

# HIV/AIDS: TESTING AND RISK BEHAVIORS AMONG BRITISH COLUMBIA'S RURAL ABORIGINAL POPULATION

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## ABSTRACT

**Objectives.** Over the last decade, there has been growing concern in the public health sector over the spread of Human Immunodeficiency Virus (HIV) in Canada's Aboriginal population. However, there continues to be a general lack of HIV awareness and its risk factors in Aboriginal communities.

**Study design and methods.** This study investigated HIV testing patterns, perceptions and risk factors within 7 community organizations through the use of face-to-face interviews. The objectives of this research project were to 1) describe the prevalence of HIV testing; 2) describe issues concerning confidentiality related to the HIV testing; 3) identify the prevalence of risk factors for HIV transmission; and, 4) build research capacity in the Aboriginal community.

**Results.** Two hundred and nineteen Aboriginal persons participated in interviews. Off-reserve residents (pOR: 0.48, 95% CI: 0.29 – 0.80) were significantly more likely to use illicit drugs than reserve residents. Sixty percent of participants had reported undergoing HIV testing at some point. Two-spirited participants (pOR: 16.1, 95% CI: 2.13-121.06), those who previously tested for a Sexually Transmitted Disease (pOR: 2.94, 95% CI: 1.73-4.98), those currently using cocaine (pOR: 3.88, 95% CI: 1.25 – 12.0), and those who reported to “never”, or “some of the time” use clean needles (pOR: 11.0, 95% CI: 1.36- 88.66) were significantly more likely to undergoing HIV testing. On-reserve residents (pOR: 0.55, 95% CI: 0.35-0.87) and respondents older than 40 years of age (pOR: 0.40, 95% CI: 0.19 – 0.86) were less likely to undergo HIV testing.

**Conclusions.** Participants with HIV risk factors are more likely to be tested for HIV in rural areas and confidentiality issues were not a barrier to testing for most participants. Off-reserve residents were more likely to undergo HIV testing, the reasons for which require additional research. Finally, public health units are often under-utilized as locations to seek testing.

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**Keywords:** Aboriginal, HIV, rural

## INTRODUCTION

The term “Aboriginal” refers to the indigenous people of Canada and includes Registered Indians (or Status Indians), non-Registered Indians, Métis and the Inuit. It is estimated that 4.4% of Canadians have Aboriginal ancestry (1). Over the last decade, there has been growing concern in the public health sector over the spread of Human Immunodeficiency Virus (HIV) in Canada’s Aboriginal communities. Much of this concern has been directed towards Aboriginal injection drug users, who currently comprise the fastest growing group of new HIV cases in Canada (2). The movement of Aboriginal persons between rural and urban areas poses a further threat of HIV infection (3). However, there continues to be a general lack of recognition and awareness of HIV and its risk factors among Aboriginal communities (1,4).

The current study aims to examine a number of issues related to testing and the prevention of HIV/AIDS among British Columbia’s (BC) Aboriginal peoples residing in rural areas. Information from this report provides a framework for further research and highlights program service implications for both reserve and off-reserve residents living in rural areas. The objectives of this research project were to 1) describe the prevalence of HIV testing; 2) describe issues concerning confidentiality related to the HIV testing; 3) identify the prevalence of risk factors for HIV transmission; and 4) build research capacity in the Aboriginal community.

## MATERIAL AND METHODS

The initial stage of this research began in February 2002, when a project team and Advisory Circle were assembled to develop research protocols, community partnerships and the questionnaire form. The research team developed the questionnaire in consultation with community partners. The questionnaire form included demographic information, HIV risk behaviors, and knowledge and usage of HIV testing. The Advisory Circle deemed face-to-face interviews as the most culturally appropriate data collection strategy. Interestingly, the Advisory Circle was reluctant to ask about HIV status due to confidentiality concerns. Ethical approval for this study was obtained from the Office of Research Services at the University of British Columbia.

