

Injuries in Eeyou Istchee: A description based on the statistics



Prepared by **Ellen Bobet**, Confluence Research and Writing Inc.
for the **Public Health Department**

Public Health Occasional Paper **Number 10**
Cree Board of Health and Social Services of James Bay

November 2003

Injuries in Eeyou Istchee: A description based on the statistics

Prepared by **Ellen Bobet**, Confluence Research and Writing Inc.
for the **Public Health Department**

Public Health Occasional Paper **Number 10**
Cree Board of Health and Social Services of James Bay

November 2003

To obtain a copy of this report, please contact:

Public Health Department
Cree Board of Health and Social Services of James Bay

Fax: (514) 861-2681 or (819) 855-9031

e-mail: cree.public.health@ssss.gouv.qc.ca

Project coordination: **Jill Torrie**, Public Health Department

Cover design &
page layout: of intro: **Katya Petrov**: katya_p@cam.org

Photos: **George Diamond** (speedometer and speed limit)
Catherine Godin (main picture)
Reggie Tomatuk (kids with bikes, skidoo and man with canoes)

© All rights reserved Cree Board of Health and Social Services of James Bay, Chisasibi, Quebec JOM 1E0,
November 2003

ISBN: 2-550-41929-4

Legal deposit: 4th trimester 2003

National Library of Canada

Bibliothèque Nationale du Québec

FOREWORD TO THE OCCASIONAL PAPERS SERIES

The Occasional Papers Series includes public health reports produced for the Cree Board of Health and Social Services of James Bay that address a single topic, and, are either of small size, or are expected to have a limited distribution. Printing such reports in a series is a way to standardise their appearance and to help keep track of them.

As many injuries can easily be prevented, the topic of injuries and injury prevention is important for public health intervention. This document is a description of what is known about the statistics on injuries in Eeyou Istchee. Unfortunately, until now, the Cree Board of Health has only had access to records about injuries that are serious enough to cause death or send the injured person to hospital. In the vast territory of Eeyou Istchee (which is the size of Newfoundland), this usually means being sent far from home. Serious injuries happen often enough to cause concern: around 7 Eeyouch die each year while about 125 are hospitalised. Another way to think about these numbers is to consider that in the close-knit communities of the Eeyouch, those deaths leave behind at least fourteen extended families in grief; while the concern for the people in hospital must be worrying several hundred families. We have no idea of the size of the “walking wounded” - those who are able to have their injuries treated in local clinics – because there are no existing records without medical files and police reports. This document was prepared in the hopes of stimulating informed discussion in this important area and as a start to help interested groups who want to plan injury prevention activities to reduce these statistics.

FOREWORD TO THE INJURY REPORT

When I began to write the proposal for this study a number of years ago, I contacted people at the First Nations and Inuit Health Branch at Health Canada to obtain material on injury studies and prevention programs in First Nations in Canada. I just assumed they would send me a box, or at least a hefty package, with all kinds of good ideas for us to copy. The person I spoke with at that time was Ellen Bobet, the consultant who prepared this study for us and who was then still working for the government. She informed me that there was little existing material. Surprisingly, some fact sheets that we had produced for our region through an earlier study carried out by Dr. Peter Barss, were one of the few “resources” on the situation about injuries in First Nations. Fortunately for us, Ellen retired from Health Canada soon afterwards, the proposal was funded, and we were able to encourage her to pursue her interest in First Nations injuries in Eeyou Istchee. The result is this report, some associated fact sheets, and a nascent injury prevention program.

Existing injury-prevention programs have tended to focus on problems that are common in urban areas and in populations with high proportions of older people. For example, “falls” among the elderly are an important issue in the South. Fewer programs address problems that are common in northern areas where populations are predominately young. Consider how many people on the Island of Montreal seriously need to know about snowmobile safety. In the same way, the models, or general plans, for preventing injuries have mostly been developed for the general population. But do they work in northern areas? Are the messages appropriate? How do they translate into Cree? We prepared this report because it is important for people who live in regions such as Eeyou Istchee to identify their main injury problems and patterns so that they can begin to target their local priorities. Otherwise, the statistics may not change.

In our office, Dr. Elizabeth Robinson’s well-known example of the need to adapt southern solutions is her rather lifelike Eeyou “baby”, wrapped in a traditional waspisuuwin, sitting in the corner of her office. As the surrogate “parent”, Dr. Robinson spent several years looking for a car seat that could be used with a swaddled baby. Her prime concern was that Cree Health Board vans, which transport people around the region for medical services, were not using car seats to transport infants home from the hospital – sometimes over very poor roads in bad weather conditions. Because this kind of dilemma is of little interest in the South, it took several years to identify a flat-style of car seat made especially for infants who are wearing casts and cannot be strapped between their legs.¹

¹ Dr. Elizabeth Robinson is a public health doctor who has worked in Eeyou Istchee for many years.



This report began as a research project to analyse the statistics and to describe the patterns of serious Eeyou injuries. Looking at 17 years of death records and 5 years of hospitalisation records, the study identified which groups tend to die from their injuries or be admitted to hospital, and the kinds of injuries they suffered. For some type of injuries, for example car injury deaths, the study also had information about other factors at the time of the incident, like alcohol use or weather conditions.

The purpose of this report is to set injury-prevention priorities and decide on the most appropriate prevention activities. Hopefully, this will lead to an injury prevention program for Eeyou Istchee, the development of appropriate resource materials to address specific injury problems ("tool kits"), and a better understanding of the general approaches to injury-prevention that will be successful in Eeyou communities and northern First Nations in general.

In our Public Health Department, we are also interested in developing an injury-surveillance framework for Eeyou Istchee. We are presently assessing whether the injury-surveillance indicators being considered by Quebec's Public Health Program are applicable in our region; we are considering the most appropriate time intervals for compiling our injury data, since we have a relatively small population; and, we are interested in exploring how we might use community-based systems to gather local data that would be complementary to the data that we are already collecting at the regional level. Potentially, such community-based systems might also be a means to stimulate injury prevention activities at the local level.

We hope this report will also help other First Nations to become interested in their own patterns of injuries so they too can begin to develop effective prevention activities. We encourage you to copy anything in this report that could help your community or region, but I cannot say whether Dr. Robinson would go so far as to lend her 'baby'.

Jill Torrie

Director of Specialised Services
Public Health Department

THE OCCASIONAL PAPER SERIES

- Number 1: Diane Moir, *Planning for participation in community development* (1996).
- Number 2: Carl Murphy, Ph.D., *Health promotion theory and the Cree School Health Project: a review of the literature* (1997).
- Number 3: Bella Moses Petawabano and Jill Torrie, *How ready are we for "school health"? Results of a short survey of the schools in Eeyou Istchee* (1997).
- Number 4: CIET, *Report on protective factors for substance abuse in James Bay Cree communities* (1998).
- Number 5: Noreen Willows, Ph.D., & Katherine Gray-Donald, Ph.D., *Anemia in James Bay Cree infants of northern Quebec: A report and recommendations written for the Cree Board of Health and Social Services of James Bay* (2002).
- Number 6: Melanie Rock, Ph.D., *The new consumption: rethinking cause-effect relationships in diabetes mellitus, distress, and duress: a literature review* (2002).
- Number 7: Eastmain First Nation Public Health Department. *Breakfast in Eastmain: Understanding the first meal of the day from a Cree perspective to develop strategies for promoting better nutrition among schoolchildren* (2000 and 2002).
- Number 8: Jill Torrie, Dianne Moir, Robert K. Muir, Bella Moses Petawabano, *Miyuukanuweyimisutaau (Taking care of ourselves): A discussion paper on the integration of an Eeyou ethos and practices into health and social services in Eeyou Istchee* (2003).
- Number 9: Jill Torrie (editor), *Non-traditional pregnancies in Eeyou Istchee* (2003).
- Number 10: Ellen Bobet, *Injuries in Eeyou Istchee: A description based on the statistics* (2003).



Table of Contents

List of Tables	2
List of Figures	3
Executive Summary	4
Introduction	7
Methods	8
Injury Mortality in Eeyou Istchee	9
Injury as a cause of death	9
Trend over time in injury deaths	10
Causes of injury death	12
Injury deaths by gender	17
Intentional vs. unintentional injury deaths	17
Age distribution of injury deaths	18
Geographic distribution of injury deaths	19
Injury Hospitalizations in Eeyou Istchee Over the 1996/97-2000/01 Period	22
Injury as a cause of hospital admissions	22
Trend over time in injury hospitalizations	24
Causes of injury hospitalization	26
Injury hospitalizations by gender	30
Hospitalizations for intentional vs. unintentional injuries	31
Age distribution of injury hospitalizations	31
Geographic distribution of injury hospitalizations	34
Hospitals treating Eeyou Istchee residents for injury	36
Discussion	37
A summary of the morbidity and mortality information	37
Priorities for intervention	38
Motor vehicle crashes	38
Suicide and self-injury	39
Assault	39
Drowning	39
Falls	40
Some avenues for intervention	40
Appendix 1: Coding and Treatment of the Data Files	43
Appendix 2: Recommendations for Public Health Surveillance of Injuries in Eeyou Istchee	47
References	60

List of Tables

Table 1	Injury deaths in Eeyou Istchee by year, 1985-2001	10
Table 2	Injury deaths by type and sex	12
Table 3	Deaths from drowning or motor vehicle crashes, by month of occurrence	14
Table 4	Fatal injuries involving firearms	14
Table 5	Rates of intentional and unintentional injury death, by sex	17
Table 6	Number of injury deaths by age group and type of injury	18
Table 7	Injury deaths by community	21
Table 8	Injury deaths by type, coastal and inland	21
Table 9	Number of injury hospitalizations over time: selected injuries	24
Table 10	Injury hospitalization rates by type	27
Table 11	Number of hospitalizations for self-injury, by age and sex	28
Table 12	Average length of hospital stay for major types of injury	29
Table 13	Injury hospitalizations by type: males and females compared	30
Table 14	Hospitalizations for intentional and unintentional injuries	31
Table 15	Injury hospitalizations by type of injury and age group: numbers	32
Table 16	Injury hospitalizations by type of injury and age group: rates	33
Table 17	Injury hospitalizations by type, coastal and inland communities	36

List of Figures

Figure 1	Age-standardized injury mortality rates, Eeyou Istchee and Quebec total	9
Figure 2.1	Injury death rates in Eeyou Istchee, 1985-2001: both sexes	10
Figure 2.2	Injury death rates in Eeyou Istchee, 1985-2001: males	11
Figure 2.3	Injury death rates in Eeyou Istchee, 1985-2001: females	11
Figure 3.1	Rates of fatal motor vehicle crashes over time	15
Figure 3.2	Drowning rates over time	15
Figure 3.3	Suicide rates over time	15
Figure 4.1	Fatal injuries by type: Eeyou Istchee	16
Figure 4.2	Fatal injuries by type: Quebec total	16
Figure 4.3	Fatal injuries by type: First Nations people in Canada	16
Figure 5	Injury death rates: males and females compared	17
Figure 6	Injury death rates by age group	18
Figure 7	Injury death rates by community	19
Figure 8.1	Injury deaths by type: coastal communities	20
Figure 8.2	Injury deaths by type: inland communities	20
Figure 9	Hospital separations by type of injury	22
Figure 10	Injury hospitalization rates, Eeyou Istchee and Quebec compared	23
Figure 11	Injury hospitalization rates over time	24
Figure 12	Hospitalization rates for self-injury over time	25
Figure 13	Hospitalization rates for falls over time	25
Figure 14	Hospitalization rates for motor vehicle traffic accidents over time	25
Figure 15	Injury hospitalization rates by type of injury	26
Figure 16	Number of injury hospitalizations by age group	32
Figure 17	Injury hospitalization rates by community	34
Figure 18	Injury hospitalization rates, coastal and inland	35
Figure 19	Injury hospitalization rates, coastal and inland, by type of injury	35

Executive Summary

This document provides a statistical portrait of injuries in Eeyou Istchee, based on seventeen years of death statistics and five years of injury-hospitalization statistics. It attempts to combine the information from these two sources in order to identify priority areas for intervention. It also suggest some ways that the Cree Health Board could support action in individual communities.

Main findings

Taken together, the mortality and hospitalization statistics suggest the following description:

- Injuries account for 16% of all deaths in the Territory, and 5% of all hospitalizations. On average, there are 7 deaths from injury each year, and 125 admissions to hospital.
- Injuries are not the biggest health problem in the Territory: cardiovascular diseases account for more deaths, and respiratory conditions lead to more hospitalizations. But they are still a major concern: they are the 3rd-ranked cause of death, and the 6th-ranked cause of hospitalization. Further, injuries may well be easier to prevent than some other conditions; and because injuries tend to kill people at young ages, each injury prevented would preserve many years of life.
- Injuries are somewhat more of a problem in Eeyou Istchee than in the rest of Quebec: hospitalization rates for injury are definitely higher, and mortality rates are somewhat higher. Above all, there are some differences in the *types* of injury that are most important in Eeyou Istchee as compared to the rest of the province, with drowning being much more of a concern, and falls somewhat less of one.
- The leading causes of injury death are motor vehicle crashes, drowning, and suicide, while the leading causes of hospitalization are falls, motor vehicle crashes, suicide/self-injury, and assault.
- Injury rates are decreasing over time, in terms of both death rates and hospitalization rates. But there are a few exceptions: self-injury rates are not decreasing, and – in contrast to the rest of Quebec and Canada – motor vehicle death rates in Eeyou Istchee are stable or actually rising.
- Males are over-represented for almost all types of injuries, especially the fatal ones.
- People age 15-24 are at especially high risk for many types of injury.

- The Inland communities have higher rates of injury death and much higher rates of injury hospitalization than the Coastal communities. The Inland communities seem to have particularly high rates of traffic accidents, snowmobile crashes, falls, and assaults.
- About 1/5 of the injuries (both the deaths and the hospitalizations) are intentional, meaning that they involve either self-injury/suicide or assault/homicide. Despite concerns about use of firearms in the Territory, there were relatively few firearm accidents, and firearms were rarely used in homicides or assaults. However, firearms were used in a large proportion of the completed suicides.

Suggested Priorities for Injury-Prevention Programs

Based on the statistics, injury-prevention programs in the Territory might logically focus on one or more of:

- Motor vehicle crashes
Car/truck crashes, and secondarily those involving snowmobiles and all-terrain vehicles
- Suicide and self-inflicted injury
Interventions should be targeted especially at people age 15-30
- Drowning
Focus should be on preventing hunting and fishing accidents among younger men
- Assault
Focusing primarily on men under age 40
- Falls
Focus should be on the elderly and on young children

Some avenues for intervention

Interventions to prevent some of these injuries are probably best planned with the communities or health staff who will actually be involved in implementing them. This will help to ensure that they are adapted to local circumstances and priorities, and that staff have some commitment to the interventions. A useful role for the Commission and/or for an outside resource person might include:

- Publicizing the statistics on the size and nature of the injury problem.

- Working with communities that want to undertake injury-prevention projects, and promoting involvement of different sectors (e.g., medical staff, public health staff, police, home care workers, Head Start programs).
- Providing information on basic injury-prevention concepts such as Haddon's Matrix, and the need to combine education with other approaches such as enforcement or modifications to the environment.
- Sharing information on injury-prevention programs that have been implemented in other Aboriginal communities or other parts of the country.
- Seeking out information on successful models in other Aboriginal communities, in cases where this information is not already available.

Some of the work of identifying successful models has already been done by other organizations. For many of the priority areas suggested in this document, there are already resource materials in existence that are adapted to the situation of First Nation and northern communities.

Introduction

This paper was prepared at the request of the Cree Board of Health and Social Services, which wishes to increase its efforts in injury-prevention. As a first step, it was decided to review the available statistical evidence about injuries in Eeyou Istchee, in order to get a clear view of the size of the problem and identify some likely areas for prevention efforts. This will be followed by actions with individual communities and with health workers in the Territory, to develop and implement injury-prevention programs that are adapted to the Cree situation.

