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The Health of the James Bay Cree

SUMMARY

The health of the James Bay Cree of Quebec reflects their history and environment. Their ancestors were living in Northern Quebec for centuries before the Europeans arrived bringing new infectious diseases and developing a health-care structure that has relegated traditional Cree medicine to the background. The James Bay and Northern Quebec Agreement of 1975 led to the creation of the Cree Board of Health and Social Services under the Quebec Ministry of Health. Various changes have resulted in the eight Cree villages over the past 15 years, both in the socio-economic situation and in the health status of the Cree. Improvements in health will come about through increased participation of Native people in the delivery and control of health services, more accessible health services, and the creation of healthy and health-promoting environments. (*Can Fam Physician* 1988; 34:1606–1613.)

Key words: Traditional medicine, James Bay Cree, Northern and Native health

RÉSUMÉ

L'état de santé des Cris de la Baie James, au Québec, est le reflet de leur histoire et de leur environnement. Leurs ancêtres habitaient depuis des siècles les régions nordiques du Québec avant que les Européens n'arrivent avec leur cortège de maladies infectieuses et n'imposent une structure de soins qui a relégué la médecine traditionnelle crie aux oubliettes. Le Traité de la Baie James et du Grand Nord québécois signé en 1975 a entraîné la création d'un Conseil de la santé et des services sociaux cri sous la juridiction du Ministère de la santé du Québec. Il en est résulté de nombreux changements dans les huit villages cris au cours des 15 dernières années, tant au niveau de la situation socio-économique que de l'état de santé de la population crie. L'amélioration de l'état de santé sera possible par la participation accrue de la population autochtone dans la dispensation et le contrôle des services de santé, par un meilleur accès aux services de santé et par la création d'un environnement sanitaire favorisant la santé.

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SOCIO-ECONOMIC and cultural factors are primary determinants of mortality and morbidity.[1,2] For this reason a review of these factors as they relate to the James Bay Cree is in order before I describe the health status of these Native Canadians.

History

The first people to enter the land areas currently occupied by the James Bay Cree of Quebec came in the wake of caribou herds migrating from the west and south approximately 7000 years ago.[3] The Cree and their ancestors had lived in northern Quebec for many centuries before Henry Hudson arrived at the site now known as "Waskaganish" (Rupert House).[4]

After the arrival of the Europeans, the Cree continued to live nomadically but began to use tools such as guns and knives, and to orient their hunting towards animals that bore fur valuable for trade. They spent much of their time on their family hunting territories, visiting the trading post only once a year to trade furs and purchase supplies.

