners came in your mouth without a condom on?
Site	214-In the past 6 months, have you discussed HIV with any of your CASUAL MALE sex partners?
Site	215-In the past 6 months, have you discussed syphilis with any of your CASUAL MALE sex partners?
Site	216-In the past 6 months, have you discussed other STIs with any CASUAL MALE sex partners (e.g., chlamydia, gonorrhea)?
Core	217-During the past 6 months, with how many REGULAR MALE partner(s) have you had sex (oral or anal)?
Site	218-In the past 6 months, have you discussed HIV with any of your REGULAR MALE sex partners?
Site	219-In the past 6 months, have you discussed syphilis with any of your REGULAR MALE sex partners?
Site	220-In the past 6 months, have you discussed other STIs with any REGULAR MALE sex partners (e.g., chlamydia, gonorrhea)?
Site	221-During the time you had a regular male partner, did you also have sex with anyone else?
Site	222-During the past 6 months, have you sucked the cock of any REGULAR MALE partners?
Site	223-a) If yes, In the past 6 months, when you sucked the cock of your REGULAR MALE partners, how often was a condom used?
Site	224-During the past 6 months, have any of your REGULAR MALE partners come in your mouth without a condom on?
Site	225-a) If yes, In the past 6 months how frequently would you say that one of your REGULAR MALE sex partners came in your mouth without a condom on?
Core	226-During the past 6 months, have you had sex (oral or anal) with REGULAR HIV-positive male partner(s)?
Core	227-During the past 6 months, did you fuck these partners (anal sex):
Core	228-a) If yes, how often was a condom used:
Core	229-During the past 6 months, did these partners fuck you (anal sex)?
Core	230-a) If yes, how often was a condom used?
Core	231-During the past 6 months, have you had sex (oral or anal) with REGULAR MALE partner(s) of unknown HIV status?
Core	232-During the past 6 months, did you fuck these partners (anal sex):

Origin	Questionnaire item (abbreviated) or data entry field
Core	233-a) If yes, how often was a condom used:
Core	234-During the past 6 months, did these partners fuck you (anal sex)?
Core	235-a) If yes, how often was a condom used?
Core	236-During the past 6 months, have you had sex (oral or anal) with regular male partner(s) of negative HIV status?
Core	237-During the past 6 months, did you fuck these partners (anal sex):
Core	238-a) If yes, how often was a condom used:
Core	239-During the past 6 months, did these partners fuck you (anal sex)?
Core	240-a) If yes, how often was a condom used?
Site	241-During the past 6 months, with how many CLIENT MALE partners have you had sex (oral or anal)?
Site	242-During the past 6 months, did you fuck these partners (anal sex):
Site	243-a) If yes, how often was a condom used:
Site	244-During the past 6 months, did these partners fuck you (anal sex)?
Site	245-a) If yes, how often was a condom used?
Site	246-During the past 6 months, have these partners given you money in exchange for sex:
Site	247-During the past 6 months, have these partners given you drugs in exchange for sex:
Site	248-During the past 6 months, have these partners given you other goods or services in exchange for sex:
Site	249-In the past 6 months, have you discussed HIV with any of your CLIENT MALE sex partners?
Site	250-In the past 6 months, have you discussed syphilis with any of your CLIENT MALE sex partners?
Site	251-In the past 6 months, have you discussed other STIs with any CLIENT MALE sex partners (e.g., chlamydia, gonorrhea)?
Site	252-During the past 6 months, with how many SEX WORKER MALE partners have you had sex (oral or anal)?
Site	253-During the past 6 months, did you fuck these partners (anal sex):
Site	254-a) If yes, how often was a condom used:
Site	255-During the past 6 months, did these partners fuck you (anal sex)?
Site	256-a) If yes, how often was a condom used?
Site	257-During the past 6 months, have you given these partners money in exchange for sex?
Site	258-During the past 6 months, have you given these partners drugs in exchange for sex?
Site	259-During the past 6 months, have you given these partners other goods or services in exchange for sex?
Site	260-In the past 6 months, have you discussed HIV with any of these partners?
Site	261-In the past 6 months, have you discussed syphilis with any of these partners?
Site	262-In the past 6 months, have you discussed other STIs with any of these partners (e.g., chlamydia, gonorrhea)?
Site	263-Alcohol [before sex with female]
Site	264-Marijuana/ hash/pot/grass [before sex with female]
Site	265-Poppers [before sex with female]
Site	266-Special K/Ketamine [before sex with female]
Site	267-Ecstasy/MDMA [before sex with female]
Site	268-Crystal Meth [before sex with female]
Site	269-Other amphetamines/ stimulants [before sex with female]
Site	270-Viagra, Levitra, Cialis, or other erectile drugs [before sex with female]
Site	271-Cocaine/crack/free base [before sex with female]
Site	272-Heroin (smack) [before sex with female]
Site	273-Other opioids(Percocet,Dilaudid,Oxycontin) [before sex with female]
Site	274-GHB ("G") [before sex with female]
Site	275-Psychedelics (LSD,acid,mescaline,mushrooms) [before sex with female]
Site	276-Other 2 [drugs before sex with female]
Site	277-Tranquilizers or Benzos (Valium, Ritrovil) [before sex with female]
Site	278-Other 1 [drugs before sex with female]
Site	279-Other 1 Specify: [drugs before sex with female]

Origin	Questionnaire item (abbreviated) or data entry field
Site	280-Other 2 Specify: [drugs before sex with female]
Core	281-During the past 6 months, with how many women have you had sex? (vaginal, oral or anal)
Site	282-...have you had sex with a new female partner you met while traveling outside of MB, but in CAN?
Site	283-a) If yes, did you have unprotected anal or vaginal sex at least once with this or these partner(s)?
Site	284-...have you had sex with a new female partner you met while traveling outside of CAN?
Site	285-a) If yes, did you have unprotected anal or vaginal sex at least once with this or these partner(s)?
Site	286-...have you had sex with a new female partner who was traveling in MB, but not a resident of the province?
Site	287-a) If yes, did you have unprotected anal or vaginal sex at least once with this or these partner(s)?
Site	288-a) If yes, how often was a condom used:
Site	289-In the past 6 months, have you received oral sex from any of these partners, where they sucked your cock?
Site	290-a) If Yes, how often was barrier protection used?
Site	291-In the past 6 months, have you performed oral sex on any of these partners, where you went down on them?
Site	292-During the past 6 months, with how many CASUAL FEMALE partners have you had sex (vaginal, oral or anal)?
Site	293-In the past 6 months, have you had vaginal sex with any of these partners?
Site	294-a) If yes, how often was a condom used?
Site	295-In the past 6 months, have you had anal sex with any of these partners?
Site	296-a) If yes, how often was a condom used?
Site	297-In the past 6 months, have you discussed HIV with any of these partners?
Site	298-In the past 6 months, have you discussed syphilis with any of these partners?
Site	299-In the past 6 months, have you discussed other STIs with any of these partners (e.g., chlamydia, gonorrhea)?
Site	300-During the past 6 months, with how many REGULAR FEMALE partner(s) have you had sex (vaginal, oral, or anal)?
Site	301-In the past 6 months, have you performed oral sex on any of these partners, where you went down on them?
Site	302-a) If Yes, how often was barrier protection used?
Site	303-In the past 6 months, have you received oral sex from any of these partners, where they sucked your cock?
Site	304-a) If yes, how often was a condom used:
Site	305-In the past 6 months, have you had vaginal sex with any of these partners?
Site	306-a) If yes, how often was a condom used?
Site	307-In the past 6 months, have you had anal sex with any of these partners?
Site	308-a) If yes, how often was a condom used?
Site	309-In the past 6 months, have you discussed HIV with any of these partners?
Site	310-In the past 6 months, have you discussed syphilis with any of these partners?
Site	311-In the past 6 months, have you discussed other STIs with any of these partners (e.g., chlamydia, gonorrhea)?
Site	312-During the time you had a regular female partner, did you also have sex with anyone else?
Site	313-During the past 6 months, with how many CLIENT FEMALE partners have you had sex (vaginal, oral or anal)?
Site	314-During the past 6 months, have these partners given you money in exchange for sex?
Site	315-During the past 6 months, have these partners given you drugs in exchange for sex?
Site	316-During the past 6 months, have these partners given you other goods or services in exchange for sex?
Site	317-In the past 6 months, have you performed oral sex on any of these partners, where you went down on them?
Site	318-a) If Yes, how often was barrier protection used?
Site	319-In the past 6 months, have you had vaginal sex with any of these partners?
Site	320-a) If Yes, how often was barrier protection used?