The paper reviews the available statistics on injuries in Eeyou Istchee, based on two sources:

1. Data on injury mortality for the seventeen-year period 1985-2001
2. Data on injury hospitalizations for the five-year period 1996/97-2000/01

The document is divided into three main sections. The first looks at the mortality figures; the second analyzes the hospitalization data, and contrasts it with the mortality information; while the “Discussion” section attempts to synthesize the information from the two sources, and to suggest priority areas for intervention based on the results.

Methods

Source of the mortality data

The mortality analysis is based on the Death Registry maintained by the Cree Board of Health and Social Services of James Bay, for the calendar years 1985-2001. Workers in the nine Cree communities of Eeyou Istchee collect the original data. Past analyses have shown that the numbers are quite complete, and in fact include information on more deaths than can be derived from Quebec's vital statistics registry (Schnarch, 2001). The population figures used to calculate rates are from the Cree Board's Registry of beneficiaries under the James Bay agreement. Figures used are for July of the corresponding year, i.e. rates for the year January-December 2001 are based on the population as of July 2001. Appendix 1 contains details about which injuries are included in the various categories.

Source of the hospitalization data

The hospitalization analysis is based on the MedEcho data files maintained by Quebec's *Ministère de la Santé et des Services sociaux* for the five-year period 1996/97 to 2000/01. The numbers include all admissions to acute-care hospitals over the period, for any resident of Eeyou Istchee. They do not include visits to hospital emergency departments or outpatient clinics, or to long-term care hospitals. People hospitalized on more than one occasion would be counted each time.

As is common with hospitalization data, medical mishaps (adverse reactions to drugs or therapeutic procedures) constitute an appreciable proportion of all injuries – in this case, 14%. These cases were eliminated from the analysis, consistent with practice at the US Centres for Disease Control and Health Canada's Injury Surveillance unit. The rationale for doing this is that medical mishaps are qualitatively different from other types of injury: they could not be prevented by public health programs, but would have to be addressed in the context of hospital procedures. The remaining injuries were grouped into categories according to the system recommended by the International Collaborative Effort (ICE). Complete details on the coding are included in Appendix 1.

The population figures used to calculate rates come from the Cree Health Board's Registry of beneficiaries under the James Bay agreement. Figures used are for July of the initial year, i.e. rates for the fiscal year 2000-2001 are based on the population as of July 2000.

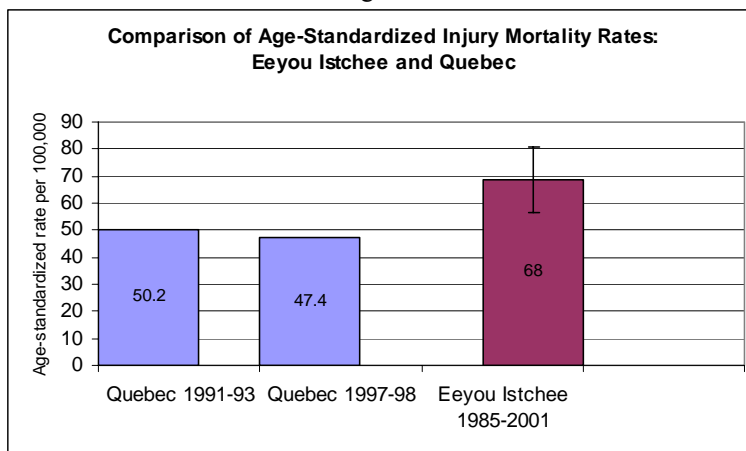
Injury Mortality in Eeyou Istchee Over the 1985-2001 Period

Injury as a cause of death

Over the 1985-2001 period, there were 116 deaths from injury in Eeyou Istchee – roughly 7 deaths per year - for a rate of 67 per 100,000 population. Injuries accounted for 16% of all deaths in the Territory over this period – a much smaller proportion than diseases of the circulatory system (which were the leading cause of death at roughly 25%), and about the same proportion as cancer. In this, Eeyou Istchee differs from First Nation communities across Canada, where injuries tend to be the leading cause of death (Probert et al, 2002; Health Canada, 2001).

Injury death rates are somewhat higher in Eeyou Istchee than in Quebec as a whole: the age-standardized rate was 68 per 100,000 over the 1985-2001 period, compared to a rate of 50 per 100,000 for Quebec in 1991-1993. The difference is statistically significant, although not large in absolute terms.¹

Figure 1



¹ The 95% confidence interval around the Cree figure is + or – 12, i.e. the real rate is somewhere between 56 and 81 per 100,000. Since there is also a 1-2% variation around the Quebec figure, even a small change would alter the conclusion that the two rates are “significantly” different.

Trend over time in injury deaths

Trend information must be interpreted cautiously because of the small numbers involved each year. However, the over-all trend in injury mortality appears to be downwards, especially among males. This is consistent with trends observed for the general populations of Canada and Quebec, and for other First Nations in Canada (Hamel, 2001; Bobet, 2002).

Year	Number			Rate per 100,000		
	Males	Females	Total	Males	Females	Total
1985	9		9	232	0	116
1986	6	2	8	147	50	99
1987	8	3	11	194	73	133
1988	1		1	23	0	12
1989	2	1	3	45	23	34
1990	3	1	4	66	22	44
1991	6	2	8	123	41	82
1992	9	4	13	180	80	130
1993	7	4	11	138	79	109
1994	4	1	5	76	19	48
1995	3	4	7	55	74	65
1996	5		5	90	0	45
1997	7	1	8	122	18	70
1998	7	1	8	119	17	68
1999	3	2	5	50	34	42
2000	6	2	8	98	33	66
2001	2		2	32	0	16
Total 1985-2001	88	28	116	102	33	67

Figure 2.1

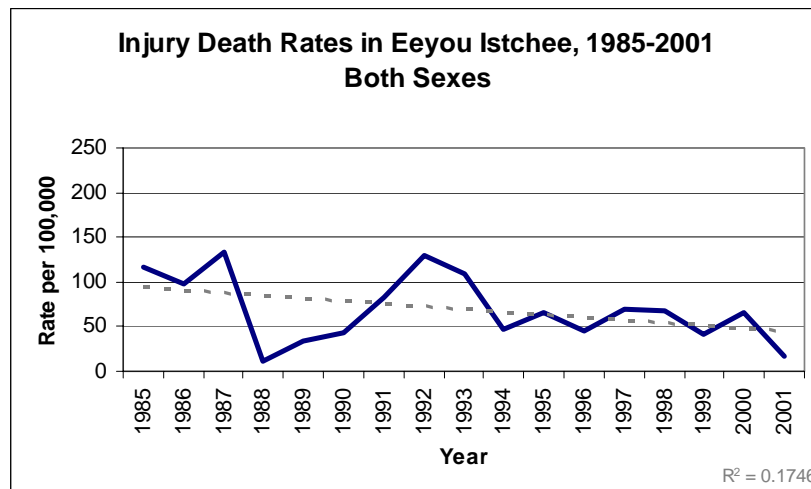


Figure 2.2

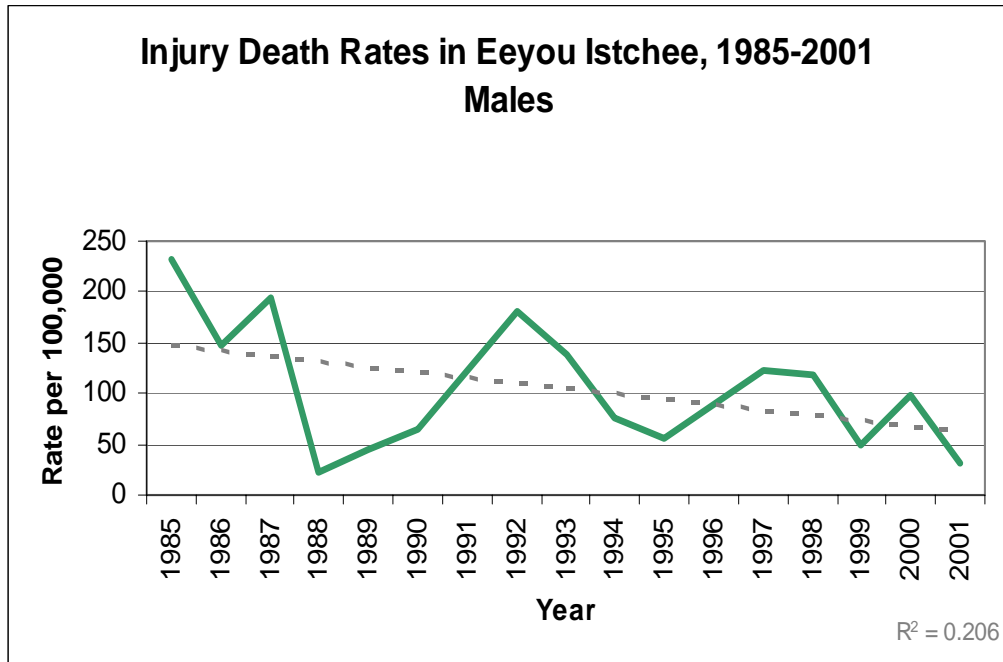
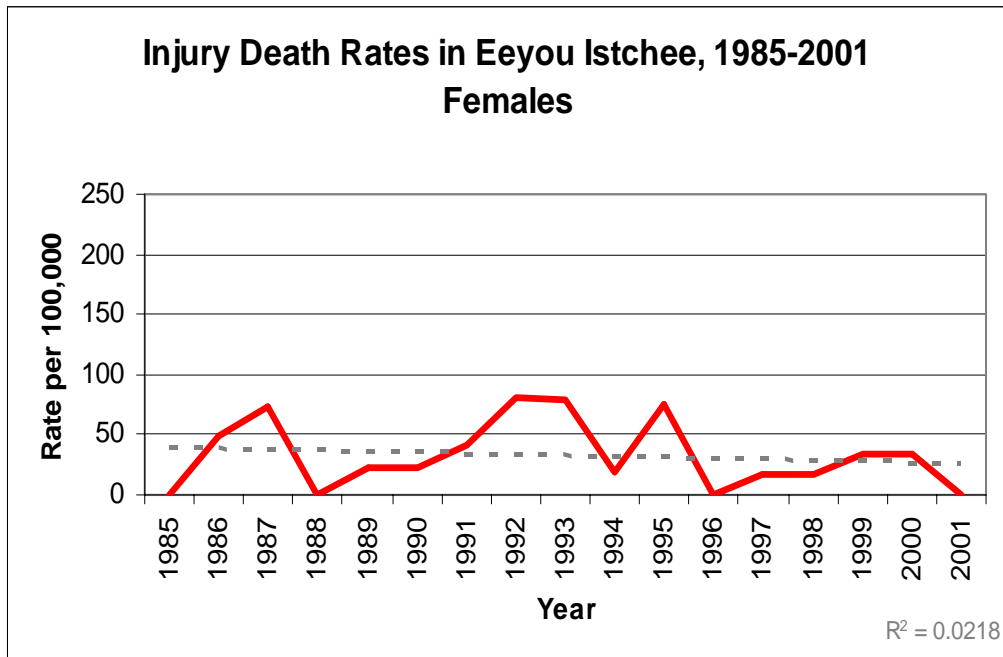


Figure 2.3



Causes of injury death

The leading causes of injury death in Eeyou Istchee were motor vehicle crashes, drowning, and suicide; no other type of injury accounted for any appreciable number of deaths (table 2). Death rates from drowning appear to have declined over the 1985-2001 period. However, death rates from motor vehicle crashes may actually have increased, in contrast to what is observed elsewhere in Canada (Bobet, 2002). Suicide rates showed no clear upwards or downwards trend over the period. (Figures 3.1 to 3.3).

The injury pattern in Eeyou Istchee differs noticeably from the rest of Quebec, and also from the pattern observed for other First Nation communities in Canada. The largest differences are that in Eeyou Istchee, motor vehicle accidents and drownings account for much larger proportions of the injury deaths, while suicides and falls account for smaller proportions. (See figures 4.1 to 4.3). Although falls are a priority issue for Quebec as a whole, in Eeyou Istchee there were only two fatal falls over the 1985-2001 period. Given that serious falls usually occur in older people, the small number of fatal falls is probably attributable to the low proportion of elderly in Eeyou Istchee's population.

Type of injury	Injury Deaths by Type and Sex over the 1985-2001 Period					
	Number			Rate per 100,000		
	Males	Females	Total	Males	Females	Total
Motor vehicle	33	14	47	38	16	27
Drowning	23	1	24	27	1	14
Suicide	16	3	19	18	3	11
Other	5	3	8	6	3	5
Assault	4	2	6	5	2	3
Burns	2	4	6	2	5	3
Falls	2		2	2	0	1
Unknown	3	1	4	3	1	2
All injuries	88	28	116	102	33	67

Motor vehicle crashes

Men aged 15-44 are most likely to be involved in fatal motor vehicle crashes. There also seems to be some seasonal pattern, with the largest number of fatal crashes occurring in October (see table 3). It has been suggested that this may be due to poor weather conditions in October. A comparison of the number of deaths to the number of hospital admissions suggests that 12% of the serious crashes result in death. This is comparable to the proportions for Quebec as a whole.²

Of the 47 fatal motor vehicle crashes, 3 involved ATVs and 8 (17%) involved snowmobiles – most often collisions between snowmobiles and cars or trucks. All of the snowmobile crashes involved males. Unexpectedly, the age distribution for these crashes included both young and old men.

Drowning

Only four of the drowning deaths involved preschool age children; the rest occurred overwhelmingly to men between the ages of 15 and 29. Most appear to have been boating and/or hunting accidents; only one was the result of a snowmobile going through ice. There is no clear seasonal pattern to the drowning deaths, apart from the obvious finding that they occur during the months when the water is not frozen (table 3).

² The comparison is for the years 1996-2000. Over the period, there were 17 deaths and a further 123 hospitalizations where the person did not die, for a total of 140 crashes that were serious enough to result in either hospitalization or death. The conclusion for Quebec as a whole is based on the death and hospitalization figures included in Hamel (2001).

Suicide

Sixteen of the 19 suicides were in males, as were all of the suicides by firearm. Of the suicides that used firearms, five took place at home, two in the bush, and one in an unknown location. This suggests that although safe storage of firearms might reduce the number of suicides, it is not the complete answer.

Fatal incidents involving firearms

Firearms were specifically mentioned for 11 (9%) of the 116 injuries over this period. Eight of the eleven cases were suicides, while one was an assault, and the remaining two were unintentional injuries that occurred in the bush. (See table 4).