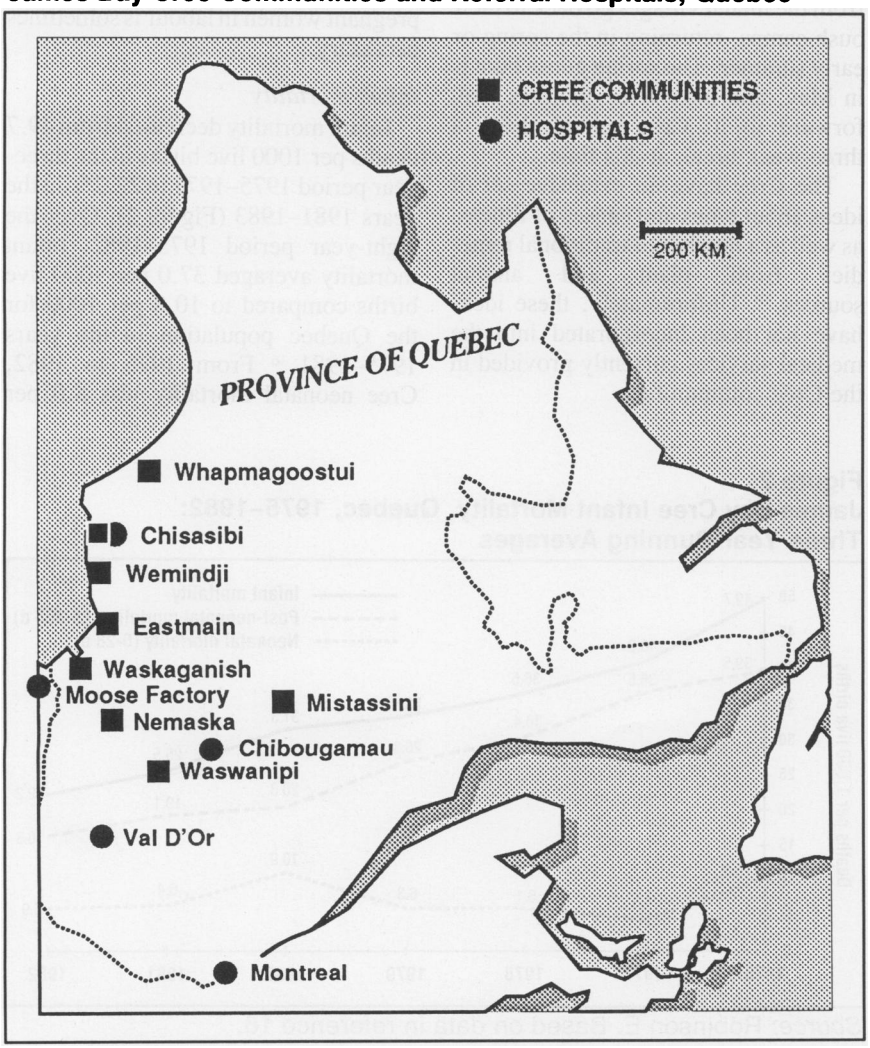
Smallpox and measles virus were unknown in the scattered population of northern North America before contact with Europeans. Epidemics of these and other new diseases severely affected the Cree population in the 18th and 19th centuries.

The British North America Act of 1867 defined federal and provincial responsibilities and the role of the government in relation to Indians; medical care of Indians came to be seen as a federal responsibility. In 1905, a chief medical officer was appointed within the Indian Affairs Department.[5] In the 1920s, the federal government began sending a doctor on the annual voyage of ships supplying communities on the coast of Labrador and Ungava, Hudson and James Bays; at the same time, the Oblate missionaries opened a clinic in Fort George (now Chisasibi). A severe shortage of traditional food sources in the first half of the 20th century was accompanied by a high prevalence of infectious diseases, especially tuberculosis. The federal administration of Native medical services was transferred from the Department of Indian Affairs to National Health and Welfare in 1945, and the Moose Factory Hospital was opened shortly afterward, receiving Indian and Inuit patients brought by bush planes from the James and Hudson Bay coasts.

After the Second World War, the federal government opened nursing stations in most of the established Cree villages. By the 1960s, when schools were being built in each community to replace the regional residential schools, the Cree were spending less and less time on their hunting territories and more time in the villages.

The building of railways and roads, and the development of mining and logging industries in northern Quebec began to have an effect on the southernmost Cree bands (Mistassini and Waswanipi) in the 1920s. In the 1950s, a hospital was opened in the mining town of Chibougamau; it is the main referral hospital for the large Cree community of Mistassini, 100 km to the north.

Figure 1
James Bay Cree Communities and Referral Hospitals, Quebec



The James Bay and Northern Quebec Agreement

In 1971, the Premier of Quebec, Robert Bourassa, announced plans for the James Bay hydro-electric project. This project would involve the building of several large dams that would flood some of the traditional hunting territories of the James Bay Cree. A group of Cree met to oppose this project, hiring consultants and eventually succeeding in obtaining an injunction against the building of the dam. This group became the Grand Council of the Cree of Quebec, and it was with the Grand Council, as well as with Inuit groups, that the Government of Quebec concluded the James Bay and Northern Quebec Agreement in 1975.

The Agreement allowed the Quebec government to go ahead with its hydroelectric project in return for compensation, certain rights pertaining to the land and hunting and trapping, and measures for the protection of the environnent. The Agreement also created the Cree Board of Health and Social Services, under the Ministry of Health and Social Services of Quebec.[6]

The Cree Board is modelled after the Regional Health Boards that were established in the Province of Quebec in the 1970s. It differs, however, in that it is directly responsible for the administration of a hospital, clinics in seven communities, and a social services centre.

