

Incidence of Acute Hepatitis B and Hepatitis C in the Canadian Aboriginal Population, 1999-2000

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A collaborative project of the Division of Health Care Acquired Infections, Centre for Infectious Disease Prevention & Control, Health Canada¹; City of Ottawa, Ottawa, Ontario²; Capital Health, Edmonton, Alberta³; Calgary Health Region, Calgary, Alberta⁴; Manitoba Health, Winnipeg, Manitoba⁵; Vancouver-Richmond Health Board, Vancouver, British Columbia⁶; & Provincial Epidemiology Service, Department of Health and Wellness, New Brunswick⁷

Background

- The World Health Organization (WHO) estimates the global prevalence rates of Hepatitis B (HB) and Hepatitis C (HC) infection to be 5% and 3% respectively.
- In Canada, the prevalence of HB and HC infection has been estimated to be 0.5-1.0% and 0.8% respectively.
- The burden and distribution of HB and HC infection among Canada's Aboriginal population is currently not well established.

Objective & Data Source

Objective: To examine the incidence of acute HB and HC infection in the Aboriginal population in relation to that observed for the Non-Aboriginal Canadian-born population of Canada.

Data Source: Data were derived from four sites participating in the Enhanced Surveillance System for Acute Hepatitis B and C coordinated by the Health Care Acquired Infections Division, Health Canada. In total, the four sites account for approximately 11% of the Canadian population during the period 1999 and 2000.

Methodology

Data Collection: The enhanced surveillance uses a consensus protocol and a standardized case definition to ensure consistency and comparability of data across sites.

Pre-defined consensus questionnaires are utilized in the investigation of all newly identified cases. Relevant clinical, laboratory and epidemiologic data are collected from several different sources, including the reporting laboratory, physicians and consenting cases.

Denominator Data

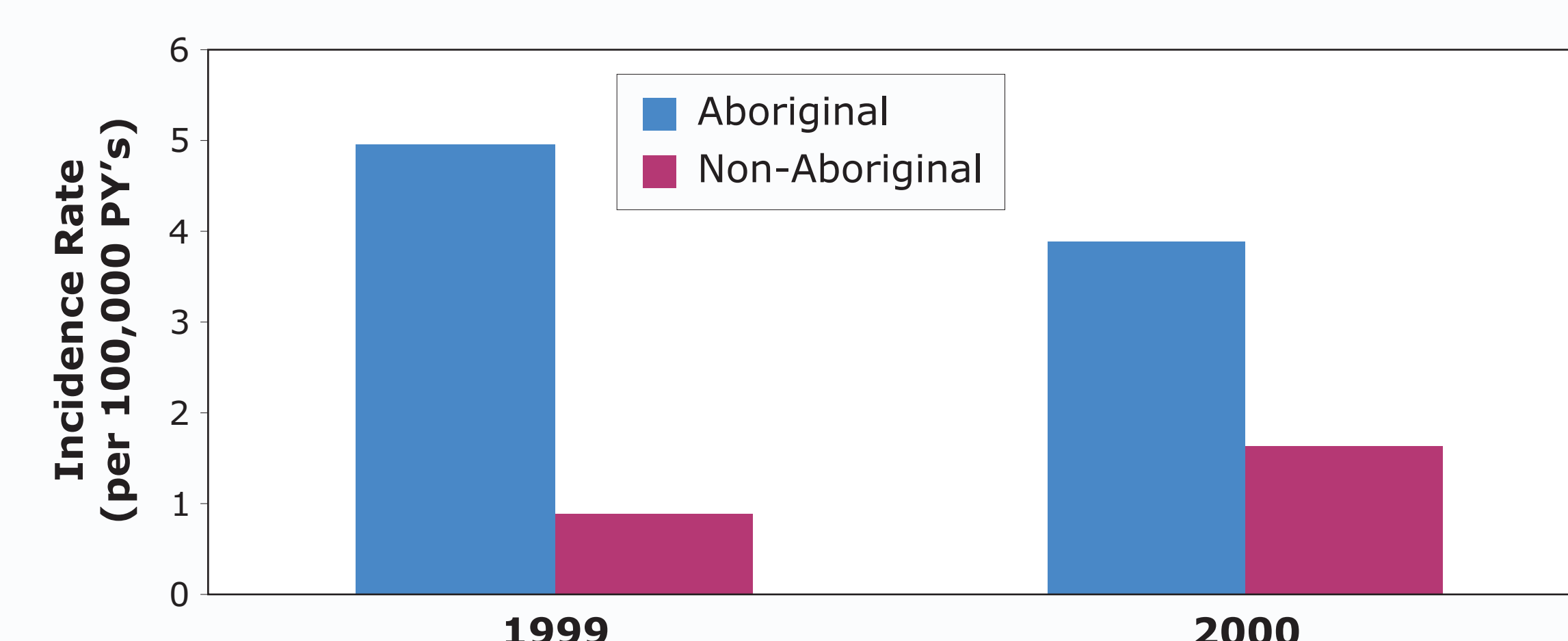
Aboriginals: In Canada, the Aboriginal population is composed of the First Nations, Inuit and Métis. Using 1996 Canadian Census data, the number of Aboriginals was estimated by calculating the proportion of Aboriginals for each of the 4 health region populations and applying that proportion to their respective populations for 1999 and 2000.