Recruitment for the study was undertaken by sending letters of invitation to 47 rural Aboriginal health and AIDS service organizations within BC. These agencies provide services to both reserve and off-reserve rural residents. Invitation notices for posting were also sent with the letter of invitation asking the organization to post the notices. These notices invited community members to participate in the study by contacting a local person to set up the interview. Between June and November 2003, 219 face-to-face interviews were conducted with Aboriginal persons that had contact with seven of the 47 solicited organizations. The participating organizations represented various geographical areas of BC. As part of the objective to build research skills and capacity among Aboriginal persons, local contacts attended a training session, provided by the research coordinator, and the research coordinator

supervised a portion of the interviews as a means of providing feedback with regards to the training. Before each interview, the consent process was explained to the participants, and a signed consent form was acquired assuring the confidentiality of the responses. Names were not recorded on the questionnaire and a number was assigned to each questionnaire for data entry purposes. No paid incentives were provided to the participants.

### **Statistical analyses**

All interviews were audio-taped and transcribed. Responses to individual questionnaires were taken from the transcripts and entered into an ACCESS database for purposes of data management. Data was analyzed using the Statistical Package for the Social Sciences (SPSS) program. Baseline characteristics were analyzed using frequency distributions and differences evaluated using a chi-square test. Confidence Intervals were calculated for the Odds Ratios. Missing data was excluded from the analysis. In some situations, data was missing for up to 19% of participants, but, in the case of income levels, data was missing for 29%. Analyses were selected through regular interaction between members of the research team, which also included some of the local research assistants. The research team also met regularly to discuss, analyze and interpret the results. The research supervisor facilitated these interpretative sessions. All of the participating organizations were members of the advisory group and, thus, final aggregate study results were disseminated to participating home organizations with the intention that the results would be

implemented. Study results were also shared with the Aboriginal community in various formats, including websites, presentations (conference, programmer meetings) and written formats. Participating organizations were not provided with individual organization data, as that may have compromised participant confidentiality. Prevalence odds ratios and their 95% confidence intervals (CI) were determined and chi-square testing was used with a significance level of less than 0.05.

## **RESULTS**

### **Demographic characteristics**

A total of 219 persons of Aboriginal descent completed the survey. The majority of respondents ( $n = 192$ ; 87.7%) were Registered Indians (as defined by the Indian Act of Canada), with non-registered participants comprised of both Metis and Inuit people. Individuals from 7 of the 46 solicited organizations participated in the survey. The low participation rate may be related to HIV stigma and community reluctance to discuss.

Results are presented in table I and II by on-reserve versus off-reserve participants and those who had undergone HIV testing at some point in the past. For the most part, respondents were between 20 and 29 years of age, and there were slightly more females (Male: 45.4%; Female: 54.6%). Two-spirited refers to homosexuality. Participants were more likely to have less than a high school education (45.8%), or to have completed high school (29.2%), and 81.5% had an income of \$25,000 or less.

**Risk behaviors**

A large proportion of participants surveyed reported HIV risk behaviors. Most participants reported being tested for an STD (57.5%), in spite of the fact that many (53%) reported practicing safe sex (i.e., use of a condom) “always”, or “most of the time”. Few participants were daily alcohol users (8.3%), and 40.6% (n = 89) of participants used illicit drugs, with marijuana being used most often. Off-reserve residents had a statistically

significant higher tendency to use illicit drugs than reserve residents. 56.6% (n = 124) indicated that they were struggling with addiction issues. Addiction refers to the continued use of a substance, in spite of negative consequences (6). A number of participants had utilized harm reduction services (n = 97; 36.3%), with most accessing counseling as a form of harm reduction (n = 83; 31.1%). However, few utilized intravenous drug-related services (n = 14; 5.2%).