The Cree Communities

The total resident population of the eight Cree communities in 1987, according to the list of beneficiaries of the James Bay Agreement, numbered 8590. The population is young: 4.1% of these people are 65 or over,[7] while 9.7% of all Canadians (according to the 1981 census) were in this category. By contrast, 2690 Cree (31.3%) are between 10 and 19 years of age.

Quebec Health and Social Services region 10-B, in which the Cree Board of Health has jurisdiction, includes eight parcels of land that contain the eight Cree communities and surrounding areas (Figure 1). The Cree villages are located in a boreal forest on relatively low flat land close to waterways.

The land, which is snow covered for six to eight months of the year, is unsuitable for growing crops or for grazing domestic animals. For these reasons, the traditional Cree economy consists of hunting, fishing, and gathering wild berries, in contrast to the agricultural economies of Indian groups farther south, such as the Hurons and the Iroquois.

The five coastal communities, Whapmagoostui, Chisasibi, Wemindji, Eastmain, and Waskaganish, and the inland community of Nemaska are relatively isolated. Most patient transport out of or into the communities is by airplane, although Chisasibi and Nemaska are accessible by a highway built for the James Bay hydro-electric project. The other inland communities, Mistassini and Waswanipi, lie farther south and are accessible by road from Chibougamau or Val d'Or.

Over the past 10 years, the rate of social and cultural change has been particularly rapid in the Cree communities, increasing the influence of non-Native North American society on Cree society. Construction of roads, increased frequency of airline communication, availability of radio and TV stations, and installation of telephones are examples of the changes. Cree is spoken predominantly in almost every home. English is the main second language, but many Cree are now learning French.

Through the initiative of the local Band Councils and the Cree Regional Authority, and following the signing of the James Bay Agreement, running water and sewage systems have been installed in all the communities. Many new houses have been built.

In 1981, one-third of the active Cree population aged 15 to 64 years had a salaried full-time or part-time job, and somewhat less than one-quarter said they were unemployed.[8]

The James Bay Agreement resulted in the establishment of an Income Security program for Cree hunters and trappers, which provides a guaranteed income to families spending more than four months per year in the bush.[9] This program has strengthened traditional hunting and trapping pursuits. Forty to fifty per cent of Cree families participate in the program. There are, too, a number of positive health-related spinoffs: a plentiful supply of nutritious country food, such as caribou, moose, beaver, bear, fish, and geese, as well as the necessity to be physically active. On the other hand, families must sometimes leave school-age children in the community in the care of foster families.

It is important to take into account the seasonal cycle of hunting and trapping activities in order to time preventive health programs and visits of medical specialists from Montreal. The eight villages with their houses, stores, businesses, schools, and government offices reach their maximum population in the summer (June, July, and August), when the Cree are least likely to be in the "bush", hunting and trapping. In the inland villages of Nemaska, Mistassini, and Waswanipi, families move to their bush camps at the end of August or in September, often returning only around Christmas time to pick up supplies and to participate in festivities. Mid to late September is the time when many families go goose hunting. Even those who spend most of the rest of the year in the communities go to hunting camps at this time.

After Christmas, many families from the inland villages go back to their bush camps, returning in the spring or early summer. The spring goose hunt is in May, and most Cree families look forward to it. Cree schools have a three-week break at this time.

The Cree have an extensive set of ideas about types and causes of illness, as well as a number of traditional remedies from plant and animal sources.[10] Unfortunately, these ideas have not been incorporated into the medical services currently provided in the Cree communities.

