

## **CANADIAN INDIAN HEALTH: A NEEDS ASSESSMENT PROJECT**

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### ABSTRACT/RESUME

The health needs of Manitoba Indians were assessed using a number of strategies. These included surveys of social and health indicators and analyses of these with such factors as hospitalization rates. As well, extensive questionnaires were administered to key informants from 34 communities. Health problems were judged to be most serious by Indian respondents living in the most acculturated community, Winnipeg.

Ce dont ont besoin les autochtones manitobains pour l'entretien de leur santé a été évalué de diverses manières. Celles-ci comprirent les enquêtes sociales, les enquêtes sur la santé et les analyse de ces enquête à travers l'exploitation des taux d'hospitalisation. De plus, on a recueilli un nombre important de renseignements pertinents dans 34 communautés. Les autochtones qui ont répondu à l'enquête et qui vivaient dans la communauté à culture la plus composite telle que l'est la communauté de Winnipeg, pensaient que les problèmes de santé étaient les plus graves de tous les autres problèmes.

The history of Indian health is one of the saddest chapters in Canadian history. This story has been told in detail elsewhere (see, for example, Graham-Cumming, 1967; Indian Tribes of Manitoba, 1971; Young, 1979) and will not be repeated at length here.<sup>1</sup>

Historically the health indicators which have been utilized in comparing Indian and non-Indian health status have been: 1) life expectancy and mortality rates; 2) infant mortality; 3) incidence and prevalence rates for particular diseases such as tuberculosis; 4) hospitalization rates; and 5) incidence of accidental and violent deaths.

### 1. Life Expectancy and Mortality Rates

Life expectancy rates for Indian people have traditionally lagged behind life expectancy rates for non-Indians in both American (Staub, 1978; Wallace, 1973) and Canadian (Department of Indian and Northern Affairs [DIAND], 1980; Gilmore, 1979) studies. In the United States the gap between life expectancies for Indian and non-Indian people seems to be narrowing (Staub, 1978). In Canada, however, life expectancies for Indian people were 10 years less than for non-Indian people with this difference remaining in 1971 even though both groups had increased their life expectancies (DIAND, 1980).

In Manitoba there are substantial differences in the death rates for selected age groups between the Indian and provincial populations (Siggner & Locatelli, 1980). For the age group 1 to 44 the Indian death rates were at least three times higher than the provincial rates in 1976 (Ibid.).

### 2. Infant Mortality

Infant deaths are generally classified into three major groupings as follows (Wallace, 1973):

1. **Infant Death Rates:** This measure consists of numbers of deaths per 1,000 live births and is considered to be a sensitive index of both socio-economic status and the availability and utilization of health services.
2. **Neonatal Mortality:** This measure consists of deaths during the first 27 days/i,000 live births and is considered to be an index of maternity care.
3. **Postneonatal Mortality:** This measure consists of number of deaths between 28th day and first birthday/1,000 live births and is considered to be an index of the care of the baby in environmental conditions at home.

Historically infant mortality rates among Indians have been higher than mortality rates in the general population in both American (Staub, 1978; Wallace, 1973) and Canadian (Black, 1979 Gilmore, 1979; Young, 1979, 1983) samples. Although the rates have been declining, Indian infant mortality rates

remain nearly twice as high as the national average in Canada (Black, 1979; Young, 1983). A similar picture has been documented in Manitoba with a sharp decline in infant mortality rates occurring in the 1963-1970 period (Indian Tribes of Manitoba, 1971; Siggner & Locatelli, 1980) then stabilizing at a rate about twice as high as that found in the general population.

Neonatal infant mortality rates have followed a somewhat different pattern with neonatal infant mortality rates comparing favorably with the U.S. general population (Staub, 1978). In Alaska and Canada the neonatal mortality rates are still about 60% higher for Indians than for the general population (Wallace, 1973; DIAND, 1980). In the Sioux Lookout zone of northwestern Ontario, Canada, Young (1983) reported that the neonatal mortality rates were approaching those observed in non-Indian samples.