Origin	Questionnaire item (abbreviated) or data entry field
Site	321-In the past 6 months, have you had anal sex with any of these partners?
Site	322-a) If Yes, how often was barrier protection used?
Site	323-In the past 6 months, have you discussed HIV with any of your CLIENT FEMALE partners?
Site	324-In the past 6 months, have you discussed syphilis with any of your CLIENT FEMALE partners?
Site	325-In the past 6 months, have you discussed other STIs with any CLIENT FEMALE partners?
Site	326-During the past 6 months, with how many FEMALE SEX WORKER partners have you had sex...?
Site	327-In the past 6 months, have you received oral sex from any of these partners, where they sucked your cock?
Site	328-a) If Yes, how often was barrier protection used?
Site	329-In the past 6 months, have you had vaginal sex with any of these partners?
Site	330-a) If Yes, how often was barrier protection used?
Site	331-In the past 6 months, have you had anal sex with any of these partners?
Site	332-a) If Yes, how often was barrier protection used?
Site	333-In the past 6 months, have you discussed HIV with any of these partners?
Site	334-In the past 6 months, have you discussed syphilis with any of these partners?
Site	335-In the past 6 months, have you discussed other STIs with any of these partners?
Core	336-Gonorrhea [testing]
Site	337-Chlamydia [testing]
Site	338-Genital or anal warts [testing]
Core	339-Syphilis [testing]
Site	340-Genital Herpes [testing]
Core	341-HIV [testing]
Site	342-Hepatitis A [testing]
Site	343-Hepatitis B [testing]
Core	344-Hepatitis C [testing]
Site	345-Hepatitis unknown [testing]
Site	346-Other STI/STD: [testing]
Core	347-Gonorrhea [diagnosis]
Core	348-Chlamydia [diagnosis]
Core	349-Genital or anal warts [diagnosis]
Core	350-Syphilis [diagnosis]
Core	351-Genital Herpes [diagnosis]
Core	352-HIV [diagnosis]
Core	353-Hepatitis A [diagnosis]
Core	354-Hepatitis B [diagnosis]
Core	355-Hepatitis C [diagnosis]
Core	356-Hepatitis unknown [diagnosis]
Core	357-Other STI/STD: [diagnosis]
Core	358-Other STI/STD: [diagnosis]
Site	359-I had symptoms that made me worry [reasons tested HIV]
Site	360-My doctor/nurse suggested it [reasons tested HIV]
Site	361-It is part of my regular testing pattern [reasons tested HIV]
Site	362-A sex partner had HIV [reasons tested HIV]
Site	363-I was being tested for syphilis [reasons tested HIV]
Site	364-I was being tested for other STI [reasons tested HIV]
Site	365-I did something that put me at risk [reasons tested HIV]
Site	366-I saw an ad/poster/article about HIV [reasons tested HIV]
Site	367-I was notified by public health that I could have been exposed [reasons tested HIV]
Site	368-Other [reasons tested HIV]
Site	369-I had symptoms that made me worry [reasons tested syphilis]

Origin	Questionnaire item (abbreviated) or data entry field
Site	370-My doctor/nurse suggested it [reasons tested syphilis]
Site	371-It is part of my regular testing pattern [reasons tested syphilis]
Site	372-A sex partner had syphilis [reasons tested syphilis]
Site	373-I was being tested for HIV [reasons tested syphilis]
Site	374-I did something that put me at risk [reasons tested syphilis]
Site	375-I saw an ad/poster/article about syphilis [reasons tested syphilis]
Site	376-I was notified by public health that I could have been exposed [reasons tested syphilis]
Site	377-Other [reasons tested syphilis]
Site	378-I have not had any symptoms [reasons not tested syphilis]
Site	379-I am not at risk for getting syphilis [reasons not tested syphilis]
Site	380-I never thought about it [reasons not tested syphilis]
Site	381-I do not want to know [reasons not tested syphilis]
Site	382-If I tested positive, nothing can be done [reasons not tested syphilis]
Site	383-I am worried about the impact on my sex life [reasons not tested syphilis]
Site	384-I know that I have never had sex with an infected person [reasons not tested syphilis]
Site	385-If I tested positive, I do not want to get the treatment for syphilis [reasons not tested syphilis]
Site	386-I do not want my sexual partners contacted [reasons not tested syphilis]
Site	387-Other [reasons not tested syphilis]
Site	388-I do not want my sexual partners contacted [reasons not tested syphilis]
Site	389-Other STI/STD Specify:[tested]
Data check	390-Have you been tested for Hepatitis C or HIV?
Site	391-Last Date tested for Gonorrhea
Site	392-Number of Times tested Gonorrhea
Site	393-Number of times tested for Chlamydia
Site	394-Last Date Tested for Chlamydia
Site	395-Number of times tested for Genital / Anal warts
Site	396-Last Date tested for Genital / anal warts
Site	397-Number of times tested for Syphilis
Site	398-Last Date tested for Syphilis
Site	399-Number of Times tested for Genital Herpies
Site	400-Last Date tested for Genital Herpies
Core	401-Number of times tested for HIV
Core	402-Last Date tested for HIV
Site	403-Number of Times tested for HEP A
Site	404-Last Date tested for HEP A
Site	405-Number of Times tested for HEP B
Site	406-Last Date tested for HEP B
Core	407-Number of Times tested for HEP C
Core	408-Last Date tested for HEP C
Site	409-Number of Times tested for HEP Unknown
Site	410-Last Date tested for HEP Unknown
Site	411-Number of Times tested for Other STD
Site	412-Last Date Tested for Other STD
Core	413-What was the result of your last hepatitis C test?
Core	414-If the result was positive, when was the first time that you tested positive for hepatitis C?
Core	415-Positive result HIV Month
Core	416-What was the result of your last HIV test?
Core	417-If the result was positive, when was the first time that you tested positive for hepatitis C?
Core	418-If result positive, when first tested positive for hepatitis C?

Origin	Questionnaire item (abbreviated) or data entry field
Core	419-If the result was positive – Have you ever taken anti-HIV medication?
Core	420-If "Yes": a) When did you first start taking anti-HIV medication?
Core	421-First started tkaing anti-HIV Meds Month
Core	422-b) Presently, are you taking anti-HIV medication prescribed by a doctor?
Core	423-After you were tested HIV-positive, were you ever tested for syphilis?
Core	424-Other STI/STD Specify: [diagnosis]
Site	425-At the time of your diagnosis, did you receive any health care information pertaining to your infection(s)?
Site	426-Did you feel the information you received helped you deal with your infection(s)?
Site	427-Did you feel you received enough assistance to help you talk about your infection(s) with your...partners?
Core	428-I am at low risk for HIV infection [reasons not tested HIV]
Core	429-If I tested positive, nothing can be done [reasons not tested HIV]
Core	430-I am afraid of needles [reasons not tested HIV]
Core	431-I do not want to know [reasons not tested HIV]
Core	432-I don't think I can get HIV [reasons not tested HIV]
Core	433-I think I am HIV-positive [reasons not tested HIV]
Core	434-I think I am HIV-negative [reasons not tested HIV]
Core	435-I always have safer sex [reasons not tested HIV]
Core	436-I never thought about it [reasons not tested HIV]
Core	437-I am worried about the impact on my sex life [reasons not tested HIV]
Core	438-I don't think the test is always right [reasons not tested HIV]
Core	439-I did not have sex with an infected person [reasons not tested HIV]
Core	440-I am healthy so I don't need to be tested [reasons not tested HIV]
Core	441-I could not deal with knowing I was infected [reasons not tested HIV]
Core	442-I do not know where to get the test [reasons not tested HIV]
Core	443-I am afraid of having my name reported [reasons not tested HIV]
Core	444-I am worried about being discriminated against [reasons not tested HIV]
Core	445-It could affect my career or insurance [reasons not tested HIV]
Core	446-It could affect my relationships [reasons not tested HIV]
Core	447-I want to be tested, just haven't done it yet [reasons not tested HIV]
Core	448-Doesn't matter if I'm infected because of my age [reasons not tested HIV]
Core	449-I don't have a doctor [reasons not tested HIV]
Site	450-Because anonymous testing is not available [reasons not tested HIV]
Site	451-I have asked, but my doctor has refused [reasons not tested HIV]
Site	452-My doctor did not offer the test [reasons not tested HIV]
Site	453-I don't want my partner's name reported [reasons not tested HIV]
Core	454-Other Reasons Specify: [reasons not tested HIV]
Site	455-Other Tested Reasons Specify: [reasons tested HIV]
Site	456-Other Tested Reasons Specify: [reasons tested syphilis]
Site	457-Other Tested Reasons Specify: [reasons not tested syphilis]
Site	458-If you felt you didn't receive enough information, what additional information would have been helpful?
Site	459-I had symptoms that made me worry [reasons tested Ct/Gc]
Site	460-My doctor/nurse suggested it [reasons tested Ct/Gc]
Site	461-It is part of my regular testing pattern [reasons tested Ct/Gc]
Site	462-A sex partner had an STI [reasons tested Ct/Gc]
Site	463-I was being tested for HIV [reasons tested Ct/Gc]
Site	464-I did something that put me at risk [reasons tested Ct/Gc]
Site	465-I saw an ad/poster/article about STIs [reasons tested Ct/Gc]
Site	466-I was notified by public health that I could have been exposed [reasons tested Ct/Gc]
Site	467-Other [reasons tested Ct/Gc]