Health Status

Pregnancy and delivery

In the coastal villages, from 1977 to 1984, 10 perinatal deaths occurred in 1041 births: the perinatal mortality rate was 9.6 per 1000 births.[11] This figure is slightly higher than the Quebec perinatal mortality rate of 7.8 per 1000 in 1980,[12] and lower than perinatal mortality rates reported for other Native groups.[13,14]

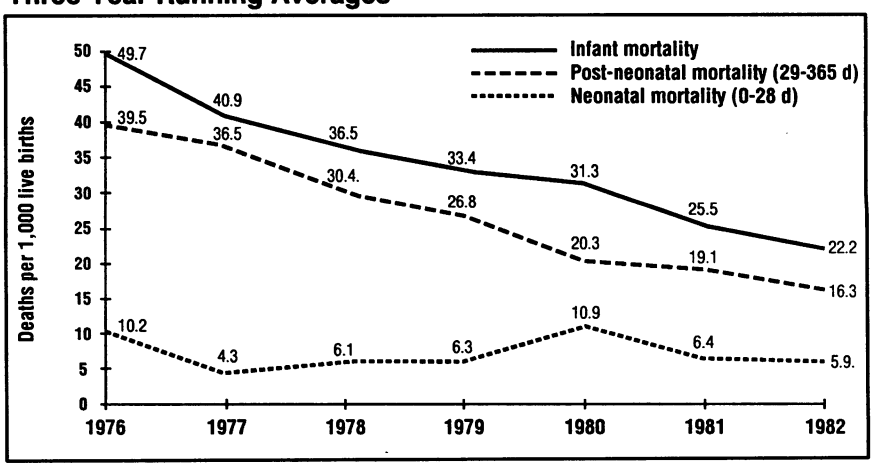
In the 1960s, it was noted that Cree babies were one pound heavier than average Ontario babies,[15] and only 2% of Cree babies born from 1982 to 1984 weighed less than 2500 grams, while 6% of all babies born in Quebec[11] were in this weight range.

Just over 20% of Cree births in 1982 to 1984 were to teenage women (19 and under), compared to 7% in all of Quebec.[11] One-quarter of all Cree births took place in the Chisasibi Hospital; 53% in regional hospitals (principally Val d'Or and Chibougamau), and 11% in Montreal. Caesarian sections are not performed in Chisasibi Hospital, and emergency transfer by airplane of pregnant women in labour is sometimes necessary.

Infant mortality

Infant mortality decreased from 49.7 deaths per 1000 live births in the three-year period 1975–1977 to 22.2% in the years 1981–1983 (Figure 2). Over the eight-year period 1975–1982, infant mortality averaged 37.0 per 1000 live births compared to 10.8 per 1000 for the Quebec population in the years 1975–1981.[16] From 1975 to 1982, Cree neonatal mortality was 8.0 per

Figure 2
James Bay Cree Infant Mortality, Quebec, 1975–1982: Three Year Running Averages



Source: Robinson E. Based on data in reference 16.

1000, a rate close to Quebec's 7.5, while Cree post-neonatal mortality at 29.0 per 1000 was more than eight times the Quebec rate. This post-neonatal mortality rate is higher than that reported for other Native groups.[16-18]

Infectious diseases

Some of the factors that have made infectious disease a major cause of death and illness for Native people have already been mentioned: the Cree had had no exposure to viruses such as smallpox, measles, influenza, and the tuberculosis bacillus prior to contact with Europeans; natural cycles in animal populations led to periods of food scarcity and malnutrition; and the diminishing importance of a nomadic hunting life meant that Native Canadians spent more time in villages where houses were overcrowded and lacked running water and sewage-disposal facilities. The average annual rate of tuberculosis incidence for the period 1980–1984 was 10 times higher for Native people than for Canadians in general.[19,20] Although the incidence of tuberculosis has decreased greatly from the figure of 40 years ago, health professionals retain a high index of suspicion for the disease. Programs for tuberculosis control will still be necessary for years to come and may include BCG vaccination, annual screening of selected segments of the population using PPD 5TU and preventive treatment with INH for persons who are PPD positive.

Of the 65 infant deaths occurring among the James Bay Cree during the years 1975–1982, 24 babies died of gastroenteritis, pneumonia, or meningitis.[16] Gastroenteritis has killed at least five Cree children in the 1980s.[21,22]

Cree are admitted twice as often to hospital for respiratory problems as are other Québécois[23] (Table 1); 49% of hospital days are for pneumomia and other acute respiratory problems.