Table 3			Deaths from Drowning and Motor Vehicle Crashes, 1985-2001	
By Month of Occurrence				
Month	No. of Drowning Deaths		No. of Fatal Motor Vehicle Crashes	
January	1		5	
February	0		2	
March	0		4	
April	2		1	
May	6		5	
June	2		3	
July	5		1	
August	3		5	
September	3		3	
October	1		11	
November	1		4	
December	0		3	
Total	24		47	

Table 4						Fatal Injuries Involving Firearms in Eeyou Istchee, 1985-2001				
Injury	Year	Age	Sex	Place	Description					
Assault	1992	23	M	Town	Multiple bullet wounds					
Other	2000	2	M	Bush	Gunshot to head – gun left unattended					
Other	2000	44	M	Bush	Gun accident					
Suicide	1992	15	M	Bush						
Suicide	1993	18	M	Home						
Suicide	1987	19	M	Home						
Suicide	1986	28	M	Home						
Suicide	1987	33	M	Home						
Suicide	1999	34	M	Unknown						
Suicide	1985	36	M	Home						
Suicide	1987	50	M	Bush						

Figure 3.1

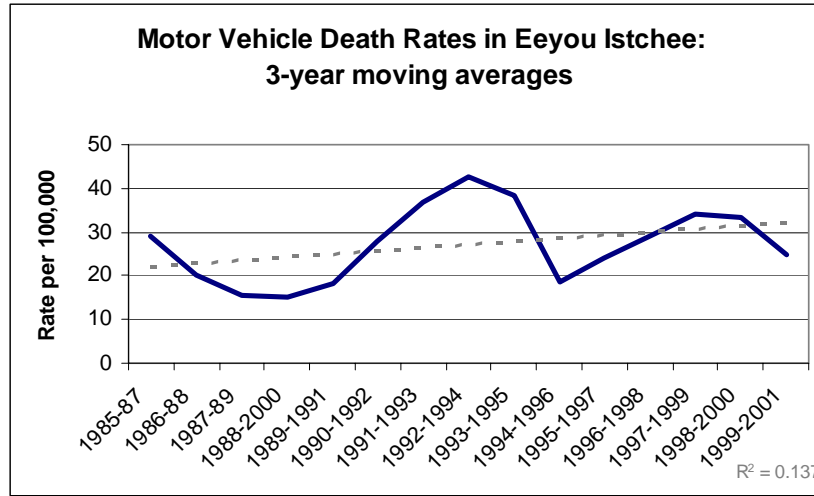


Figure 3.2

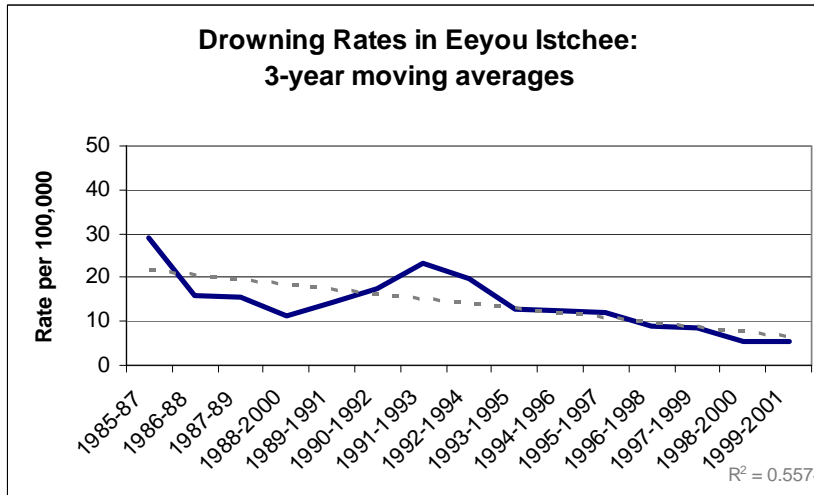


Figure 3.3

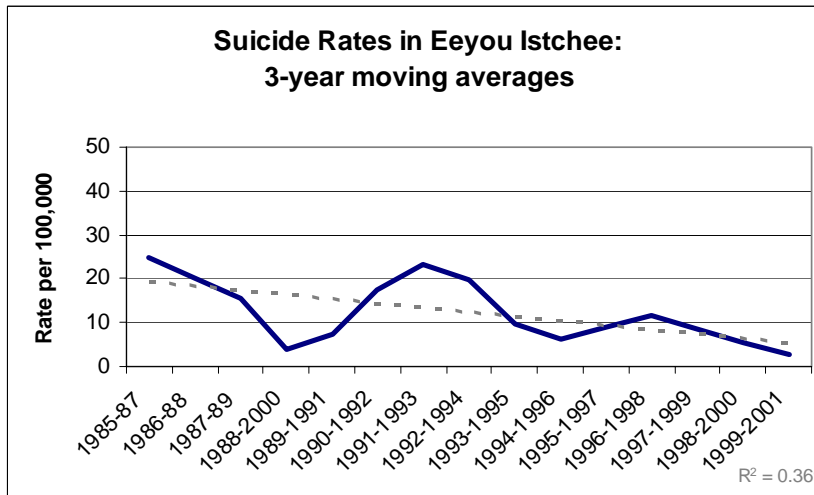


Figure 4.1

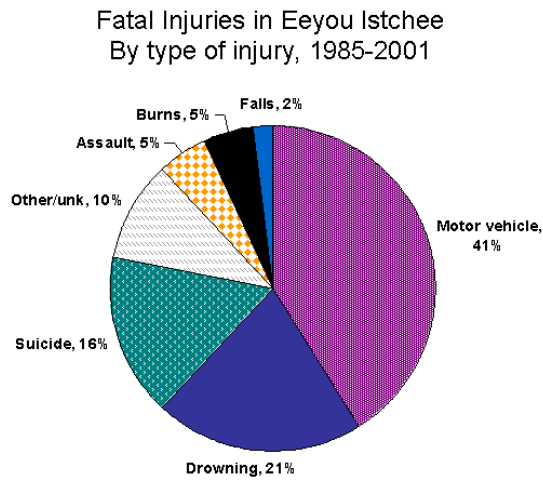
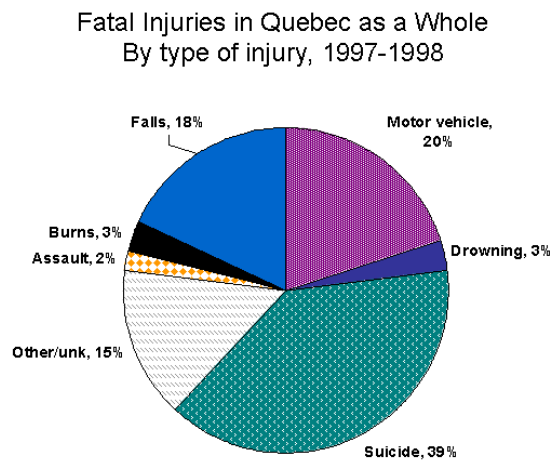
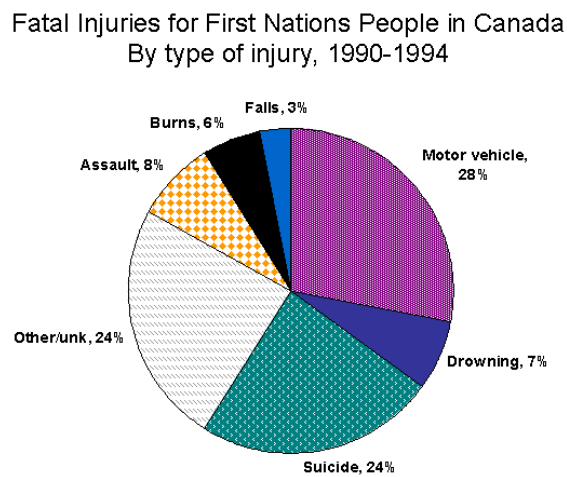


Figure 4.2



Numbers drawn from Hamel (2001)

Figure 4.3

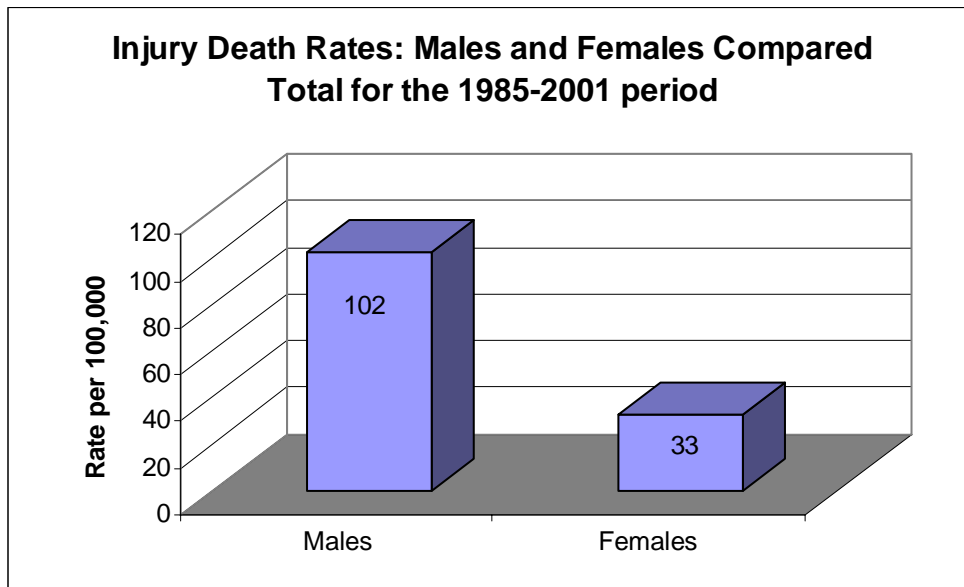


Numbers from Bobet (2001)

Injury deaths by gender

Three quarters of the fatal injuries over the 1985-2001 period involved males. For most types of injury death, male rates were at least triple the female ones. The sex gap was particularly pronounced for the biggest killers, i.e., motor vehicle crashes, drowning, and suicide.

Figure 5



Intentional vs. unintentional injury deaths

Intentional injuries (suicide and assault) accounted for roughly a quarter of all the injury deaths in Eeyou Istchee over the 1985-2001 period. Men are particularly over-represented in this category, with rates four times higher than those observed for women.

	Rates of Intentional and Unintentional Injury, by Sex			Ratio M:F
	Males	Females	Total	
Intentional	23	6	14	4.0
Unintentional	79	27	53	2.9
Total	102	33	67	3.1
"Intentional" = suicide and assault				
Unintentional = all other types of injury				

Age distribution of injury deaths

Injury death rates were highest in youth (15-24) and younger adults (25-44). Most of the drownings occurred in youth, while motor vehicle crashes and suicide were a threat to both youth and younger adults. Injury death rates in Eeyou Istchee were lowest in children. In particular, the number of infant deaths from injury was low: there were only three such deaths over the 1985-2001 period – two from suffocation, and the other of unknown cause.

The mortality numbers over the past 17 years suggest these priorities in each age group:

- In children, prevention of motor vehicle crashes and drowning
- In youth 15-24, prevention of motor vehicle crashes, drowning, and suicide
- In all adults over the age of 25, prevention of motor vehicle crashes

Figure 6

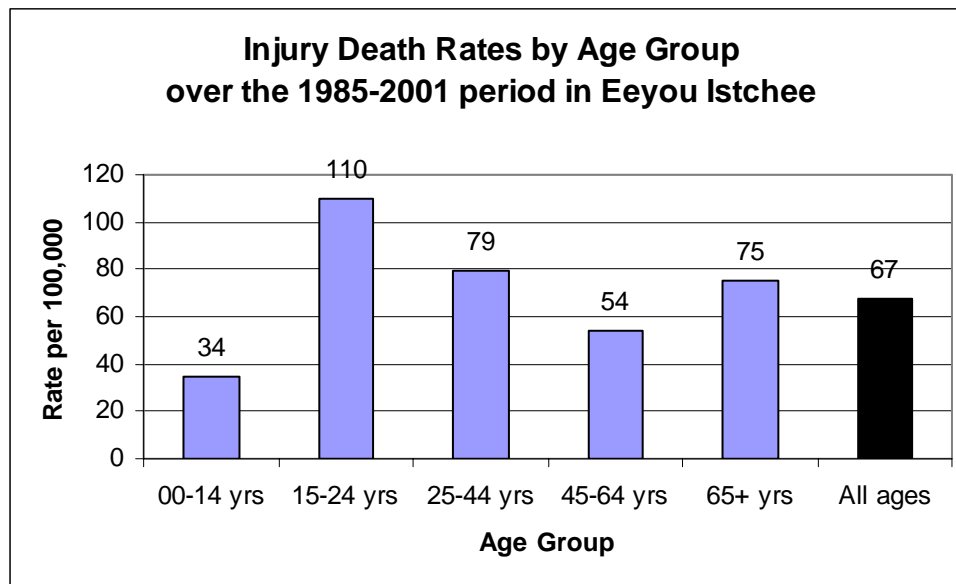
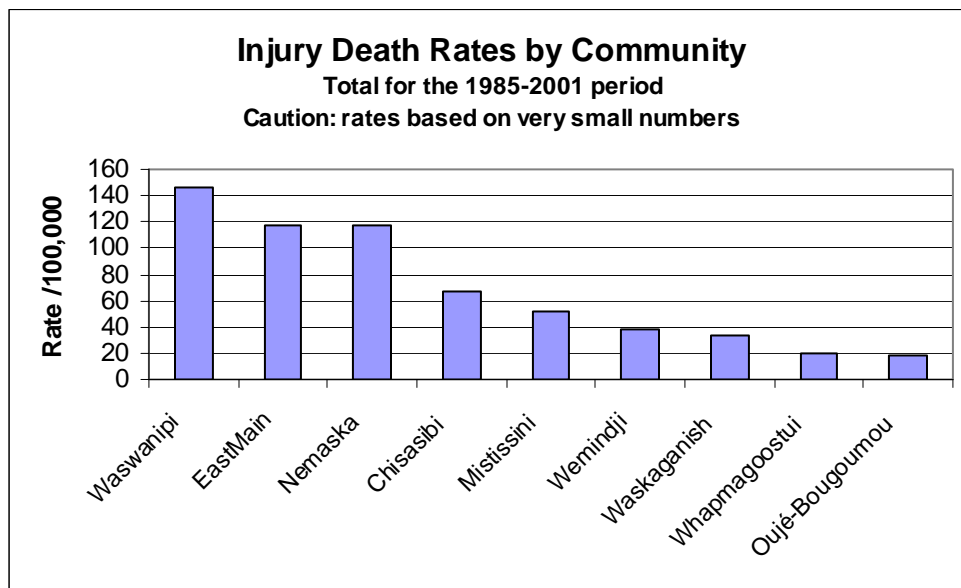


Table 6									
Number of Injury Deaths in Each Age Group, by Type of Injury, 1985-2001									
Age	Motor veh.	Drown- ing	Suicide	Other	Assault	Burns	Falls	Un- known	Total
00-14	5	4	3	5		2		2	21
15-24	16	11	10	1	1	3			42
25-44	18	6	5	1	4	1		2	37
45-64	6	2	1		1				10
65+	2	1		1			2		6
Total	47	24	19	8	6	6	2	4	116

Geographic distribution of injury deaths

Because the numbers for individual communities are very small, it is hard to draw firm conclusions about injury rates in the different communities. Over the 1985-2001 period, it appears that the death rates were highest in Waswanipi, Eastmain, and Nemaska, but just a few deaths would suffice to change this picture. A few other points stand out in the community-specific data: first, Wemindji, Whapmagoostui and Oujé-Bougoumou apparently had no suicides at all over the 17-year period. Second, Whapmagoostui had no deaths due to motor vehicle accidents, presumably because it has no road access.

Figure 7



Over all, the inland communities had a slightly higher death rate than the coastal ones: 78 per 100,000 vs. 52 per 100,000. The difference is mainly due to higher rates of motor vehicle crashes in the inland communities (see figures 8.1 and 8.2).

