

## ORIGINAL ARTICLE

# MOBILITY PATTERNS OF ABORIGINAL INJECTION DRUG USERS BETWEEN ON- AND OFF-RESERVE SETTINGS IN NORTHERN BRITISH COLUMBIA, CANADA

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## ABSTRACT

**Objectives.** In Canada, public health policymakers and Aboriginal health service leaders have warned that the reciprocal movement of Aboriginal injection drug users (IDUs) between urban and rural settings may serve as a critical vector for the continuing spread of HIV among Aboriginal peoples. The current study aimed to describe the mobility patterns of Aboriginal injection drug users between on- and off-reserve locations in northern British Columbia.

**Study Design.** Retrospective medical-chart review of inpatient detoxification records.

**Methods.** We employed a medical-chart review of all self-reported Aboriginal IDUs (n = 302) admitted at least twice to an adult inpatient hospital-based substance-abuse detoxification treatment centre between 4 January 1999 and 31 December 2005, and analysed place-of-residence transitions between on- and off-reserve settings.

**Results.** Over the course of the 7-year study period, 26% (n = 73) of Aboriginal IDUs changed their primary residence from an off-reserve to an on-reserve location. Almost all (96%, n = 23) of those living on-reserve at their first IDU-related admission had moved to an off-reserve setting at a subsequent visit.

**Conclusions.** The high rates of reciprocal movement between on- and off-reserve locations are a critical public health concern. The results show that the problems associated with both IDU and infectious disease are not limited to urban centres. Our results stand as a clear call for support of Aboriginal-directed, culturally appropriate and accessible services to reduce IDU-related harms. The specifics of such programs are a topic for Aboriginal health care leaders and the communities themselves to discuss, develop and implement (*Int J Circumpolar Health* 2007; 66(3): 241-247).

**Keywords:** HIV infections, Aboriginals, North American, substance abuse, intravenous, rural populations, residential mobility

## INTRODUCTION

Aboriginal peoples (i.e., Métis, First Nations and Inuit) comprise a disproportionately high percentage of HIV-positive cases in Canada (1). Among Canadian provinces that provided ethnicity information with HIV-positive test reports, Aboriginal individuals comprised 6% of the population but made up approximately 20% of all HIV-positive test reports between 1998 and 2003 (1). Nationwide data have shown that injection drug use (IDU) now stands as the key mode of HIV transmission within the Canadian Aboriginal community. During the period 1998–2003, 59.4% of Aboriginal HIV-positive cases were attributable to IDU (1). Also, the incidence of HIV among Aboriginal IDUs appears to be almost double that of their non-Aboriginal counterparts. In British Columbia, for example, a 3.5-year cohort study demonstrated that the cumulative incidence of HIV was significantly higher among Aboriginal than non-Aboriginal injection drug users (21.1% vs. 10.7%) in the Downtown Eastside of Vancouver (2).

The World Health Organization and other research groups have identified the mobility patterns of injection drug users as a key mechanism for the introduction of IDU and infectious disease into low prevalence areas (3, 4). A common pattern of diffusion frequently occurs from urban centres into rural areas – localities often without adequate HIV prevention and harm reduction services (5, 6). These urban-to-rural transmission patterns appear more pronounced in marginalized groups worldwide, especially within indigenous populations (3). In Canada, public health policymakers (7, 8) and Aboriginal health service leaders (9) warn that the reciprocal movement of Aboriginal IDUs between urban and rural settings may serve as a

critical vector for the continuing spread of HIV within the greater Aboriginal community. Few studies, however, have examined IDU mobility patterns in Canada.