Statistics for sexually transmitted diseases among the Cree are available only from 1984. Reported gonorrhea incidence is two to three times higher among the Quebec Cree than for Quebec as a whole. Chlamydia appears to be frequent, but it has not been studied systematically, and we do not know whether pelvic inflammatory disease, ectopic pregnancy, or sterility occur more frequently among the Cree than in the general population. No cases of AIDS have been reported.

Many Cree children suffer from otitis. The prevalence of hearing loss in a community where a substantial number of both Cree and Inuit are living is much greater in Inuit children[24] (Table 2).

Chronic diseases

The incidence of infectious diseases, while remaining a problem, appears to be decreasing, while chronic diseases are becoming more prevalent. Doctors working in the Cree communities say that care of diabetics consumes an important part of their time, whereas 10 to 15 years ago, there were only a handful of diagnosed Cree diabetics. From 1981 to 1985, the hospitalization rate of the Quebec Cree was almost twice that of Quebec as a whole for endocrine diseases.[23] (Table 1).

Heart disease is a common cause of death (Figure 3). Both death rates and hospitalization rates indicate that the incidence of heart disease in Cree women is similar to or greater than that of the female population as a whole, whereas it is much less frequent in Cree men than in the male population as a whole. The usual higher rate of male mortality from heart disease is not seen among the Cree.

Smoking is common: in 1984, 66% of adult Cree smoked[25] compared with 37% of all Canadians in 1978 (Canada Health Survey data). In the age range of 20–24-year-olds, 72% of Cree and 40% of all Canadians smoked. Cree seem to be lighter smokers than other Canadians. Over 50% of

Table 1
Comparison of Hospitalization Rates

Hospitalizations in acute-care hospital beds, according to selected principal diagnoses and sex; James Bay Native population, 1981/82 to 1984/85 compared to Quebec 1980/81 (rates/1000 pop.)

		Hospitalizations/1000 Population James Bay		
Diagnosis	Sex	Real Rate	Standardized Rate	Ratio of James Bay Rate/ Quebec Rate
All	Both	141	161.4	1.4
Pregnancies	F	61.5	65.2	1.7
Respiratory	M	22.0	18.6	1.6
	F	21.4	24.0	2.7
Digestive	M	13.7	14.5	1.0
	F	14.5	16.7	1.2
Injuries	M	13.5	14.4	1.5
	F	11.1	12.3	2.1
Genito/ urinary	M	4.9	6.5	1.0
	F	10.5	14.4	1.0
Nervous/ sense organs	M	9.3	8.3	1.5
	F	6.1	6.8	1.2
Circulatory	M	5.4	9.2	0.6
	F	6.6	14.0	1.3
Skin	M	6.7	7.1	4.2
	F	5.3	5.4	2.7
Mental	M	2.9	3.5	0.6
	F	5.6	7.8	1.4
Musculo-Skeletal	M	3.2	4.2	0.8
	F	3.6	5.1	1.0
Infectious	M	3.6	3.1	1.7
	F	3.4	2.8	1.6
Endocine	M	2.5	3.6	2.3
	F	2.8	5.5	2.2
Neoplasms	M	1.5	2.4	0.4
	F	2.7	4.9	0.6

Cree smokers say that they smoke one to 12 cigarettes per day, whereas less than one-third of other Canadian smokers smoke this little.

Cancer appears to be less common among the Cree. The types of cancer deaths are shown in Table 3.

Injuries

Injuries and heart disease are the most common cause of death. The standardized death rate for injuries among the Cree was double that for all of Canada from 1975 to 1981.[16] Almost half (31 of 75) of injury-related deaths from 1975 to 1984 were caused by drowning. However, injury rates among the Quebec Cree were lower than those for other Indian groups,[16,26] whose injury rates are three to four times as high as in the whole Canadian population. Many injuries are thought to be related to alcohol abuse.

