

Childhood Immunizations:  
Understanding Uptake in First Nations Communities  
of Northwestern Ontario

by

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A Thesis  
Submitted to the Faculty of Graduate Studies in Partial Fulfilment  
of the Requirements for the Degree of

Master of Nursing

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OF NORTHWESTERN ONTARIO**

**BY**

**MARIE TARRANT**

**A Thesis submitted to the Faculty of Graduate Studies of the University of Manitoba  
in partial fulfillment of the requirements of the degree of**

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## Abstract

Childhood immunizations have served as the cornerstone of preventive health care programs for children in Canada for decades. Despite the benefits of immunizations, child immunization rates in First Nations communities in Northwestern Ontario are low. Limited research has examined immunization uptake in Aboriginal communities. Therefore, health professionals and Aboriginal communities trying to improve immunization rates are challenged by the dearth of knowledge on this topic.

This qualitative exploratory study sought to answer two research questions: What are First Nations Parents' beliefs about childhood immunizations? What factors influence their beliefs and behaviours regarding immunizations? Semi-structured key-informant interviews were conducted with twenty-eight mothers from two First Nations communities in Northwestern Ontario. The Health Belief Model (HBM) was adapted to provide the conceptual framework for this study. The HBM also served as a guide for the interviews. Content analysis was conducted to identify codes and categories in the interview data.

Data analysis yielded five categories that arose from the two research questions. The first question, parents' beliefs about immunizations, elicited two categories: mothers' perceptions and community beliefs. The second question, influences on immunization beliefs and behaviours, resulted in a further three categories: advice and guidance, experiences, and barriers and drawbacks. These factors had both positive and negative impact on immunization uptake.

Results of this study provide health professionals with some understanding of the factors influencing immunization uptake in First Nations communities. Implications for nursing practice, education, and research are discussed and recommendations for improving immunization rates in First Nations communities are presented.

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## CHAPTER ONE: STATEMENT OF THE PROBLEM

### Introduction

Immunizations are an integral component of preventive health care programs for children in Canada. As a result of widespread immunization, the incidence of childhood communicable diseases has decreased dramatically. Peters (1992) maintains that few other interventions can surpass the positive impact of immunizations on world health. Childhood communicable disease control has been so successful in the developed world that most parents today have never witnessed a child with diphtheria, tetanus, or polio and many erroneously believe that these diseases have been eradicated (Nicoll, Elliman, & Begg, 1989).

Canadian Aboriginal children however, especially those living in First Nations communities, remain more vulnerable to communicable disease outbreaks and consequently suffer higher disease incidence and morbidity and mortality than their non-Native counterparts. While infant mortality rates among Native people are now one-sixth of what they were in 1960, they are still twice as high as non-Native Canadians (Bobet, 1990).

Lower immunization coverage, compounded by crowded and substandard living conditions, increases the vulnerability of this population to communicable disease outbreaks. Among the First Nations children of the Sioux Lookout Zone, the problem of incompletely immunized children persists, contributing to an at-risk aggregate within these communities. To date, minimal

research has been conducted that examines the issue of childhood immunization uptake in First Nations communities. Inadequate immunization of children and a poor understanding of the problem, presents a challenge to health-care workers and community members trying to improve the health of people in these communities.

### Statement of the Problem

#### Overview - Sioux Lookout Zone

The Sioux Lookout Zone of Medical Services Branch, Department of Health Canada, serves 15,000 First Nations people (primarily Ojibway-Cree) in 29 communities spread out over 385,000 square kilometres in Northwestern Ontario. Geographically the Zone extends 400 miles east from the Manitoba border, and north from the Canadian National Railway Line to the shores of the Hudson Bay (Goldthorpe, 1975) (see Appendix A). The Zone has a relatively small population in many isolated communities dispersed over a large geographic area. Although modes of transportation to and from the communities have improved remarkably over the last decade, the majority of communities remain accessible only by air.

The administrative centre of the Zone is a 70-bed hospital in the town of Sioux Lookout. The hospital, in conjunction with various medical schools and tertiary care centres (i.e., University of Toronto and The Hospital for Sick Children), provides visiting physician and consultant services to Zone communities. Direct health care however, including immunization services and

other public health programs, is provided almost exclusively by community health nurses (CHNs) working in outpost nursing stations and health centres throughout the Zone.

Nursing stations are staffed by two to nine nurses, depending on the population of the community. While the focus of health services is on public health programs, in reality the majority of nursing time is consumed with acute care and emergency treatment (Gregory, 1992). Because CHNs are the front-line health-care providers and have many work demands placed upon them, they are often unable to devote extra attention to public health programs such as well-baby clinics and immunization services.

#### Community Profiles

When compared to other Canadians, the socioeconomic conditions and the health status of First Nations people are generally poorer. Almost 19% of houses on the reserves have two or more families living in them; fewer than 40% of the homes have running water, sewage disposal or indoor plumbing; and the average annual income is one-half to two-thirds the national average (Postl & Moffatt, 1988).

Population distributions indicate that more than 40% of Native people in the Sioux Lookout Zone, and elsewhere, are less than 15 years of age and birth rates are 2 to 3 times provincial and national rates (Indian and Northern Affairs Canada, 1991) (see Appendix B). The broad base and pyramidal shape of the Native population contrasts with the pear shape of non-Native Canadians.

This age distribution has obvious implications for health-care services in the Sioux Lookout Zone as it highlights the importance of health services to children. Because of expanding populations and poor living conditions in these communities, CHNs face an increasing demand for treatment and curative services, while at the same time are expected to maintain comprehensive immunization coverage among the childhood population.

#### Immunization Services

The routine immunization schedule for Canadian children, including those in the Sioux Lookout Zone is displayed in Table 1. Required immunizations include the diphtheria, pertussis, and tetanus (DPT), polio, and *Haemophilus influenzae* b (Hib) vaccine at 2, 4, and 6 months of age, along with the measles, mumps, and rubella (MMR) vaccine after 12 months of age. This primary series is followed by a DPT and polio booster and the Hib vaccine at 18 months of age, and a DPT and polio booster between 4 and 6 years of age and 14 and 16 years of age (National Advisory Committee on Immunizations, 1993).

Table 1

Routine Immunization Schedule for Infants and Children					
Age at Vaccination	DPT	Polio	Hib	MMR	Td
2 months	X	X	X		
4 months	X	X	X		
6 months	X	X*	X		
12 months				X	
18 months	X	X	X		
4-6 years	X	X			
14-16 years		X*			X
DPT - Diphtheria, pertussis, and tetanus vaccine Hib - <i>Haemophilus b</i> conjugate vaccine MMR - Measles, mumps, and rubella Td - Tetanus and diphtheria toxoid, "adult type" *Omit this dose if oral polio vaccine used exclusively					

There are no direct financial costs to parents for these immunizations. Supplemental Indian health benefits in the Sioux Lookout Zone and supportive services such as transportation and reminder notices are provided to encourage participation in immunization clinics (Health and Welfare Canada, 1990b). Immunization clinics are generally poorly attended, however, and few parents independently present to the clinic requesting immunizations for their children. Most attenders are called on by clerical staff and given clinic appointments prior to the immunization clinic.

Although transportation is provided free of charge in most communities, clinics are only open during the day and immunization services are

primarily offered on certain days, usually once a week. Although health providers and administrators consider the immunization services to be widely available within Native communities, it is unknown if they are perceived to be easily accessible by Native parents.

### Immunization Coverage

Mandatory immunization policies in Ontario schools and the declining frequency of immunizations required for older children have contributed to almost complete immunization coverage of school-age children throughout the Zone. In contrast, children less than one year of age experience much lower rates of immunization. In 1994, only 51% of the under one year age group in the Zone was age-appropriately immunized, while rates in individual communities ranged from 49 to 54% (Health Canada, 1995). In comparison, immunization rates for children in the province of Manitoba have been reported at 78% for the under one-year age group (Manitoba Health, 1992). Even Bangladesh reported that 49% of one year old children were completely immunized in 1988-1989 (Zeitlyn et al., 1992).

An immunization audit in one community in the Zone revealed another disturbing trend: Although 60% of the infant population received the initial DPT vaccine on schedule at 2 months of age, the percentages dropped with each subsequent vaccination, with only 32.4% receiving the second DPT at 4 months, and 5.6% receiving the third DPT on schedule at 6 months of age (Health and Welfare Canada, 1991). These findings were substantiated by several larger



studies which found that the proportion of children receiving vaccines at the appropriate age decreases as the vaccination series progresses (Abbotts & Osborn, 1993; Farizo, Stehr-Green, Markowitz, & Patriarca, 1992; Gindler et al., 1993).

This same immunization audit also revealed that incompletely immunized children were seen an average of three times by CHNs where immunizations were due but not administered (Health and Welfare Canada, 1991). However, reasons as to why the children did not receive the vaccines were not specified. It is likely that some of these visits were missed opportunities for immunization. Missed opportunities by health care workers are a major cause of low immunization coverage in young children and require further exploration.

#### Health Consequences

"One year and under" represents the busiest age cohort for childhood immunization administration and it is also the period when children can potentially suffer the most serious consequences from communicable diseases. While morbidity and mortality from vaccine-preventable diseases have declined significantly in Native populations, it remains high when compared to other Canadians.

Overall, infectious diseases, many of which are vaccine-preventable, cause four times more hospital admissions among Manitoba Natives than the general population, and Native infants have 17 times greater rates of pneumonia

requiring hospitalization than non-Native infants (Postl & Moffatt, 1988).