Figure 8.1

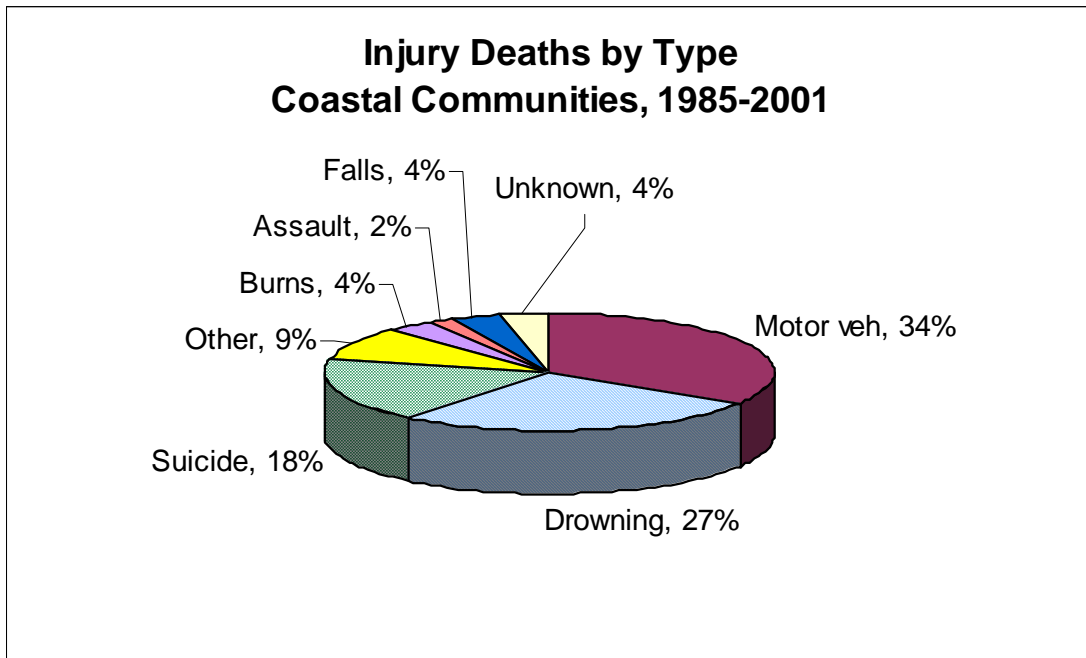


Figure 8.2

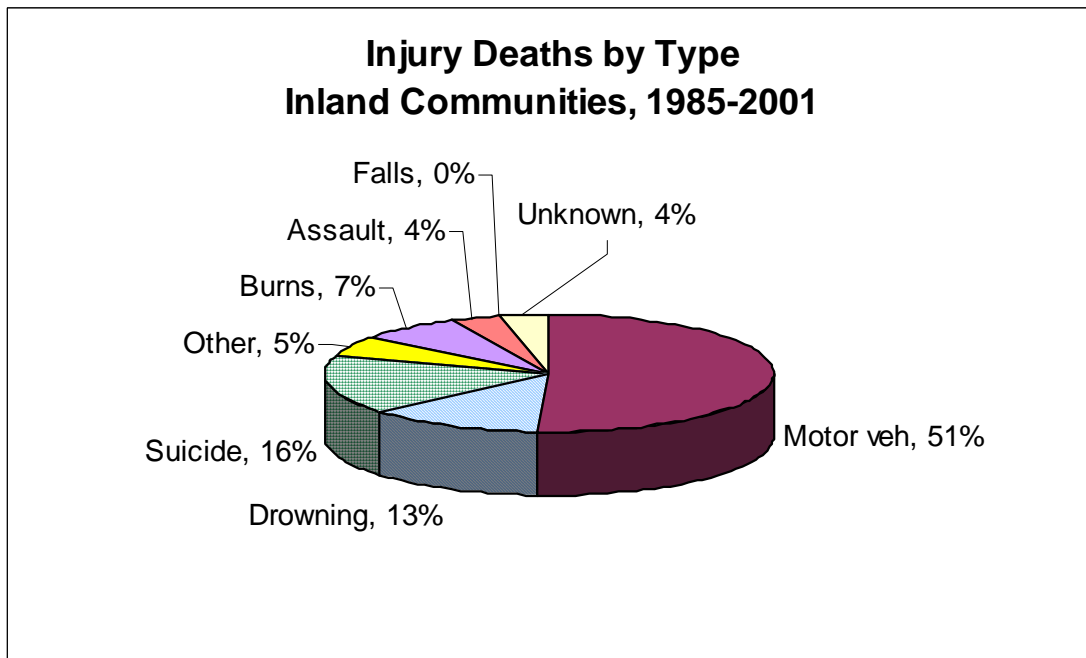


Table 7		
Injury Deaths by Community: Numbers and Rates		
Total over the 1985-2001 period		
Community	No. deaths	Rate per 100,000
Waswanipi	25	147
EastMain	9	117
Nemaska	9	117
Chisasibi	31	67
Mistissini	20	52
Wemindji	6	38
Waskaganish	8	33
Whapmagoostui	2	20
Oujé-Bougoumou	1	18
Outside Territory	4	
Unknown	1	
Total	116	67

Note: Figures for Ouje-Bougoumou were included with Mistissini until 1991.

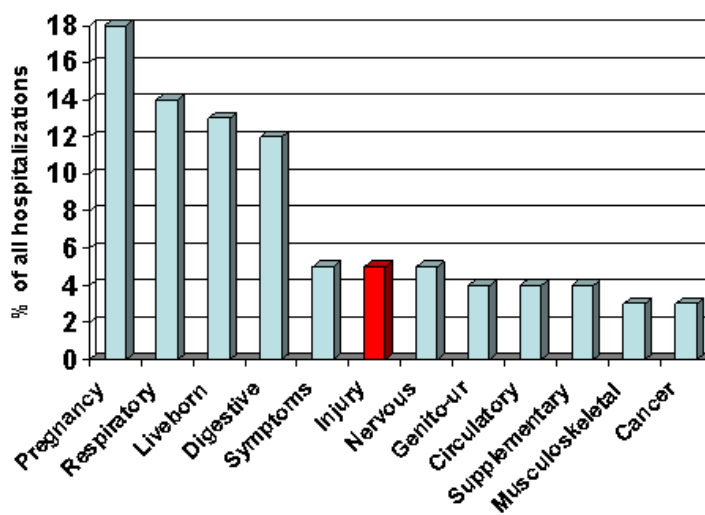
Table 8									
Injury Deaths in Coastal and Inland Communities Compared, for the 1985-2001 Period									
	Motor veh.	Drowning	Suicide	Other	Burns	Assault	Falls	Unknown	Total
Coastal									
No of deaths	19	15	10	5	2	1	2	2	56
% of deaths	34%	27%	18%	9%	4%	2%	4%	4%	100%
Rate /100,000	18	15	10	5	2	1	2	2	54
Inland									
No of deaths	28	7	9	3	4	2	0	2	55
% of deaths	51%	13%	16%	5%	7%	4%	0%	4%	100%
Rate /100,000	40	10	13	4	6	3	0	3	79
Coastal communities: Whapmagoostui, Chisasibi, Wemindji, Eastmain, Waskaganish									
Inland communities: Nemaska, Mistissini, Waswanipi, Ouje-Bougoumou									
Note: 5 deaths occurred outside the Territory or in unknown locations.									

Injury Hospitalizations in Eeyou Istchee Over the 1996/97-2000/01 Period

Injury as a cause of hospital admissions

Over the 1996/97-2000/01 period, there were 621 hospital admissions for injury³ – about 125 per year. Injuries accounted for about 5% of all the hospitalizations in the Territory. This ranks injury in 6th place as a cause of hospitalization, behind pregnancy and liveborn infants, respiratory conditions, digestive conditions, and the catch-all “symptoms” category, but ahead of cardiovascular disease or cancer (figure 9). The fact that injury accounts for 16% of all *deaths*, but only 5% of all *hospitalizations*, suggests that injuries are a bigger concern in terms of fatalities than in terms of day-to-day health problems.

Figure 9
Hospital Separations by Type
Eeyou Istchee, 1996/97 to 2000/01



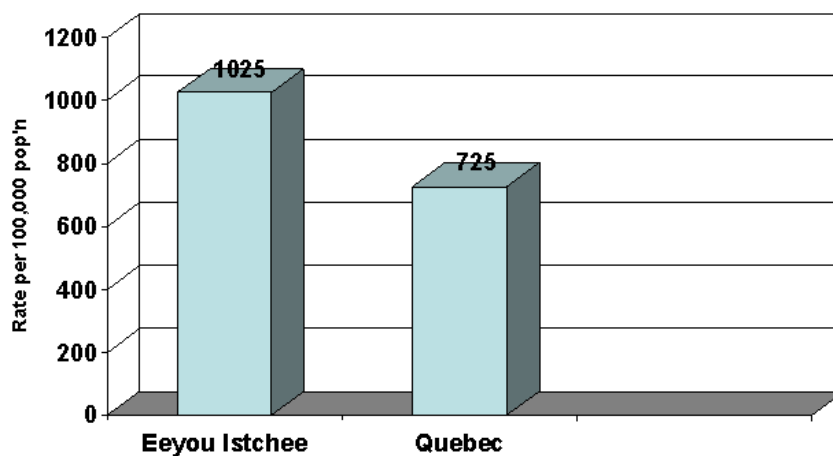
Injury category excludes medical mishaps

³ Excluding medical mishaps, as described in the Methods section.

The overall injury hospitalization rate for Eeyou Istchee was 1,065 per 100,000 population. Figures prepared by Hamel (2001) show that injuries are a more common cause of hospitalization in Eeyou Istchee than in the rest of Quebec: for 1997-1999, age-standardized rates for the Territory were 1,025 per 100,000, as compared to 725 per 100,000 for Quebec as a whole (figure 10).

Figure 10

Injury Hospitalization Rates, 1997-1999
Eeyou Istchee and Quebec
Age-standardized rates



Data from Hamel (2001)

Trend over time in injury hospitalizations

Generally, injury hospitalization rates decreased over the five-year period, although the small numbers involved make the rates quite variable. The decrease is not consistent across all types of injuries, however. For instance, hospitalizations for suicide/self-injury dropped only slightly, while hospitalizations for falls actually increased. Hospital admissions for motor vehicle traffic accidents seem to be slightly declining over all, but jumped in 1998-99 (see table 9 and figure 14). In that year, the number of hospital admissions for people age 15-24 in Chisasibi and Mistissini suddenly rose. The pattern suggests something like a bus accident or multi-car pile-up, perhaps involving a sports team or other group of young adults.

	Year					All 5 years
	1996-97	1997-98	1998-99	1999-00	2000-01	
Self-injury	12	14	16	9	14	65
Falls	18	23	23	24	26	114
Motor vehicle	15	12	32	15	8	82
All types of injury	119	133	154	102	113	621
Rate per 100,000	1073	1166	1317	857	926	1065

Figure 11

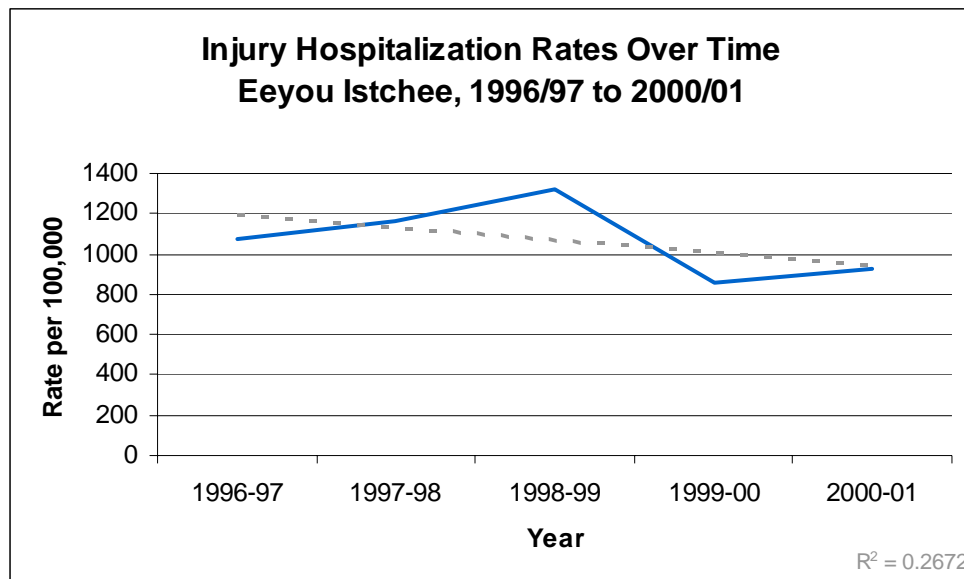


Figure 12

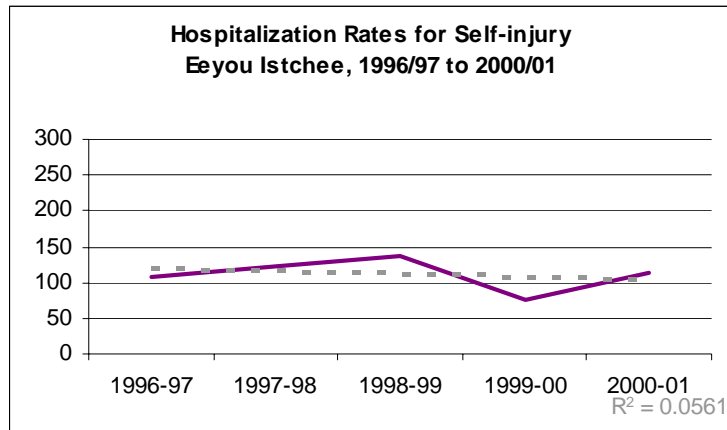


Figure 13

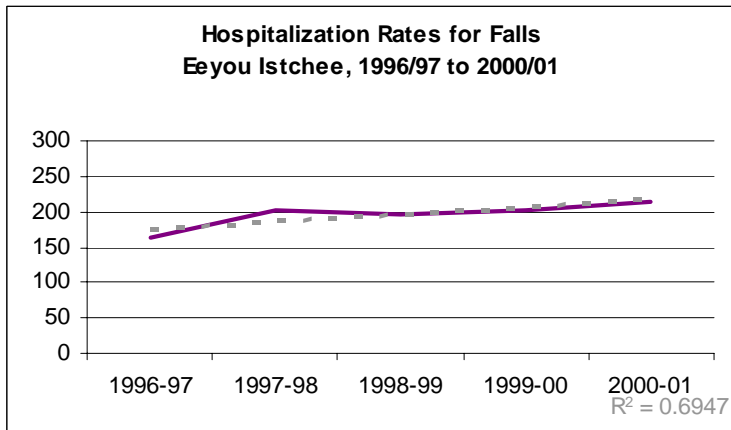
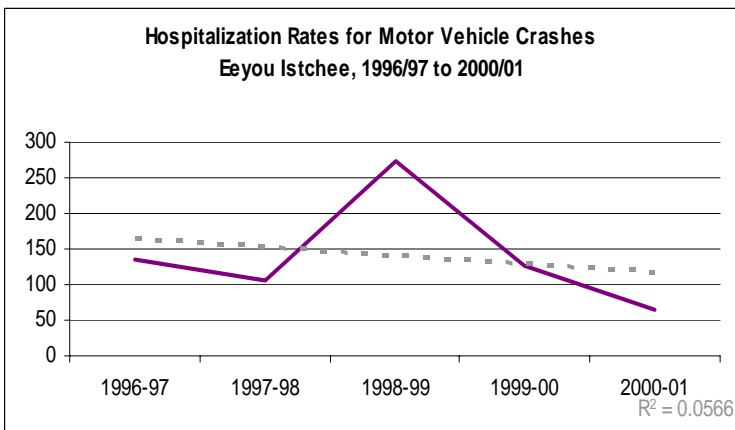


Figure 14



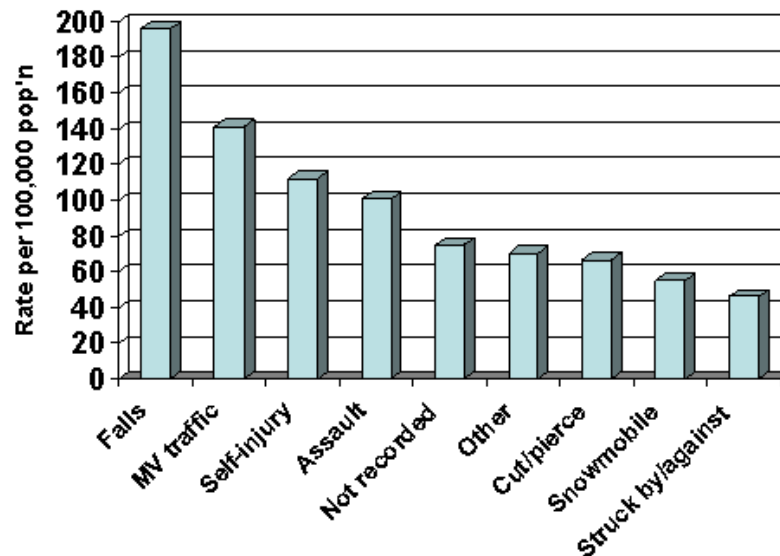
Causes of injury hospitalization

The leading causes of injury hospitalization in Eeyou Istchee are falls, motor vehicle traffic injuries, self-injury, and assault. These are also the leading causes for Quebec as a whole, with the difference that for Quebec, assaults occupy a slightly less prominent place.