Nutrition

The traditional Cree diet consisted of game, fish, berries, and plant teas, and included the organs and viscera.[27] This diet was high in protein, provided the necessary nutrients, and may have protected people from heart disease, cancer, and dental cavities.[28]

Bush food is widely available in the Cree communities. In a survey in one community, 74% of respondents said that they consumed wild meat all year long, while most others said that they ate it occasionally or in the hunting season only.[29] In a 1984 survey,[25] people in 80% of households interviewed in the eight Cree communities had eaten bush food within the preceding two days.

After contact with European traders, the Cree added flour, lard, and sugar to their diet. These foods were adopted early by Cree living in the area of the trading posts but were not consumed extensively by inlanders until the late 19th century.

Serum cholesterol levels in the Cree are lower than those in other inhabitants of Quebec, both men and women.[30]

As with members of other Indian groups, obesity appears to be frequent among the Cree and has increased over the past years because of changes in diet and levels of physical activity. Fresh vegetables and fruits are not always available in Cree communities.

Dental caries

A study[31] of the dental health of school children across Quebec in Grades 2 and 6, in the fall of 1983, showed that Cree children have 20% more cavities than Quebec children in general. In addition, Cree children are more likely to have decayed teeth pulled out or filled; 33% of Cree 12-year-olds studied but only 4% of other Quebec 12-year-olds had had a permanent tooth extracted. When asked if they had brushed their teeth "yesterday", just over 40% of Cree children said yes, whereas almost 75% of Quebec children said yes.[31] The public water supply in Cree communities is deficient in fluoride ion, and the feasibility of adding fluoride is being examined.

Mental illness

Preliminary data indicate that five known suicides occurred among the Cree during the 10-year period from 1975 to 1984, giving an annual rate of 6.85 suicides per 100 000 population. This rate is low compared with that of residents of Canadian Indian reserves, where suicide death rates were 53.6 (males) and 17.0 (females)/100 000 for Canadian Indians from 1977 to 1982: comparative figures were 19.9/100 000 for all Canadian males and 6.4/100 000 for all Canadian females.[26]

Alcohol abuse

Alcohol abuse is perceived as an important health and social problem in the Cree communities. Community members mention the following problems as resulting from substance abuse: family arguments, wife battering, lack of parental discipline, child neglect, difficulties in school, noisy disturbances, vandalism, breaking and entering, theft, fighting, and homicide.[32] No cases of fetal alcohol syndrome have been documented. In a 1983–4 survey, the percentage of adults stating that

Table 2

Prevalence of Hearing Loss among Cree and Inuit School Children in Great Whale River, (Whapmagoostui/Kuujuarapik), Quebec, 1984

Hearing	Cree n	Cree %	Inuit n	Inuit %
Normal hearing	71	(96)	128	(77)
Unilateral loss	3	(4)	30	(18)
Bilateral loss	0	(0)	8	(5)
Total:	74	(100)	166	(100)

Source: See reference 24.

Note: p less than 0.001

Table 3

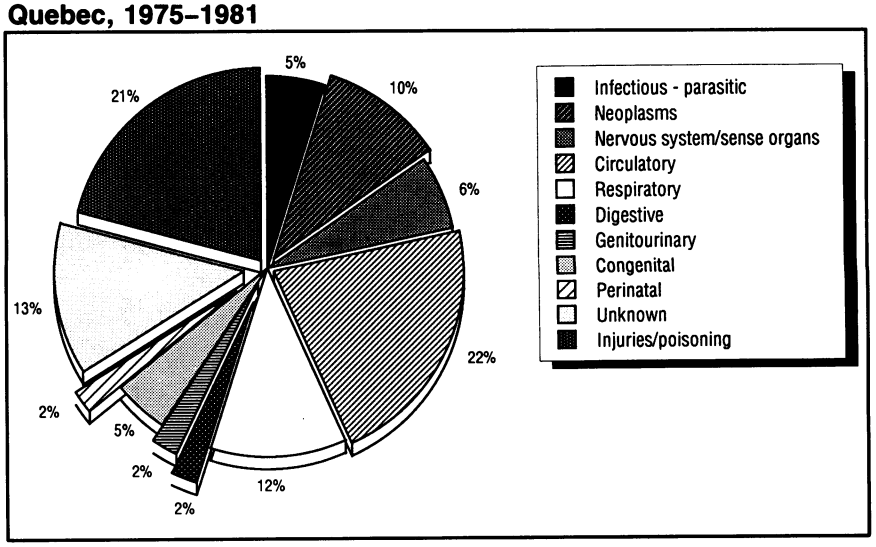
Cancer Deaths in the James Bay Crees of Quebec, by Site, 1975–1982