*Haemophilus influenzae*, the organism largely responsible for meningitis and respiratory tract infections, is more prevalent and causes substantial morbidity and mortality in Native children. The b serotype, *Haemophilus influenzae type b* (Hib) is responsible for over 90% of serious, invasive diseases caused by *H. influenzae*, including meningitis, epiglottitis, septicaemia, and pneumonia (Young, 1994). While the incidence of Hib infection in the Sioux Lookout zone has been low (personal communication, Programs Medical Officer, Sioux Lookout Zone), a study of Hib meningitis in Manitoba and the Keewatin district of the Northwest Territories revealed that the incidence among children under 11 months of age was almost twice as high among Natives than non-Natives (Hammond et al., 1988).

In the Sioux Lookout Zone, infectious diseases such as whooping cough, tuberculosis, septicaemia and diarrhoea, are the eighth leading cause of death among the population and Native residents of the Zone are five times more likely to die of these diseases than other residents of Canada (Young, 1983). Young (1984) also found that the death rate for children under five years of age in the Sioux Lookout Zone was almost five times higher than in the Canadian population as a whole. Three diseases, meningitis, pneumonia, and gastroenteritis account for 28% of all infant deaths in the Sioux Lookout Zone (Young, 1983).

Another communicable disease, diphtheria, continues to be a persistent health problem among Native people in Canada. In an epidemiological analysis of diphtheria among the Native population of the Sioux Lookout Zone, Young (1984) discovered that 58 individuals had positive cultures for *C. diphtheriae* during an 8-year period from 1975 to 1982, 64% of which were in children under 5 years of age. Few developed clinical diphtheria. However, the persistence of carriers in the community perpetuates transmission and poses the continuous threat of outbreaks among those under immunized and most susceptible.

Pertussis, another grave disease in under immunized infants, has a severe morbidity rate of 10% with a mortality rate ranging from 1 to 3% (Frenkel, 1990). There was a sharp increase in the number of pertussis cases in Canada in 1989 and 1990 with outbreaks in many Native communities in Alberta and the Yukon (Health and Welfare Canada, 1990a). Pertussis is a highly communicable disease with a reported 90% infection rate in household contacts of index cases (Frenkel, 1990). Current living conditions combined with low immunization coverage in many First Nations communities leave children susceptible to outbreaks of pertussis and demonstrate the necessity of maintaining comprehensive immunization coverage among this population.

Past measles outbreaks in the United States (US) illustrate the vital importance of comprehensive immunization coverage among the population. Of the total number of documented measles cases between 1985 and 1989, 92%

were in children who were under vaccinated (Orenstein, Atkinson, Mason, & Bernier, 1990). As well, over 40% of all measles cases were in preschool children and these children also accounted for a disproportionate share of measles complications, such as otitis media, diarrhoea, pneumonia, encephalitis, hospitalization, and death (Orenstein et al., 1990).

### Benefits of Immunization

Childhood immunizations are an important investment, both in terms of the future health of children and in the reduction of health care expenditures spent on preventable illnesses. Shalala (1993) estimates that for every \$1 spent on immunizations, \$10 to \$14 will be saved by preventing future diseases. Hammond et al. (1988) estimate that a multi-dose Hib vaccine, introduced in 1993 as part of the primary immunization series in Ontario, could prevent 36 to 59% of all cases of Hib meningitis. White, Koplan, and Orenstein (1985) analysed the benefits, risks and costs of one single vaccine, the MMR, and concluded that the benefit-cost ratio was 14.4:1. For every dollar spent on the MMR vaccine, the reduction in morbidity and mortality costs attributable to measles, mumps, and rubella was 14.4 dollars.

### Summary

Overall, Native populations continue to be overwhelmed with the often tragic consequences of infectious and communicable diseases. More comprehensive immunization coverage, especially in the population under one year of age, would help to lessen some of the unnecessary morbidity and burden

on community health care resources. There is a paucity of research on childhood immunization uptake in First Nations communities. To improve immunization rates, research is required that will provide a deeper understanding into the perceptions of childhood immunizations held by Native parents and the many factors that influence uptake. Rosenstock (1966) maintains that in order to persuade people to modify their health practices, one must first understand the behaviour in question.

### Problem Statement

#### Purpose

The purpose of this research study was to examine the problem of low uptake of childhood immunizations in First Nations communities in Northwestern Ontario. This exploration will provide a deeper understanding of the issues relevant to childhood immunizations and may contribute to improved immunization services and increased immunization coverage among young First Nations children.

#### Research Questions

The research sought to answer two questions:

1. What beliefs do First Nations parents have regarding childhood immunizations and childhood diseases and their impact on child health?
2. What are the major influences on First Nations parents' health beliefs and behaviours regarding childhood immunizations?

## Conceptual Framework

### The Health Belief Model

Health beliefs are commonly used to understand and explain utilization of preventive services, such as immunizations. The Health Belief Model (HBM), the most frequently used framework, was initially developed in the 1950s to explain the failure of people to participate in programs designed to prevent or detect disease (Rosenstock, 1990).

The HBM comprises four beliefs: "perceived susceptibility" or one's risk of contracting the disease; "perceived severity" or the seriousness of the disease; "perceived benefits" or the benefit of taking the health promoting action; and "perceived barriers" or impediments to taking a proposed action (Rosenstock, 1990). Thus, if an individual perceives that they are susceptible to a serious disease and the benefits of taking preventive action outweigh the barriers to that action, theoretically the individual is motivated to perform the health behaviour.

Another component of the HBM is the concept of cues to action. While health beliefs provide the motivation for action, behaviour does not always occur unless certain cues are present. The cue may be internal (e.g., bodily symptoms) or external (e.g., reminders, information from health professionals, or advice from family and friends) (Rosenstock, 1966). Rosenstock (1974a) also acknowledges that modifying variables such as sociodemographic factors can

influence health-related behaviours in that they affect individual perceptions of susceptibility, severity, benefits, and barriers.

### Conceptual Model

An adapted version of the HBM provided the conceptual model for this research study (Rosenstock, 1974a). Because of the future orientation of the HBM, Rosenstock (1974b) acknowledges that the model seems to have greater applicability to middle-class groups. Although the HBM has been used cross-culturally, culture has primarily been examined as a modifying factor. Hence, Mikhail (1981) encourages more studies on the usefulness of the model for people from different social and cultural backgrounds.

The conceptual model proposes that health belief variables are culturally perceived and defined by that individual. A diagram of the adapted version of the HBM is presented in Figure 1. These health beliefs are modified by cues to action and sociodemographic variables. As a result of health beliefs, cues, or sociodemographic factors, the parent chooses to take the child for immunization(s) or to default. If the parent defaults, the child is not age-appropriately immunized and hence is at greater risk of contracting vaccine preventable diseases.

If the parent chooses to take the child for vaccination and complete immunization occurs, the child is age-appropriately vaccinated and maximally protected from communicable diseases. However, occasionally when immunizations are given, vaccine side effects and adverse reactions can make

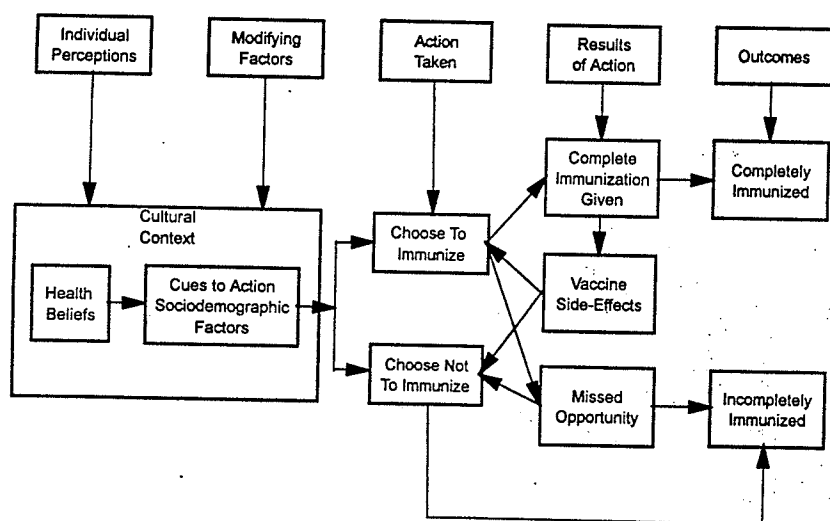
parents reconsider the next scheduled immunization and subsequently decide not to immunize. Once again the result is an under-vaccinated child who is vulnerable to disease.

If the parent elects to vaccinate and a MO occurs, they are required to make another visit. Another visit can result in complete immunization and thus protection of the child. Frequent missed opportunities can result in a change in behaviour; parents decide not to seek further immunizations and the child remains under immunized. While the conceptual model appears to propose that there is a sequential progression of steps from health beliefs to immunization status, it is recognized that behaviour does not always occur in an orderly precise sequence. The model is a guide to facilitate understanding of the many factors that can influence immunization uptake.



Figure 1

## Conceptual Model



(adapted from Rosenstock, 1974a)

### Conceptual Definitions

The major concepts and constructs outlined in this paper can be defined as follows: Health beliefs are those assumptions held by individuals of factors that they perceive determines their state of health. The HBM constructs of susceptibility, severity, benefits, barriers, and cues to action have previously been defined in this paper. The terms missed opportunities and defaulters have also been previously defined.

The concepts of immunization and vaccination are used interchangeably and can be defined as the process of receiving a recommended vaccine for protection against the diseases of diphtheria, pertussis, tetanus, poliomyelitis, measles, mumps, rubella, and hemophilus influenza. Childhood communicable diseases or vaccine preventable diseases will also refer to the above outlined diseases.

Thousands of books, hundreds of definitions, and numerous theories have been written on culture. A classic definition, written by Edward Tylor, a pioneer in the field of anthropology, defines culture as "that complex whole which includes knowledge, belief, art, morals, law, custom, and any other capabilities and habits acquired by man as a member of society" (cited in Leininger, 1967, p. 29). More simply put and for the purposes of this research, culture refers to the way of life belonging to a designated group of people (Leininger, 1967).