Origin	Questionnaire item (abbreviated) or data entry field
Site	468-I have not had any symptoms [reasons not tested Ct/Gc]
Site	469-I am not at risk for getting STIs [reasons not tested Ct/Gc]
Site	470-I never thought about it [reasons not tested Ct/Gc]
Site	471-I do not want to know [reasons not tested Ct/Gc]
Site	472-If I tested positive, nothing can be done [reasons not tested Ct/Gc]
Site	473-I am worried about the impact on my sex life [reasons not tested Ct/Gc]
Site	474-I know that I have never had sex with an infected person [reasons not tested Ct/Gc]
Site	475-Other [reasons not tested Ct/Gc]
Site	476-I do not know where to get the test [reasons not tested Ct/Gc]
Site	477-I do not want my sexual partners contacted [reasons not tested Ct/Gc]
Site	478-Other Tested Reasons Specify: [reasons tested Ct/Gc]
Site	479-Other Tested Reasons Specify: [reasons not tested Ct/Gc]
Core	480-Have you ever been vaccinated against hepatitis B?
Core	481-a) If yes, How many shots did you get (hepatitis B or combined hepatitis A and hepatitis B)?
Core	482-a) If yes, How many shots did you get (hepatitis A or combined hepatitis A and hepatitis B)?
Core	483-Have you ever been vaccinated against hepatitis A?
Core	484-People can protect...from HIV...by using a condom correctly every time they have anal sex [agree/disagree]
Core	485-Having sex with only one faithful, uninfected partner can reduce the risk of HIV transmission [agree/disagree]
Core	486-A healthy-looking person can have HIV [agree/disagree]
Core	487-Syphilis can be transmitted through unprotected oral sex [agree/disagree]
Core	488-I would always have symptoms if I contracted a sexually transmitted infection [agree/disagree]
Core	489-I would always have symptoms if I was infected with hepatitis C [agree/disagree]
Core	490-There is treatment currently available for hepatitis C [agree/disagree]
Site	491-Through giving oral sex (sucking) [syphilis transmission: agree/disagree]
Site	492-Through receiving oral sex (being sucked) [syphilis transmission: agree/disagree]
Site	493-Through oral-anal sex (rimming) [syphilis transmission: agree/disagree]
Site	494-Through receptive anal sex without a condom [syphilis transmission: agree/disagree]
Site	495-Through insertive anal sex without a condom [syphilis transmission: agree/disagree]
Site	496-Through vaginal sex without a condom [syphilis transmission: agree/disagree]
Site	497-In the past year, have you seen or heard any local education campaigns about HIV?
Site	498-a) If yes, specify what you saw:
Site	499-b) If yes, specify where you saw it:
Site	500-In the past year, have you seen or heard any local education campaigns about syphilis?
Site	501-a) If yes, specify what you saw:
Site	502-b) If yes, specify where you saw it:
Site	503-In the past year, have you seen or heard any local education campaigns about other STI?
Site	504-a) If yes, specify what you saw:
Site	505-a) If yes, specify what you saw:
Site	506-b) If yes, specify where you saw it:

Appendix 2: WSW Questionnaire items abbreviated and data entry fields

Questionnaire item (abbreviated) or data entry field

001-Site where Interview took place (city name)
002-Date of interview:
003-Questionnaire Number
004-Encrypted Survey ID Number
005-Phase Number
006-Interviewer:
007-Type of recruitment:
008-Poster location.
009-Time questionnaire started: (hh:mm)
010-Time questionnaire ended: (hh:mm)
011-If RDS: Coupon receipt # :
012-Coupon # number provided to participant:
013-Location of interview:
014-In what year were you born? 1 9
015-Do you live in Winnipeg?
016-Refused for Year of birth
017-Where do you live?
018-What are the first three characters of your postal code?
019-3 character postal Code Refused
020-What is the language you first learned and still understand?
021-Please specify [language you first learned and still understand]
022-Which Ethnic or Cultural Group [ancestors belong]
023-Which Ethnic or Cultural Group [ancestors belong]
024-Which Ethnic or Cultural Group [ancestors belong]
025-Which Ethnic or Cultural Group [ancestors belong]
026-Which Ethnic or Cultural Group [ancestors belong]
027-Aboriginal ancestry
028-Ethnic or cultural group most identified Please Specify:
029-Most ethnic or cultural group Refused
030-Aboriginal identity
031-What is the highest level of education that you have completed?
032-Last year, what was your personal income from all sources, before taxes?
033-How do you define yourself [sexual orientation]
034-please specify [sexual orientation]
035-How many gay, lesbian, bisexual, or two-spirited people do you know?
036-What is your current marital status?
037-I have not accessed health services in the last year*
038-Doctor
039-Primary care nurse (in doctor's office or clinic)
040-Public Health nurse
041-Emergency room nurse
042-Walk-in clinic
043-Community Health Centre If "Yes", please specify below:
044-Nine Circles CHC
045-Mount Carmel Clinic
046-Aboriginal Health and Wellness Centre

Questionnaire item (abbreviated) or data entry field

047-Centre de Sante St. Boniface
048-Health Action Centre
049-Hope Centre
050-Nor' West CHC
051-Women's Health Clinic
052-Youville clinic
053-WRHA Health Access Centre: River East
054-WRHA Health Access Centre: 601 Aikins
055-SEX_IN_GAYBAR_CAT [places looked for sex binary]
056-SEX_IN_STBAR_CAT [places looked for sex binary]
057-SEX_IN_RAVE_CAT [places looked for sex binary]
058-SEX_IN_CLUBS_CAT [places looked for sex binary]
059-SEX_IN_SAUNA_CAT [places looked for sex binary]
060-SEX_IN_SEXPARTIES_CAT [places looked for sex binary]
061-SEX_IN_PARKS_CAT [places looked for sex binary]
062-SEX_IN_BATHRM [places looked for sex binary]
063-SEX_IN_PATHS [places looked for sex binary]
064-SEX_IN_COFFEE_CAT [places looked for sex binary]
065-SEX_IN_INTERNET_CAT [places looked for sex binary]
066-SEX_IN_COMMUNITY [places looked for sex binary]
067-SEX_IN_GAYASSOC [places looked for sex binary]
068-SEX_IN_RECREATION [places looked for sex binary]
069-SEX_IN_TELEPHONE [places looked for sex binary]
070-SEX_IN_EVENTS [places looked for sex binary]
071-SEX_IN_ADS [places looked for sex binary]
072-SEX_IN_GYM [places looked for sex binary]
073-SEX_IN_OTHER1 [places looked for sex binary]
074-SEX_IN_OTHER2 [places looked for sex binary]
075-Gay bars [places looked for sex frequency]
076-Straight bars [places looked for sex frequency]
077-Rave/circuit parties [places looked for sex frequency]
078-After-hours clubs/parties [places looked for sex frequency]
079-Saunas/baths [places looked for sex frequency]
080-Sex parties [places looked for sex frequency]
081-Parks [places looked for sex frequency]
082-Public restrooms [places looked for sex frequency]
083-Bicycle paths [places looked for sex frequency]
084-Coffee shops [places looked for sex frequency]
085-Internet (chat rooms/personal ads) [places looked for sex frequency]
086-Community organizations [places looked for sex frequency]
087-Gay associations [places looked for sex frequency]
088-Recreational groups [places looked for sex frequency]
089-Telephone chat line [places looked for sex frequency]
090-Community events for gays and lesbians [places looked for sex frequency]
091-Personal ads [places looked for sex frequency]
092-Gym/Health Club [places looked for sex frequency]
093-Other 1 [places looked for sex]
094-Other 2 [places looked for sex]
095-Steroids [drugs injected]

Questionnaire item (abbreviated) or data entry field

096-Heroin [drugs injected]
097-Cocaine [drugs injected]
098-Crystal meth [drugs injected]
099-Talwin and Ritalin [drugs injected]
100-Crack/rock cocaine [drugs injected]
101-Morphine [drugs injected]
102-Oxycontin [drugs injected]
103-Other opiates (Percocet, Dilaudid) [drugs injected]
104-Special K/ketamine [drugs injected]
105-Ecstasy [drugs injected]
106-Barbiturates [drugs injected]
107-Other amphetamines or stimulants [drugs injected]
108-Other 3 [drugs injected]
109-Other 1 [drugs injected]
110-Other 2 [drugs injected]
111-Alcohol [non-injection drugs]
112-Marijuana [non-injection drugs]
113-Poppers [non-injection drugs]
114-Special K/Ketamine [non-injection drugs]
115-Ecstasy [non-injection drugs]
116-Crystal Meth (speed, crank, Tina) [non-injection drugs]
117-Other speed/amphetamines/ stimulants [non-injection drugs]
118-Viagra, Levitra, Cialis,or other erectile drugs [non-injection drugs]
119-Cocaine/crack/free base [non-injection drugs]
120-Oxycontin [non-injection drugs]
121-Heroin (smack) [non-injection drugs]
122-Morphine [non-injection drugs]
123-Other opiates (Percocet, Dilaudid) [non-injection drugs]
124-GHB ("G") [non-injection drugs]
125-LSD (acid)/ mescaline [non-injection drugs]
126-Tranquilizers (Valium, Ritrovil) [non-injection drugs]
127-Barbiturates [non-injection drugs]
128-Mushrooms [non-injection drugs]
129-Other [non-injection drugs]
130-Gas/Solvents [non-injection drugs]
131-Alcohol [before sex with female]
132-Marijuana/ hash/pot/grass [before sex with female]
133-Poppers [before sex with female]
134-Special K/Ketamine [before sex with female]
135-Ecstasy/MDMA [before sex with female]
136-Crystal Meth [before sex with female]
137-Other amphetamines/ stimulants [before sex with female]
138-Viagra, Levitra, Cialis, or other erectile drugs [before sex with female]
139-Cocaine/crack/free base [before sex with female]
140-Heroin (smack) [before sex with female]
141-Other opioids(Percocet,Dilaudid,Oxycontin) [before sex with female]
142-GHB ("G") [before sex with female]
143-Psychedelics(LSD,acid,mescaline,mushrooms) [before sex with female]
144-Other 2 [before sex with female]