Site	Deaths	Deaths
Digestive System		
bowel	3	
liver	3	
gall bladder	2	
pancreas	2	
unknown	1	
Subtotal		11
Lung		9
Breast		3
Prostate		2
Others		9
Total		34

Source: Based on data taken from reference 16.

Figure 3

Distribution of Deaths by Cause, James Bay Cree, Quebec, 1975–1981



they consumed some alcohol in the past month varied from 25% in one village to 66% in another.[25] When other Canadians were asked this question in the Canada Health Survey of 1978–9, 65% of them said that they were current drinkers, consuming alcohol at least once a month. Non-medical use of drugs by Cree adults in the same survey varied from less than 1% in one community to 21% in the community with the highest prevalence.

Environmental problems

> Animals are seen as being controlled by spiritual persons, and the hunter is engaged in a religious occupation when he hunts and is exercising spiritual powers by hunting.[33]

Because of the importance of the land and of its plants and animals, the Cree are deeply concerned about possible health problems that have their origin in the physical environment.

The danger of mercury as an environmental contaminant was first reported in Japan: eating methylmercury-contaminated fish led to neurological damage (Minimata disease), which was especially severe in infants exposed *in utero*. Inorganic mercury in the environment is transformed by bacteria into organic (methyl) mercury which reaches elevated levels in predatory fish and sea mammals. Sources of inorganic mercury are man-made (from paper mills, crop fungicides, and incineration of garbage) and natural (erosion of the earth's crust). Acidification of lakes increases the mercury content in fish. Fish in reservoirs behind dams built for hydro-electric power accumulate more mercury than fish in natural lakes. Studies done on the Cree in 1978 showed a correlation between mercury levels and mild neurological findings, but no cases of severe methylmercury poisoning were found.[34,35]

Mercury surveillance in the Cree is taking place on a continuous basis. Results of blood and hair testing are compared with World Health Organization (WHO) standards of 20 parts per billion in blood and six parts per billion in hair. The purpose of the mercury-surveillance program is to identify individuals presumed to be at risk of suffering adverse effects from high levels of mercury exposure, but strict adherence to WHO standards would require a total abandonment of traditional bush life. Guidelines have been developed relating to consumption of species of fish containing a high level of mercury and to fishing in reservoirs, where mercury levels are likely to be higher than in natural lakes. The emphasis is on counselling women who are pregnant or of child-bearing age.[36]

Anxiety has been created among Cree hunters by recent notices sent by government authorities about cadmium and cesium contamination of bush food. The notices warn people against eating moose and caribou liver and kidneys because of possible cadmium contamination. They caution against eating caribou meat, citing slight increases in cesium levels found after the Chernobyl accident.

Conclusions

Tuberculosis, gastroenteritis and respiratory infections remain important as causes of illness among the Quebec Cree, although their incidence has decreased.[37]

Diabetes has emerged over the past 10 to 15 years, while heart disease and cancer occur slightly less frequently than in the whole Canadian population.