General references to Native people in this paper can include all those people in Canada with Native Indian heritage. The group under study in this research project is the First Nations people of Northwestern Ontario and not Aboriginal people as a whole. References to First Nations parents, here and elsewhere, also refer to guardians, both legal and nonlegal, foster parents, and any other persons who may be the primary caregivers of infants and small children.

For the purposes of this research, age-appropriately vaccinated children are those who have received immunizations according to the Routine Immunization Schedule, with no single vaccine having been given more than 60 days past when it was due. Any immunization given greater than 60 days past when it was due was considered a delayed immunization.

## CHAPTER TWO: LITERATURE REVIEW

The problem of immunization coverage among preschool children has been examined by numerous researchers and two predominant themes emerge from the literature: Immunization uptake is strongly influenced by parents' health beliefs about preventive actions such as immunizations and by missed opportunities to immunize children by health professionals. This review begins with an overview of the history and culture of the Ojibway-Cree First Nations people, proceeds to the presentation of the relevant literature on the above-mentioned themes, and concludes with a brief discussion of the gaps in the literature and how this study addresses these gaps.

### Historical and Cultural Overview

The Ojibway-Cree were a semi-nomadic group of hunter-gatherers who primarily lived and travelled around the boreal forests of the subarctic region of Northwestern Ontario. Prior to contact with European settlers, life for this group revolved around hunting big game, mainly moose and caribou, and almost everything that was needed for subsistence was obtained from the land (Young, 1988). Because of this nomadic and subsistence lifestyle, cooperation between tribes was essential for survival and the sharing of food and resources was common practice.

The Ojibway-Cree travelled in small family groups of no more than 50 or 60 people. Because of the continuous travel and physical nature of their existence, grandmothers accepted a large portion of the responsibility of caring

for infants and young children, while the mothers went about heavier tasks and helped provide for the group (Anderson, 1988). Grandparents also took older children of the same gender under their wings and helped to prepare them for life events, such as marriage, childbearing, childrearing, and hunting and trapping (Anderson, 1988). Native children continue to be raised by their grandparents and hence, grandparents may exert a strong influence regarding caregiving decisions made in families.

Prior to European contact, there was an organized and highly structured form of health care in most tribes with theories of disease causation, medicine men, and longstanding techniques utilized to diagnose and cure illness (Anderson, 1988; Young, 1990). The traditional Native concepts of health as holistic, spiritual, and in harmony with nature often conflict with today's functional and mechanistic view of modern medicine, however, many Native people continue to conceptualize health in this traditional manner.

While there is virtually no statistical evidence of the health status of Native people preceding European contact, anecdotal information from journals and logs of early explorers provide insight. In 1767, Andrew Graham, a Hudson's Bay Company trader, wrote:

The Indians in general exceed the middling stature of Europeans; are straight well made people, large boned, but not corpulent. . . . Their constitution is strong and healthy; their disorders few, the chief of which are the flux, consumption, and pain in the breast. . . . They seldom live to

a great age, but retain all their faculties to the last. (cited in Young, 1990, p. 248)

Postl and Moffatt (1988) and Young (1979) point out, however, that it was unlikely that Aboriginal people were free of all disease and suffering, and patterns of life and death were likely consistent with other hunter-gatherer populations: Life expectancy was short due to famine and injuries, and some infective and parasitic diseases were endemic but did not threaten the continuation of the host population. Historians generally agree that for the most part, Native populations were free of the many infectious diseases that plagued European societies.

The arrival of European traders and settlers drastically changed the lives of the Aboriginals. From subsistence semi-nomadic hunters who lived entirely off the land, they rapidly became fur trappers who congregated at trading posts and whose lives became dependent upon fur prices and markets (Young, 1988). This change in lifestyle and increased contact with Europeans marked the beginning of an era of disease epidemics for the Native people. Infectious diseases such as smallpox, measles, whooping cough, and influenza began to sweep through and decimate Native populations. Because the Native people had no prior exposure, they had no resistance or immunity to these diseases. Traditional health care practitioners had little knowledge of causation and cures for these diseases and therefore, the traditional Indian healer's influence diminished (Ojibway-Cree Cultural Centre, 1986).

The first severe epidemic reported in Northwestern Ontario was smallpox during 1781-1782 and was witnessed by Edward Umfreville, a Hudson's Bay Company trader. He wrote:

That epidemical and raging disorder has spread an almost universal mortality throughout the country in the interior parts of Hudson's Bay, extending its destructive effect through every tribe and nation, sparing neither age nor sex. . . . The distress of the Indians by this visitation have been truly deplorable . . . as the smallpox had never before been among them . . . they at first imagined it to be no more than a simple breaking out on the skin which would disappear of itself . . . . Numbers began to die on every side; the infection spread rapidly; and hundreds lay expiring together without assistance. (cited in Young, 1988, pp. 35-36)

Over the next century, epidemics continued to plague the Native population. Almost a century later in 1871, a major measles epidemic spread across Northwestern Ontario, once again with devastating effects on the Native population. A letter written by a missionary depicts the horrible toll of the epidemic:

[Measles] has swept off 15 of our poor people in less than a month, and threatens to make further ravages. . . . Very few whites have been attacked; but it would seem as if no Indian or half-breed were to be permitted to escape. . . . If the sickness lasts another fortnight, our Autumn fishing will be lost, and those whom the disease will have spared,

will fall victim to the famine. (cited in Young, 1979, p. 199)

Beginning in the mid-nineteenth century, missionaries came to Christianize, educate, and care for the health-care needs of the Native people. The missionaries could not understand traditional spiritual beliefs. Therefore, customs such as dancing and drumming were considered pagan and devil worship, and hence banned (Ojibway-Cree Cultural Centre, 1986). In the span of about 100 years, the majority of the Native people were Christianized and became members of one of several religious denominations (Young, 1988).

Residential schools were also set up and children were taken away from their parents, often for years at a time. Traditionally, Native societies used storytelling as an avenue for educating younger children about life. Even today, Ojibway-Cree culture is rich with legends of people's encounters and experiences on the land. However, these schools banned most Native traditions and children were not even allowed to speak their own language and were often punished for doing so (Anderson, 1988).

At the same time, the fur trade was dying and economic conditions for most Native people became deplorable. Increasingly, Native people sought government assistance. During the late nineteenth century and early twentieth century, the Canadian government negotiated treaties with Natives in Northwestern Ontario and consequently reserves were established and Indian agents were assigned to handle the affairs of the reserves (Young, 1988).



Epidemics continued through the nineteenth and even into the twentieth century and the effects on the Native populations were unmeasurable.

Tuberculosis was having such a devastating effect on the people that one government official speculated that tuberculosis could eventually exterminate the Indian race (Young, 1979). A treaty commissioner travelling in Northwestern Ontario in 1905 found that the health of most Natives was fragile and estimated that only one-third of the children in large families survived into adulthood (Young, 1979).

During the nineteenth century, efforts were initiated by the Hudson's Bay Company to vaccinate the Native people, not out of a great desire to protect them, but largely as a measure to safeguard the white fur traders from the diseases. Massive vaccination began with the introduction of organized health care services to the region in the early 1900s. Doctors travelled to various Indian trading posts, usually with an Indian agent from the federal government, and spent most of their time treating the sick and vaccinating the people against diseases such as small pox.

A treaty commissioner gives an account of how vaccination was received by the Native people:

It had become known that a mysterious operation called vaccination was to be performed upon women and children. . . . The statement that something rubbed into a little scratch on the arm would have such powerful results savoured of magic and "big medicine". . . . Children were

pulled from their hiding places and dragged to the place of sacrifice, some howling with fear, others giggling with nervousness. (cited in Young, 1988, p. 102)

Vaccination coverage remained sporadic and insufficient and was mainly in response to epidemics until the 1950s when health care services to Native communities became more comprehensive. With the federal government now fully in charge of Native health care, the Sioux Lookout Zone Hospital opened in 1949 and five nursing stations were built in Zone communities the same year (Young, 1988). Currently there are 18 nursing stations and 11 clinics in the 29 communities throughout the Zone.

### Summary

The Ojibway-Cree people have undergone profound change and transition in all aspects of their lives since the initial contact with European traders. For almost two centuries, Native populations were ravaged by outbreaks and epidemics of communicable diseases, while at the same time undergoing economic and cultural upheaval. Although immunizations have been beneficial in controlling many of these diseases, one questions whether the epidemics and subsequent vaccination "rituals" have influenced current beliefs and practices regarding immunizations? Have stories about the years of epidemics been passed down by Native elders or are these epidemics all but forgotten? The possible impact of these factors on current uptake of immunization services in Native communities needs to be explored.

## The Health Belief Model

The HBM components of perceived susceptibility, perceived severity, perceived benefits, and perceived barriers along with cues to action and sociodemographic factors are discussed in relation to the current literature and research on immunization uptake. It should be noted that none of the studies reviewed here were conducted with Aboriginal populations.

### Perceived Susceptibility

Although perceived susceptibility to more common health threats may motivate people to take preventive actions, the success of past immunization campaigns may have an impact on parents' beliefs regarding their children's susceptibility to childhood communicable diseases. Buchanan and Spencer (1983) concluded that because so few parents have first-hand experience with many of the vaccine-preventable diseases, they perceive their children as less susceptible. Among parents interviewed by Roden (1992) few had known anyone with diphtheria (4%) or tetanus (10%) and only 29% and 38% had ever seen people with polio and whooping cough respectively.