Almost all of the research on injection drug use in Canada has focused on samples drawn from metropolitan locations, but it is important to note that approximately one-half of Aboriginal people reside outside of urban areas (10). Heath and her colleagues interviewed 322 Aboriginal injection drug users residing in Vancouver, and they found that 48% of urban Aboriginals had travelled outside of Vancouver in the last six months. Among those mobile IDUs, 27% injected while out of the Vancouver region and 19% had unprotected sex (11). Also, in a survey of Aboriginal IDUs ( $n = 126$ ) drawn from 8 of the largest Canadian cities, the Canadian Aboriginal Aids Network (CAAN) found that 79% of Aboriginal IDUs had visited their home community in the last year (9). The available studies have not examined the movement of Aboriginal IDUs from urban to reserve settings. This is an important gap because, according to the Canadian Aboriginal AIDS Network, most reserve communities do not have IDU-related harm reduction services (9).

Our paper adds to the scant existing literature in the following ways: (1) the study included a large treatment sample of Aboriginal IDUs ( $n = 470$ ); (2) we assessed Aboriginal IDUs residing in northern BC – a location where there is a current concern about elevated rates of hepatitis C (HCV) and HIV among young Aboriginal IDUs (12); and (3) we gathered self-reported information on primary place-of-residence as on-reserve or off-reserve, thereby allowing for the analyses of place-of-residence transitions over time. We examined the medical-chart data of all self-reported Aboriginal IDUs admitted over a

7-year period to an inpatient medical detoxification program in northern BC. This study aimed to describe the occurrence of primary place-of-residence transitions among Aboriginal IDUs seeking inpatient substance-abuse detoxification treatment. Our focus was on primary place-of-residence transitions between on- and off-reserve locations. This research provides a unique insight into the mobility patterns of Aboriginal injection drug users seeking inpatient detoxification treatment, not only because individual-level data were collected on re-admission rates over a 7-year period, but also because the study centre provides the only hospital-based detoxification treatment program in the northern two-thirds of the province.

## MATERIAL AND METHODS

### Participants

Among the 3,689 (1,854 Aboriginal) individuals admitted to the Detoxification/Assessment Unit at the Prince George Regional Hospital between 4 January 1999 and 31 December 2005, 828 individuals (470 Aboriginals) reported current injection drug use (defined as IDU within the previous 2 months) in at least 1 detoxification episode.

Aboriginal ancestry was a self-identified ethnic category, including the diverse communities of First Nations, Inuit and Métis individuals. Of the 470 Aboriginal IDUs admitted during the study period, 8.7% of the Aboriginal patients ( $n = 41$ ) reported their primary residence as on-reserve. Approximately 25% of the Aboriginal and non-Aboriginal IDUs listed their primary place of residence as a location in northern British Columbia outside the city of Prince George.

To identify place-of-residence transitions, at least 2 detoxification visits were required for each individual. This selection criterion resulted in a final sample of  $n = 302$  Aboriginal IDUs. A description of this final sample, along with a comparison to those with only 1 visit, can be found in Table I.

Ethical approval for this study was given by the Prince George Regional Hospital Research Review Committee.

### Treatment setting

The Detox/Assessment Unit offers a 20-bed, mixed-gender inpatient detoxification program for both alcohol and drugs in Prince George, British Columbia. Located approximately 800 km north of Vancouver, the city of Prince George (pop. 80,000) is the goods-and-services hub for communities in the northern two-thirds of the province. The catchment area of the inpatient detoxification centre spans the northern two-thirds of the province of British Columbia. Patients from any location in this area can gain access to the inpatient detoxification program. During the 7-year period, almost all of the patients reported their primary place of residence as within the catchment area.

While this detoxification program is not specifically designed for Aboriginals, it does provide a formal full-time Aboriginal liaison staff position so as to accommodate the specific needs of self-identified Aboriginal individuals during the process of admission, treatment and discharge. All admissions are voluntary, and patients can gain admission through drop-in services or by referral from a medical, social-service or mental health professional. Inpatient medical detoxification treatment can be accessed free of charge by anyone registered with the universally provided provincial medical

services plan. No one was denied service because of an inability to pay. A full description of the medical detoxification protocols can be found in our prior work (13).

Also, each patient who completes the detoxification period is given a discharge interview, which entails a collaborative process to structure the patient's post-discharge referral and continuing aftercare treatment. The patient is given a number of referral targets, but the medical charts do not include information on any of the post-discharge activities of the client.