The main causes of hospitalization are fairly consistent with the picture derived from the injury mortality figures, in that motor vehicle crashes, self-injury and assault are major causes of both mortality and hospitalization. The biggest difference is that falls are the leading cause of hospitalization⁴, but an insignificant cause of death in Eeyou Istchee. Conversely, drowning accounts for almost no hospitalizations, but is a major cause of death – apparently, submersion either causes no subsequent health problems, or is instantly fatal.

Figure 15

Injury Hospitalization Rates by Type of Injury Eeyou Istchee, 1996/97 to 2000/01



Caution: rates based on small numbers.

⁴ The leading cause depends to some extent on how the numbers are grouped: if the traffic, snowmobile, pedestrian and ATV injuries were grouped together into a single “motor vehicle” category, this would be the leading cause of hospitalization.

Table 10		Injury Hospitalizations by Type of Injury		
				Total for the 1996/97 to 2000/01 period
Type of Injury	Number	% of all injuries	Rate per 100,000	
Falls	114	18%	196	
Motor veh traffic	82	13%	141	
Suicide/self-injury	65	10%	112	
Homicide/assault	59	10%	101	
Not recorded	44	7%	75	
Other injury	41	7%	70	
Cut/pierce	39	6%	67	
Snowmobile	32	5%	55	
Struck by/against *	27	4%	46	
Unknown intent	20	3%	34	
Acc Poisoning	17	3%	29	
Overexertion	17	3%	29	
Bicycle	15	2%	26	
Fire/burns	13	2%	22	
ATV	10	2%	17	
Pedestrian	7	1%	12	
Machinery	6	1%	10	
Firearms	6	1%	10	
Environmental	4	1%	7	
Drowning/submersion	3	0%	5	
Total	621	100%	1065	

* Note: The label "struck by/against" does not imply assault – rather, most seem to be injuries incurred during sports or play.

Falls

There were 114 hospital admissions due to falls, and the rate seems to be rising slightly over time. Although *rates* of falls are highest in the elderly, because of the age distribution of the Cree population almost half the hospital admissions for falls were children: there were 53 falls in children, and only 13 in the elderly. Most falls were the result of people falling from one level to another (e.g., out of a chair or bed), or simply slipping or stumbling, and this held true for both children and the elderly. The majority of the falls that led to hospitalization involved fractures. Falls result in longer hospital stays than most other types of injury, and this is particularly true for the elderly (see table 12).

Traffic accidents, snowmobile and ATV crashes

Over the five-year period, there were 82 hospitalizations for motor vehicle traffic accidents (meaning ones that happen on the road or highway). Men were twice as likely as women to be hospitalized for a motor vehicle crash, and people age 15-24 were especially at risk, accounting for almost half of all the hospitalizations. Motor vehicle crashes resulted in a wide range of different injuries, with fractures being among the most common. These injuries required an

average of ten days spent in hospital – far longer than any other type of injury (table 12). As noted in the preceding section, rates of hospitalization for motor vehicle crashes seem to be slightly decreasing, although they are subject to large variations from year to year.

In addition to these 82 motor vehicle traffic accidents, there were 32 accidents involving snowmobiles, and 10 involving all-terrain vehicles (ATVs). Again, the majority (44%) of the snowmobile accidents were to youth age 15-24, but almost a quarter of them happened to people age 25-44, and the remaining quarter to children. Although all the *deaths* from snowmobile crashes involved males, girls and women made up about a third of the hospital admissions for snowmobile crashes. They also made up about a third of the hospitalizations for ATV accidents.

Snowmobile crashes resulted in a variety of injuries including lower limb fractures. However, skull fractures accounted for a relatively modest 6% of the injuries, which suggests either that the crashes infrequently result in head injury, or that people are wearing helmets.

Submersion and drowning

Drowning is a major cause of injury death in Eeyou Istchee, but accounts for almost no hospitalizations: over the five-year period, only three people were hospitalized for submersion. All were children, ranging in age from 3 to 16.

Suicide and self-injury

There were 65 hospital admissions for self-injury over the period. Of these, 56 were poisonings with drugs or other substances, while 9 involved cutting or piercing instruments. Most resulted in short hospital stays – an average of only two days. Unlike most of the other types of injury, females outnumber males 5:1 in hospitalizations for self-injury. The suicide attempts are overwhelmingly concentrated in the 15-29 year range.

Table 11 Hospital Admissions for Self-Injury, 1996/97 - 2000/01 By Age and Sex (numbers)			
Age	F	M	Total
10-14	4	0	4
15-19	16	2	18
20-24	15	3	18
25-29	13	4	17
30-34	3	2	5
35-39	2	0	2
40-44	1	0	1
All ages	54	11	65

Injuries involving firearms

Over the period, there were only 6 hospitalizations due to unintentional injuries involving firearms, and one firearm injury of “unknown intent.” All those injured by firearms were males, and half were children under 18. Surprisingly, there were no hospital admissions for either suicide attempts involving firearms, or assaults involving firearms; all such incidents appear to be instantly fatal.

Assault

There were 59 hospitalizations because of assault. These were predominantly (80%) male. They tended to occur in people under the age of 34, with the prime age (50% of all cases) being 15-24. The majority of these assaults were fights, brawls or rape, although two involved physical abuse of a child under age four.

Type of Injury	Days				
	Avg length of stay (rounded)	Median length of stay	Standard deviation	Longest stay recorded	Number of cases
Motor vehicle traffic	10	4	18	140	82
Falls	6	2	12	84	114
In people <65	5	2	11	84	101
In people 65+	13	9	16	63	13
Struck by/against	3	3	2	13	27
Assault	3	3	2	12	59
Self-injury	2	2	2	15	65
Cut/pierce	2	1	2	10	39

Injury hospitalizations by gender

Men are more likely than women to be hospitalized for injuries. Over all, the male: female ratio for injury hospitalizations was 1.7: 1 This is actually somewhat less pronounced than the gender gap for *fatal* injuries: males make up three quarters of all the injury deaths, but only two thirds of the injury hospitalizations.

The gender gap is particularly wide for some types of injuries. Male hospitalization rates are more than triple the female ones for:

- firearms
- injuries involving machinery or cutting/piercing instruments (usually various types of handheld and power tools)
- drowning
- pedestrian and bicycle accidents in children (these involve small absolute numbers, but the gender gap is nonetheless pronounced)
- assault
- “struck by/against,” a category which seems to consist mainly of sport and play injuries

In contrast, females outnumber males 5:1 in self-injury (suicide attempts).

Table 13 Type of injury	Injury Hospitalizations – Males and Females Compared (1996/97-2000/01)						
	Numbers			Rate per 100,000			Ratio M/F
	M	F	T	M	F	T	
Firearms	6	0	6	20.5	0.0	10.3	-
Machinery	6	0	6	20.5	0.0	10.3	-
Drowning/submersion	3	0	3	10.2	0.0	5.1	-
Pedestrian	6	1	7	20.5	3.5	12.0	5.9
Cut/pierce	32	7	39	109.1	24.2	66.9	4.5
Bicycle	12	3	15	40.9	10.4	25.7	4.0
Homicide/assault	47	12	59	160.3	41.4	101.2	3.9
Struck by/against	21	6	27	71.6	20.7	46.3	3.5
Environmental	3	1	4	10.2	3.5	6.9	3.0
Snowmobile	23	9	32	78.4	31.1	54.9	2.5
Acc Poisoning	12	5	17	40.9	17.3	29.2	2.4
ATV	7	3	10	23.9	10.4	17.2	2.3
Motor veh traffic	55	27	82	187.6	93.2	140.7	2.0
Other injury	27	14	41	92.1	48.3	70.3	1.9
Fire/burns	8	5	13	27.3	17.3	22.3	1.6
Falls	69	45	114	235.3	155.3	195.6	1.5
Overexertion	10	7	17	34.1	24.2	29.2	1.4
Not recorded	26	18	44	88.7	62.1	75.5	1.4
Suicide/self-injury	11	54	65	37.5	186.4	111.5	0.2
Unknown intent	6	14	20	20.5	48.3	34.3	0.4
All types of injury	390	231	621	1330.1	797.3	1065.3	1.7

Hospitalizations for intentional vs. unintentional injuries

Intentional injuries (suicide and assault) accounted for 20% of the injury hospitalizations over the five-year period. This is similar to the proportion of injury *deaths* that are intentional. Men greatly outnumber women in the hospital admissions for assault; conversely, women outnumber men in admissions for self-injury. The end result is that men and women are equally represented in the “intentional injury” category.

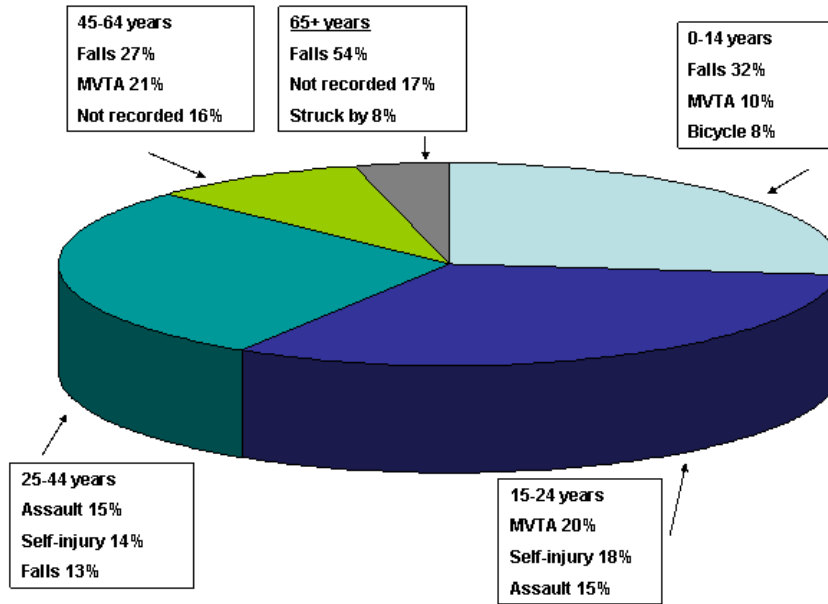
	Number	Percent	Rate per 100,000
Intentional	124	20	213
Unintentional	433	70	743
Unknown intent	20	3	34
Not recorded	44	7	75
Total	621	100	1065

Age distribution of injury hospitalizations

Injury hospitalization rates are highest for people age 15-24, followed by those age 25-44; they are lower for children and older adults. Within each age group, the types of injuries that account for the most hospitalizations vary. Based on the hospitalization figures, the highest priorities in each age group should be:

- Prevention of motor vehicle crashes at all ages up to 65
- Prevention of falls in children and in adults over 45
- Prevention of assault and self-injury in youth and younger adults (ages 15-44).

Figure 16
 Number of Injury Hospitalizations by Age Group
 1996/97 to 2000/01



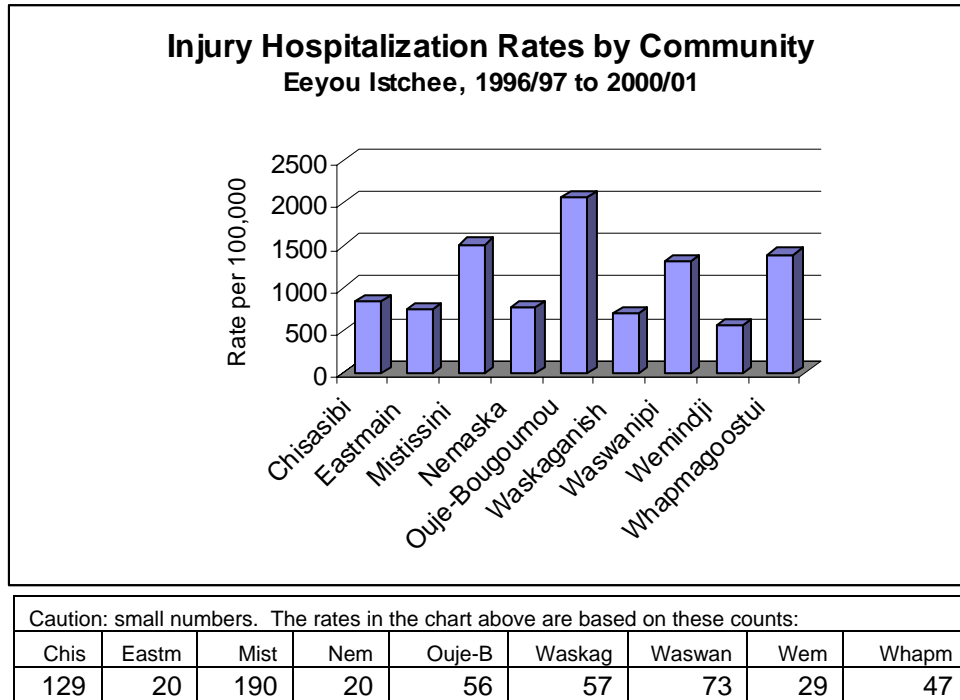
	Age group					Total
	0-14	15-24	25-44	45-64	65+	
	Acc. Poisoning	12	1	2	2	
ATV	1	4	5	0	0	10
Bicycle	13	2	0	0	0	15
Cut/pierce	4	18	12	4	1	39
Drowning/submersion	2	1	0	0	0	3
Environmental	1	2	0	1	0	4
Falls	53	11	22	15	13	114
Fire/burns	8	1	4	0	0	13
Firearms	3	2	1	0	0	6
Homicide/assault	4	29	26	0	0	59
Machinery	0	1	4	1	0	6
Motor veh. traffic	16	39	14	12	1	82
Other injury	8	13	14	5	1	41
Overexertion	2	4	10	1	0	17
Pedestrian	3	0	2	1	1	7
Snowmobile	7	14	9	1	1	32
Struck by/against	11	3	8	3	2	27
Suicide/self-injury	4	36	25	0	0	65
Unknown intent	2	13	4	1	0	20
Not recorded	12	6	13	9	4	44
All injuries	166	200	175	56	24	621

Table 16 Injury Hospitalization Rates by Type and Age Group, 1996/97-2000/01						
RATES PER 100,000 POPULATION						
	Age group					Total
	00-14	15-24	25-44	45-64	65+	
Acc. Poisoning	59.6	8.4	11.7	30.4	0.0	29.2
ATV	5.0	33.5	29.3	0.0	0.0	17.2
Bicycle	64.6	16.8	0.0	0.0	0.0	25.7
Cut/pierce	19.9	151.0	70.3	60.7	38.7	66.9
Drowning/submersion	9.9	8.4	0.0	0.0	0.0	5.1
Environmental	5.0	16.8	0.0	15.2	0.0	6.9
Falls	263.4	92.3	128.8	227.7	502.7	195.6
Fire/burns	39.8	8.4	23.4	0.0	0.0	22.3
Firearms	14.9	16.8	5.9	0.0	0.0	10.3
Homicide/assault	19.9	243.2	152.3	0.0	0.0	101.2
Machinery	0.0	8.4	23.4	15.2	0.0	10.3
Motor veh. traffic	79.5	327.1	82.0	182.2	38.7	140.7
Other injury	39.8	109.0	82.0	75.9	38.7	70.3
Overexertion	9.9	33.5	58.6	15.2	0.0	29.2
Pedestrian	14.9	0.0	11.7	15.2	38.7	12.0
Snowmobile	34.8	117.4	52.7	15.2	38.7	54.9
Struck by/against	54.7	25.2	46.8	45.5	77.3	46.3
Suicide/self-injury	19.9	301.9	146.4	0.0	0.0	111.5
Unknown intent	9.9	109.0	23.4	15.2	0.0	34.3
Not recorded	59.6	50.3	76.1	136.6	154.7	75.5
All injuries	825.0	1677.4	1024.8	850.2	928.1	1065.3

Geographic distribution of injury hospitalizations

Ouje-Bougoumou seems to have the highest rates of injury hospitalization, while Wemindji has the lowest. This conclusion is based on such small numbers that it may not be meaningful, as indicated by the fact that a ranking based on injury *deaths* would place the communities in a very different order.