Dalphinis (1986) found that 19% of noncompliant parents believed that their children were less vulnerable to vaccine-preventable diseases because medicine was so advanced and would be able to control the disease. However, Rosenblum, Stone and Skipper (1981) discovered that although the majority of parents interviewed believed their children were vulnerable to communicable diseases, almost 50% of the same parents were noncompliant with their

preschool children's immunization schedules. Therefore, even when perceived susceptibility is high, it is apparent that other factors have stronger influence on actual uptake of immunizations.

#### Perceived Severity

Profiles of parents of adequately and inadequately immunized children by Markland and Durand (1976) indicated that parents of adequately immunized children had a high perception of disease seriousness, whereas parents of inadequately immunized children had a low perception of disease seriousness. Blair, Shave, and McKay (1985) found that overall, parents were largely unaware of the serious complications of diseases such as whooping cough and measles. Similarly, Dalphinis (1986), in a study of under-immunized children, found that 51.8% of parents knew nothing about diphtheria, 42% about tetanus, and 38.8% knew nothing about polio. A large proportion of the parents (48.8%) in Dalphinis' study did not perceive whooping cough as serious and 77.4% held the same perceptions regarding measles.

#### Perceived Benefits

Mother's perceptions of the benefits and efficacy of vaccines were found by Kvis, Dawkins, and Ervin (1985) to be the best single predictor of the immunization status of the child at six months of age. In a survey of parents' reasons for immunizing their one-year-old children, the primary reason offered by 84.6% of the parents of adequately immunized children, was their belief that the vaccines were important and beneficial for their children (Lewis et al., 1988).

Bennett and Smith (1992) reported that parents who refused pertussis vaccination demonstrated an overall lower perceived benefit of the vaccine than those who agreed to the vaccination for their children. Focus-group discussions on immunizations with inner-city parents of infants in a large US city revealed that most parents believed that immunizations were only partially successful and the preventive effects of the immunization did not last that long (Keane et al., 1993).

Similarly, Blair et al. (1985) interviewed parents in an area where only 45% of children were vaccinated against measles and found that 63% of parents believed that the measles immunization was only sometimes or never effective. However, this study did not differentiate between the perceptions of parents of vaccinated and unvaccinated children. Parents' perceptions of vaccine efficacy can also be affected by the fact that children sometimes catch diseases that they are immunized against. Vaccinations against most of the childhood diseases, especially measles, will not always prevent the disease, although in most cases it does attenuate, or reduce the severity of the disease (Buchanan & Spencer, 1984).

Misconceptions about which diseases are vaccine-preventable also affect perceptions of vaccine efficacy. In the focus group discussions conducted by Keane et al. (1993), several parents were sceptical about vaccine effectiveness because so many children developed chicken pox, a disease they erroneously thought their children were vaccinated against.

### Perceived Barriers

Lochhead (1991) reviewed numerous studies and concluded that side-effects of immunizations present a major barrier for parents. Bennett and Smith (1992) found that refusers of the pertussis vaccine reported more concerns over negative effects of the vaccine than those who accepted the immunization. In a study of immunization defaulters, or those who failed to present for vaccinations, more than 75% of the subjects were worried about side-effects of vaccines (Dalphinis, 1986). Keane et al. (1993) reported that fever was discussed by parents in the focus groups as one sign of illness attributed to vaccines. Other negative sequelae mentioned by parents included pain, fear, crying, screaming, and "up all night."

Health professionals' attitudes and behaviours can also act as barriers to parents seeking immunizations for their children. Sixteen percent of immunization defaulters surveyed by Dalphinis (1986) disliked their family physician from whom they received immunization services and almost 20% of defaulters surveyed by Bennett and Smith (1992) reported "previous unsympathetic treatment by clinic staff" (p. 346) as a reason for defaulting.

Barriers can also be situational in that the clinic location and hours, or the unavailability of transportation, impede access to immunization services. Approximately 20% of parents interviewed by Gindler et al. (1993) mentioned situational obstacles as barriers to accessing immunization services.

### Summary of the HBM Components

Janz and Becker (1984) reviewed studies on the overall use of the HBM and found that "perceived barriers" was the most powerful predictor and "perceived severity" was the least powerful predictor of preventive health behaviour. The studies reported here specific to immunizations support the minimal impact that perceived susceptibility and severity have on immunization uptake. However, in a Native population where the incidence of communicable diseases is higher and parental exposure to these diseases is likely greater, the perception of susceptibility and severity may be different and needs to be explored with this group.

Although supplementary Native health benefits(e.g., transportation) in the Sioux Lookout Zone eliminate some barriers, the issue of accessibility needs to be further explored. Even though transportation is provided, factors such as other small children, lack of babysitting, and set clinic hours may impede access to services by Native parents. As well, other major barriers, such as vaccine side effects, are still present and likely have some impact on immunization uptake among this population. Cultural factors and attitudinal differences between Native clients and primarily non-Native providers may be exacerbated and also present barriers to clients seeking immunizations.

### Cues to Action

Internal cues such as signs and symptoms may prompt adults to take preventive behaviour for themselves, but will not likely prompt parents to seek

immunizations for their children. Therefore, the discussion of cues is limited to external cues. Many studies on cues to action focus on the effects of various patient reminder systems in enhancing compliance with immunizations (S. G. Brink, 1989; Szilagyi, Rodewald, Savageau, Yoos, & Doane, 1992). However, since telephone reminders are routine in immunization programs in the Sioux Lookout Zone, this is not considered to be a major factor in the noncompliant behaviour. Accordingly, data from Bennett and Smith's (1992) study of parental attitudes and social influences on childhood immunization suggest that repeated requests to attend vaccination clinics are unlikely to influence a significant percentage of parents who fail to start or complete their children's immunization.

Several studies have revealed that health professional's educational efforts have varying degrees of impact on parents' decisions compared to family or "lay" advice. In a study by New and Senior (1991), parents of incompletely immunized children received less advice and education from health professionals and were more likely to have received anti-vaccination advice from family and friends. Gindler et al., (1993) found that parents considered health professionals to be a minor source of advice with only 14% of those surveyed mentioning health professionals as a source of immunization information, while 34% of those surveyed by Carter and Jones (1985) were uninfluenced by medical advice.

Dawkins and Ervin (1987) found that while one-half of the mothers attending an inner-city well baby clinic remembered a discussion with health



professionals about the importance of checkups and immunizations, nearly two-thirds remembered a talk with a friend or relative on the same topic.

Accordingly, 90% of first-time working-class mothers surveyed by McIntosh (1992) preferred lay advice to professional advice in relation to child care.

Findings by Klein, Morgan, and Wansbrough-Jones (1989) suggest that consultation with health care professionals does not always have significant positive influence on parents' decisions regarding vaccination. Of the parents interviewed by Klein et al. (1989), 96% had received advice from health professionals before deciding to immunize their child, however 72% of the cases of failure to vaccinate were due to inappropriate advice or parental convictions not refuted by the health care professional. Many parents interviewed by New and Senior (1991) also stated that they received conflicting advice from various health care professionals that resulted in more confusion and loss of confidence in the professionals.

While professional advice and educational efforts can sway behaviour, it appears from these studies that lay advice has a stronger influence on most parents' immunization behaviour. Because of the higher prevalence of the extended family in the Native population, the impact of lay advice may be especially pertinent with this group. The effect of advice from grandparents, parents, and elders needs to be further explored as many were unlikely to have been completely immunized themselves as children and some likely remember the epidemics and mass vaccination campaigns.

### Sociodemographic Factors

Several studies have yielded varying results as to the influence of variables such as age, education, socioeconomic status, marital status, number of siblings, and ethnicity on the immunization status of children. Numerous researchers discovered that children from large families with single mothers, low family incomes and low levels of education were less likely to be completely immunized (Bobo, Gale, Thapa, & Wassilak, 1993; Gergen, Ezzati, & Russell, 1988; Li & Taylor, 1993; Markland & Durand, 1976; Marks, Halpin, Irvin, Johnson, & Keller, 1979; McCormick, Shapiro, & Starfield, 1981; New & Senior, 1991).

Dalphinis (1986) found that 77% of immunization defaulters had more than three children and New and Senior (1991) established that the number of children under 12 years of age was a statistically significant factor in distinguishing completely immunized children from incompletely immunized children. Children with at least one parent who had less than high school education or children with three or more siblings are four times more likely to fail to complete their immunization series when compared to children who have less than three siblings and whose parents are college graduates (Marks et al., 1979).

In relation to race, Markland and Durand (1976) found that non-Whites were more likely than Whites to be incompletely immunized. However, when socioeconomic status was controlled for, Marks et al. (1979) established that

there was no association with race between immunized and incompletely immunized children. Conversely, Rosenblum et al. (1981) found no difference in age, ethnicity, income or education between compliant and noncompliant mothers and Bobo et al. (1993) were unable to link race and immunization status. However, both studies were limited: In one study 80% of the subjects were Hispanic and 90% had incomes of less than \$10,000 a year (Rosenblum et al.); and in the other study 91% of the subjects were White and only 20% were low income (Bobo et al., 1993).

In the Native population, the percentage of people completing high school is 18% compared to 75% in the general population (Pekeles, 1988). Low levels of education combined with other sociodemographic variables, a young population, and a high birth rate result in many Native children born to young, uneducated mothers with several other children who likely survive on social assistance. All of these factors have substantial impact on parents' health beliefs and motivation to access preventive services for their children.

### Missed Opportunities

Although parents may attempt to seek immunizations for their children, many children remain incompletely immunized because of missed opportunities to vaccinate children by health professionals. A missed opportunity is defined as the failure of a health provider, in the absence of valid contraindications, to administer any or all of the vaccines for which a child is eligible at that visit (Dyer, 1993). Missed opportunities could be considered a barrier to

immunization services, however, because of the amount of literature that focuses specifically on missed opportunities, it will be examined separately in this review.