### Data collection

At admission, patients were interviewed to assess demographic and drug use information. During this interview, individuals were asked if their primary place of residence was situated on-reserve or off-reserve. If a patient remained in the unit for more than 24 hours, a registered nurse collected any incomplete information from the general physical assessment, verifying any seemingly incongruent information gathered from the initial intake interview. In the final sample ( $n = 302$ ),  $n = 44$  patients stayed less than 24 hours on their first visit.

### Medical-chart review

After the patient was discharged, the medical chart was organized for chart abstraction and data entry, according to a standardized protocol. The initial screening interview, general physical assessment, medications administered and medical evaluative procedures administered were each highlighted in a specified section of the medical chart. Two data entry clerks were primarily responsible for medical-chart abstraction and data entry in this 7-year medical-chart review. After the data was entered, we used

traditional data-cleaning techniques to spot possible data entry errors (14).

### Statistical analyses

At each detoxification treatment admission, patients reported their current primary place of residence as being on-reserve or off-reserve. The primary unit of analysis was whether a change occurred in this binary variable across admissions. The binary transition variable required at least 2 admissions to calculate. As a result, individuals with only 1 admission during the 7-year period were excluded from the residence-transition analyses. To identify possible systematic differences between those IDUs excluded and those included in the analysis, we compared, using t-tests and chi-square analyses, returning and non-returning IDUs on the sociodemographic and treatment-related variables that are listed in Table I.

## RESULTS

In the final sample ( $n = 302$ ), 7.9% ( $n = 24$ ) reported their primary residence as on-reserve at their first IDU-related admission. Among those initially off-reserve, 26% ( $n = 73$ ; 95% CI, 21%–31%) reported their primary residence as on-reserve at a subsequent detoxification admission. Among those initially on-reserve, 96% ( $n = 23$ ; 95% CI, 88%–100%) subsequently listed their primary place of residence as off-reserve.

Our calculation of place-of-residence transition rates required at least 2 admissions to detoxification treatment during the study period. As a result, individuals who were not readmitted to detoxification treatment were excluded from our analyses. A comparison of the returning and non-returning groups demon-

strated few differences: the returning group had a higher rate of prior detoxification treatment and current methadone maintenance treatment, and a lower rate of post-secondary education (see Table I). The lack of differences between returning and non-returning groups suggests that the transition rates found in our study would probably not be different if we included data from individuals lost to follow-up (i.e., individuals who were not readmitted to detoxification treatment during the study period).

## DISCUSSION

Drawn from a 7-year medical-chart review of all detoxification admissions indicating current intravenous drug use, this study found that many Aboriginal IDUs moved between

urban and reserve settings. For example, among Aboriginal IDUs reporting residence in an off-reserve location at their first IDU related admission, 26% (n = 73; 95% CI, 21–31%) indicated a subsequent transition to a reserve setting as their primary place of residence. Likewise, 96% (n = 23; 95% CI, 88–100%) of Aboriginal IDUs reporting on-reserve residence at their first IDU-related admission reported a transition in primary place of residence to an off-reserve setting.

Aboriginals account for approximately 9% of the population in the Prince George region (10), but represent 57% of all IDUs admitted to the inpatient detoxification program. The substantial number of Aboriginal IDUs in our treatment-seeking sample indicates that injection drug use is not only a “big-city” concern isolated to metropolitan centres. A recent