Postneonatal mortality patterns have shown less of an improvement and remain a serious problem. In the United States the postneonatal mortality rates for Indian people are 2 to 3 times higher than rates in the United States as a whole. In Alaska the problem is worse with Indian postneonatal mortality rates five times greater. In Canada as a whole the postneonatal mortality rates had declined to about twice the rate of the general population by 1977 (DIAND, 1980). In the Sioux Lookout zone, however, Young (1983) reported that postneonatal mortality rates were four to five times higher than the national average. In Manitoba postneonatal deaths remain a problem with Indian children having a higher postneonatal death rate due to lower respiratory disorders - gastrointestinal problems and other ill-defined causes. Some of these deaths should be preventable through increasing breast feeding (Black, 1979; Houston et al., 1979).

### 3. Specific Disease Incidence and Prevalence Rates

Tuberculosis is no longer a major cause of death among Indian people. In fact the most recent DIAND report (DIAND, 1980) showed that there were no deaths due to tuberculosis among Indian people over a two year period. The incidence of this disease among Indian people is still much higher than the general population in both the United States and Canada. Staub (1978) for instance, reported that the incidence of tuberculosis among American Indian people was four times greater than the incidence in the general population. Canadian data, reported by Gilmore (1979), indicated that the Indian tuberculosis rate was still seven times the national average. In Manitoba the average incidence rate for tuberculosis among Indian people between 1973-1979 was 1.2 cases per 1,000 (Siggner & Locatelli, 1980). This figure is approximately six times greater than the .2 cases per 1,000 provincial incidence rate.

Indian people have a higher incidence than the general population for a variety of other diseases besides tuberculosis. Staub (1978) reported higher incidence rates for Indians for gonococcal infection (5:1), mumps (5:1), dysentery (46:1), hepatitis (11:1), and syphilis (4:1).

On a more positive note the incidence of cancer and cardiovascular disorders has traditionally been lower among Indian people than among non-

Indians (Black, 1979; Young, 1979, 1983). In a study of mortality patterns in the Sioux Lookout zone, Young (1983) reported that circulatory diseases accounted for only 14% of all deaths in the zone as compared with 50% of all deaths occurring nationally.

With respect to cancer mortality, Young and Frank (1983) reported lower cancer mortality rates in the Sioux Lookout zone than were reported nationally. The lower mortality rates applied particularly to males. Interesting patterns also emerged with respect to the type of cancer. While lung cancer, stomach cancer and skin cancers were relatively rare, other types of cancer such as kidney cancer and gall bladder cancer were actually more common in the zone. Patterns also seem to be changing over time with cancer accounting for 6% of all deaths in 1972 and 20.3% in 1981. Research by Young & Choi (1985) in Manitoba has tended to confirm these findings with Manitoba Indians having a lower risk for cancer overall, but a somewhat higher risk for cancer in particular sites such as the kidney and gallbladder.

#### 4. Hospitalization Data

According to the recent report published by the Department of Indian and Northern Affairs (DIAND, 1980) Indian people use hospitals 2 to 2.5 times more than the national population. This utilization seems to be caused by a higher incidence of respiratory ailments, infectious and parasitic diseases and digestive diseases. Problems seem to be particularly acute among children. Houston et al. (1979) reported that Saskatchewan Indian children were admitted to hospital five times as often as non-Indian children.

Recent analyses of Manitoba hospitalization data by Siggner and Locatelli (1980) confirm the higher utilization of hospital services by Indian people. Factors which account for the greater number of days spent in hospital by Indian people include diseases of the respiratory system, infective and parasitic diseases, and accidents, poisoning and violence.

#### 5. Incidence of Accidental and Violent Deaths

Historically Indian people have generally had higher accidental and violent death rates than non-Indians (Schmitt et al., 1966; Young, 1983). The accidental death rates for British Columbia Indian people increased considerably during the period 1949-1963 (Schmitt et al., 1966). In the period 1959-1963 the Indian death rates were 3 to 5 times higher than non-Indian rates. Indians were particularly at risk for drowning (12 times rates in non-Indian populations) and fires (11 times rates in non-Indian populations). In a more recent study conducted in the Sioux Lookout zone in Canada, Young (1983) reported that injuries and poisonings accounted for one-third of all deaths. This figure is much higher than the figure in the general population where accidents and injuries account for 10% of all deaths (Young, 1983).