Research has repeatedly documented missed opportunities as a major cause of low vaccination rates in children (Gindler et al., 1993; Hutchins et al., 1989; New & Senior, 1991; Peter, 1992; Szilagyi et al., 1993). Of 229 children eligible for vaccination on one particular day at a public health clinic, Gindler et al. found that 69% missed at least one immunization during that visit. Furthermore, Klein et al., (1989) found that of 106 children who were incompletely immunized, 91 had missed immunizations for reasons such as false contraindications and parental objections. A review of numerous studies on missed opportunities by Cutts, Orenstein and Bernier (1992) revealed that up to 75.5% of children presenting to emergency rooms, public clinics, and pediatric inpatient facilities did not receive all the vaccines for which they were eligible.

#### Reasons for Missed Opportunities

The most common reasons for missed opportunities are the inaccurate beliefs of health care providers regarding contraindications to vaccine administration (Al-Shehri, Al-Shammari, & Khoja, 1992; Gindler et al., 1993). Many providers are reluctant to immunize children who are mildly ill and are also reticent to simultaneously administer two or three vaccines. In reality, neither immunizing children during a mild illness nor simultaneous vaccine administration are contraindicated. Both the Canadian National Advisory

Committee on Immunization (NACI) (1993) and the American Academy of Pediatrics (1988) recommend the administration of multiple vaccines, and the vaccination of children with minor illnesses, with or without fever, and those with frequent upper respiratory illnesses. Studies have ascertained that adverse reactions after measles vaccine administration have been similar in well and ill children and seroconversion rates were also similar in well and ill children (Farizo et al., 1992).

Lewis et al. (1988) found that 65.9% of inadequately immunized children failed to receive their immunizations because they were ill at the time the vaccine was to be given. Nicoll and Jenkinson (1988) monitored several child health clinics over a two month period and found that overall, only 3% of children were actually too ill for vaccination on the day they presented. It is estimated that the elimination of missed opportunities, even without a change in the behaviour of the client, could potentially reduce under vaccination of children by half (Szilagyi et al., 1993).

Missed opportunities not only have the immediate effect of delaying immunizations in a group of children who are at greatest risk of disease, but recurrent missed opportunities may also negatively influence the behaviour of parents. When parents bring their children for immunizations that are frequently delayed because of illness, parents also become misinformed about true contraindications to immunization and hence, may become reluctant to bring children for immunization during minor illnesses.

In response to a question as to why they delayed bringing their children for immunization, 45% of parents interviewed by Abbotts and Osborn (1993) and 51% of parents interviewed by New and Senior (1991) mentioned minor illnesses as the chief reason. Rosenstock, Derryberry, and Carriger (1959) found that noncompliant parents demonstrated a lack of persistence in seeking immunizations for their children. Missed opportunities require parents to make more visits to clinics, hence several unsuccessful attempts to acquire immunizations may leave parents frustrated and unwilling to make further visits.

#### Gaps in the Literature

As was previously stated, researchers have examined race and ethnicity in relation to immunization uptake and several have even examined immunization utilization within a specific ethnic group (Gergen et al., 1988; Gindler et al., 1993). However, few studies specifically examine the cultural impact on preventive health beliefs, and no studies explored the cultural impact on acceptance of immunization services. McAllister and Farquhar (1992) concluded that health beliefs are culturally determined and there is a paucity of research that examines cultural impact on preventive health behaviours.

Leininger (1976) states that "culture is the blueprint for thought and action and is a dominant force in determining health . . . patterns and behaviours" (p. 9). Therefore, Native parents' perceptions of immunizations are processed and defined within their cultural context and are largely contingent upon cultural norms and accepted practices. Present health care structures and programs in

Native communities have primarily been imposed by non-Native governments and health officials. While no one can dismiss the tremendous contribution of immunization programs to the health of Native children, it is necessary to determine how these programs are perceived by the people they serve.

All of the studies reviewed were carried out in the United States, Britain, or other foreign countries. No studies were located that focused on immunization acceptance among Canadian Aboriginal or Native American populations. As well, the studies reviewed relied extensively on quantitative methodologies. To further understand beliefs about immunizations it is necessary to explore immunization utilization from the individual's personal perspective and within a cultural context using a qualitative methodology.

### Summary

This literature review provided an overview of First Nations history and culture and discussed how health beliefs and missed opportunities influence immunization coverage among preschool children. The lack of research focused on Native immunization practices and health beliefs demonstrates a need for research into this area. High Native infant morbidity and mortality from communicable diseases coupled with low immunization coverage provides sufficient justification for the necessity of this research. The problem must be examined from the perspective of individual parents to determine their perceptions and beliefs. As a result of knowledge gained through this research, the ultimate goal is to assist in improving the health status of Native children by

increasing immunization coverage among these children.



### CHAPTER THREE: RESEARCH METHOD

The issue of immunization uptake has been studied in various populations using primarily quantitative methodologies (Cutts et al., 1992; Orenstein et al., 1990) and to date the topic has not been explored among Canada's Native people. Therefore, a qualitative research methodology was selected and is appropriate to explore immunization uptake in First Nations communities.

Field and Morse (1985) maintain that qualitative methods are most appropriate when the researcher desires to describe a phenomenon from the emic, or insider, perspective. Qualitative research ideally attempts to document and interpret the totality of whatever is being studied from the people's viewpoint or frame of reference (Leininger, 1985). The fundamental goals of qualitative research are to describe, explain, and understand the phenomenon under study (Morse, 1994). Since the purpose of this research was to explore and understand Native parents' health beliefs regarding childhood immunizations, a qualitative methodology was not only desired but necessary to achieve this goal.

#### Research Design: Ethnography

Fetterman (1989) states that "ethnography is the art and science of describing a group or culture" (p. 11). Culture can be defined from a behavioural perspective in that it is "the sum of a social group's observable patterns of behaviour, customs, and way of life," or from a cognitive perspective, "culture comprises the ideas, beliefs, and knowledge that characterize a particular group

of people" (Fetterman, 1989. p. 27). This research was primarily oriented to the cognitive perspective of culture as it sought to explore and understand the ideas, beliefs, and perceptions of childhood immunizations held by Native caregivers.

In order to optimize health and survival in today's multicultural world it is becoming increasingly imperative that nurse researchers identify and document care patterns for cultural groups (Leininger, 1985). Ethnography can accomplish this goal as it provides detailed descriptive data which can be used by practising nurses to help them understand patients' behaviours (Aamodt, 1982). Although cultural knowledge is not a predictor of what will occur, it is an indication of what can be anticipated, hence ethnography provides a wide range of possibilities for understanding health behaviour (Aamodt, 1991). Such knowledge can subsequently contribute to more culturally congruent nursing care.

Typically, nursing ethnographies concentrate on health beliefs and practices and how these relate to other social factors (Boyle, 1994). These ethnographies are often referred to as focused or micro-ethnographies. In contrast to anthropological ethnographies, which tend to study large groups of people over extended periods of time, micro-ethnographies are time limited exploratory studies that are problem focused and context specific (Muecke, 1994). According to Kleinman (1992), micro-ethnographies are more pertinent methods of examining health related issues because they have the advantage of being more highly focused and examine a narrow band in the cultural spectrum of local worlds.

### Sample Selection

The population of interest was the First Nations people of the Sioux Lookout Zone in Northwestern Ontario. I chose two separate communities as sites for the research. Community A was chosen because it has the highest birth rate and the lowest immunization coverage among children under one year of age in the Sioux Lookout Zone, hence the greatest number of children at risk for communicable diseases. Demographic and other characteristics of Community A, make it dissimilar to other communities in the Zone. To enhance transferability of the findings, I decided to study another community that is more comparable to other communities in the Zone. Community B was selected because of its likeness to other communities and because of my past experience working in the community and familiarity with the residents. The impact of this preestablished relationship will be discussed later in this chapter.

A purposeful sample selection technique was used and entailed the selection of key informants. A purposeful sample is one in which participants are selected, based on personal judgement, whereby informants will be most representative or productive (Polit & Hungler, 1991). Key informants are those people well-versed in the phenomenon under study who are also willing to share their insight with the researcher (Polit & Hungler, 1991).

Since the research focus is the uptake of childhood immunizations, the informants were the primary caregivers of young children. Selection criteria for the study participants were:

- ◆ Ojibway or Cree
- ◆ 18 years of age or over
- ◆ Caring for at least one child under five years of age
- ◆ English speaking
- ◆ Currently residing in the community
- ◆ Willing to participate in the study

I travelled by air to the communities in April and May of 1995. Birth records of the last two years were reviewed to identify potential participants in each community. Once eligible informants were identified, I discussed with the local Community Health Representative (CHR) and the Nurse in Charge (NIC) potential informants who would be most knowledgeable about the research topic and also be willing to participate in the research study. Once the most suitable participants were identified, they were approached by telephone and invited to participate in the study.

In Community A, participants were initially approached by the CHR or the Nurse-in-Charge and invited to participate in the study (see Appendix C). However, in Community B, because the participants were known to me, I approached them directly about participating in the study. Those who were not interested in participating were thanked for their time and no further contact was made. Those people who expressed an interest in participating were scheduled for interviews at their convenience. Some people were unsure if they wanted to participate and wanted time to think it over. They were recontacted several days

later and if they were agreeable, an interview was scheduled. If they were unsure, they were thanked for their time and no further contact was made. At the interview I explained the study (see Appendix D), answered any questions, and obtained informed written consent from each participant (see Appendix E). Initially, I anticipated that the total number of participants would range from 30 to 40, or 15 to 20 in each community. In total, between 50 and 55 people were approached to participate in the study. I found that many people were unwilling to participate in the research. Between 15 and 20 people declined to participate and approximately 10 people who had agreed to participate did not show for the interviews. Therefore, in Community A,  $n=11$  participants were interviewed and in Community B,  $n=17$  participants were interviewed, for a total sample size of  $n=28$ .