Figure 17



Comparisons between inland and coastal communities may be more meaningful, because they are based on somewhat larger numbers. Injury hospitalization rates are higher for the inland communities than the coastal ones: 1440 per 100,000 compared to 812 per 100,000. In particular, the inland communities seem to have higher rates of hospital admissions for falls, assaults, traffic accidents and snowmobile crashes. Fire/burns are the only type of injury for which the inland hospitalization rates are lower than the coastal ones: of the 13 people admitted to hospital for burns over the period, 12 came from coastal communities.

Figure 18

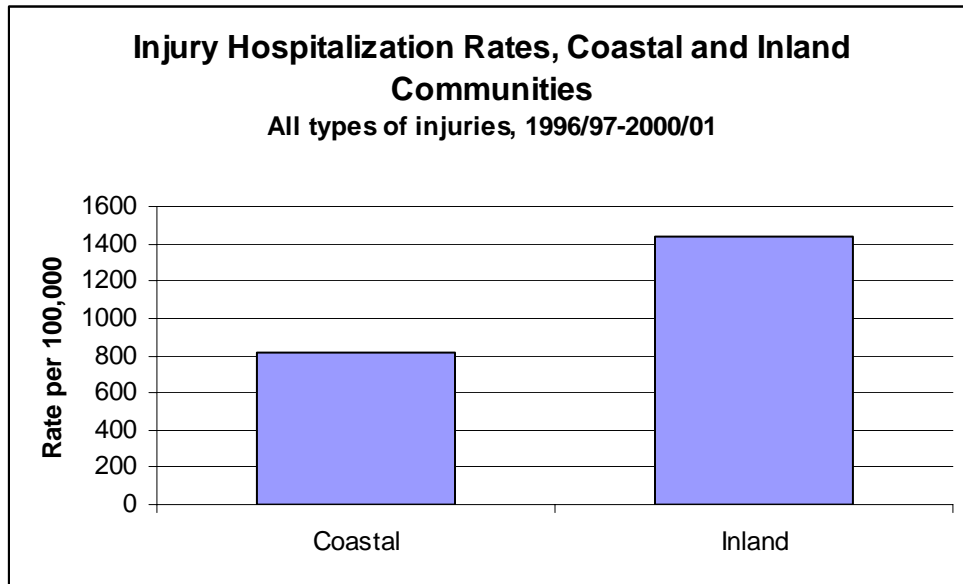
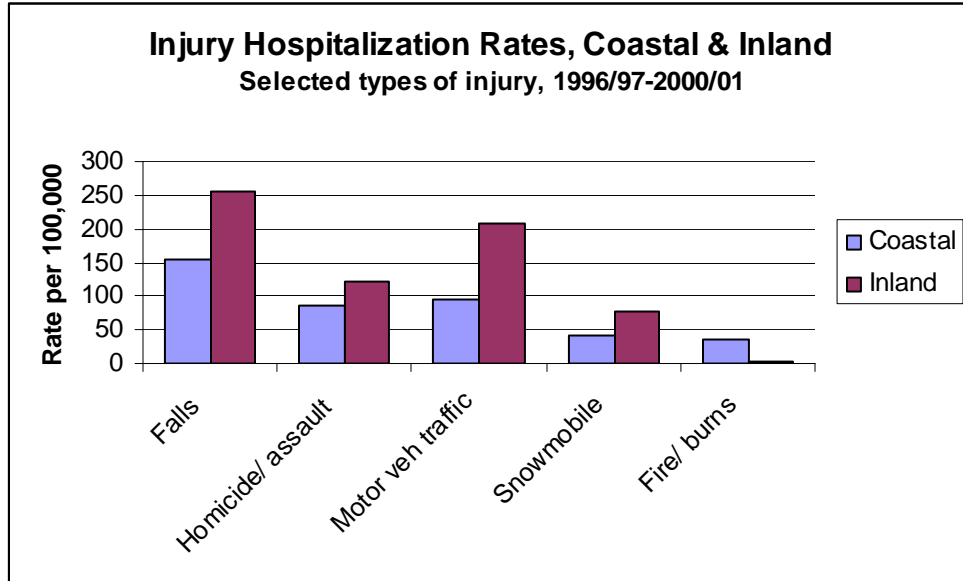


Figure 19



Caution: rates based on small numbers, as follows:

Counts	Falls	Assault	MVTA	Snowmobile	Burns
Coastal	54	30	33	14	12
Inland	60	29	49	18	1

	Injury Hospitalizations in Coastal and Inland Communities Eeyou Istchee, 1996/97 to 2000/01					
	NUMBER			RATES PER 100,000		
	Coastal	Inland	Total	Coastal	Inland	Total
Acc. Poisoning	9	8	17	26	34	29
ATV	5	5	10	14	21	17
Bicycle	5	10	15	14	42	26
Cut/pierce	13	26	39	37	110	67
Drowning/submersion	1	2	3	3	8	5
Environmental	3	1	4	9	4	7
Falls	54	60	114	155	255	196
Fire/burns	12	1	13	35	4	22
Firearms	2	4	6	6	17	10
Homicide/assault	30	29	59	86	123	101
Machinery	3	3	6	9	13	10
Motor veh. traffic	33	49	82	95	208	141
Other injury	16	25	41	46	106	70
Overexertion	7	10	17	20	42	29
Pedestrian	4	3	7	12	13	12
Snowmobile	14	18	32	40	76	55
Struck by/against	12	15	27	35	64	46
Suicide/self-injury	36	29	65	104	123	112
Unknown intent	1	19	20	3	81	34
Not recorded	22	22	44	63	93	75
All injuries	282	339	621	812	1440	1065
Coastal communities = Whapmagoostui, Chisasibi, Wemindji, Eastmain, & Waskaganish. Inland communities=Nemaska, Mistissini, Waswanipi, & Oujé-Bougoumou.						

Hospitals treating Eeyou Istchee residents for injury

Over the five-year period, most of the injuries requiring hospitalization were treated at the Chibougamau and Hotel-Dieu Amos hospitals (30% each), and the Chisasibi one (11.8%). There seem to be some differences in the types of injuries that each hospital commonly treats. Many of the cases resulting from snowmobile crashes, ATV crashes, and falls go to the Amos hospital; the Chibougamau hospital sees many of the cases of accidental poisoning, and the bicycle accidents. The Chisasibi hospital treats almost none of the assaults or motor vehicle accidents, but handles 40% of the cases of self-injury (which are mostly overdoses).

Discussion

A summary of the morbidity and mortality information

Taken together, the mortality and hospitalization data suggest the following description of injuries in Eeyou Istchee:

- Injuries are not the biggest health problem in the Territory: cardiovascular diseases account for more deaths, and respiratory conditions lead to more hospitalizations. But they are still a major concern, especially in terms of the number of deaths they cause: injuries account for 16% of all deaths, and 5% of all hospitalizations. Further, injuries may well be easier to prevent than some other conditions, and because injuries tend to kill people at young ages, each injury prevented would preserve many years of life.
- Injuries are somewhat more of a problem in Eeyou Istchee than in the rest of Quebec: hospitalization rates for injury are definitely higher, and mortality rates are somewhat higher. Above all, there are some differences in the *types* of injury that are most important in Eeyou Istchee as compared to the rest of the province, with drowning being much more of a concern, and falls somewhat less of one.
- Injury rates are decreasing over time, in terms of both death rates and hospitalization rates. But there are a few exceptions: hospitalization rates for self-injury are not decreasing, and – in contrast to the rest of Quebec and Canada – motor vehicle death rates in Eeyou Istchee are stable or actually rising.
- Males are over-represented for almost all types of injuries, especially the fatal ones.
- The Inland communities have higher rates of injury death and much higher rates of injury hospitalization than the Coastal communities. They appear to have higher rates of fatal motor vehicle accidents, and they also have more *hospitalizations* for traffic accidents, snowmobile accidents, falls, and assaults.
- About 1/5 of the injuries (both the deaths and the hospitalizations) are intentional, meaning that they involve either self-injury/suicide or assault/homicide. Despite concerns about use of firearms in the Territory, firearms were used in only one homicide, and in none of the lesser assaults. They caused two accidental deaths over a 17-year period, and fewer than two hospitalizations for injuries each year. However, they were involved in a large proportion of the completed suicides.

Priorities for intervention

Both the mortality and the hospitalization data point to motor vehicle crashes, self-injury, and assault as priority areas. Drowning may also be a priority area because of the large number of deaths it causes. Falls cause few deaths in Eeyou Istchee, but many hospitalizations – and for elderly people, these hospitalizations are lengthy. Because of this, it may also be worth considering falls as a priority area.

Because the inland communities have higher rates of injury mortality and hospitalization, they might be the best place to introduce programs, subject to community interest. Programs to prevent various types of motor vehicle accidents would be especially pertinent for the inland communities. Individual communities are likely to decide on their own priorities; ideally, they might do so based on consideration of these statistics and of other dimensions such as community readiness to address a particular topic, interest/availability of key personnel, and so forth.

Motor vehicle crashes

Although the Cree rates are not unusual compared to the surrounding area, motor vehicle crashes are a leading cause of both death and hospitalizations. Men are at twice the risk of women, and the age groups of greatest concern are people age 15-24 in particular, and more broadly all adults between 15 and 44. Death rates from motor vehicle crashes have decreased dramatically elsewhere in the country, but have not decreased in Eeyou Istchee. This raises the possibility that major improvements could be achieved by applying the types of interventions that have already been shown to be effective elsewhere – enforcement of seatbelt laws, decreased tolerance for driving while impaired, improvements in road design such as guard rails at dangerous points.

Information from the study by Kischuk (2003) suggests that most of the fatal crashes happen in summer or fall, in daylight, on straight stretches of major roads. Speeding, alcohol, and lack of seatbelts all contribute. As compared to the surrounding area, alcohol and lack of seatbelts are more likely to be involved in the Cree accidents: alcohol played a role in 43% of the fatal crashes, while results from the 1991 Santé Québec study suggest that only 63% of people regularly wear seatbelts, and that youth 15-24 are even less likely to do so (Santé Québec, 1994).

Snowmobile and ATV crashes are also a concern. Between them, snowmobile and ATV crashes account for about half as many hospital admissions as do other types of traffic accidents. Snowmobile accidents involve all age groups up to 44, and they involve both males and females, although males account for all the *fatal* accidents – which often involve collisions with cars or trucks.

Snowmobile helmets are required by law, but in fact only 6% of the hospitalizations for snowmobile crashes involve skull fractures. It is not clear if this is because snowmobile crashes result in relatively few head injuries, or because people are indeed wearing helmets and these are protecting them. The 1991 Santé Québec survey found that 59% of snowmobile users regularly

wore helmets, and that men and people under 35 – the groups most at risk - were especially likely to wear them.

Research in other parts of the country indicates that speed and alcohol play a role in snowmobile accidents. For instance, a Canada-wide study for the 1987-97 period found that alcohol was involved in 72% of fatal snowmobile accidents (Beirness, 2000). Although there are no data on the role that speed and alcohol play in snowmobile accidents in Eeyou Istchee, these aspects may be worth considering. More crucially, the number of fatal crashes in Eeyou Istchee that involve collisions with cars or trucks suggest that riding snowmobiles on the road, or perhaps points at which snowmobile trails cross the road, are major hazards. In short, interventions to reduce snowmobile accidents in Eeyou Istchee might do well to focus on preventing driving on the road, on speeding, and on impaired riding, along with continued recommendations for helmet use. Because few of the accidents involve snowmobiles going through ice, this aspect would not need as much emphasis.

Suicide and self-injury

Self-injury accounts for an appreciable proportion of the injury deaths, and many of the injury hospitalizations. The age group at risk is clearly adolescents and adults under 30, which suggests that prevention programs should be directed at children and teenagers, while crisis intervention will be needed primarily for teens and young adults. The gender differences in this area are huge: males tend to use firearms, and represent the majority of the completed suicides; in contrast, females outnumber males 5:1 in self-injury and suicide attempts, most often involving overdoses of drugs or substances.

Assault

Assaults cause many hospitalizations and some deaths, although nowhere near the numbers attributable to motor vehicles, drowning, or suicide. They are more of a concern among males: men account for 2/3 of the assault deaths, and 80% of the hospitalizations. They occur primarily in adults under 34 - especially in the 15 to 24 year group – and are usually fights or brawls, although occasional instances of rape and child abuse are reported. Most assaults do not involve firearms: over the 1985-2001 period there was only one homicide by firearm, and over the five-year period 1996-2000, there were no hospital admissions for firearm injuries.

Drowning

There were few drownings in children: most involved men between the ages of 15 and 29, apparently in boating and hunting accidents. Only one of the drownings was the result of a snowmobile going through the ice.

Falls

Falls cause almost no deaths in Eeyou Istchee, but are the type of injury that causes the most hospitalizations. Rates are especially high in older people, and such falls tend to result in long periods of hospitalization. Despite the high *rates*, the actual *numbers* involved are low because Eeyou Istchee has so few elderly people – just 13 hospitalizations over a five-year period. The greatest *number* of falls occurs in children; these tend to be either falls from one level to another (including falls from beds or chairs), or falls that occur during play or sports. As such, these falls are less clearly preventable than those in elderly people, for which there are known preventive measures such as introducing exercise programs, removing scatter rugs from the home, and so forth.

Some avenues for intervention

Interventions to prevent some of these injuries are probably best planned with the communities or health staff who will actually be involved in implementing them. This will help to ensure that they are adapted to local circumstances and priorities, and that staff has some commitment to the interventions. A useful role for the Public Health module and/or for an outside resource person might include:

- Publicizing the statistics on the size and nature of the injury problem
- Working with communities that want to undertake injury-prevention projects, and promoting involvement of different sectors (e.g., medical staff, public health staff, police, home care workers, Head Start programs)
- Providing information on basic injury-prevention concepts such as Haddon's Matrix, the need to combine education with other approaches such as enforcement or modifications to the environment, and so forth
- Sharing information on injury-prevention programs that have been implemented in other Aboriginal communities or other parts of the country
- Seeking out information on successful models in other Aboriginal communities, in cases where this information is not already available.

Some of the work of identifying successful models has already been done by other organizations. For many of the priority areas suggested in this document, there are already some resource materials:

Motor vehicle crashes

A booklet has been prepared for the *National First Nations and Inuit Injury Prevention Working Group*. It reviews the available evidence on the effectiveness of programs to increase seatbelt use, to increase use of child restraints, and to reduce impaired driving. As well, it profiles a car-seat loaner program underway in Akwesasne.

An American Indian community in the Portland area apparently has a successful program of peer-intervention to reduce impaired driving among teenagers (called the “PARTY” program, which may be worth investigating, if any communities in James Bay wish to address the impaired-driving issue. The Portland Area Indian Health Authority has also developed a video on infant carseats that might be useful.

Snowmobile crashes

Again, there is a short booklet prepared for the *National First Nations and Inuit Injury Prevention Working Group*. It suggests a focus on helmet use, and on reducing speeding.