These figures are similar to recent Canadian national data (DIAND, 1980) showing that accidents, violence and poisonings account for over one-third of

all deaths among Indians compared with 9% in Canada as a whole, and that there has been a rapid increase in the incidence of these types of death (Black, 1979). According to Black (1979) nearly one in five of these deaths was due to suicide and the number of suicidal deaths has doubled since 1975. Data from the United States (Staub, 1978) indicate that the incidence of suicide among American Indians is also increasing.

Recent Manitoba data (Gudmundson, 1976 Siggner & Locatelli, 1980) show that Manitoba Indians also have a higher risk of dying an accidental or violent death. Data show that accidents, poisonings, and violence account for 56% of all Indian deaths while accounting for only 8% of all such deaths in the provincial population as a whole. The death rates are particularly high for the 15 to 44 age group. It is important to note that population demographics suggest that it is this group which will be increasing markedly in size during the 1980 decade (Siggner & Locatelli, 1980).

Recent research (Trott, Barnes & Dumoff, 1981) has shown that 70.3% of the suicides, 80% of the homicides, 52.6% of the motor vehicle accidents and 54.3% of other accidents occurring in Manitoba were alcohol and/or drug related. Although Indian people were shown to have a higher incidence of drug related deaths than other Manitobans in this study, much of the difference between the Indian and non-Indian groups could be accounted for by the high rates of unemployment in the Indian group. Unemployed people in general had a much greater chance of dying a drug related death.

In recent years there has been a growing realization among Canadian federal government health personnel that existing health programs, although somewhat effective in dealing with infectious diseases, are proving ineffective in dealing with current Indian health problems. To quote directly from one of these reports:

"It has become apparent that government's efforts to improve the health of Indian people are no longer having the desired effect. Our standard medical tools do not seem to address the problems of high hospitalization rates, violence, anti-social behavior, suicide - all indices of an accelerating crisis of health and social breakdown. We always thought that, as health professionals, we knew what Indians needed with respect to health care, and in areas where we concentrated our attention, such as communicable disease and maternal and child health, we began to see improvements in health status. Just as DIAND managed other areas of Indian life, so National Health and Welfare managed those aspects of health care for which it exercised particular responsibility, such as public health, controlling policies, programs and resources. However, not only is health status unimproved by today's standards, the situation is incompatible with both the aspirations of the Indian people and the tenets of self-determination and human rights. It has contributed to a deep-rooted passivity vis-a-vis the health

services which has almost destroyed the interest of the Indian people in providing for their own health needs. This situation has led to chronic demoralization and apathy among individuals and communities which are leading factors in the poor health status of Indian people today" (Black, 1979:45).

This realization has led to a greater effort being made on the part of the government to include Indian people in the process of assessing their health needs. This project resulted as an outgrowth of that process.

Human needs can be assessed in a variety of ways. Methods for assessing human needs include the utilization of social indicators, carrying out of community surveys, holding community forums, and interviewing key informants. The social indicator strategy involves the utilization of existing data sources, generally available from government sources. The community survey approach involves house to house interviews and is the most expensive method for conducting a needs assessment. Community forums consist of a series of public meetings and can be conducted relatively inexpensively. Key informant surveys involve interviewing 10 to 15 individuals who either work or live in a community and who are knowledgeable about the aspects of community life under investigation. The advantages and disadvantages of these various approaches have been discussed by Milord (1976), who has recommended that several of these techniques should be used in combination. In particular he suggests using social indicators in combination with key informants in the first stage of a needs assessment followed up by holding community forums. This is the strategy that was employed in the present study. Indian health needs were first examined by utilizing social indicators including measures of health, demographic structure and social welfare for individual communities. The next step in this needs assessment strategy included conducting key informant surveys in as many Indian communities as possible to measure Indian perceptions of their health program, problems and needs. The advantage in using this multifaceted approach lies in the fact that information which may not be available through one particular method of data collection may be available through another type of data collection. Although community forums were not included as part of this research project it would be possible and desirable to hold these forums after the first two states in the needs assessment had been completed. In this paper the results pertaining to the social indicators and their relationship to hospitalization data will be presented. Data available from the key informant survey is extensive. In this presentation I will be dealing only with Indian perceptions of the perceived seriousness of the various health problems and prediction of perceived seriousness ratings.