### The Setting

As was previously stated, the interviews were conducted in two Native communities in Northwestern Ontario. The setting for ethnography can be wherever there are people and activities related to health care that need to be addressed in holistic context (Germain, 1986). Informants were interviewed either at their own homes or in an interview room in the community nursing station, depending on their preference. While it is ideal in ethnographic research to interview informants in their natural environment, other circumstances such as crowded living conditions and small children can cause noise and interruptions and make interviewing in the home problematic. Several

interviews were conducted in the participant's homes, however, the majority of mothers chose to come to the nursing station for the interviews.

### Data Collection Instrument

In ethnography, the researcher is the data collection instrument. I have an extensive background working with the First Nations people and I had a preestablished professional relationship with one of the selected study communities. This relationship had potential to enhance the study as participants who knew me may have been more willing to be open about their perceptions and beliefs. However, the fact that the participants knew me in the professional capacity of a CHN may have had an impact on the findings. Lipson (1991) states that informants form opinions of the researcher and make judgements about what is safe or acceptable to tell the researcher. Because of my status as a former CHN, participants may have feared repercussions from other CHNs as a result of being totally honest and hence, gave what they felt were the appropriate responses. I attempted to overcome this by assuring the participants that I wanted to hear their honest answers and that whatever they told me would be kept confidential and not shared with the other CHNs in the community. This provision was also incorporated into the informed consent process.

Data were collected using semi-structured or focused interviews. Semi-structured or focused interviews are organized around an area of particular interest but still allow considerable flexibility in scope and depth (May, 1991).

Fetterman (1989) states that the interview is the most important data gathering technique for the ethnographer as it explains and contextualizes what the ethnographer sees and experiences. Based on the proposed theoretical framework and established ethnographic interview techniques (Spradley, 1979), an interview guide with open-ended questions was developed and utilized to direct the interviews (see Appendix F).

After the interviews, other basic data was collected using a demographic data collection instrument (see Appendix G). In addition to some descriptive data, information regarding the immunization status of the participants' children was also collected. The data were used during data analysis to compare interview responses of caregivers whose children were age-appropriately immunized to the responses of caregivers whose children were not age-appropriately immunized.

#### Data Collection Procedure

After obtaining permission and informed consent from the participants, each informant was interviewed for approximately ½ to 1 hour, at a time and place that was convenient for them. With the informant's permission, all interviews were audio taped, and the audiotapes were transcribed verbatim. During the course of the research, field notes were also taken. Field notes included a written account of details that I heard, saw, experienced, and thought in the course of collecting or reflecting on the data (Field & Morse, 1985). The field notes were used to supplement the tape-recorded data as this data did not

capture the nonverbal communication and the impressions of the interviewer. After each interview field notes were recorded on my reflections of the research process and general impressions of the data being collected.

### Ethical Considerations

Measures were implemented to ensure that the rights of the informants were protected in this study. While awaiting approval from the Ethical Review Committee, Faculty of Nursing, University of Manitoba, a letter was sent to the Director of the Sioux Lookout Zone for permission to conduct the research (see Appendix H). As well, a research proposal was submitted to the Research Review Committee, Sioux Lookout Zone for ethical approval. At the same time, a letter was sent to the Chief and Council of both communities explaining the research and requesting permission to conduct the study (see Appendix I). Ethical Approval was obtained from the Ethical Review Committee, Faculty of Nursing, University of Manitoba (see Appendix J) and from the Research Review Committee, Sioux Lookout Zone. Access to both the facility and the communities was granted by the Zone Director and by the Chief and Council of both communities.

### Informed Consent

Two major elements upon which informed consent is based are the right to self-determination and the right to full-disclosure. Self determination means that prospective participants voluntarily decide whether or not to participate, they can terminate at any point, can refuse to give certain information, and are free to



ask questions at any point in the research process (Polit & Hungler, 1991). Full disclosure means that the researcher has fully described the study, the participant's right to refuse participation, the researcher's responsibilities, and the potential risks and benefits (Polit & Hungler). Both self-determination and full-disclosure were incorporated into the consent process of this study. In order to decide whether or not they would participate, informants needed to know the purpose of the study, the extent of their involvement, and the possible risks and benefits of participating in the research (Lipson, 1994).

#### Confidentiality

Along with informed consent, a promise of confidentiality was made to all participants. Each informant was assigned a code identification number that was used to identify tapes, transcripts, and demographic data forms. Code number information will be kept separate from transcripts and tapes and will be accessible to only myself and my Thesis Chair. Only my thesis committee and me had access to the transcripts and the participants were identified by code number only. Subsequent analysis and any publication of the research data will refer only to communities in Northwestern Ontario (Freeman, 1993). Neither the participant nor the specific community will be identified. Following the conclusion of the study, a summary of the findings of the study will be forwarded to Medical Services Branch, to the Chief and Council of both communities, and to those participants who indicated on their consent form that they wished to receive a copy.

### Data Analysis

In ethnography, as in most qualitative research, data collection and data analysis are a simultaneous process. One does not move from data collection to data analysis. Rather, both require a fluid, flexible, and somewhat intuitive interaction between the researcher and the data (P. J. Brink, 1989). Therefore, after each interview, I replayed the taped interviews noting the tone of the responses as well as content, and more extensive and in-depth field notes were written (Field & Morse, 1985). Interview tapes were subsequently transcribed verbatim by a typist hired by me. Although a typist transcribed the interviews, the low pitch of some of the participants' voices made transcribing difficult. Therefore, I spent several weeks reviewing each tape and filling in the areas that had been missed. After several weeks of repeated listening to the tapes I had become immersed in the data. This immersion in the data set the stage for more intensive and formal analysis of the data.

During data analysis, a technique called content analysis was utilized. Content analysis involves categorizing the content of the data and assigning code numbers or code labels to those categories (P. J. Brink, 1989). During this phase of data analysis, often referred to as open coding, categories were freely generated and accounted for almost all of the interview data (Burnard, 1991). Transcripts were reviewed repeatedly and were coded using words or phrases that identified the concepts in the data. After all the codes were generated,

similar codes were grouped under larger broad categories. Five categories were identified that were then linked to one of the two research questions.

Categories were examined and data in the categories were compared and contrasted. Significant factors that influence Native parents' beliefs about immunizations and ultimately their uptake, were identified. These factors were also examined in light of the children's immunization status and in relation to the Health Belief Model and its applicability in understanding immunization uptake among the study population. In this, the final stage of data analysis, the researcher attempts to weave thematic pieces together into an integrated whole (Polit & Hungler, 1991).

Data analysis involves not only categorizing and coding data, but it also involves developing a data filing system that allows the researcher to store and retrieve the data easily and quickly. A proper data management system enhances data analysis as it facilitates the comparison of participant responses and the identification of unusual or different answers. The Word Perfect© program was used to prepare the transcripts and data management was accomplished by cutting and pasting the similar codes and categories together.

### Trustworthiness

To establish trustworthiness, the researcher must persuade the reader that the research findings are worthy of the reader's attention (Lincoln & Guba, 1985). Trustworthiness can be accomplished in qualitative research, however, the criteria for evaluating this must be specific to qualitative research and not

borrowed from quantitative research (Leininger, 1985). The trustworthiness of this research was examined utilizing criteria established by Guba and Lincoln (1989). These criteria include credibility, transferability, dependability, and confirmability.

### Credibility

Credibility is the truth value in qualitative research. A study is credible when it presents such accurate descriptions of an experience that people undergoing the experience immediately recognize it and when others can recognize the experience after having only read about it in a study (Sandelowski, 1986). I have attempted to establish credibility through ongoing debriefing with my Thesis Chair and by examining my progressive subjectivity throughout the data collection and analysis process. During debriefing, categories and themes elicited from the interviews were discussed with my Thesis Chair to ensure reasonable interpretation of the data. To enhance progressive subjectivity, I monitored my developing impressions throughout the research process. Prior to interviews with participants, I reviewed field notes and analysed the progression of my understanding of the interview data. It is necessary to monitor progressive subjectivity because if the researcher continues to prefer their original impressions, it is safe to assume that he or she is not paying sufficient attention to the contributions of the participants (Guba and Lincoln, 1989).

### Transferability

Transferability is the ability of the findings to be applied to contexts outside the study situation (Sandelowski, 1986). In qualitative research the burden of proof for claimed transferability is on the receiver. The major technique for establishing transferability is thick description, or providing the reader with as complete a data base as possible to facilitate their transferability judgements (Guba & Lincoln, 1989). In order to facilitate transferability, I have provided clear descriptions of the sample, setting, and data collection procedure. A substantial data base has been established and is presented in Chapter Four. I also elected to study two communities so that I could sample more broadly and compare and contrast data from the two communities.

### Dependability

Dependability is parallel to reliability in quantitative research. Dependability is achieved through the detailed and clear description of the study from problem identification through to data analysis and discussion. I have also documented methodological alterations and changes in constructions throughout the research process. Audiotapes were transcribed verbatim and the coding of data themes and categories was reviewed with thesis committee members.

### Confirmability

Confirmability is the measure of neutrality, however, in qualitative research it refers to the research data and not the researcher (Sandelowski, 1986). Confirmability is concerned with assuring that interpretations and

analyses are rooted in the data and realities of the participants and not those of the researcher (Guba & Lincoln, 1989). To establish confirmability, participants own words were used to substantiate my interpretations of the data. In this way, the reader is able to decide if the analysis reflects the participant's reality.