Questionnaire item (abbreviated) or data entry field

145-Tranquilizers or Benzos (Valium, Ritrovil) [before sex with female]
146-Other 1 [before sex with female]
147-<6 hour visit to the emergency room
148-6-24 hour visit to emergency room
149-Admitted to hospital (24 hours)
150-Jail (correctional facility) If "Yes", please specify below:
151-Remand Centre
152-MB Youth Centre
153-Headingley Correctional Centre
154-Agassiz Youth Centre
155-Portage Correctional Centre
156-Brandon Correctional Centre
157-The Pas Correctional Centre
158-Dauphin Correctional Centre
159-Milner Ridge Correctional Centre
160-Stony Mountain Institution
161-Rockwood Institution
162-Hospital - - If "Yes", please specify below:
163-Received testing research study
164-Canadian Blood Services donation
165-Needle exchange program
166-As part of addictions treatment program
167-Other
168-Please specify
169-Other Please specify
170-Unsure Refused Not stated
171-Do you have a doctor (or a nurse) that you consider your family doctor (primary care provider)?
172-Does (s)he know your sexual orientation?
173-Has your primary care provider ever asked you about any new sex partners?
174-Has your primary care provider ever discussed safer sex methods with you?
175-Other 1 Specify:[places looked for sex]
176-Other 2 Specify: [places looked for sex]
177-Other 1 Specify: [drugs injected]
178-Other 2 Specify: [drugs injected]
179-Other 3 Specify: [drugs injected]
180-one injection drug you use most frequently
181-Specify: [other non-injection drug]
182-One non-injection drug used most frequently
183-Other 1 Specify: [drugs before sex with female]
184-Other 2 Specify: [drugs before sex with female]
185-[past 6 mos.], have you had anal sex with a man?
186-If Yes: a) [past 6 mos.], with how many men have you had anal sex?
187-b) [past 6 mos.], have you had unprotected anal sex...with at least one man?
188-c) Who you knew at the time was HIV positive?
189-d) Whose HIV status you did not know at the time?
190-e) Who you knew at the time was HIV negative?
191-f) The last time you had anal sex with a man...did you or your partner use a condom?
192-...have you had sex...with a new female...met while traveling outside of MB, but in CAN?
193-a) If yes, did you have unprotected...sex at least once with this or these partner(s)?

Questionnaire item (abbreviated) or data entry field

194-...have you had sex...with a new female...met while traveling outside of CAN?
195-a) If yes, did you have unprotected...sex at least once with this or these partner(s)?
196-have you had sex with a new female partner traveling in MB, but not a resident of the province?
197-a) If yes, did you have unprotected...sex at least once with this or these partner(s)?
198-[past 6 mos.], with how many CASUAL FEMALE...have you had sex?
199-[past 6 mos.], have you performed oral sex on any of these partners...?
200-a) If yes, how often was a barrier protection used:
201-[past 6 mos.], have you received oral sex from any of these partners...?
202-a) If yes, how often was barrier protection used:
203-In the past 6 month have you had vag-vaginal sex with any CASUAL FEMALE partners?
204-a) Who you knew at the time was HIV positive?
205-b) Whose HIV status you did not know at the time?
206-c) Who you knew at the time was HIV negative?
207-a) If Yes, how often did you clean the toy before sharing it?
208-[past 6 mos.], have you shared a sex toy (...) with any of these partners?
209-b) If Yes, how often did you use a barrier between the toy and you/your partner?
210-[past 6 mos.], have you discussed HIV with any of these partners?
211-[past 6 mos.], have you discussed syphilis with any of these partners?
212-[past 6 mos.], have you discussed other STIs with any of these partners?
213-[past 6 mos.], with how many REGULAR FEMALE have you had sex?
214-In past 6 months have you discussed HIV with...REGULAR FEMALE partners?
215-In past 6 months, have you discussed syphilis with...REGULAR FEMALE partners?
216-In past 6 months, have you discussed other STIs with...REGULAR FEMALE partners?
217-During the time you had a regular female partner, did you also have sex with anyone else?
218-In past 6 months, have you performed oral sex on these partners, where you went...?
219-a) If yes, often was barrier protection used?
220-...have you received oral sex from any of these partners, where they went down...?
221-a) If yes, how often was barrier protection used?
222-[past 6 mos.], have you had vaginal-vaginal sex with any of these partners?
223-[past 6 mos.], have you shared a sex toy (...) with any of these partners?
224-a) If yes, how often did you clean the toy before sharing it?
225-...have you performed oral sex on any of these partners, where you went...?
226-b) If yes, how often did you use a barrier between the toy and you/your partner?
227-[past 6 mos.], have you shared a sex toy (...) with any of these partners?
228-a) If yes, how often was barrier protection used?
229-...have you received oral sex from any of these partners, where they went...?
230-a) If yes, how often was barrier protection used?
231-...have you performed oral sex on any of these partners, where you went down on them?
232-...have you had vaginal-vaginal sex with any of these partners?
233-a) If yes, how often was barrier protection used?
234-...have you received oral sex from any of these partners, where they went...?
235-a) If yes, how often did you clean the toy before sharing it?
236-[past 6 mos.], with how many CLIENT FEMALE partners have you had sex...?
237-[past 6 mos.], have you had vaginal-vaginal sex with any of these partners?
238-b) If yes, how often did you use a barrier between the toy and you/your partner?
239-[past 6 mos.], have you shared a sex toy (...) with any of these partners?
240-a) If yes, how often was barrier protection used?
241-...have these partners given you money in exchange for sex?
242-...have these partners given you drugs in exchange for sex?

Questionnaire item (abbreviated) or data entry field

243-...have these partners given you other goods or services in exchange for sex?
244-[past 6 mos.], have you discussed HIV with any of these partners?
245-[past 6 mos.], have you discussed syphilis with any of these partners?
246-[past 6 mos.], have you discussed other STIs with any of these partners?
247-[past 6 mos.], with how many SEX WORKER FEMALE partners have you had sex...?
248-a) If yes, how often was barrier protection used?
249-a) If yes, how often was barrier protection used?
250-[past 6 mos.], have you given these partners money in exchange for sex?
251-[past 6 mos.], have you given these partners drugs in exchange for sex?
252-[past 6 mos.], have you given these partners other goods or services in exchange for sex?
253-[past 6 mos.], have you discussed HIV with any of these partners?
254-[past 6 mos.], have you discussed syphilis with any of these partners?
255-[past 6 mos.], have you discussed other STIs with any of these partners?
256-Alcohol [before sex with male]
257-Marijuana/ hash/pot/grass [before sex with male]
258-Poppers [before sex with male]
259-Special K/Ketamine [before sex with male]
260-Ecstasy/MDMA [before sex with male]
261-Crystal Meth [before sex with male]
262-Other amphetamines/ stimulants [before sex with male]
263-Viagra, Levitra, Cialis, or other erectile drugs [before sex with male]
264-Cocaine/crack/free base [before sex with male]
265-Heroin (smack) [before sex with male]
266-Other opioids(Percocet,Dilaudid,Oxycontin) [before sex with male]
267-GHB ("G") [before sex with male]
268-Psychedelics(LSD,acid,mescaline,mushrooms) [before sex with male]
269-Other 2 [drugs before sex with male]
270-Tranquilizers or Benzos (Valium, Ritrovil) [before sex with male]
271-Other 1 [before sex with male]
272-Other 1 Specify: [drugs before sex with male]
273-Other 2 Specify: [drugs before sex with male]
274-[past 6 mos.], with how many men have you had sex?(vaginal, oral or anal)
275-...have you had sex...with a new male...met while traveling outside of MB, but in CAN?
276-a) If yes, did you have unprotected anal or vaginal sex at least once with this or these partner(s)?
277-...have you had sex...with a new male...met while traveling outside of CAN?
278-a) If yes, did you have unprotected anal or vaginal sex at least once with this or these partner(s)?
279-...have you had sex...with a new male...traveling in MB, but not a resident of the province?
280-a) If yes, did you have unprotected anal or vaginal sex at least once with this or these partner(s)?
281-a) If yes, how often was a condom used:
282-[past 6 mos.], did you have anal sex with any of these partners?
283-a) If Yes, how often was barrier protection used?
284-During the past six months, did you have vaginal sex with any of these partners?
285-[past 6 mos.], with how many CASUAL MALE...have you had sex?
286-[past 6 mos.] have you had unprotected anal with at least one CASUAL MALE partner?
287-[past 6 mos.], have you sucked the cock of any of these partners?
288-a) If yes, how often was a condom used?
289-[past 6 mos.], have you discussed HIV with any of these partners?
290-[past 6 mos.], have you discussed syphilis with any of these partners?
291-[past 6 mos.], have you discussed other STIs with any of these partners ?