Suicide and self-injury

Although several reviews have assessed and compared the available programs, none of the existing programs has so far been demonstrated to be effective. There are, however, materials that are specifically adapted for First Nation communities, and training courses for First Nation prevention/intervention workers offered by the Suicide Information and Education Centre in Calgary.

Assault

This topic would need further investigation to identify successful models. There have certainly been programs to address family violence – most notably the highly publicized healing circles operating in Hollow Water (Manitoba), for which there is both written documentation and an NFB video. Investigation is needed to determine if there are any programs to address fights and brawls among men – which are the types of assault most commonly documented in Cree hospitalization figures.

Drowning

The Red Cross has worked with Aboriginal communities in several different parts of the country, and has published a *Northern and Remote Water Safety Manual* that may be useful. As well, a booklet on drowning-prevention in Aboriginal communities was prepared for the *National First Nations and Inuit Injury Prevention Working Group*. It reviews the evidence and describes a successful PFD-loaner program underway in three Manitoba First Nation communities.

Falls

Because of the attention that falls are receiving in most provinces, there is a vast amount of material on falls-prevention in the elderly. Again, the *National First Nations and Inuit Injury Prevention Working Group* has a booklet outlining the evidence, and suggesting options specifically for First Nation communities.

Appendix 1: Coding and Treatment of the Data Files

Coding of the injury mortality data

The original file contains information on deaths from all causes in Eeyou Istchee, including injuries. Community health workers are asked to write descriptions in several fields, including one for “medical cause,” one for “how occurred,” and one for “contributing factors.” There is some variation in how staff interprets these terms, but between them, the three fields generally provide a reasonably clear picture of the cause of the injury. The “contributing factors” field is frequently incomplete, which means that there is little information about factors such as the use of protective equipment or seatbelts, or involvement of alcohol or drugs.

The data file originally classified all deaths as “injury,” “illness,” or “unknown.” For this analysis, six deaths from the “unknown” and “illness” categories were re-assigned to the injury one, as follows:

- Two people described as “missing, presumed drowned” in 1985, age 19 and 23
- A 1-month old who suffocated in 1987 (suffocation is considered an injury, even if the person merely suffocated on food or their own vomit)
- One “intoxication” age 17 in 1992 (accidental alcohol poisoning)
- One male age 68 in 2000, described as dying of hypothermia/heart attack after his snowmobile got stuck in the bush
- One male age 22 from Mistissini in 1995, stated cause of death “cardio-respiratory arrest,” but with the place of death described as “car accident.”

Information from the written descriptions was used to group the injury deaths into categories, broadly based on those used in Hamel’s *Évolution des traumatismes* report. A few notes about the classification:

1. For the mortality data, the “motor vehicle crash” category contains all injuries involving motor vehicles, be they cars, trucks, snowmobiles or all-terrain vehicles. Incidents that involve both motor vehicles and drowning – as in the case of a snowmobile going through ice – are counted as motor vehicle accidents. (As it happens, there was only one fatal accident over the 17-year period that involved a snowmobile going through the ice).
2. “Drowning” includes all fatal submersions. Unlike some other injury-classification schemes, the category was not combined with other forms of suffocation such as choking on food or plastic bags.
3. Several of the smaller categories – such as accidental poisoning and suffocation – have been grouped into the residual “other” category.

Coding of the injury hospitalization data

The original Med Echo files for the years 1996/97 to 2000/01 were modified in the following ways:

- 105 hospitalizations due to ‘medical mishaps’ were eliminated from the analysis. In any case, most of these had no information about external cause of injury (E-code), although a few were categorized to various types of ‘other injury.’ One record for Waskaganish in 1996-97 appeared to be a miscode, since the injury was described as a medical mishap, but the cause was stated to be a snowmobile accident. Since the person fitted the age-sex profile of the other snowmobile accidents, this record was recoded as a snowmobile accident.
- 128 (18%) of the hospitalizations attributed to ICD Chapter 17 (Injury and Poisoning) contain an N-code but not an E-code: that is, they describe the nature of the injury but have no information about its external cause. Of these, a large number are medical mishaps, which were eliminated from the analysis in any case. That left 44 cases where no E-code was recorded. These were retained throughout the analysis.
- Hospital identification numbers had changed over the years. They were recoded so as to be consistent over the entire period.
- 29 records had postal codes that did not correspond to those for the nine Cree communities, but the records were nonetheless assigned to the James Bay area. Using an educated guess based on the CLSC code, these were all assigned to Oujé-Bougoumou.

At first, it seemed wise to use the same coding system as used for injury mortality in Denis Hamel’s *Évolution des traumatismes au Québec de 1991 à 1999* (Institut national de santé publique, Québec, 2001). This would have ensured comparability with the rest of Québec’s data. However, initial analysis demonstrated that using that coding scheme meant that some of the largest causes of injury hospitalization – including cutting/piercing injuries, firearm injuries and “struck by/against” would be lumped into the “Other” category.

In view of this, the analysis was based on a coding system consistent with (although not 100% identical to) the International Collaborative Effort’s “ICD-9 Framework for Presenting Injury Mortality Data.” The main differences are that the present analysis retains Suicide/self-injury and Homicide/assault as distinct categories, and uses part of a Canadian adaptation to the system developed by Health Canada. This means that snowmobile, ATV, air and water-transport injuries are identified as separate categories, while the remaining codes from CDC’s “other transport” category (railway accidents etc) are placed in the residual “Other” group. The specific ICD-9 codes included in each category are shown in the table below.

Category	ICD-9 codes	Comments
Cutting/piercing	E920.0 to 920.9	This category includes knives, hand tools, and power tools, at home or in industrial use Category nonexistent in Hamel
Drowning/submersion	E830 (all) E832 (all) E910	Same as in Hamel
Falls	E880-E886 (all) E888	Differs from Hamel in that it excludes E887, 'fracture, cause unspecified.'
Fire/burns	E890-899 (all) E924 (all)	Includes both flames and hot substances. Same coding as Hamel
Firearm	E922 (all)	Not included in Hamel.
Machinery	E919 (all)	Not included in Hamel
MV traffic	E810-E819 (all)	Same as Hamel, except that it excludes E826.1, one type of bicycle accident (presented as a separate category in this system)
Pedal cyclist, other	E800-807, codes with .3 extensions only. E820-825, codes with .6 extensions only E826.1 E826.9 E827-829, codes with .1 extensions only	The E800-807 codes with the .3 extension are various types of railway accidents that involve bicycles. The E820-825 codes are types of MV non-traffic accidents. Category does not exist in Hamel
Pedestrian, other	E800-E807, the .2 extensions only E820-825, the .7 extensions only E826-829, the .0 extensions only	Category does not exist in Hamel
Transport, other	-	Eliminated, in favour of presenting snowmobile, ATV, air and water transport accidents in separate categories (Canadian adaptation). The residual codes – things like railway and equestrian accidents – have been tossed into "other" here.
Snowmobile	E820.0, E820.1, and E820.9	
ATV	E821.0 E821.1 E821.9	
Water transport (except drowning)	E831 (any) E833-E838 (any)	
Air transport	E840-845 (all)	
Natural/environmental	E900-909 (all) E928.0, E928.1, and E928.2	Includes exposure, lightning, changes in pressure, and snake or animal-induced injuries or insect stings

Category	ICD-9 codes	Comments
		Category does not exist in Hamel
Overexertion	E927	Category does not exist in Hamel
Poisoning	E850-869 (all)	Same as in Hamel
Struck by, against	E916- E917.9	Not in Hamel. Includes falling objects, sports injuries, and injuries caused by crowds.
Suffocation	E911-913.9	Not in Hamel
Homicide/assault	E960-969 (all)	Same as in Hamel
Suicide/self-injury	E950-959 (all)	Same as in Hamel
Undetermined intent	E980-989	Same as in Hamel
Medical mishap	E870-876 E878-879 E930-949	Misadventures to patients during surgical or medical care Surgical or medical procedures as cause of later abnormal reaction Drugs, medicaments or biologic substances causing adverse effects in therapeutic use Any cases where the nature of the injury was medical mishap have been excluded from the analysis.
Not recorded in the Med-Echo file	0	Some e-codes are simply missing in the file, most because the injury (as described under the 'nature of injury' variable) was a medical mishap. Those due to medical mishaps have been eliminated from the analysis; any remaining ones where no external cause was recorded are included here as "not recorded."
Other	Remaining codes	Includes things like injuries while riding animals, legal intervention, operations of war....

Appendix 2: Recommendations for Public Health Surveillance of Injuries in Eeyou Istchee

Applicability of the indicators and priorities proposed by the Ministère de la Santé to Eeyou Istchee's situation

In *Plans de surveillance : une base commune* and in *Le programme national de santé publique 2003-2012 : version de consultation*, the Ministère de la Santé proposes indicators for injury surveillance, and priorities for injury-prevention. The indicators proposed for injury surveillance are:

- Alcohol consumption (per week, and excessive consumption per year) – to be collected through surveys
- Drug use – to be collected through surveys
- Proportion of cyclists wearing helmets – to be collected through surveys
- Use of Personal Flotation Devices (PFDs) – Red Cross data
- Use of seatbelts – data from surveys by the *Société de l'assurance automobile du Québec*
- Arrests for impaired driving – data from the *Société de l'assurance automobile du Québec*
- Hospitalization for trauma – data from MedEcho files

Based on a review of injury deaths and hospitalizations over the recent period, the indicators proposed by Quebec would be relevant for Eeyou Istchee. The indicators having to do with impaired driving, use of seat belts and use of PFDs are particularly relevant, given the frequency of motor vehicle accidents and drowning in the Territory. Some additional indicators might also be useful in Eeyou Istchee, such as information on speeding; information on snowmobile crashes (speed, helmet use, alcohol involvement); and information on boat safety, such as weather checks, overloading, or use of survival suits.

The Ministère de la Santé has also proposed some priority areas for intervention, as follows:

Reduce suicide rates by:

- Raising awareness about the risk of firearms, developing sentinel networks, and promoting intersectoral collaboration
- Training doctors to recognize depression and other forerunners of suicide

Reduce the number of road and off-road accidents by:

- Supporting traffic-calming measures and improvements to intersections
- Promoting use of protective equipment
- Promoting an intersectoral strategy against driving while impaired
- Promoting increased enforcement
- Supporting “des pratiques cliniques préventives” (in practice, this seems to mean counselling by doctors)

Reduce falls and accidents in the home by:

- Integrating home-accident prevention into existing perinatal and young child services
- Enforcing existing laws on the sale and packaging of dangerous products and medications
- Promoting physical activity in the elderly, using group interventions
- Counselling by doctors

Reduce sports injuries by:

- Interventions targeted at use of motorized watercraft
- Enforcement of rules and laws regarding sliding sports, PFDs, and the layout of residential pools
- Better application of laws about playgrounds and structures in municipalities, schools, and daycare centres.

By and large, these priorities would be relevant for Eeyou Istchee, although falls in the elderly are less of a concern in the Territory than elsewhere in Quebec. Some of the specific interventions proposed to address these priorities might be less applicable to Eeyou Istchee. For instance, traffic-calming measures and improvements to intersections may not be relevant, but improvements to highways might be a useful substitute. With respect to suicide, many of those attempting or completing suicide in Eeyou Istchee are teenagers who probably have little contact with the health care system; so training doctors to detect early signs might be less useful than training people such as teachers, coaches, or community members. Finally, some of the specific measures suggested by Quebec to reduce sports injuries might not be applicable in the Territory.

Recommendations about the Death Report being used by the CSSSJB

The death report is completed by staff in the communities, and contains fields for “place of death,” “medical cause of death – nature of illness or injury,” “how death occurred – external cause of injury,” and “contributing factors.” There is some variation in how staff interprets these labels, but the required information usually gets filled in somewhere.

The report duplicates information collected elsewhere, in that Quebec also produces information on causes of death based on the death certificates. Historically, Quebec’s figures apparently

understated the true number of deaths, making CSSSJB’s report a useful alternative; in recent years, numbers from the two sources have been similar, as shown in table 1 below.

Table 1 Comparison of Total Number of Deaths in Cree Register and MSSS Sources, Over Time			
Year	CSSSJB	MSSS	Difference
1985	29	32	3
1986	43	47	4
1987	41	35	-6
1988	29	23	-6
1989	37	37	0
1990	28	36	8
1991	30	32	2
1992	40	52	12
1993	47	49	2
1994	40	38	-2
1995	49	51	2
1996	46	41	-5
1997	50	49	-1
1998	57	60	3

There are two difficulties with the Death Report as it stands at present. First, fully 12% of the deaths in the file are classified as “unknown cause.” As compared to the figures in Quebec’s *Surveillance de la mortalité* report, the CSSSJB’s figures seem to be more complete for injuries, and less so for cancer (Table 2). This may be because cancer deaths are more likely to occur in hospitals outside the community, with the result that local staff do not know the cause of death. In short, while the CSSSJB figures miss few deaths, they are missing a lot of information on *cause* of death – and this applies disproportionately to certain causes.

The other difficulty is correctly coding the cause of death. The Death Report contains a short verbal description of the cause of death, often listing more than one condition (for example, “pneumonia, congestive heart disease, COPD”). This requires anyone assigning ICD codes to determine the underlying cause of death. Since there are rules about how to determine the underlying cause that are taught to medical archivists, the code that CSSSJB staff assign may not be the same as the one on the death certificate.

Table 2: Deaths in James Bay Register Compared to MSSS Records, by Major Cause, 1985-1998					
	All causes	Circulatory	Cancer	Respiratory	Injury
No. deaths in Register	572	147	88	80	111
No. deaths reported by MSSS	582	143	107	78	105

Note: coding systems may differ.

In sum, the Death Report as it stands at present duplicates the numbers collected by Quebec’s vital statistics, and its information on *cause* of death is less complete and less accurately coded than Quebec’s. Injury deaths are the exception to this conclusion: the injury numbers are very complete, and the additional information that the Death Report provides about the circumstances of the injury event is valuable, and is not readily available from any other source. Therefore, the CSSSJB may wish to eliminate the requirement for staff to complete information on all deaths, and simply ask them to report *injury* deaths.

It may also be useful to adapt the form so that it collects some additional information about injury events, of the type collected by other injury-surveillance systems.⁵ A suggested revision is included at the end of this document. As compared to the existing form, the revised one:

- Asks more specifically about the place of the incident.⁶
- Asks about the time of the incident
- Asks specifically whether other people were involved (this is not always clear from the existing information)
- Asks specifically whether alcohol or drugs were involved, instead of leaving this to be included in the “contributing factors” field at the discretion of the person filling in the form
- Asks about the use of protective equipment such as seatbelts and lifejackets
- Collects additional information on the circumstances of motor vehicle crashes and drowning, which are the two leading causes of injury death in Eeyou Istchee.

It is recommended that the CSSSJB pilot-test this form in one or two communities to ensure that it makes sense to community staff and does not miss important information. The revised form could then be introduced in all communities in place of the existing Death Report.

⁵ Because the number of injury deaths is small and many years of data are required for accurate statistics, it is important not to break the time series in any way. For this reason, any redesign should *add* to the existing information or make it more specific, but not *remove* existing fields if they are even occasionally useful.

⁶ In particular, since a recent report by Kischuk suggests that most road accidents happen on highways outside the communities, the form distinguishes between roads in the community and those outside it.

Recommended periodicity for injury-surveillance

The two ongoing sources of information on injuries in Eeyou Istchee are the Death Reports completed by staff in the communities, and the MedEcho records of hospitalizations. In both cases, the numbers involved are small – far too small to be worth analyzing each year. Deciding how often the injury data should be analyzed calls for balancing two sets of considerations: how many years it takes to produce numbers large enough for rates to be stable, and how often analyses have to be produced in order to keep health workers interested in the topic and informed about it.