### Summary

The research design chosen was an ethnographic design. Informants were chosen by a purposeful sample selection technique from two First Nations communities in Northwestern Ontario. Key informants were primary caregivers of young children under five years of age. Semi-structured or focused interviews were utilized. Participation in the study was completely voluntary and informed written consent was obtained from all participants. Data was analyzed using content analysis and categories and themes were identified, compared, and discussed. Trustworthiness was maintained by ensuring credibility, fittingness, and confirmability.

## CHAPTER FOUR: RESULTS

The purpose of this research study was to explore Native parents' beliefs about childhood immunizations and to examine the factors that influenced uptake. More specifically, the research sought to answer two questions: 1) What beliefs do Native parents have regarding childhood immunizations and childhood diseases and their impact on child health? 2) What are the major influences on Native parents' health beliefs and behaviours regarding childhood immunizations? Data analysis was guided by the research questions, the interview guide, and ultimately the HBM. Therefore, the categories that emerged from the data are largely a reflection of the components of the HBM as this model set the parameters for analysis. However, some categories did surface that were not directly identified in the HBM. The findings of the study are presented in two sections related to the research questions. The first question generated two categories: a) Mother's Perceptions and b) Community Perceptions. The second question generated three categories: a) Advice and Guidance, b) Experiences, and c) Barriers and Drawbacks. A diagram of the data categories is presented in Figure 2. While the five categories have been generated from the coded data, there was considerable overlap in much of this data and some codes fit several categories. To facilitate analysis I have attempted to achieve the "best fit" possible. It should also be noted that the names mentioned in the next chapter are fictitious and not the actual names of the participants or their children.

**Figure 2****Data Categories****Research Question 1 - Beliefs About Immunizations**

- A. Mothers Perceptions*
  - Benefits of Immunization
  - Seriousness and Susceptibility
  - Mother's Knowledge
  - Parental Complacency
- B. Community Perceptions*
  - Influence of Elders

**Research Question 2 - Influences on Beliefs and Behaviours**

- A. Advice and Guidance*
  - Parental Advice
  - Professional Advice
  - Provider Reminders
- B. Experiences*
  - Direct Immunization Experiences
  - Indirect Immunization Experiences
  - Non-Immunization Experiences
  - Knowing Victims
- C. Barriers and Drawbacks*
  - Competing Demands
  - Clinic Barriers
  - Vaccine Side-Effects
  - Health and Life Priorities



Semi-structured interviews were conducted with 28 mothers of young children in two communities in Northwestern Ontario to elicit their thoughts and beliefs about childhood immunizations. Although data were collected in two disparate communities, results from both communities were similar. Therefore, data are presented combining both sets of interviews. However, where applicable, contrasting information between the two communities is highlighted. This chapter begins by presenting the demographic data of the sample and then addresses the study results. The chapter concludes with a presentation of data from the immunization records.

#### Demographic Data

All study participants (n=28) were female and biological mothers of young children. Ages ranged from 18 to 41 years with a mean age of 28.19 years and a median of 27 years. Education levels ranged from Grade 7 to some post-secondary education with a median highest level of education attained of Grade 9. Almost half of the participants (50%; n=14) were homemakers, 14% (n=4) worked part-time, and 36% (n=10) worked full-time. Those participants who were employed outside the home, worked primarily in health, education, clerical, and retail positions. Seventeen (61%) of participants were married, seven (25%) were in common-law relationships, and four (14%) were single. The number of children of the participants ranged from 1 to 8 with a mean of 3.52 and a median of 3.

Participant demographics from each community were also analysed and compared to each other. For complete demographic information on both groups please refer to Table 2. Community B had slightly older participants who had marginally higher education levels and fewer children. Participants from Community B were less likely to be single and more likely to be living Common-Law than those in Community A. However, these differences were minimal and overall both groups were considered homogeneous.

**Table 2****Demographic Data**

AGE OF PARTICIPANTS			
	RANGE	MEAN	MEDIAN
Community A	21-36	28.88	29
Community B	18-41	27.09	27
Both	18-41	28.19	27
EDUCATION OF PARTICIPANTS			
	RANGE	MEAN	MEDIAN
Community A	8-13*	9.59	9
Community B	7-10	8.45	8
Both	7-13*	8.86	9
NUMBER OF CHILDREN			
	RANGE	MEAN	MEDIAN
Community A	1-6	3.11	3
Community B	2-8	4.18	4
Both	1-8	3.52	3
OCCUPATION OF PARTICIPANTS			
	FULL-TIME	PART-TIME	HOMEMAKER
Community A	35%(n=6)	12%(n=2)	53%(n=9)
Community B	36%(n=4)	18%(n=2)	46%(n=5)
Both	36%(n=10)	14%(n=4)	50%(n=14)
MARITAL STATUS OF PARTICIPANTS			
	SINGLE	MARRIED	COM-LAW
Community A	18%(n=3)	53%(n=9)	29%(n=5)
Community B	9% (n=1)	73%(n=8)	18%(n=2)
Both	25%(n=4)	61%(n=17)	25%(n=7)

\* 13 is the numerical value given to some Post-Secondary education

## Research Question 1 - Beliefs About Immunizations

### Mothers Perceptions

Interview data revealed that mothers held varied perceptions of childhood immunizations. When asked what immediately came to mind when the word *immunization* was mentioned, almost all participants responded with negative words such as "needles" "pain" and "disease." "Needles, measles, mumps, rubella, polio. That's what I think of when they say that." Only one participant had a positive response in stating that the word immunization prompted her to think of "staying healthy."

### Benefits of Immunization

Most mothers stated that they believed immunizations were important and they tried to ensure that their children received them. However, many added that they were aware of others in their communities who did not feel the same way about the importance of immunizations.

I think it's important cause back when I had my first babies I didn't want to miss the immunizations and keep them up to date. So I'm still going there. . . . I myself think so but that doesn't mean that everybody feels that way. . . . I know this one person in the community, he says he's never had a needle, he's well, he says he doesn't need it.

Overwhelmingly, "preventing disease" was cited as the major benefit of immunization. Mothers mentioned that they felt that their children did not get sick that much because of their immunizations. One mother whose children were

sick frequently and behind on their immunizations stated that they had a lot less illnesses once they had all of their immunizations. However, a few mothers stated that they did not believe that immunizations had any impact on their children's health. These mothers said that their children still get many infections and they did not see the benefit of having them immunized.

I think, whether or not they're getting needles, they still get sick. They still get sick. They still get sick a lot as much as the nurses say they won't. . . . I don't think it prevents anything. . . . I don't know. They usually still get, get this viruses, these infections the immunizations supposed to fight off. I don't see any good things. They get colds every year and during the winter months they miss, they miss a lot of school because of their colds.

Although participants believed that immunizations were important for their children, several were unable to state why they felt that way. Few mothers could name any benefit of immunization other than disease prevention. One mother mentioned the importance of coverage for unexpected situations such as stepping on nails and another mother felt that the preventive health care that is performed at immunization visits is also important. Immunizations were also viewed by one mother as something good she was giving to her children and immunizing them was a reflection of her how much she cared for them.

Every time my child is immunized I'm thinking like they won't get these kind of diseases. I'm always thinking it's a good thing. . . . I feel like they

are really cared for to try and prevent these diseases . . . like I think it's good.

When participants were asked directly about the benefits of immunization for their children, the majority responded that it prevented disease. Previous to this question, participants were asked to discuss some of the things that they did to keep their children healthy and to prevent them from getting ill. Most responded that they made efforts to provide good food for their children and to keep them clean, warm, and dry. Interestingly, only a few participants from Community A and none from Community B replied that immunizing their children was something they did to keep their children healthy.

#### Seriousness and Susceptibility

There were various beliefs among participants regarding the seriousness of childhood diseases and their childrens' susceptibility to them. Although participants perceived childhood diseases as serious, most were unsure of the specific effects diseases could have on their children. Death was the most commonly mentioned result of catching one of the childhood diseases, however, a few participants felt that this was an unlikely outcome. Some mothers thought that while a few of the diseases were serious, others were not.

Measles, they get better when they get it. But with mumps, I don't know. I don't know what happens to them. With polio I guess it affects you for life.

Some mothers mentioned that they had heard stories of children suffering or dying from diseases in the past and that this affected how they currently thought about childhood immunizations

Like I wouldn't want my child to have any of those diseases that were here a long time ago. . . What I hear from the stories they have it, sounds horrible. Like, um, the polio. They were really sick with the diphtheria and all the people died. And what do you call that small pox, and German measles. . . Whooping cough. They just scared me like. . . . I hear people say that . . . young kids used to die a long time ago cause they didn't have these things to prevent the diseases from. So I just bring them in whenever they have to get it. I just think it's just what they need. . . To prevent the diseases.

Fear of their children catching childhood diseases was mentioned frequently by the mothers as a reason they immunized their children. Mothers also believed that if their children were immunized they were no longer susceptible to these diseases.

I think the people that are getting it are probably the ones that are not immunized. . . . They tell me it's to prevent the disease. . . . That's what they say to me. So I don't think so.

Participants, while aware that their children were still susceptible to childhood diseases, remained confused about the issue.

Even if they are immunized, there are some that catch it. Like they're asking why their children get whooping cough even though they had been immunized for it. I wonder, like I was questioning that too.

The fact that some children caught diseases such as meningitis and whooping cough despite being immunized, left some parents with doubts about the effectiveness of vaccines.

Cory still had meningitis. We had to go down to Sioux Lookout for 9 days for antibiotics and all those things and he still got this big needle up at the back of his spine. Even after the [immunization] needle he still went out, cause he really had this really bad cold. He had to get antibiotics again for 7 days up in Sioux Lookout.