Injury death rates are double those in the whole of Canada, but not as high as in other Indian groups. Suicides are not excessive. Alcohol abuse is perceived as becoming more serious, but has certainly not reached a degree of severity described elsewhere.[38]

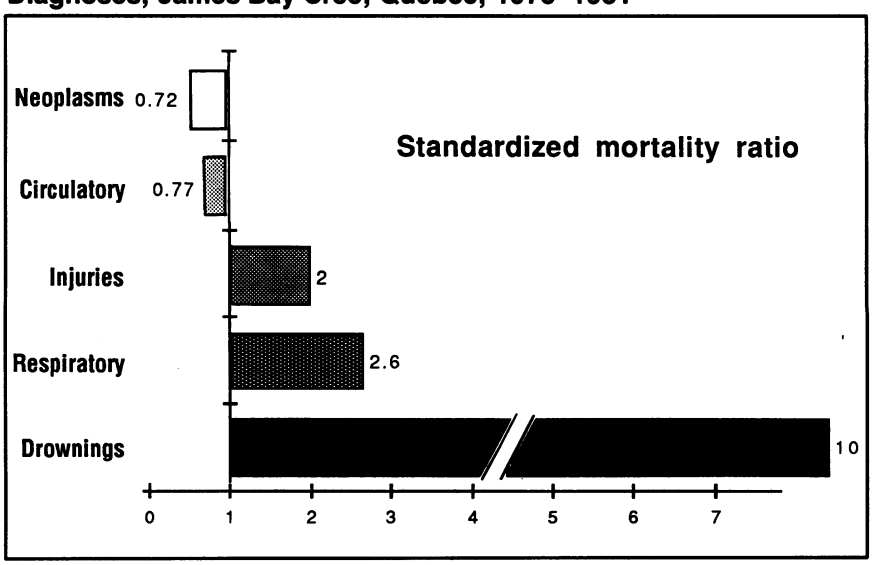
Because the Cree were living in remote and somewhat inhospitable areas that for a long time were of little interest to Euro-Canadians, they were better able to maintain, to a large extent, their traditional hunting economy and their social structure than were some other Indian groups to the south. This way of life was reinforced by the guaranteed income for hunters and trappers set up after the James Bay and Northern Quebec Agreement concluded in 1975. Together, these factors may explain why the Cree have better health statistics than have other Indian groups, in the areas of injuries, suicide, and alcohol abuse.

A number of challenges must be met to improve the health of the Cree and, indeed, of all Canada's Native people. The Cree Board of Health and Social Services of James Bay is a structure that provides for a measure of control over health and social services, but this control needs to be extended by the training of board members and of Native health professionals and administrators at all levels.

Problems remain in the adequate delivery of specialized services to remote scattered populations. Many Cree people are obliged to leave their communities and families for services ranging from a simple X-ray or giving birth, to receiving prolonged radiotherapy treatment for cancer. Deciding which services can or should be offered within the community and which cannot or should not, constitutes a major challenge.

Non-Native health professionals planning to work in Native communities need to learn about the history of Native people; the importance of the land to them; the links between hunt-

Figure 4
Selected Standardized Mortality Ratios According to Principal Diagnoses, James Bay Cree, Quebec, 1975–1981



ing, trapping, spirituality, and health; and differences in communication styles. Native people tend to find direct questions invasive.[39] (I challenge any member of the *Canadian Family Physician* readership to find a way to take a medical history without direct questioning and to write an article about it!)

In the areas of prevention and health promotion, while preventive services such as immunization are well carried out and must continue to be so, the emphasis should now be shifted from the clinics to the communities.[40] Creating healthy environments will help to improve health. To this end, health workers could collaborate with local and regional governments in such areas as helping to control access to alcohol; enforcing laws against drunk driving and for the use of seat belts; improving roads and installing traffic signs and sidewalks; supporting the maintenance of high-quality water-supply, garbage, and sewage disposal services; and promoting the creation of smoke-free spaces.

The "healthy cities" idea[41,42] may be a conceptual framework for setting health workers and Band or local governments on a common path towards improvements in health. Although this concept was developed for large urban areas, it is now being discussed in Algonquin communities in Quebec.[43]

> Developing a city which is both healthy and health-promoting requires the creation, at the municipal level, of public policies that promote and enhance health—policies not only in the public health sector, but also in housing, transportation, waste management, urban design, economic development, and parks and recreation.
>
> The healthy cities concept also requires the development of healthy and supportive physical and social environments. This not only ensures that community action is strengthened and public participation encouraged, but, through an expansion of resources that help people to support one another, it increases the possibilities for mutual aid.[41] ■

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