Questionnaire item (abbreviated) or data entry field

292-[past 6 mos.], with how many REGULAR MALE partner(s) have you had sex ?
293-[past 6 mos.], have any of these partners come in your mouth without a condom on?
294-a) If Yes, how frequently has one of your CASUAL MALE partners come in your mouth without a condom on?
295-[past 6 mos.], have you sucked the cock of any of these partners?
296-a) If yes,...when you sucked the cock of your REGULAR MALE partners, how often was a condom used?
297-...have any of your REGULAR MALE partners come in your mouth without a condom on?
298-a) If yes, how frequently has one of your REGULAR MALE partners come in your mouth without a condom on?
299-[past 6 mos.], have you discussed HIV with any of these partners?
300-[past 6 mos.], have you discussed syphilis with any of these partners?
301-[past 6 mos.], have you discussed other STIs with any of these partners ?
302-During the time you had a regular male partner, did you also have sex with anyone else?
303-[past 6 mos.], with how many CLIENT MALE partners have you had sex (vaginal, oral or anal)?
304-[past 6 mos.], have these partners given you money in exchange for sex?
305-[past 6 mos.], have these partners given you drugs in exchange for sex?
306-[past 6 mos.], have these partners given you other goods or services in exchange for sex?
307-[past 6 mos.], did you have anal sex with any of these partners?
308-a) If Yes, how often was a condom used?
309-[past 6 mos.], have you had vaginal sex with any of these partners?
310-a) If Yes, how often was a condom used?
311-[past 6 mos.], have you discussed HIV with any of these partners?
312-[past 6 mos.], have you discussed syphilis with any of these partners?
313-[past 6 mos.], have you discussed other STIs with any of these partners ?
314-[past 6 mos.], with how many MALE SEX WORKER partners have you had sex...?
315-[past 6 mos.], have you received oral sex from any of these partners, where they went...?
316-a) If Yes, how often was barrier protection used?
317-[past 6 mos.], have you had vaginal sex with any of these partners?
318-a) If Yes, how often was barrier protection used?
319-[past 6 mos.], have you had anal sex with any of these partners?
320-a) If Yes, how often was barrier protection used?
321-[past 6 mos.], have you discussed HIV with any of these partners?
322-[past 6 mos.], have you discussed syphilis with any of these partners?
323-[past 6 mos.], have you discussed other STIs with any of these partners ?
324-Gonorrhea [testing]
325-Chlamydia [testing]
326-Genital or anal warts [testing]
327-Syphilis [testing]
328-Genital Herpes [testing]
329-HIV [testing]
330-Hepatitis A [testing]
331-Hepatitis B [testing]
332-Hepatitis C [testing]
333-Hepatitis unknown [testing]
334-Other STI/STD [testing]
335-Gonorrhea [diagnosis]
336-Chlamydia [diagnosis]
337-Genital or anal warts [diagnosis]
338-Syphilis [diagnosis]
339-Genital Herpes [diagnosis]
340-HIV [diagnosis]

Questionnaire item (abbreviated) or data entry field

341-Hepatitis A [diagnosis]
342-Hepatitis B [diagnosis]
343-Hepatitis C [diagnosis]
344-Hepatitis unknown [diagnosis]
345-Other STI/STD: [diagnosis]
346-Other STI/STD: [diagnosis]
347-I had symptoms that made me worry [reasons tested HIV]
348-My doctor/nurse suggested it [reasons tested HIV]
349-It is part of my regular testing pattern [reasons tested HIV]
350-A sex partner had HIV [reasons tested HIV]
351-I was being tested for syphilis [reasons tested HIV]
352-I was being tested for other STI [reasons tested HIV]
353-I did something that put me at risk [reasons tested HIV]
354-I saw an ad/poster/article about HIV [reasons tested HIV]
355-I was notified by public health that I could have been exposed [reasons tested HIV]
356-Other [reasons tested HIV]
357-I had symptoms that made me worry [reasons tested syphilis]
358-My doctor/nurse suggested it [reasons tested syphilis]
359-It is part of my regular testing pattern [reasons tested syphilis]
360-A sex partner had syphilis [reasons tested syphilis]
361-I was being tested for HIV [reasons tested syphilis]
362-I did something that put me at risk [reasons tested syphilis]
363-I saw an ad/poster/article about syphilis [reasons tested syphilis]
364-I was notified by public health that I could have been exposed [reasons tested syphilis]
365-Other [reasons tested syphilis]
366-I have not had any symptoms [reasons not tested syphilis]
367-I am not at risk for getting syphilis [reasons not tested syphilis]
368-I never thought about it [reasons not tested syphilis]
369-I do not want to know [reasons not tested syphilis]
370-If I tested positive, nothing can be done [reasons not tested syphilis]
371-I am worried about the impact on my sex life [reasons not tested syphilis]
372-I know that I have never had sex with an infected person [reasons not tested syphilis]
373-If I tested positive, I do not want to get the treatment for syphilis [reasons not tested syphilis]
374-I do not want my sexual partners contacted [reasons not tested syphilis]
375-Other [reasons not tested syphilis]
376-I do not want my sexual partners contacted [reasons not tested syphilis]
377-Other STI/STD Specify: [reasons not tested syphilis]
378-Have you been tested for Hepatitis C or HIV [data check]
379-Last Date tested for Gonorrhea
380-Number of Times tested Gonorrhea
381-Number of times tested for Chlamydia
382-Last Date Tested for Chlamydia
383-Number of times tested for Genital / Anal warts
384-Last Date tested for Genital / anal warts
385-Number of times tested for Syphilis
386-Last Date tested for Syphilis
387-Number of Times tested for Genital herpes
388-Last Date tested for Genital herpes
389-Number of times tested for HIV

Questionnaire item (abbreviated) or data entry field

390-Last Date tested for HIV
391-Number of Times tested for HEP A
392-Last Date tested for HEP A
393-Number of Times tested for HEP B
394-Last Date tested for HEP B
395-Number of Times tested for HEP C
396-Last Date tested for HEP C
397-Number of Times tested for HEP Unknown
398-Last Date tested for HEP Unknown
399-Number of Times tested for Other STD
400-Last Date Tested for Other STD
401-What was the result of your last hepatitis C test?
402-If the result was positive, when was the first time that you tested positive for hepatitis C?
403-Positive result HIV Month
404-What was the result of your last HIV test?
405-If the result was positive, when was the first time that you tested positive for hepatitis C?
406-If result positive, when first tested positive for hepatitis C?
407-If the result was positive – Have you ever taken anti-HIV medication?
408-If "Yes": a) When did you first start taking anti-HIV medication?
409-First started tkaing anti-HIV Meds Month
410-b) Presently, are you taking anti-HIV medication prescribed by a doctor?
411-After you were tested HIV-positive, were you ever tested for syphilis?
412-Other STI/STD Specify:
413-At the time of your diagnosis, did you receive any health care information pertaining to your infection(s)?
414-Did you feel the information you received helped you deal with your infection(s)?
415-Did you feel you received enough assistance to help you talk about your infection(s) with your...partners?
416-I am at low risk for HIV infection [reasons not tested HIV]
417-If I tested positive, nothing can be done [reasons not tested HIV]
418-I am afraid of needles [reasons not tested HIV]
419-I do not want to know [reasons not tested HIV]
420-I don't think I can get HIV [reasons not tested HIV]
421-I think I am HIV-positive [reasons not tested HIV]
422-I think I am HIV-negative [reasons not tested HIV]
423-I always have safer sex [reasons not tested HIV]
424-I never thought about it [reasons not tested HIV]
425-I am worried about the impact on my sex life [reasons not tested HIV]
426-I don't think the test is always right [reasons not tested HIV]
427-I did not have sex with an infected person [reasons not tested HIV]
428-I am healthy so I don't need to be tested [reasons not tested HIV]
429-I could not deal with knowing I was infected [reasons not tested HIV]
430-I do not know where to get the test [reasons not tested HIV]
431-I am afraid of having my name reported [reasons not tested HIV]
432-I am worried about being discriminated against [reasons not tested HIV]
433-It could affect my career or insurance [reasons not tested HIV]
434-It could affect my relationships [reasons not tested HIV]
435-I want to be tested, just haven't done it yet [reasons not tested HIV]
436-Doesn't matter if I'm infected because of my age [reasons not tested HIV]
437-I don't have a doctor [reasons not tested HIV]
438-Because anonymous testing is not available [reasons not tested HIV]