There are two approaches to determining how many years of data are needed to permit meaningful analysis – the “eyeball” approach, and the more sophisticated one based on coefficients of variation.⁷ Fortunately, in this case the two lead to similar conclusions. The “eyeball” approach says that for rates to be even moderately stable, you need at least 100 cases at the level of the Territory, and 20 within any sub-groups that you intend to analyze. The coefficient of variation approach applies Statistics Canada’s guidelines, which suggest adding cautionary notes to any rate for which the coefficient of variation is between 16% and 33%, and suppressing rates for which the coefficient of variation exceeds 33%. Some tables showing the confidence intervals and coefficients of variation for some typical hospitalization data in Eeyou Istchee are included at the end of this document.

Mortality information

There were only 116 injury deaths over a period of 17 years (1985-2001) in Eeyou Istchee. In practice, this permits some conclusions about the most frequent types of injury, but rates for individual years or communities are still extremely variable. It is suggested that future analyses continue to combine as many years as possible, even at the risk of obscuring changes over time. Combining analysis of the death information with the hospitalization figures is also useful, as the two pictures complement one another. A pragmatic solution would be to analyse the injury mortality data on the same cycle as the hospitalization numbers, which are larger.

Although the mortality data may not be analyzed each year, it will still be important to check the individual injury death reports as they come in, to ensure that they are complete and make sense. This will allow for follow-up with the originator before memories have faded or the person has left the position.

⁷ The coefficient of variation is the standard deviation of a rate, divided by its average. It expresses the size of the standard deviation as a proportion of the rate itself. For instance, a coefficient of variation of 33% means that the value of the standard deviation is a third as large as the original rate.

Hospitalization information

The injury hospitalization numbers are larger than the death ones, with an average of 140 hospitalizations per year. This is sufficient to produce a rate with an acceptable coefficient of variation (about 8%), as long as the numbers are not broken down by type of injury or by geographic area. However, analysis by individual community requires at least three years of data, and preferably five; while analysis by *type* of injury requires at least five years - and even then, only the rates for the largest causes of injury are truly stable.

Consequently, the CSSSJB may want to analyse its injury data every five years. If this is insufficient to keep staff up-to-date and interested in the topic, a compromise solution might be to analyze the data every three years, but to include at least five years' worth of data in each analysis.

Injury surveillance and the transition to ICD-10

If Quebec decides to switch to the ICD-10 classification system (as most provinces intend to do by 2004), this will affect any time series of hospitalization data.

According to staff at the Injury Surveillance unit of Health Canada (Mackenzie, 2003), some of the differences between the two versions are:

- There is no longer a distinction between snowmobile crashes and those involving all-terrain vehicles (unless Quebec chooses to use the “Canadian adaptation” of ICD-10).
- There is less detail on unintentional poisoning.
- The nature of the injury is coded differently: whereas ICD-9 coded first the type of injury then the body part affected, ICD-10 does the reverse (e.g., first “fracture” then “head injury”).
- The Falls category in ICD-10 no longer includes the subset “fracture, cause unspecified,” which is a large one. This change is expected to produce a substantial decrease in the number of hospitalizations classified as Falls. (Note that this will not affect comparisons to the analysis prepared for Eeyou Istchee in 2003, which already excluded “fractures, cause unspecified” from the Falls category).

Recommendations about community-based surveillance

Data on mortality and hospitalizations detect the most serious injuries, but omit many small ones. As well, the numbers have to be collected over a long period of time before they become useful, and the hospitalization data are not readily available to community staff. For these reasons, communities that want to take action on injuries may find it useful to collect their own injury-surveillance data and include all instances of injury. This can be a way of raising awareness by using numbers that are specific to the community, and it can promote teamwork by involving people from different sectors (nurses, teachers, police...) and by allowing the community to determine its own priorities.

The First Nations and Inuit Health Branch of Health Canada has already developed an injury-surveillance form intended specifically for First Nation communities, which has been pre-tested in several locations and found to work. There are also accompanying instructions and an electronic version. The form is useful as a community tool, but because there are usually gaps and inconsistencies in community data-collection methods, the information is not especially useful when aggregated for a larger area. Therefore, there would be no particular advantage in making it mandatory for all communities. Instead, it is suggested that the CSSSJB consider making the surveillance form available to the communities that want it, and provide training and initial help with data-analysis on request.

Summary of recommendations for surveillance

In sum, it is recommended that the CSSSJB consider the following options for injury surveillance:

- Endorsing the injury-surveillance indicators recommended in the *Plan de surveillance*, which would be relevant to Eeyou Istchee's situation. In fact, the CSSSJB may want to consider encouraging Quebec's agencies to be sure the Territory is adequately represented in specific surveys, such as those dealing with seatbelt use, impaired driving, or lifejackets.
- Collecting, or recommending the collection of, additional indicators dealing with safety in boats and on snowmobiles.
- Endorsing the over-all injury-prevention priorities recommended by Quebec, but tailoring some of the specific interventions to the situation in Eeyou Istchee. This applies especially to the interventions envisioned for sports injuries and for preventing motor vehicle crashes. With respect to preventing falls, the CSSSJB may want to place greater emphasis on preventing falls in childhood, and less on preventing falls in the elderly, than the rest of Quebec.

- Eliminating the current Death Report being completed in the communities, and replacing it with a revised form that focuses solely on injury deaths. Without causing a break in the existing time series, the new form should collect additional information on the circumstances of the injury, on the use of protective equipment, and on the involvement of alcohol or drugs in the incident.
- Pre-testing the revised Injury Death form in a few communities before implementing it across the board, ideally before January of 2004.
- Combining multiple years of mortality data – fifteen or even twenty years if available – and analyzing them on the same frequency as the injury hospitalization data.
- Analyzing injury hospitalization data every three to five years, depending on the demand from CSSSJB staff for up-to-date information; and using a five-year series of data in each analysis.
- Making Health Canada’s Community Based Injury Surveillance Form available to communities that want it and providing initial training and help with data-analysis.

Attachment 1 to Appendix 2: Death Report form currently in use in Eeyou Istchee, and suggested Report of Injury Death to replace it

Current Death Report

DECEASED PERSON: _____ (married name) _____ (maiden name) _____ (first name)

Sex: M F Date of birth: _____ (year/month/day) Community of residence: _____

Band #: _____ Date of death: _____ (year/month/day)

Place of death: _____ (Hospital, home, bush, other)

Medical cause of death - nature of illness or injury: (myocardial infarction; head injury, drowning, burn, etc)

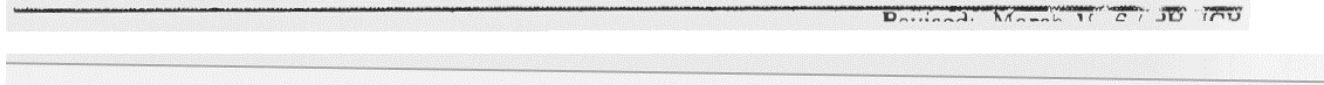
How death occurred - external cause of injury: (eg. pedestrian struck by car; snowmobile went through ice; boat overtuned, housefire, etc)

Contributing factors - personal, equipment, or environmental factors associated with the fatal incident: (eg. alcohol intoxication, cigarette smoking, failure to use lifejacket or wear safety belt, etc.)

Close relative: _____ (Married name, maiden name, first name)

Relation to the dead person: _____ (Spouse, relative, friend, other)

Comments: _____



Suggested Replacement Form - Report of Injury Death

Form filled out by: _____ Date: _____ Clinic: _____

Information about the deceased person

Deceased person _____
Married name Maiden name First name

Date of birth: _____ Date of death: _____ Band #: _____
yyyy/mm/dd yyyy/mm/dd

Sex: Male Female Community of residence _____

Close relative: _____
Married name Maiden name First name

Relationship to deceased person: (e.g. spouse, relative, friend, other): _____

What happened (e.g. collision with another car; snowmobile went through ice; boat overturned; house fire):

Contributing factors (e.g. weather or road conditions, snowmobile driven on road):

Nature of resulting injury (e.g. burn, skull fracture): _____

Place of incident:

- Home
- Bush
- Hwy/road --- > in community
- outside community
- Other: _____

Were alcohol or drugs involved?

	Yes	No	Unk	N/A
Alcohol	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Drugs (legal or illegal)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Time of incident

- Morning (6 AM – noon)
- Afternoon (noon – 6 PM)
- Evening (6 PM – midnight)
- Night (midnight – 6 AM)
- Unknown

Protective equipment used / operational

	Yes	No	Unk	N/A
Seatbelt	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Child restraint	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Helmet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Smoke/fire alarm	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lifejacket/survival suit	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other: _____				

Were other people involved in this incident?

- Yes ----- > How _____ (leave blank if many? number is unknown)
- No
- Don't know

Incidents involving motor vehicles

- Deceased person in: car/truck/van snowmobile all-terrain vehicle bicycle pedestrian other: _____
- As a: driver/rider passenger pedestrian

Was another vehicle involved? Yes No Unknown

Drowning incidents

- Person was: fishing or hunting boating (recreational) travelling swimming/wading/playing other : _____
- In a motorized boat non-motorized boat (e.g. canoe, rowboat)

Comments:

Attachment 2 to appendix 2: confidence intervals and coefficients of variation for some typical tables

Statistics Canada guidelines for coefficients of variation:

Numbers with a coefficient of variation below 16.6%: use as is.

Numbers with a coefficient of variation between 16.6% and 33.3%: add an asterisk indicating that the number has high variability and should be used with caution.

Numbers with a coefficient of variation above 33.3%: suppress.

Injury Hospitalizations for Residents of Eeyou Istchee: Five-Year Series										
Comm	Year					Totals over 5 years			95% Confidence interval	100
	1996-97	1997-98	1998-99	1999-00	2000-01	Number	Popn	Rate		
Chis	29	28	37	26	35	155	15429	1005	847 to 1162	8%
Eastm	5	7	2	6	2	22	2661	827	483 to 1171	21%
Mist	29	45	65	34	41	214	12607	1697	1172 to 1923	7%
Nem	6	2	7	1	8	24	2614	918	552 to 1284	20%
Ouje	17	14	14	11	9	65	2723	2387	1814 to 2960	12%
Wask	15	18	14	10	8	65	8067	806	611 to 1001	12%
Wasw	24	15	15	14	14	82	5603	1464	1149 to 1778	11%
Wem	4	8	12	8	8	40	5207	768	531 to 1005	16%
Whap	5	14	15	12	13	59	3383	1744	1303 to 2185	13%
Total	134	151	181	122	138	726	58294	1245	1155 to 1335	4%

Injury Hospitalizations for Residents of Eeyou Istchee: Three-Year Series									
	Year			3-year totals			95% confidence interval	Coefficient of variation	
	1998-99	1999-00	2000-01	Number	Popn	Rate			
Chisasibi	37	26	35	98	9432	1039	834 to 1244	10%	
Eastmain	2	6	2	10	1662	602	230 to 973	32%	
Mistissini	65	34	41	140	7690	1821	1522 to 2119	8%	
Nemaska	7	1	8	16	1617	989	507 to 1472	25%	
Ouje-Bougoumou	14	11	9	34	1683	2020	1348 to 2692	17%	
Waskaganish	14	10	8	32	4964	645	422 to 867	18%	
Waswanipi	15	14	14	43	3453	1245	875 to 1615	15%	
Wemindji	12	8	8	28	3196	876	553 to 1199	19%	
Whapmagoostui	15	12	13	40	2100	1905	1320 to 2489	16%	
Total	181	122	138	441	35797	1232	1118 to 1346	5%	

Injury Hospitalizations of Eeyou Istchee Residents by Type of Injury: Five-Year Series

Type of injury	Year					5-year total	5-year rate	95%confidence interval	Coefficient of variation
	1996-97	1997-98	1998-99	1999-00	2000-01				
Falls	19	23	23	24	26	115	197	161 to 233	9%
Not recorded	18	21	35	26	28	128	220	182 to 258	9%
Motor veh. traffic	15	12	32	15	8	82	141	110 to 171	11%
Suicide/self-injury	12	14	16	9	14	65	112	84 to 139	12%
Homicide/assault	16	14	15	4	10	59	101	75 to 127	13%
Cut/pierce	9	11	8	4	7	39	67	46 to 88	16%
Other injury	11	4	8	9	9	41	70	49 to 92	16%
Snowmobile	5	12	4	5	6	32	55	36 to 74	18%
Struck by/against	4	9	7	3	4	27	46	29 to 64	19%
Unknown intent	6	5	6	1	2	20	34	19 to 49	22%
Acc. Poisoning	1	5	3	4	4	17	29	15 to 43	24%
Medical mishap	5	6	3	0	4	18	31	17 to 45	24%
Overexertion	1	3	6	5	3	18	31	17 to 45	24%
Bicycle	3	4	4	1	3	15	26	13 to 39	26%
Fire/burns	2	2	4	3	3	14	24	11 to 37	27%
ATV	2	0	2	4	2	10	17	7 to 28	32%
Pedestrian	1	2	1	1	2	7	12	3 to 21	38%
Firearms	0	0	1	2	3	6	10	2 to 19	41%
Machinery	2	1	2	1	0	6	10	2 to 19	41%
Environmental	0	2	1	1	0	4	7	0 to 14	50%
Drowning/submersion	2	1	0	0	0	3	5	-1 to 11	58%
Total	134	151	181	122	138	726	1245	1155 to 1335	4%

References

- Beirness DJ, Desmond K. (2000). *Alcohol Involvement in Recreational Vehicle Fatalities in Canada*. Traffic Injury Research Foundation of Canada. Cited in Anna Auer, "Working Together to Reduce Snowmobile Injuries," produced for the National First Nations and Inuit Injury Prevention Working Group, draft, 2002.
- Bobet, Ellen (2002). "Injury Prevention." Presentation prepared for the National First Nations and Inuit Injury Prevention Working Group, January 2002. Ottawa: First Nations and Inuit Health Branch, Health Canada.
- Hamel, Denis (2001). *Évolution des traumatismes au Québec de 1991 à 1999*. Institut national de santé publique, Québec.
- Health Canada (2001). *Unintentional and Intentional Injury Profile for Aboriginal People in Canada, 1990-1999*. Ottawa: Minister of Public Works and Government Services Canada.
- International Collaborative Effort (ICE). *ICD-9 Framework for Presenting Injury Mortality Data*. Centres for Disease Control and National Center for Health Statistics, www.cdc.gov/nchs/about/otheract/icd/matrix.htm
- Injury Surveillance unit, Health Canada. *Canadian adaptation of the ICE framework for injury classification*. Unpublished table provided by Susan Mackenzie, February 2003.
- Kischuk, Natalie (2003). *Motor Vehicle-Related Deaths among the James Bay Cree, 1986 to 1999*. Version 1, January 7, 2003. Report submitted to the Conseil Cri de la santé et des services sociaux.
- Mackenzie, Susan, Injury Surveillance unit, Health Canada (2003). Personal interview, February 7, 2003.
- Probert, Adam et al (2003). *A Statistical Profile on the Health of First Nations in Canada*. Ottawa, Health Canada. Forthcoming 2003.
- Quebec, Ministère de la Santé et des Services sociaux du Québec (2002). *Le programme national de santé publique 2003-2012 : version de consultation*. October 2002. Sections entitled "le développement, l'adaptation et l'intégration sociale," and "les traumatismes non intentionnels."
- Québec, Ministère de la santé et des services sociaux (2001). *Surveillance de la mortalité au Québec : 1977-1998*. Québec: Ministère de la Santé et des Services sociaux.
- Quebec, Ministère de la Santé et des Services sociaux, Groupe de travail sur le plan de surveillance (2002). *Plans de surveillance : une base commune*. Draft, July 2002.
- Santé-Québec (1994). *A Health Profile of the Cree: Report of the Santé Québec Survey of the James Bay Cree 1991*. Montreal: Santé Québec.
- Schnarch, Brian (2001). *Health and What Affects It in the Cree Communities of Eeyou Istchee*. Montreal: Cree Board of Health and Social Services, unpublished.