**Table I.** Demographic and other information by residence.

	On-reserve (n, %) Total=118	Off-reserve (n, %) Total=101	Prevalence Odds Ratio (95% CI)
<i>Age</i>			
< 19 years	33 (28.4)	20 (20)	1.42 (0.77-2.63)
20-29 years	36 (31.0)	40 (40)	0.78 (0.46-1.31)
30-39 years	30 (25.9)	27 (27)	0.96 (0.53-1.72)
> 40 years	17 (14.7)	13 (13)	1.13 (0.52-2.43)
<i>Gender</i>			
Female	73 (63.5)	45 (44.6)	1.42(0.90-2.25)
Male	42 (36.5)	56 (55.4)	0.66 (0.41-1.07)
<i>Sexual orientation</i>			
Straight	108 (96.4)	77 (78.6)	1.23 (0.82-1.83)
Two-spirited	4 (3.6)	21 (21.4)	0.17 (0.055-0.50) <sup>1</sup>
<i>Education</i>			
Less than high school	45 (38.8)	54 (54)	0.72 (0.45-1.16)
High school	36 (31.0)	27 (27)	1.15 (0.65-2.02)
Some/ completion of post-secondary	35 (30.2)	19 (19)	1.59 (0.85-2.95)
<i>Income \$</i>			
< 15000	18 (22.0)	23 (28.8)	0.76 (0.38-1.52)
15,000 – 25,000	43 (52.4)	48 (60)	0.87 (0.52-1.46)
> 25,000	21 (25.6)	9 (11.3)	2.28 (0.98-5.27)
<i>HIV testing location</i>			
Doctor’s office	39 (76.5)	57 (81.4)	0.94 (0.55-1.62)
Public health unit	12 (23.5)	13 (18.6)	1.27 (0.53-3.0)
<i>Confidentiality concerns related to HIV test result</i>	44 (37.3)	35 (34.7)	1.08 (0.64-1.81)

<sup>1</sup> Statistically significant differences if p < 0.05

**Note:** Numbers listed may not equal total subject population due to missing data. Therefore, percentages were calculated using available denominator data.

### HIV testing

Participants were asked if they had undergone testing for HIV sometime in the past. Overall, 131 participants underwent HIV testing (60.4%). Generally, 20- to 29-year-olds (34.6%) and females (54.7%) were more likely to have undergone an HIV test. Off-reserve residents, two-spirited participants, those previously tested for an STD, those currently using cocaine and those reporting to “never”,

or “some of the time” use clean needles for injection drug use were significantly more likely to undergo HIV testing. Respondents over 40 years of age were significantly less likely to undergo HIV testing. Testing for HIV was usually carried out within a physician’s office (n = 96) and, in general, concerns related to confidentiality of HIV test results were not identified as a barrier for participants.

**Table II.** Behaviors by residence.

	On-reserve (n,%) Total=118	Off-reserve (n,%) Total=101	Prevalence Odds Ratio (95% CI)
<i>Tested for STD<sup>2</sup></i>	59 (50)	67 (66.3)	0.75 (0.49-1.17)
<i>Practice Safe Sex</i>			
Always or most of the time	42 (44.2)	60 (62.5)	0.71 (0.44-1.15)
Sometimes or never	53 (55.8)	36 (37.5)	1.49 (0.89-2.48)
<i>Number of sexual partners</i>			
0-1	78 (76.5)	59 (60.2)	1.27 (0.82-1.97)
2-10	22 (21.6)	31 (31.6)	0.68 (0.37-1.26)
>10	2 (2.0)	8 (8.2)	0.24 (0.050-1.16)
<i>Alcohol use</i>			
Non-drinker	39 (55)	19 (38)	1.45 (0.75-2.79)
Non-daily drinker	28 (39.4)	25 (50)	0.79 (0.42-1.51)
Daily drinker	4 (5.63)	6 (12)	0.47 (0.13-1.75)
<i>Use of any drug</i>	32 (27.1)	57 (56.4)	0.48 (0.29-0.80) <sup>1</sup>
<i>Drug use</i>			
Marijuana	28 (87.5)	44 (78.6)	1.12 (0.59-2.12)
Cocaine	13 (40.6)	28 (50)	0.81 (0.37-1.79)
Heroin	0 (0)	8 (14.3)	---
<i>Total (Use of any one drug)</i>	32	56	
<i>Coping with addiction<sup>3</sup></i>			
Not interested in dealing with addiction	26 (37.1)	10 (18.5)	2.01 (0.89-4.51)
Can't control addiction	14 (20)	9 (16.7)	1.2 (0.48-2.98)
Other methods	30 (42.9)	35 (64.8)	0.66 (0.36-1.12)
<i>Use of harm reduction services</i>			
Needle exchange	2 (4.8)	9 (16.4)	0.29 (0.06-1.42)
Methadone maintenance	0 (0)	3 (5.2)	---
Other	40 (95.2)	43 (78.2)	1.22 (0.68-2.2)