Questionnaire item (abbreviated) or data entry field

439-I have asked, but my doctor has refused [reasons not tested HIV]
440-My doctor did not offer the test [reasons not tested HIV]
441-I don't want my partner's name reported [reasons not tested HIV]
442-Other Reasons Specify: [reasons not tested HIV]
443-Other Tested Reasons Specify: [reasons tested HIV]
444-Other Tested Reasons Specify: [reasons tested syphilis]
445-Other Tested Reasons Specify: [reasons not tested syphilis]
446-If you felt you didn't receive enough information, what additional information would have been helpful?
447-I had symptoms that made me worry [reasons tested Ct/Gc]
448-My doctor/nurse suggested it [reasons tested Ct/Gc]
449-It is part of my regular testing pattern [reasons tested Ct/Gc]
450-A sex partner had an STI [reasons tested Ct/Gc]
451-I was being tested for HIV [reasons tested Ct/Gc]
452-I did something that put me at risk [reasons tested Ct/Gc]
453-I saw an ad/poster/article about STIs [reasons tested Ct/Gc]
454-I was notified by public health that I could have been exposed [reasons tested Ct/Gc]
455-Other [reasons tested Ct/Gc]
456-I have not had any symptoms [reasons not tested Ct/Gc]
457-I am not at risk for getting STIs [reasons not tested Ct/Gc]
458-I never thought about it [reasons tested Ct/Gc]
459-I do not want to know [reasons not tested Ct/Gc]
460-If I tested positive, nothing can be done [reasons not tested Ct/Gc]
461-I am worried about the impact on my sex life [reasons not tested Ct/Gc]
462-I know that I have never had sex with an infected person [reasons not tested Ct/Gc]
463-Other [reasons not tested Ct/Gc]
464-I do not know where to get the test [reasons not tested Ct/Gc]
465-I do not want my sexual partners contacted [reasons not tested Ct/Gc]
466-Other Tested Reasons Specify: [reasons tested Ct/Gc]
467-Other Tested Reasons Specify: [reasons not tested Ct/Gc]
468-Have you ever been vaccinated against hepatitis B?
469-a) If yes, How many shots did you get (hepatitis B or combined hepatitis A and hepatitis B)?
470-a) If yes, How many shots did you get (hepatitis A or combined hepatitis A and hepatitis B)?
471-Have you ever been vaccinated against hepatitis A?
472-People can protect... from HIV....by using a condom correctly every time they have anal sex [agree/disagree]
473-Having sex with only one faithful, uninfected partner can reduce the risk of HIV transmission [agree/disagree]
474-A healthy-looking person can have HIV [agree/disagree]
475-Syphilis can be transmitted through unprotected oral sex [agree/disagree]
476-I would always have symptoms if I contracted a sexually transmitted infection (STI) [agree/disagree]
477-I would always have symptoms if I was infected with hepatitis C [agree/disagree]
478-There is treatment currently available for hepatitis C [syphilis transmission: agree/disagree]
479-Through giving oral sex (sucking) [syphilis transmission: agree/disagree]
480-Through receiving oral sex (being sucked) [syphilis transmission: agree/disagree]
481-Through oral-anal sex (rimming) [syphilis transmission: agree/disagree]
482-Through receptive anal sex without a condom [syphilis transmission: agree/disagree]
483-Through insertive anal sex without a condom [syphilis transmission: agree/disagree]
484-Through vaginal sex without a condom [syphilis transmission: agree/disagree]
485-In the past year, have you seen or heard any local education campaigns about HIV?
486-a) If yes, specify what you saw:
487-b) If yes, specify where you saw it:

Questionnaire item (abbreviated) or data entry field

488-In the past year, have you seen or heard any local education campaigns about syphilis?
489-a) If yes, specify what you saw:
490-b) If yes, specify where you saw it:
491-In the past year, have you seen or heard any local education campaigns about other STI?
492-a) If yes, specify what you saw:
493-a) If yes, specify what you saw:
494-b) If yes, specify where you saw it:
495-[past 6 mos.], with how many women have you have you had sex? (oral, anal, or vaginal)
496-a) If yes, how often was barrier protection used?
497-Do you have ANY FEMALE sex partners that you know are HIV-positive?
498-[past 6 mos.], did you perform oral sex on them?:
499-a) If yes, how often was barrier protection used:
500-a) If yes, how often was barrier protection used?
501-a) Who you knew at the time was HIV positive?
502-b) Whose HIV status you did not know at the time?
503-c) Who you knew at the time was HIV negative?
504-[past 6 mos.], did you have vaginal-vaginal sex with them?
505-Do you have ANY FEMALE sex partners whose HIV status you're unsure about?
506-[past 6 mos.], did you perform oral sex on them?:
507-[past 6 mos.], did you have vaginal-vaginal sex with them?
508-Do you have ANY FEMALE partners that you are sure are HIV negative?
509-a) If Yes, how often was barrier protection used?
510-a) If Yes, how often was barrier protection used?
511-[past 6 mos.], did you perform oral sex on them?
512-[past 6 mos.], did you have vaginal-vaginal sex with them?
513-a) If Yes, how often was barrier protection used?
514-[past 6 mos.], have you had sex with REGULAR HIV-positive male partner(s)?
515-[past 6 mos.], did you have vaginal sex with any of these partners?
516-a) If Yes, how often was a condom used?
517-[past 6 mos.], did you have anal sex with any of these partners?
518-a) If Yes, how often was a condom used?
519-[past 6 mos.] have you had sex with REGULAR MALE partners of unknown HIV...
520-[past 6 mos.], did you have vaginal sex with any of these partners?
521-a) If Yes, how often was a condom used?
522-[past 6 mos.], did you have anal sex with any of these partners?
523-a) If Yes, how often was a condom used?
524-[past 6 mos.] have you had sex with a REGULAR MALE partner of negative HIV...
525-[past 6 mos.], did you have vaginal sex with any of these partners?
526-a) If Yes, how often was a condom used?
527-[past 6 mos.], did you have anal sex with any of these partners?
528-a) If Yes, how often was a condom used?
529-b) If yes, how often did you use a barrier between the toy and you/your partner?
530-a) If yes, how often did you clean the toy before sharing it?

Appendix 3. MSM questionnaire key items and response criteria for associated key-dependent items.

Key Item/Key Item Series		If Response Equals...		Then Eligible to Respond	Number Entered into the Analysis
173	▶	"yes" to primary care provider	▶	174, 175, 176 188, 195, 197, 199, 201, 217, 241, 252	64
187	▶	one or more male sex partners	▶	189, 190, 194	99
187, 188	▶	one or more male sex partners AND "yes" to anal sex	▶	191, 192, 193	63
187, 188, 190	▶	one or more male sex partners AND "yes" to anal sex AND "yes" to unprotected anal sex with at least one man	▶	196	35
187, 195	▶	one or more male sex partners AND "yes" to partner outside MB	▶	198	14
187, 197	▶	one or more male sex partners AND "yes" to partner outside Canada	▶	200	6
187, 199	▶	one or more male sex partners AND "yes" to partner, non-resident MB	▶	202, 204, 206, 210, 214, 215, 216	21
187, 201	▶	one or more male sex partners AND one or more casual male sex partners	▶	203	72
187, 201, 202	▶	one or more male sex partners AND one or more casual male sex partners AND "yes" to insertive anal	▶	205	39
187, 201, 204	▶	one or more male sex partners AND one or more casual male sex partners AND "yes" to receptive anal	▶	207, 208, 209	37
187, 201, 206	▶	one or more male sex partners AND one or more casual male sex partners AND "yes" to unprotected sex with casual	▶	211, 212	27
187, 201, 210	▶	one or more male sex partners AND one or more casual male sex partners AND "yes" to give oral to casual	▶	213	59
187, 201, 210, 212	▶	one or more male sex partners AND one or more casual male sex partners AND "yes" to give oral to casual AND "yes" to come in mouth	▶	218, 219, 220, 221, 222, 226, 231, 236	22
187, 217	▶	one or more male sex partners AND one or more regular male sex partners	▶	223224	68
187, 217, 222	▶	one or more male sex partners AND one or more regular male sex partners AND "yes" to give oral to regular	▶	225	58
187, 217, 222, 224	▶	one or more male sex partners AND one or more regular male sex partners AND "yes" to give oral to regular AND "yes" to come in mouth	▶	227229	30
187, 217, 226	▶	one or more male sex partners AND one or more regular male sex partners AND "yes" to HIV positive regulars	▶	228	7
187, 217, 226, 227	▶	one or more male sex partners AND one or more regular male sex partners AND "yes" to HIV positive regulars AND "yes" to insertive anal	▶	230	6
187, 217, 226, 229	▶	one or more male sex partners AND one or more regular male sex partners AND "yes" to HIV positive regulars AND "yes" to receptive anal	▶	232, 234	4
187, 217, 231	▶	one or more male sex partners AND one or more regular male sex partners AND "yes" to HIV unknown regulars	▶	233, 235	16