## STUDY 1

## SOCIAL INDICATORS AND HEALTH STATUS

## Method

## DATA SOURCES

## Health Indicators:

Data on the health status of Manitoba Indians was obtained primarily from the Manitoba Medical Services Branch of the federal government's Department of National Health and Welfare. Data obtained from this source included: 1) mortality data by cause, age and year of death; 2) infant mortality; 3) tuberculosis cases; and 4) immunizations. Hospitalization data for each community was obtained from the Manitoba Health Services Commission and included: 1) hospitalization cases; 2) hospitalization days; 3) hospitalization cases per 1,000 population; and 4) hospitalization days per 1,000 population.

## Social Indicators:

Data were obtained from three sources. Census data for communities was obtained from Statistics Canada. Data which were taken from the 1976 census record for each community included: 1) percentage who had Indian mother tongue in community; 2) family size; 3) female education level; 4) male education level; and 5) lone parent families. Data was obtained from the Department of Indian Affairs on: 1) housing including number of houses in community, percentage of houses in fair condition, percentage of single family units, percentage of houses with electricity, and percentage of houses with plumbing; and 2) number of social allowance cases in each community. The demographic composition of each community was obtained from the Manitoba Health Services Commission (MHSC).

## Results

## 1. Hospitalization Rates

Hospitalization rates for Manitoba Indians in the period 1976 to 1980 are summarized by year in Table 1 and by region in Table 2. This data indicates a decline in hospital utilization rates for both cases per 1,000 and days per 1,000. Hospital utilization rates for Indian people as of 1980 were still much higher than the rates for the provincial population as a whole (i.e., cases/1,000 = 325.3 vs. 142.2 in total provincial population and days/1,000 = 2240.3 vs. 1556 in total provincial population).

## 2. Predictors of hospitalization rates

In order to determine which social indicators were predictive of community

TABLE 1: HOSPITALIZATION RATES FOR  
MANITOBA INDIANS (1976-1980)

Year	Cases/i,000 Population	Days/1,000 Population
1976	365.0	2690.6
1977	358.9	2561.3
1978	342.1	2321.5
1980	325.3	2240.3

health status, correlations were computed between selected social indicators and hospitalization rates. Mean hospitalization rates were computed for each community based on scores for a four year period (1976 to 1979).

The results of correlational analyses are provided in Table 2. These results show that both hospitalization cases and days are significantly associated in a negative way with having a high percentage of people in the community listing Indian as their mother tongue and having a large number of children. The mean female education in the community is positively associated with hospitalization rates. These results suggest that people in communities with lower acculturation are either healthier or less inclined to use health services even when sick.

Two additional variables were significantly associated with hospitalization days. These variables were infant immunizations which were negatively associated with hospitalization days and the percentage of houses with plumbing which was positively associated with higher hospitalization days. In other words the utilization of hospitals is greater when infant immunizations are lower and plumbing is present to a greater extent. The first finding is understandable and confirms expectations, but the second result is very surprising. Perhaps "civilization" still carries a mixed blessing for Indian people. These results certainly question the assumption that simply introducing plumbing into Indian homes is going to solve Indian health problems.