Non-Aboriginal Canadian-Born: was estimated in 2 steps using the 1996 Canadian Census data – (1) calculating the non-immigrant population (ie., excluding immigrants & non-permanent residents) for the 4 health regions and applying that proportion to their respective 1999 and 2000 populations; and (2) subtracting the estimated Aboriginal population from the non-immigrant population.

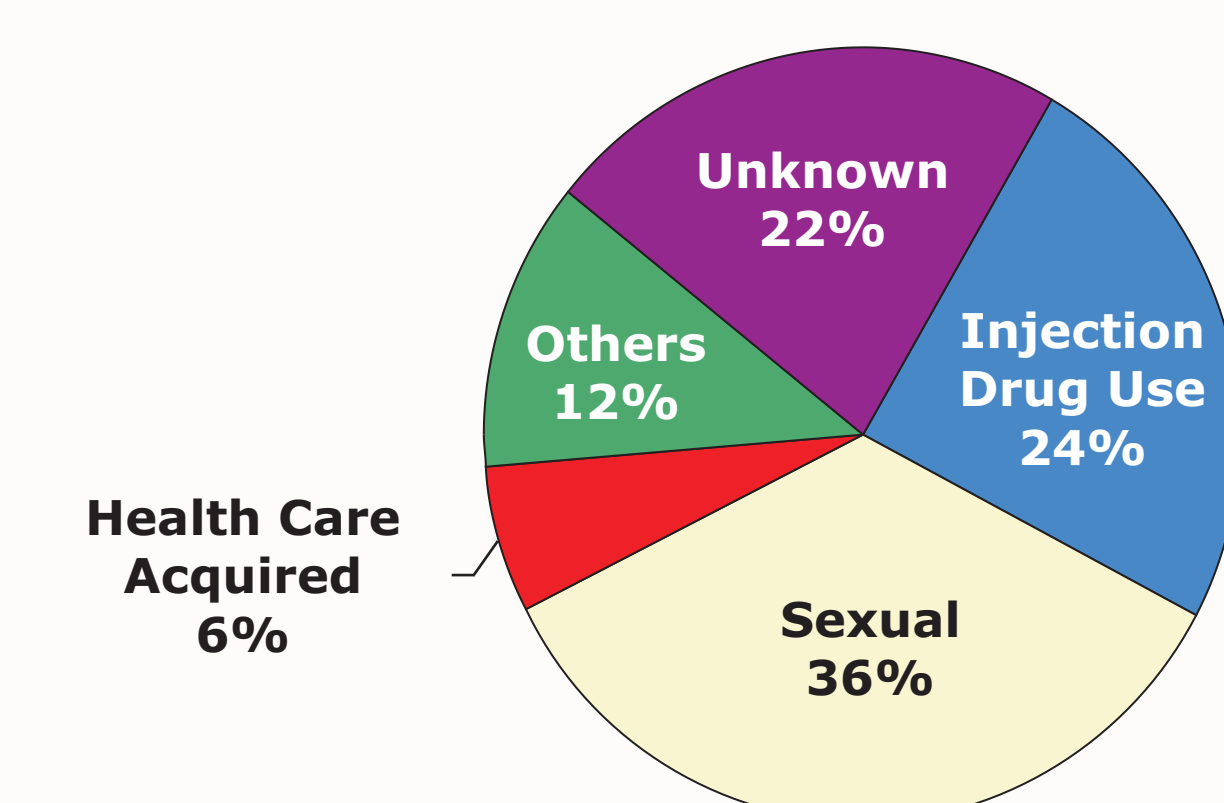
Results: Incidence Rates

	Hepatitis B		Hepatitis C	
	1999	2000	1999	2000
Aboriginal	4.96	3.89	18.8	17.5
Non-Aboriginal Canadian-born	0.88	1.63	2.25	2.57
Rate Ratio	5.6	2.4	8.4	6.8