187, 217, 231, 232	►	one or more male sex partners AND one or more regular male sex partners AND "yes" to HIV unknown regulars AND "yes" to insertive anal	►	233	13
187, 217, 231, 234	►	one or more male sex partners AND one or more regular male sex partners AND "yes" to HIV unknown regulars AND "yes" to receptive anal	►	235	7
187, 217, 236	►	one or more male sex partners AND one or more regular male sex partners AND "yes" to HIV negative regulars	►	237, 239	33
187, 217, 236,237	►	one or more male sex partners AND one or more regular male sex partners AND "yes" to HIV negative regulars AND "yes" to insertive anal	►	238	22
187, 217, 236, 239	►	one or more male sex partners AND one or more regular male sex partners AND "yes" to HIV negative regulars AND "yes" to receptive anal	►	240	22
187, 241	►	one or more male sex partners AND one or more client male sex partners	►	242, 244, 246, 247, 248, 249, 250, 251	33
187, 241, 242	►	one or more male sex partners AND one or more client male sex partners AND "yes" to insertive anal	►	243	12
187, 241, 244	►	one or more male sex partners AND one or more client male sex partners AND "yes" to receptive anal	►	245	11
187, 252	►	one or more male sex partners AND one or more sex worker male sex partners	►	253, 255, 257, 258, 259, 260, 261, 262	3
187, 252, 253	►	one or more male sex partners AND one or more sex worker male sex partners AND "yes" to insertive anal	►	254	2
187, 252, 255	►	one or more male sex partners AND one or more sex worker male sex partners AND "yes" to receptive anal	►	256	2
281	►	one or more female sex partners	►	282, 284, 286, 292, 300, 313, 326	38
281, 282	►	one or more female sex partners AND "yes" to partner outside MB	►	283	4
281, 284	►	one or more female sex partners AND "yes" to partner outside Canada	►	285	3
281, 286	►	one or more female sex partners AND "yes" to partner, non-resident MB	►	287	3
281, 292, 289	►	one or more female sex partners AND one or more casual female partners AND "yes" to received oral sex from casual	►	288	13
281, 292	►	one or more female sex partners AND one or more casual female partners	►	289, 291, 293, 295, 297, 298, 299	20
281, 292, 291	►	one or more female sex partners AND one or more casual female partners AND "yes" to performed oral sex on casual	►	290	11
281, 292, 293	►	one or more female sex partners AND one or more casual female partners AND "yes" to vaginal sex with casual	►	294	19
281, 292, 295	►	one or more female sex partners AND one or more casual female partners AND "yes" to anal sex with casual	►	296	8
281, 300	►	one or more female sex partners AND one or more regular female partners	►	301, 303, 305, 307, 309, 310, 311, 312	23
281, 300, 301	►	one or more female sex partners AND one or more regular female partners AND "yes" to performed oral sex on regular	►	302	17
281, 300, 303	►	one or more female sex partners AND one or more regular female partners AND "yes" to received oral sex from regular	►	304	19

281, 300, 305	▶	one or more female sex partners AND one or more regular female partners AND "yes" to vaginal sex with regular	▶	306	20
281, 300, 307	▶	one or more female sex partners AND one or more regular female partners AND "yes" to anal sex with regular	▶	308	8
281, 313	▶	one or more female sex partners AND one or more client female partners	▶	314, 315, 316, 317, 319, 321, 323, 324, 325	3
281, 313, 317	▶	one or more female sex partners AND one or more client female partners AND "yes" to performed oral sex on client	▶	318	1
281, 313, 319	▶	one or more female sex partners AND one or more client female partners AND "yes" to received oral sex from client	▶	320	3
281, 313, 321	▶	one or more female sex partners AND one or more client female partners AND "yes" to anal sex with client	▶	322	1
281, 326	▶	one or more female sex partners AND one or more sex worker female partners	▶	327, 329, 331, 333, 334, 335	4
281, 326, 327	▶	one or more female sex partners AND one or more sex worker female partners AND "yes" to received oral sex from sex worker	▶	328	2
281, 326, 329	▶	one or more female sex partners AND one or more sex worker female partners AND "yes" to vaginal sex with sex worker	▶	330	3
281, 326, 331	▶	one or more female sex partners AND one or more sex worker female partners AND "yes" to anal sex with sex worker	▶	332	0
480	▶	"yes" to vaccinated for hep B	▶	481	48
483	▶	"yes" to vaccinated for hep A	▶	482	35
347-358	▶	"not no" to been told by doc you have an infection	▶	425	70
347-358 AND 425	▶	"not no" to been told by doc you have an infection AND "yes" to received healthcare information	▶	426, 427	63

Appendix 4. WSW questionnaire key items and response criteria for associated key-dependent items.

Key Item/Key Item Series		If Response Equals...		Then Eligible to Respond	Number Entered into the Analysis
171	▶	"yes" to primary care provider"	▶	172, 173, 174	30
495	▶	one or more female partners	▶	497, 505, 508, 192, 194, 196, 198, 213, 236, 247	39
495, 497	▶	one or more female partners AND "yes" to HIV positive partner	▶	498, 504	3
495, 505	▶	one or more female partners AND "yes" to HIV unknown partner	▶	506, 507	17
495, 508	▶	one or more female partners AND "yes" to HIV negative partner	▶	511, 512	20
495, 497, 498	▶	one or more female partners AND "yes" to HIV positive partner AND "yes" to oral with HIV positive	▶	496	3
495, 497, 504	▶	one or more female partners AND "yes" to HIV positive partner AND "yes" to vaginal with HIV positive	▶	499	1
495, 505, 506	▶	one or more female partners AND "yes" to HIV unknown partner AND "yes" to oral with HIV unknown	▶	500	12
495, 505, 507	▶	one or more female partners AND "yes" to HIV unknown partner AND "yes" to vaginal with HIV unknown	▶	509	7
495, 508, 511	▶	one or more female partners AND "yes" to HIV negative partner AND "yes to oral with HIV negative"	▶	510	15
495, 508, 512	▶	one or more female partners AND "yes" to HIV negative partner AND "yes to vaginal with HIV negative"	▶	513	10
495, 192	▶	one or more female partners AND "yes" to partner traveling outside MB	▶	193	6
495, 194	▶	one or more female partners AND "yes" to partner traveling outside Canada	▶	195	2
495, 196	▶	one or more female partners AND "yes" to partner, non-resident MB	▶	197	1
495, 198	▶	one or more female partners AND one or more casual female partners	▶	199, 201, 203, 208, 210, 211, 212	22
495, 198, 203	▶	one or more female partners AND one or more casual female partners AND "yes" to vaginal with casual	▶	202	12
495, 198, 208	▶	one or more female partners AND one or more casual female partners AND "yes" to share sex-toy with casual	▶	207, 209	5
495, 198, 199	▶	one or more female partners AND one or more casual female partners AND "yes" to performed oral on casual	▶	200	17

495, 198, 201	►	one or more female partners AND one or more casual female partners AND "yes" to received oral from casual	►	202	12
495, 213	►	one or more female partners AND one or more regular female partners	►	214, 215, 216, 217, 218, 220, 222, 223	29
495, 213, 223	►	one or more female partners AND one or more regular female partners AND "yes" to share sex-toy with regular	►	224, 226	10
495, 213, 218	►	one or more female partners AND one or more regular female partners AND "yes" to perform oral on regular	►	219	20
495, 213, 220	►	one or more female partners AND one or more regular female partners AND "yes" to receive oral from regular	►	221	27
495, 236	►	one or more female partners AND one or more client female partners	►	225, 227, 229, 232, 241, 242, 243, 244, 245, 246	6
495, 236, 227	►	one or more female partners AND one or more client female partners AND "yes" to share sex-toy with client	►	235, 238	3
495, 236, 231	►	one or more female partners AND one or more client female partners AND "yes" to perform oral on client	►	228	1
495, 236, 229	►	one or more female partners AND one or more client female partners AND "yes" to receive oral from client	►	230	3
495, 236, 232	►	one or more female partners AND one or more client female partners AND "yes" to vaginal with client	►	233	3
495, 247	►	one or more female partners AND one or more sex worker female partners	►	231, 234, 237, 239, 240, 250, 251, 252, 253, 254, 255	2
495, 247, 239	►	one or more female partners AND one or more sex worker female partners AND "yes" to share sex-toy with sex worker	►	529, 530	1
495, 247, 234	►	one or more female partners AND one or more sex worker female partners AND "yes" to receive oral from sex worker	►	248	2
495, 247, 237	►	one or more female partners AND one or more sex worker female partners AND "yes" to vaginal with sex-worker	►	249	2
274	►	one or more male partners	►	185, 275, 277, 279, 285, 292, 303, 314	34
274, 185	►	one or more male partners AND "yes" to anal sex with male partner	►	186, 187, 191	12
274, 185, 187	►	one or more male partners AND "yes" to anal sex with male partner AND "yes" to unprotected sex with at least one man	►	188, 189, 190	10
274, 275	►	one or more male partners AND "yes" partner traveling outside MB	►	276	3
274, 277	►	one or more male partners AND "yes" partner traveling outside Canada	►	278	0
274, 279	►	one or more male partners AND "yes" partner, non-resident MB	►	280	3