## STUDY 2

### KEY INFORMANT SURVEY

#### Method

##### 1. Procedure

The strategy employed in this segment of the needs assessment involved selecting key informants from each community who were the most knowledge-

TABLE 2: CORRELATIONS BETWEEN SOCIAL INDICATORS AND HOSPITALIZATION RATES

Social Indicators	Mean Hospitalization Rates (Cases/1,000)	Mean Hospitalization Rates (Days/1,000)
1. Mean community age	-.27	-.22
2. Infant immunization rates	-.13	-.37*
3. Preschool immunization rates	-.24	-.07
4. School age immunization rates	.10	-.00
5. Percentage in community with Indian mother tongue	-.40*	-.39*
6. Mean number of children	-.37*	-.35*
7. Mean female education	.38*	.37*
8. Percentage of lone parent families in community	-.01	.14
9. Number of houses in community	-.21	-.27
10. Percentage of houses in fair condition	.12	-.05
11. Percentage of single family units	.14	-.06
12. Percentage of houses with electricity	.18	.12
13. Percentage of houses with plumbing	.29	.30*
14. Welfare cases/population	-.03	-.05

Note: 1. Correlations are based on 31 communities for which complete data was available.

2. \* =  $p < .05$

able in the health area. The design called for a selection of 15 key informants from each community following specific rules for selection. These rules included: 1) interview only Indian people; and 2) interview each person occupying one of the 14 key informant categories including the community health representative, a nursing station nurse, a nursing station clerk, other nursing station personnel, health transportation personnel, bank manager, chief, former chief, alcohol worker, social worker/welfare worker, church leader, health committee member, elders, and Indian teachers/teachers aides, home and school coordinators. After these people had been interviewed alternates were to be

nominated by the community health representatives to complete the list (that is, bring it up to 15 people). Volunteers were not to be solicited, but when people came forward desiring to be interviewed they were to be included.

The key informant list for the Winnipeg sample differed somewhat as did the process of selecting key informants. Key informants from Winnipeg were contacted primarily through personal networks established by a local native person who had extensive experience working in Winnipeg agencies.

A training session was held in Winnipeg for the interviewers after the interview schedules had been designed. At that time five native interviewers had been hired and attended the training session. Training sessions also served as a pretest for the community questionnaires. Interviewers were instructed to be fairly flexible in the way they conducted interviews. Where respondents were fluent in English they were provided with a copy of the interview schedule and allowed to make down their own responses.

## 2. Subjects

The sample included 31 respondents in the Interlake region, 39 in the Southeast region, 113 in the Southwest, 70 in the West, 96 in the North and Northeast and 70 in Winnipeg.

## 3. Materials

Interview schedules were designed to gather information in several areas that were presumed to be relevant for determining health needs. These areas included a key informant category, demographic questions, the perceived availability of service, the perceived seriousness of health problems, the perceived need for health services, and perceived needs for programs in areas affecting health.

This paper will discuss the perceived seriousness of health problems. On this dimension subjects were asked to rate the perceived seriousness of 17 health problems including 1) infant mortality, 2) alcohol and drug related injuries, 3) non-alcohol and drug related accidents, 4) ear, nose and throat infections, 5) diabetes, 6) cancer, 7) diseases of the respiratory system, 8) diseases of intestine and digestive system, 9) diseases of circulatory system, 10) tuberculosis, 11) depression, 12) dental problems, 13) physical handicaps, 14) skin disorders, 15) cirrhosis, 16) infectious virus diseases. Problems were rated on a four point scale with not very serious = 1 and very serious = 4.

## Results

### 1. Composition of Sample by Demographic Characteristics

In the overall sample there were 174 males and 241 females with the mean age being 36.3 years of age. Within the total sample 167 people reported that they spoke an Indian language at home, 76 reported speaking both an Indian

language and English at home, and 160 spoke English. The average education in the total sample was grade 9 with 66 subjects also indicating some college experience.

## 2. Perceived Seriousness of Health Problems

In the overall sample the problem given the highest rating was alcohol and drug related injuries (mean = 2.70). This item received the highest score in the Winnipeg sample (mean = 3.74). Other problems that were also judged to be fairly serious by the overall sample in order of importance were: dental problems (mean = 2.47), diabetes (mean = 2.38), and diseases of the respiratory system (mean = 2.33).