<sup>1</sup>Statistically significant differences if p < 0.05

<sup>2</sup>Sexually Transmitted Disease

<sup>3</sup>Addiction refers to an uncontrolled compulsion to use a substance, in spite of physical, emotional, or social problems that result from the behavior.

**Note:** Numbers listed may not equal total subject population due to missing data. Therefore, percentages were calculated using available denominator data.

**Table III.** HIV testing characteristics.

	Had HIV test (n,%) Total=131	No HIV test (n,%) Total=86	Prevalence Odds Ratio (95% CI)
<i>Age</i>			
<19 years	27 (20.6)	26 (30.2)	0.64 (0.35-1.18)
20-29 years	54 (41.2)	21 (24.4)	1.71 (0.97-3.04)
30-39 years	38 (29.0)	19 (22.1)	1.33 (0.72-2.47)
>40 years	12 (9.16)	20 (23.3)	0.40 (0.19-0.86) <sup>1</sup>
<i>Gender</i>			
Female	68 (52.3)	49 (57.6)	0.91 (0.57-1.43)
Male	61 (46.9)	36 (42.4)	1.11 (0.68-1.82)
<i>Sexual orientation</i>			
Straight	102 (82.3)	82 (98.8)	0.83 (0.56-1.24)
Two-spirited	24 (19.4)	1 (1.2)	16.1 (2.13-121.06) <sup>1</sup>
<i>On-reserve residents</i>			
	53 (40.5)	63 (73.3)	0.55 (0.35-0.87) <sup>1</sup>
<i>Education</i>			
Less than high school	55 (42.0)	43 (50.1)	0.84 (0.52-1.36)
High school	40 (31.0)	23 (27.0)	1.14 (0.64-2.03)
Some/completed post-secondary training	35 (27.0)	19 (22.0)	1.20 (0.65-2.24)
<i>Income \$</i>			
<15000	22 (17.0)	19 (22.0)	0.68 (0.34-1.35)
15,000-25,000	62 (48.0)	27 (31.0)	1.34 (0.77-1.35)
>25,000	17 (13.0)	13 (15.0)	0.76 (0.35-1.68)
<i>Confidentiality concerns related to HIV test result</i>			
	49 (37.4)	30 (34.9)	1.07 (0.63-1.82)
<i>Tested for STD<sup>2</sup></i>			
	103 (78.6)	23 (26.7)	2.94 (1.73-4.98) <sup>1</sup>
<i>Practice safe sex</i>			
Always or most of the time	67 (55.4)	35 (50)	1.11 (0.67-1.83)
Sometimes or never	54 (44.6)	35 (50)	0.89 (0.53-1.50)
<i>Use of any drug</i>			
	63 (48.1)	26 (30.2)	1.59 (0.93-2.71)
<i>Drug use</i>			
Marijuana	47 (75.8)	25 (96.2)	0.79 (0.40-1.54)
Cocaine	37 (59.7)	4 (15.4)	3.88 (1.25-12.0) <sup>1</sup>
Heroin	8 (12.9)	0 (0)	---
<i>Always use a clean needle</i>			
	12 (35.3)	16 (94.1)	0.38 (0.015-0.97) <sup>1</sup>
<i>Sometimes or never use a clean needle</i>			
	22 (64.7)	1 (5.9)	11.0 (1.36-88.66) <sup>1</sup>

<sup>1</sup>Statistically significant differences if  $p < 0.05$ <sup>2</sup>Sexually Transmitted Disease**Note:** Numbers listed may not equal total subject population due to missing data. Therefore, percentages were calculated using available denominator data.