Incidence of Acute Hepatitis B: Aboriginal vs. Non-Aboriginal Canadian-Born 1999-2000



Distribution of Mutually Exclusive Risk Factors for Acute Hepatitis B, Aboriginal and Non-Aboriginal Canadian-Born, 1999-2000 Combined



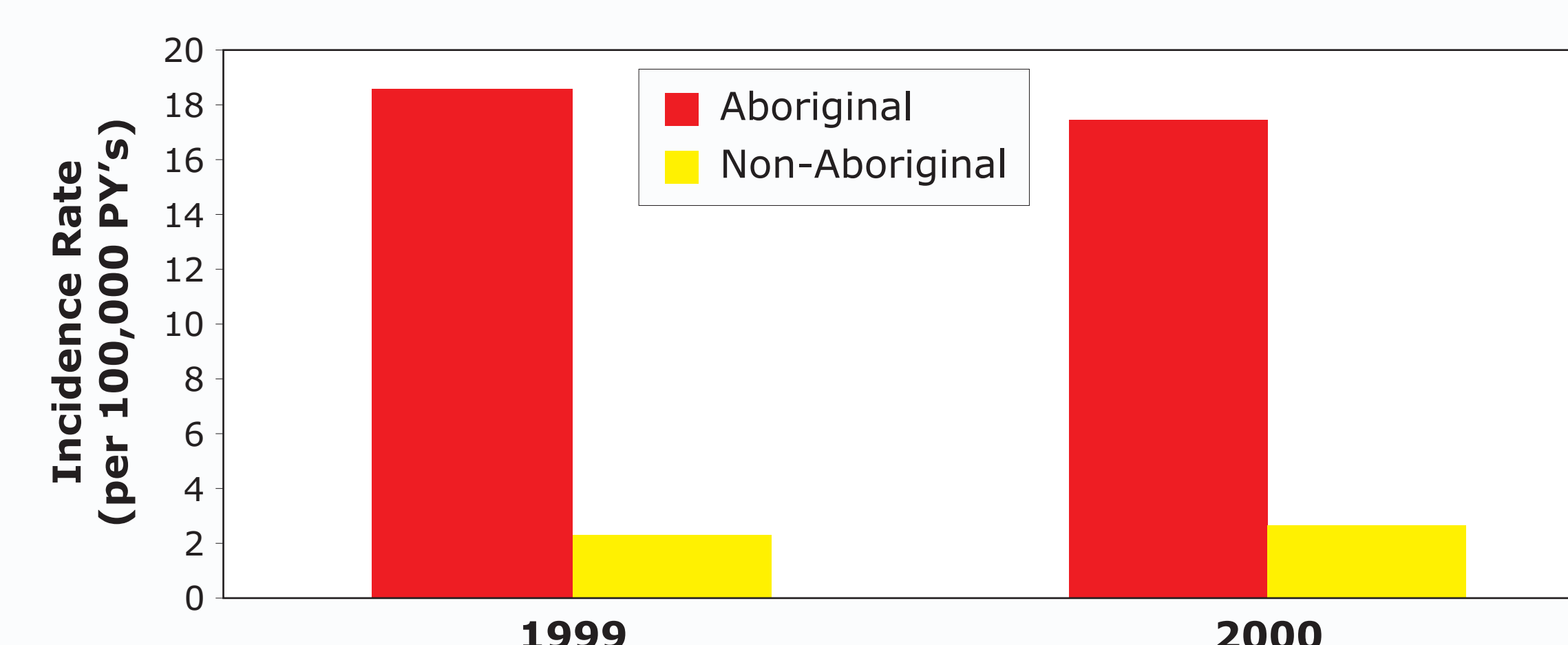
Sexual includes: Heterosexual partners >2, MSM, sex with Hepatitis B carriers
Health Care Acquired includes: Blood transfusion, blood product, hemodialysis, hospitalization, history of surgery, organ transplant, history of dental visit
Other includes: Drug snorting, blood contact, Hepatitis B carrier in family, institution associated, incarceration