**Table I.** Comparisons of returning and non-returning Aboriginal IDUs.\*

Variable	Returner (n = 302)	Non-returner (n = 168)	p value
Gender (Male)	168 (55.6%)	99 (58.9%)	0.49
Unemployed	274 (90.7%)	144 (85.7%)	0.10
No fixed address	111 (36.8%)	51 (30.4%)	0.16
Married /common-law	59 (19.5%)	33 (19.6%)	0.98
Post-secondary education	13 (4.3%)	15 (8.9%)	0.04 §
Methadone maintenance	26 (8.6%)	6 (3.6%)	0.04 §
Currently reside on reserve	24 (7.9%)	17 (10.1%)	0.42
Hepatitis C positive†	145 (48%)	73 (43.5%)	0.34
Prior detox. admissions	198 (65.6%)	74 (44.0%)	<0.01 §
Self-referred	185 (61.3%)	89 (53.0%)	0.08
Primary drug of detoxification			0.18
Alcohol	69 (22.8%)	28 (16.7%)	
Cocaine	161 (53.3%)	87 (51.8%)	
Opiates	64 (21.2%)	49 (29.2%)	
Other	8 (2.6%)	4 (2.4%)	
Polydrug use‡	153 (50.7%)	80 (47.6%)	0.53
Age, years			
Mean (SD)	33.0 (8.5)	33.8 (9.5)	0.37
Range	17.2-60.1	18.3-59.1	

\* Measured at first IDU-related admission.

† Self-reported HCV status.

‡ Defined as self-reported problematic usage of 3 or more drugs.

§ p < 0.05.

study has demonstrated elevated rates of HIV (10%) and hepatitis C (64.2%) among a sample (n = 112) of young Aboriginal IDUs in Prince George (12). As a result of these findings, the issue of IDU mobility between urban, rural and reserve settings has become a critical public health concern, especially since most northern and rural communities, including Aboriginal reserves, do not have needle-exchange programs or other IDU-related harm reduction services (9). In addition, a misconception exists among many rural residing Canadian IDUs, both Aboriginal and non-Aboriginal alike, that living outside of metropolitan centres provides a shield against infectious disease (9, 15). Our results support an urgent call for the implementation of accessible, culturally specific harm reduction and infectious disease education programs for Aboriginal peoples residing in urban, rural and reserve areas in northern British Columbia.

The findings of this paper must be considered in light of a number of limitations. To calculate the rates of place-of-residence transition in our study, we relied on a sample of Aboriginal IDUs with at least 2 detoxification admissions to the study site during the period from 1 January 1999 to 31 December 2005. This 2-visit criteria excluded approximately 36% of the Aboriginal IDU sample. The included and excluded groups were, however, more similar than different. We do not know if the excluded group made more or fewer transitions than the group included in our analyses. While researchers have acknowledged that IDU populations are "hidden" and representative samples are not possible (16), the World Health Organization has chosen substance-abuse treatment IDU samples as important sentinels for drug use patterns in the larger

IDU populations (17, 18). Also, it is important to acknowledge that the trends described in this study relied on a sample of detoxification treatment-seeking individuals and, as a result, the residence transition trends in our study may not extend directly to the larger IDU population in northern British Columbia. It is important to note that our medical-chart study did not capture short- or long-term visits, but only actual changes in self-reported primary place of residence. As a result, our study probably underestimates the amount of actual movement of Aboriginal IDUs between on- and off-reserve settings.

## Conclusions

In Canada, public health policymakers and Aboriginal health service leaders have stated that the movement of Aboriginal IDUs between urban and rural settings may serve as an important mechanism for the continuing spread of HIV among Aboriginal peoples. Over the course of our 7-year medical-chart study, 26% (n = 73) of the Aboriginal IDU sample changed their primary residence from an off-reserve to an on-reserve location. Most individuals living on-reserve at their first IDU-related detoxification admission moved to an off-reserve setting at a subsequent visit. Our findings support the importance of harm reduction or other health care initiatives for Aboriginal IDUs and their communities. The specifics of such programs are a topic for Aboriginal health care leaders and the communities themselves to discuss, develop and implement. Although our data speak to this need, they cannot inform the details of such an approach.

### Acknowledgements

Undertaking inpatient detoxification requires both courage and tenacity. This study recognizes such strengths in the Aboriginal individuals undertaking the withdrawal management process. Also, the staff at the study site, especially the administrative clerks, carried much of the difficult work necessary for this project.

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