## DISCUSSION

This represents one of the few studies to examine HIV testing and risk behaviors among rural Aboriginal people in Canada. Two hundred and nineteen Aboriginal persons participated in interviews. Off-reserve residents were significantly more likely to use illicit drugs than reserve residents. Sixty percent of participants had reported undergoing HIV testing at some point. Two-spirited participants, those who previously tested for a STD, those currently using cocaine, and those who reported to “never”, or “some of the time” use clean needles, were significantly more likely to undergo HIV testing. On-reserve residents and respondents older than 40 years of age were less likely to undergo HIV testing.

Our study revealed that a substantial number of participants, 60.4% (n = 131), accessed service agencies throughout BC and had been tested for HIV. This proportion is similar to that found in a previous US Aboriginal population study (7). However, off-reserve participants were more likely to have undergone an HIV test. These study findings may reflect different levels, and/or self-assessment, of risk in off-reserve Aboriginals, or a lack of appropriate HIV testing services on the reserves. Interestingly though, concerns related to confidentiality did not appear to contribute to the fact that reserve residents undergo HIV testing less often. In contrast, results from previous research indicate that confidential HIV testing is a concern among Aboriginal communities (8-9). Another factor that may have contributed to less testing for reserve residents pertains to health care staff bias, which has been shown to be of importance in previous work (10). Health care staff training on HIV testing and preven-

tion may be warranted and has been shown to be effective in reducing bias in a previous study (11). Further research is needed to explore barriers that reserve residents encounter when accessing HIV testing.

Our study found that participants at risk for HIV (i.e., two-spirited, previously tested for an STD, use of cocaine, non-use of a clean needle “always”, or only “some of the time”) are being tested for HIV, and this may reflect the impact of HIV prevention efforts. Incorporating principles of Aboriginal culture into HIV testing and prevention services, which has been strongly advocated in order to improve program effectiveness and efficiency, may also explain the testing patterns among those at higher risk (12-14).

Physicians’ offices were the preferred locations to undergo HIV testing. Given the shortage of physician services in rural communities, public health units need to increase the rate of HIV testing. The under-utilization of public health units may be due to staff bias, or to a lack of awareness that testing may be carried in these facilities. Interestingly though, our results suggest that confidentiality concerns do not appear to be significant barrier to HIV testing. More research is needed to explore why public health units are under-utilized as locations for HIV testing.

### *Limitations of the study*

First, caution must be taken in generalizing our study results to the entire Aboriginal population, as the group under study may be at a higher risk for HIV than the general Aboriginal population and, thus, be more likely to seek out testing. Education and income levels of the BC FN population was as follows: 49% had completed High School and 27%

had completed College, or University, 41% had a family income of less \$20,000, 18% between \$20,000-\$29,000, and 42% greater than \$30,000 (5). Thus, our study population appears to occupy a low socio-economic status compared with the general FN population, which may translate into our study population having more risky life-style behaviors. In support of this, 40.3% of our study participants used illicit drugs, compared to another study that found that 27-34% of on-reserve residents used illicit drugs (15).

Second, the survey was self-reported and the results may not reflect actual behavior. However, given that culturally appropriate techniques were utilized (i.e., the use of an Aboriginal advisory committee that advised on the study protocol), the levels of comfort and understanding of the questions were increased, leading to an improved response validity. The study design did not allow researchers to examine particular responses in more detail, such as why needle exchange services were not utilized more often. Qualitative research methods are appropriate for gaining a better understanding of the complex issues raised in this study and, thus, is recommended as a study approach.

## Conclusions

In conclusion, off-reserve residents were significantly more likely to use illicit drugs than reserve residents. Sixty percent of participants had reported undergoing HIV testing at some point. Two-spirited participants, those who previously tested for a STD, those currently using cocaine, and those who reported to “never”, or “some of the time” use

clean needles, were significantly more likely to undergo HIV testing. On-reserve residents and respondents over 40 years of age were less likely to undergo HIV testing. Participants with HIV risk factors are more likely to be tested for HIV in rural areas, and confidentiality issues were not a barrier to testing for most participants. Off-reserve residents were more likely to undergo HIV testing, the reasons for which require additional research. Finally, public health units are often under-utilized as locations to seek testing.

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