Risk Factors: The number of HB and HC cases interviewed for the period 1999-2000 was 49 and 129 respectively.

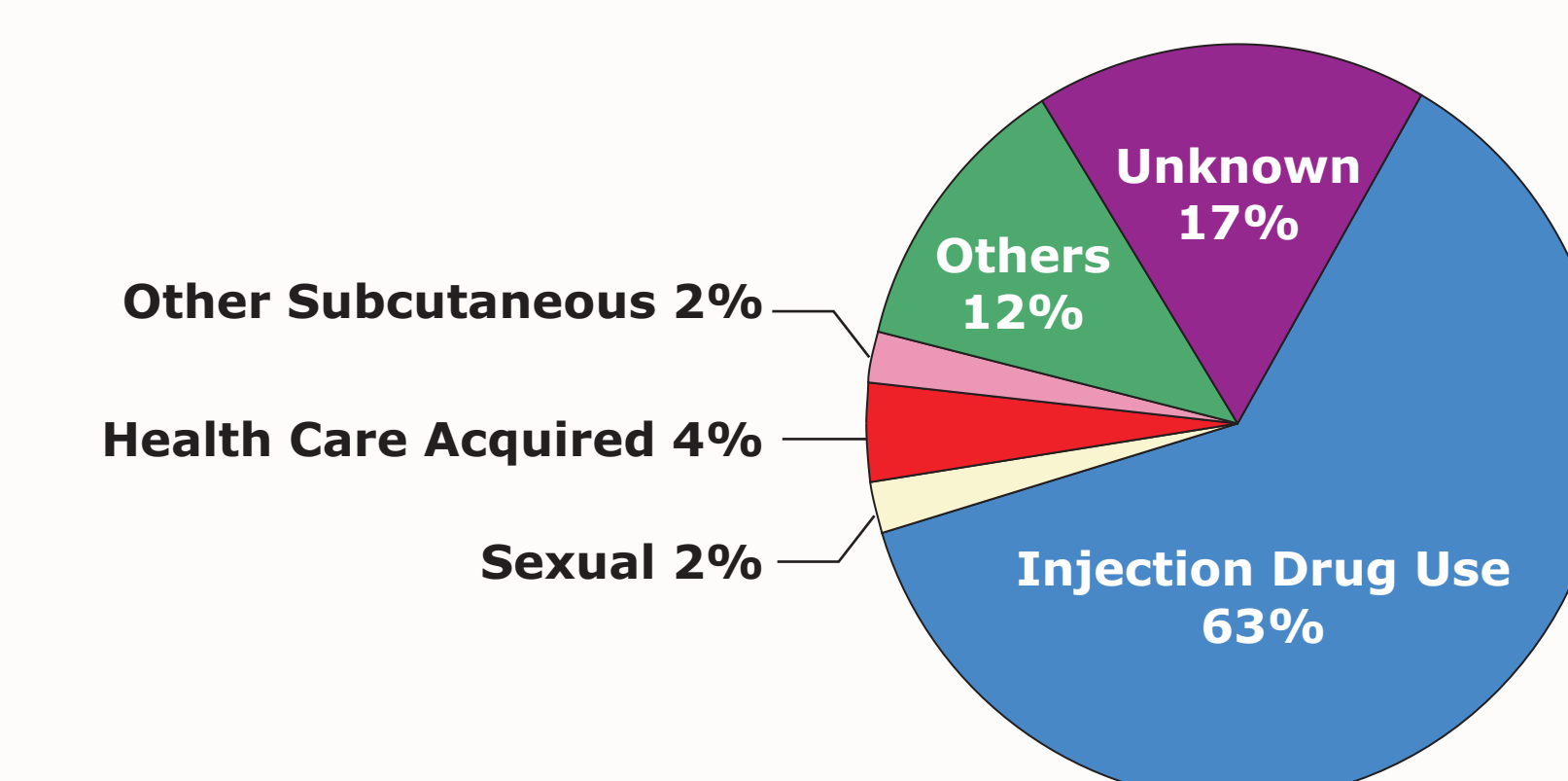
Mutually exclusive assignment of cases means that if a case reported more than one risk factor during the six month period prior to disease identification it was assigned to the risk factor with the greater degree of transmission efficiency.