274, 285	▶	one or more male partners AND one or more casual male partners	▶	284, 287, 289, 290, 291	14
274, 285, 287	▶	one or more male partners AND one or more casual male partners AND "yes" to give oral to casual	▶	288, 293	6
185, 274, 285, 282	▶	one or more male partners AND "yes" to anal sex with male partner AND one or more casual male partners AND "yes" to anal sex with casual	▶	501, 502, 503, 281, 286	3
185, 274, 285	▶	one or more male partners AND "yes" to anal sex with male partner AND one or more casual male partners	▶	282	5
274, 285, 284	▶	one or more male partners AND one or more casual male partners AND "yes" to vaginal with casual	▶	283	12
274, 285, 287, 293	▶	one or more male partners AND one or more casual male partners AND "yes" to give oral to casual AND "yes" to come in mouth by casual	▶	294	2
274, 292	▶	one or more male partners AND one or more regular male partners	▶	295, 514, 519, 524, 299, 300, 301, 302	2
274, 292, 295	▶	one or more male partners AND one or more regular male partners AND "yes" to give oral to regular	▶	296, 297	20
274, 292, 295, 297	▶	one or more male partners AND one or more regular male partners AND "yes" to give oral to regular AND "yes" to come in mouth by regular	▶	298	13
274, 292, 514	▶	one or more male partners AND one or more regular male partners AND "yes" to regular HIV positive	▶	515	0
274, 292, 514, 515	▶	one or more male partners AND one or more regular male partners AND "yes" to regular HIV positive AND "yes" to vaginal with regular HIV positive	▶	516	0
185, 274, 292, 514	▶	one or more male partners AND "yes" to anal sex with male partner AND one or more regular male partners AND "yes" to regular HIV positive	▶	517	0
185, 274, 292, 514, 517	▶	one or more male partners AND "yes" to anal sex with male partner AND one or more regular male partners AND "yes" to regular HIV positive AND "yes" to anal with regular HIV positive	▶	518	0
274, 292, 519	▶	one or more male partners AND one or more regular male partners AND "yes" to regular HIV unknown	▶	520	6
274, 292, 519, 520	▶	one or more male partners AND one or more regular male partners AND "yes" to regular HIV unknown AND "yes" to vaginal with regular HIV unknown	▶	521	6
185, 274, 292, 519	▶	one or more male partners AND "yes" to anal sex with male partner AND one or more regular male partners AND "yes" to regular HIV unknown	▶	522	4
185, 274, 292, 519, 522	▶	one or more male partners AND one or more regular male partners AND "yes" to anal sex with male partner AND "yes" to regular HIV unknown AND "yes" to anal with regular HIV unknown	▶	523	4
274, 292, 524	▶	one or more male partners AND one or more regular male partners AND "yes" to regular HIV negative	▶	525	19

274, 292, 524, 525	▶	one or more male partners AND one or more regular male partners AND "yes" to regular HIV negative AND "yes" to vaginal with regular HIV negative	▶	526	18
185, 274, 292, 524	▶	one or more male partners AND "yes" to anal sex with male partner AND "yes" to regular HIV negative	▶	527	5
185, 274, 292, 524, 527	▶	one or more male partners AND "yes" to anal sex with male partner AND "yes" to regular HIV negative AND "yes" to anal with regular HIV negative	▶	528	5
274, 303	▶	one or more male partners AND one or more client male partners	▶	304, 305, 306, 309, 311, 312, 313	15
185, 274, 303	▶	one or more male partners AND "yes" to anal sex with male partner AND one or more client male partners	▶	307	6
185, 274, 303, 307	▶	one or more male partners AND "yes" to anal sex with male partner AND one or more client male partners AND "yes" to anal with client male	▶	310	0
274, 303, 309	▶	one or more male partners AND one or more client male partners AND "yes" to vaginal sex with client	▶	308	9
274, 314	▶	one or more male partners AND one or more sex worker male partners	▶	315, 317, 321, 322, 323	1
274, 314, 315	▶	one or more male partners AND one or more sex worker male partners AND "yes" to receive oral from sex worker male	▶	316	1
274, 314, 317	▶	one or more male partners AND one or more sex worker male partners AND "yes" to vaginal sex with sex worker male	▶	318	1
185, 274, 314	▶	one or more male partners AND "yes" to anal sex with male partner AND one or more sex worker male partners	▶	319	1
185, 274, 314, 319	▶	one or more male partners AND "yes" to anal sex with male partner AND one or more sex worker male partners AND "yes" to anal sex with sex worker male	▶	320	0
468	▶	"yes" to vaccinated for hepatitis B	▶	469	22
471	▶	"yes" to vaccinated for hepatitis A	▶	470	14
335_346	▶	"not no" to been told by doc you have an infection	▶	413	35
335_346, 413	▶	"not no" to been told by doc you have an infection AND "yes" to received healthcare information	▶	414, 415	16

Appendix 5. Consent form.

Study title: Second Generation HIV Surveillance among MSM and WSW in Canada: Monitoring Trends in the Prevalence of HIV/ Viral Hepatitis/ STIs and Associated Risk Behaviours

Manitoba Health Principal Investigator: John Wylie, Manitoba Health, 204-945-6123
Health Canada Principal Investigator: Yogesh Choudri, Health Canada, 613-952-1039

Please read the following carefully before answering the questionnaire:

Purpose of the study

- This survey is a part of a study Manitoba Health is conducting in partnership with Health Canada. A total of 250 men and 100 women will be enrolled in Manitoba for the study.
- We are conducting the study to find out how common HIV, Viral Hepatitis, chlamydia, gonorrhea, and syphilis infections are in men who have sex with other men (MSM) and women who have sex with women (WSW) living in Winnipeg. We will also gather information concerning the sexual practices of MSM, especially those that may be associated with transmission of these infections. The information will be useful to prevent and control these diseases.

Study procedures

- We are asking you to answer a confidential questionnaire. It will take approximately one hour to complete.
- You will also be asked to give a blood sample. The blood sample will be collected using a small plastic device to poke a small spot on your finger.
- The blood specimen will be used to detect viral hepatitis, HIV, and syphilis. The blood sample will be tested at Health Canada in Ottawa.
- Your blood sample will be stored for future testing or it will be destroyed (you can choose what will be done with your blood sample).
- You will also be asked to help bring other people into the study. You will be given business cards with your study number written on the back (for example, #123). You will be asked to give these cards to your sex partners. We are doing this as we are interested in seeing how people are connected together in social networks. All of this will be done with numbers only; no names will be used. Your partners can use these cards to phone our study nurse, if they wish to take part in the study. This process is voluntary and you do not have to hand out the cards if you do not wish to do so and your partners can choose not to enroll if they do not wish to.

Risks and benefits

- The risks associated with the procedure to collect the blood sample are negligible, however it may hurt a little bit and it's possible to get a small bruise or infection but this is very unlikely. The discomforts from the blood sample collection are very brief and temporary.

- You will not benefit directly by being in the study. We hope the information learned from this study will help prevent the spread of bloodborne pathogens and sexually transmitted diseases.

Voluntary participation/withdrawal from the study

- This survey is entirely voluntary. If you do the survey, you are free to not answer any questions you do not want to. You are also free to withdraw at any point from the survey.

Confidentiality

- Your participation is completely voluntary and anonymous: **YOU CANNOT BE IDENTIFIED IN ANY WAY**. The questionnaire and blood sample are given a coded number for technical purposes only.
- The answers and blood sample provided will be treated confidentially by the research team. The information will be summarised and analysed by the research team and reported in a collective fashion.
- The tests necessary to detect HIV, viral hepatitis, and syphilis infection will be performed. Because NO IDENTIFYING INFORMATION is collected, no one will know who was tested and the results of the test. This means that you will not be able to receive the results of your tests. There are excellent treatment for many of these infections and vaccine is available for hepatitis A and B. If you want to be tested for any of the infections named above and know the results you can visit your doctor, or we can recommend a place where you can go for free testing and counselling.
- All records will be kept in a locked secure area. The University of Manitoba Health Research Ethics Board may review records related to the study for quality assurance purposes.

Payment for participation

You will be given $10 for participating in the study. This honorarium will be received even if you withdraw from the survey.

Questions

You are free to ask any questions that you may have about the study and your rights as a study participant. For questions about the study either ask the research nurse or contact John Wylie at 204-945-6123. For questions about your rights as a study participant, you may contact the University of Manitoba, Bannatyne Campus Research Ethics Board office at 204-789-3389 or Health Canada Research Ethics Board at 613-941-5199.

Please ask any questions you have about the study before providing consent.

Statement of consent

I have read this consent form. I have had the opportunity to discuss this research study with study staff. I have had my questions answered by them in language I understand. The risks and benefits have been explained to me. I understand that I

will be given a copy of this consent form. I understand that my participation in this study is voluntary and that I may choose to withdraw at any time. I freely agree to participate in this research study.

I agree to take part in the survey questionnaire. I understand that this means that I can refuse to answer any questions that I do not want to and I can withdraw at any point from the survey

YES □
NO □

I agree to provide a biological sample [dried blood spot]

YES □
NO □

- In addition to the tests mentioned above, you can also agree to have your blood sample stored. These samples may be used in the future for other laboratory tests (for example: new types of Hepatitis, other sexually transmitted infections). We will not be able to tell you the results of any possible future testing. If you prefer Health Canada can destroy the sample after they have completed the testing outlined above. Otherwise, the blood sample will be stored at Health Canada.

I agree to such storage and possible future testing of my blood sample

YES □ **NO** □ **[Place "Destroy after Testing" sticker on card]**

It is my choice to provide either oral or written consent. If you want to sign the consent form, please sign below. If you want to take part in this study but do not want to sign your name, please tell the research nurse. If you want, you can just tell her that you want to take part and she can write that you said so.

_____	_____	_____
Participant Name (please print)	**Participant signature**	**Date (yyyy/mm/dd)**

Oral consent provided: Yes ( ) No ( )

Copy of consent form offered to client: Yes (_____)

Study nurse signature: _____

Time and date of questionnaire (e.g., 13:45, dd/mm/yyyy):_____

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