The perceived seriousness of other health problems in descending order of importance were as follows: ear, nose and throat infections (2.14), diseases of the intestine and digestive system (2.12), depression (2.06), diseases of the circulatory system (1.95), physical handicaps (1.90), skin disorders (1.74), cancer (1.71), cirrhosis (1.67), tuberculosis (1.64), infant mortality (1.44), non-alcohol and drug related accidents (1.38).

In order to assess views on the total seriousness of health problems in the different regions a scale was constructed by adding respondents' total scores and dividing it by their total possible scores for the number of items answered. This produced a seriousness scale score that could range from .25 to 1.00. An analysis of the reliability of this scale showed that the scale had high internal consistency ( $\alpha = .86$ ). An analysis of variance was then conducted comparing the perceived seriousness of health problems in six provincial regions (1. Interlake, 2. Southeast, 3. Southwest, 4. West, 5. North and Northeast, 6. Winnipeg). The result of this analysis was a significant regional difference ( $F = 22.92$ ,  $p < .001$ ) with health problems perceived as being the most serious by respondents living in Winnipeg. This regional difference was maintained when demographic differences of respondents living in Winnipeg and the other regions (e.g. education) were controlled via a multiple classification analysis (Andrews, Morgan and Sonquist, 1967).

## Discussion

In the first phase of this study data were taken from a variety of sources including 1) medical services, 2) Manitoba Health Services Commission, 3) Indian Affairs, 4) Canadian Census. The reliability and validity of findings reported in this phase of the study are dependent on the quality of this data. A recent article by Jeremy Hull (1984) suggests that census data on Indian reserves are not particularly accurate and in fact underestimate the Indian population. Prevalence figures in this report are not based on the census population estimates but the more accurate Manitoba Health Services Commission population estimates. It is unlikely that results reported in the first phase of this article (i.e., relationship between acculturation and hospitalization) are simply an artifact of the data collection procedures employed. Relationships are con-

sistent across data collected from different sources such as Indian Affairs and the census. Data from the social indicators phase of the project also agree with data collected from our key informants. In other words more acculturation is associated with more health problems and this relationship is supported by data collected in a variety of ways.

Analyses of hospitalization data shows that hospitalization cases/1,000 population declined during the four year period 1976-1980. The rates for Indian communities still exceeded the rates for non-Indian communities. These results along with results on other health indicators examined in the more detailed report (Barnes, 1981) suggest that the health status for Manitoba Indians is improving but is still below the health status enjoyed by other Manitobans.

Examination of the relationship between social indicators and hospitalization data revealed that hospitalization utilization statistics were higher in communities with more acculturation. There are several possible interpretations for this relationship. Higher hospitalization statistics may reflect utilization patterns rather than measuring actual health status. The finding that hospitalization data seemed to correspond fairly well with other health indicators (Barnes, 1981) suggests that this measure probably provided a good index of community health status. If that is the case, it is interesting to speculate why more highly acculturated communities might have poorer health status. It is possible that the marginal position of these societies contribute to their poorer health status. More acculturated communities may assimilate the health risks of the dominant non-native culture before adopting the health beliefs and behaviors that are adaptive for non-natives. Native people may adopt fast foods and alcohol, for instance, more readily than dance aerobics or jogging.

In the survey portion of our study the health problems perceived to be the most serious by native people included 1) alcohol and drug related injuries, 2) dental problems, and 3) diabetes. These problems are strongly connected with acculturation. Health problems were also judged to be most serious by those native people living in the most acculturated area, Winnipeg.

Taken as a whole the results in this study suggest that acculturation may provide a mixed blessing for Indian people. Although some of the advances of western civilization (e.g., immunization) may be beneficial for Indian communities, other so called advances may be of questionable benefit and may in fact place Indian people at greater health risk. Results in the survey portion of this study suggest that Indian people are most concerned with health problems linked with acculturation and that Indian people living in the most acculturated areas are the ones who are most concerned about the seriousness of Indian health problems.

#### NOTES

1. This work is based on a paper originally presented at the VII International Congress of Cross-Cultural Psychology, Acapulco, Mexico, August 29 to September 1, 1984.

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