For both the Aboriginal and Non-Aboriginal Canadian-born population groups, injection drug use accounted for over 60% of the incident HC infections while sexual activity accounted for 36% of the incident HB infections during the 1999-2000 period. A single case of HB was associated with blood transfusion.

Incidence of Acute Hepatitis C: Aboriginal vs. Non-Aboriginal Canadian-Born 1999-2000



Distribution of Mutually Exclusive Risk Factors for Acute Hepatitis C, Aboriginal and Non-Aboriginal Canadian-Born, 1999-2000 Combined



Sexual includes: Sex with Hepatitis C carriers
Health Care Acquired includes: Blood transfusion, blood product, hemodialysis, hospitalization, history of surgery, organ transplant, history of dental visit
Other includes: Drug snorting, blood contact, Hepatitis C carrier in family, institution associated, incarceration
Other Subcutaneous includes: Tattooing, body piercing, acupuncture

Limitations

- Calculation of population-specific denominators was based on the 1996 Canadian Census data. Changes in the patterns of immigration and/or Aboriginal migration from rural communities to urban centres will not have been captured.
- The ethnicity variable was only introduced in April of 1999, so acute cases identified during the period from January 1st to March 31st would be missing this data. If any of these cases were Aboriginal, this would result in an underestimate of the incidence for Aboriginals in 1999.
- A number of symptomatic cases may have been inappropriately classified as acute when in fact they may have acquired their infections some time ago but have only recently developed recognizable symptoms. This misclassification bias would result in an overestimate of the incidence rates.
- Aboriginal data represents urban dwelling Aboriginals and may not be generalizable to the Aboriginal population as a whole.

Conclusions

- Incidence of acute HB and HC infection among the Aboriginal population is on average 4 and 7 times higher, respectively than that observed in the Non-Aboriginal Canadian born population.
- For HC, injection drug use accounted for the vast majority of new infections. For HB, sexual activity and injection drug use accounted for most new cases.
- The observed inequality between Aboriginals and Non-Aboriginals reinforces the need for targeted disease prevention and control interventions as well as ensuring equitable access to health care services.