A few mothers reflected an understanding of the role of immunization in preventing disease and were aware that immunizations did not completely prevent childhood diseases.

It is possible they could get it even if they are immunized, but I think immunization helps a lot.

Most of the women were unsure if their children were susceptible to childhood diseases and could not comment on how they believed immunizations affected this susceptibility.

### Mother's Knowledge

Mothers were also asked some basic questions about what they knew about childhood diseases and the immunizations that their children received.



Most readily admitted that they had limited knowledge of how immunizations worked or what diseases they prevented. Mothers were also unaware of where the diseases came from and how they were transmitted.

I don't really know how they catch it or where it comes from. . . . I don't really know, like how and why, how they get it and things like that. If it's passed on from one person to another, it just appears out of nowhere, I'm not sure. . . . That doesn't sound too good but that, that's the way I feel. . . . I don't even know what rubella is.

The mothers felt that because they had not seen many of the vaccine-preventable diseases, they did not know too much about them. When asked which diseases they thought immunizations prevented, participants frequently cited more well-known diseases such as meningitis, polio, whooping cough, and diphtheria. However, most could only name one or two of those diseases. A few mothers mentioned mumps, measles, and rubella, and none mentioned tetanus. Chicken pox and AIDS were also referred to as vaccine-preventable diseases.

Mothers' knowledge and perceptions of childhood immunizations and childhood diseases were influenced both positively and negatively by what they had read in books or had seen on television. The majority of mothers said that they read about immunizations from a variety of printed sources. Books and magazines were frequently cited as a positive source of influence and mothers said these materials informed them of the benefits of immunization. Mothers also heard about meningitis outbreaks through newspapers and television

reports and stated that these news items made them nervous that their children would catch meningitis. However, the media was also the source of more sensationalistic stories that sometimes had a negative effect on mothers' feelings about immunizations.

Just one needle I was wondering about, I was hearing it on the news. I think it's the needle they get when they're two years old, they get a defect from the way they grow. They go disabled or . . . crippled. . . . I was just wondering if that was, that was real. . . . Cause my daughter was just turning two at the time when she was supposed to get that needle. . . . Well I was just nervous about letting her take her needle when she was turning two.

#### Parental Complacency

Although mothers were aware of the importance of immunizations for their children, many spoke of becoming more neglectful over time about immunizing their children. Many women stated that with their first children they were more anxious about being parents and wanted to make sure that they did everything right for their children. Hence, they were more vigilant in ensuring that their children were immunized.

Mostly because I was a parent for the first time and I wanted to do everything right. I didn't want her to get too sick, really sick I mean. I didn't want her to get sick like that.

Mothers cared as much for their subsequent children. However, they believed they were not as anxious and nervous about being parents and consequently, became less persistent in taking their children for immunizations.

With my first kid, I was really like I kept an eagle eye out for her immunizations. I always took her on time when she was supposed to. But now, with the second one, I find that I'm not as, I don't really take her in at the right time.

### Community Perceptions

#### Beliefs of Elders

During the interviews, mothers were also encouraged to discuss how other community members, especially elders, perceived childhood immunizations and whether this influenced their beliefs about immunizations. Participants identified negative perceptions of immunizations, childhood diseases, and elements within the health-care system that they felt influenced community members health behaviours. Participants primarily attributed these beliefs to elders in the community, and although they denied that they were influenced by these elders, they felt that many other community members were. Overwhelmingly, mothers from both communities said that the elders in their community did not believe in immunizations and did not understand why children had to have so many needles.

I think the older people . . . have a hard time understanding why you have to take our kids to be immunized. And they're not really happy about it.

Like they're thinking like how come they're getting all kinds of needles and how come they're getting these needles cause their kids never had that before, like they weren't immunized. I don't know about these older people now. I don't even know if they're immunized. . . . To the older generation it wasn't important but sometimes I feel that they should know from all the sicknesses they had a long time ago and then they started getting immunized and those diseases were stopped I guess and still people don't really seem all that concerned about it.

There were some mothers who felt that elders should be more understanding about immunizations given the illnesses they had experienced in the past.

Others stated that the elders they knew believed that Native people were healthy in the past. The elders felt that they had been healthy without immunizations so they did not understand why they were necessary now. Some mothers speculated as to why community elders likely felt negatively toward immunizations. They stated that it was probably because things were never explained to the elders and consequently, they did not understand the benefits of immunizations.

And I don't think they ever really connected that immunization to those diseases. I wonder because everyone, at least my mom, I never heard her say anything about immunizations. To keep those diseases away. . . . I don't think they, like the parents back then, like the grandparents, didn't have any information about immunization at all. . . . Cause nobody ever

took the time to explain those things for them. Like even if there was interpreters, like back then people didn't know that much English, like even if somebody did want to try explaining it like they couldn't explain it well enough. Like they didn't understand it themselves, they didn't understand that much themselves.

Still others felt that these beliefs were the result of elders being set in their ways and unwilling to change and embrace new ways.

They don't really know, like that's what I notice about my own grandmother like they still think that it should be all the same, like doing things the same way that they did before. It doesn't really have to. Other things have changed, and they can't do everything the same way they were doing it.

Most women speculated that these beliefs were just part of a larger problem where negative experiences the elders had in the past had caused them to mistrust the health-care system and those involved with it.

They just don't trust I don't think. They just don't trust whatever is poked into them to them. Like the other day I just heard somebody talking on the radio about his blood being taken all the time and no feedback or no results ever given to him at all. It was just on the radio like. It has to be explained I think. Really good and I think maybe that is part of the reason, a long time ago we just accepted what was done to us. Like we had no questions, nothing. We didn't expect any answers a long time

ago. And I think that is part of the reason it wasn't explained right. They just come and stick a needle in somebody and that was it. You were told you need this but you didn't know what it was.

My brother said that our grandfather said that nurses just trying to make money when they give kids out immunizations. . . . So that's why my brother never brings his kids in for immunization and he says they never got sick once. My brother doesn't approve of immunizations. . . . And [my mother] she said to me then, like with her kids she didn't have to do that. They didn't have to get all those needles before. Like she keeps asking me if she's sick or if there's anything wrong with her or if they keep, if the nursing station is keeping something from telling me if there's anything wrong with her, getting all those needles. And I tell her I don't think so.

#### Research Question 2 - Influences on Beliefs and Behaviours

##### Advice and Guidance

Participants identified two main sources of advice with regards to immunizing their children. Advice supplied was either positive or negative depending on the source. These two sources were the mother's parents and health professionals. Mothers received positive and negative advice from both parties, but parents were the primary source of negative advice. Health professionals were the main source of positive advice.

### Parental Advice

In view of some of the community beliefs about immunizations identified previously, it is not surprising that mothers reported receiving considerable negative advice from their parents and grandparents with regards to immunizing their children. Some mothers stated that they were not advised one way or the other by their parents. Most women, however, were advised against immunizations. They stated that they were often told that immunizations were not necessary and of little benefit to the children.

My mom told me not to bother with the immunizations one time. She told me not to rely on them. . . . Like she didn't think it was important and I sort of grew up thinking like that too. That I didn't need them but then it's different when you understand the risks.

Not all participants received direct negative advice about immunizing their children, however, the practice was often questioned by their parents.

That's what my mom used to say to me. She used to say, "How come your daughter has to get all these needles?" And I didn't even know why.

Despite being advised against immunizations by their parents, most mothers in the study reported that it did not influence their decisions about immunizations and they still thought that immunizations were important for their children to have. Only a few mothers were encouraged by family members to immunize their children. With only one exception, each of these individuals had a family member who was working in a health-related field.

My sister . . . she's a CHR. She used to tell me a lot about those immunizations and what it's for. Like they have to get their needles like so they won't get, uh those kind of diseases. And my [other] sisters, they just told me to like take them to have their needles.

Many of the women also stated that they had learned most of what they know about raising children from their mothers. Their mothers told them how to feed and dress their children and what to do when they were ill. While parents were a source of advice for the mothers, most women stated that they received little or no hands on help from their parents in raising their children. There were mothers who stated that they received no advice at all from their parents and learned everything through reading books and magazines and by trial and error.

#### Professional Advice

The majority of mothers reported that they were encouraged by health professionals, primarily nurses at the nursing station, to immunize their children.

The nurses explain to me every time when I took them to the nursing station, to get their shots, they explained it to me. So they won't have to get sick much.

While mothers were advised by nurses to immunize their children, the effectiveness of this advice on the immunization practices of some mothers was uncertain. Although most welcomed professional advice, one mother whose children were not immunized, stated she was finally convinced by her sister, and not by nursing staff, to immunize her children.



I guess the nurses always talk to me about that immunization every time when we came here. And they saw that those their records and when they saw that, they didn't, they never had immunized, that's when they used to talk to me. Then my sister would talk, my sister would talk to me about having them immunized. Like they had their kids immunized and they find their kids they don't sick often. . . . That's what convince me, my sister used to say that it would prevent them from getting any kind of disease.

Mothers also received information about immunizations and childhood diseases from health professionals. Some felt that this was helpful and informative and met their needs.

When they give needles to the babies the nurses explain everything about the needle, before they give it. And I ask a lot of questions before they give them. . . . I think I was prepared for getting them immunized.

Although most found it helpful at the time not all mothers could recall what nurses had told them. Information provided to some mothers by nursing staff was brief and left them with unanswered questions.

They told me . . . how important it was. But nobody ever explained what it was for. . . . I never hear why it is necessary to have immunizations.

A few mothers said that even when they asked for more information they still did not get sufficient answers. There were also mothers who felt that less information was best and they did not express a desire for more information.

I probably thought it was enough cause I was always busy like with the small kids. Like the amount of time I had spent already in the waiting room and the time it took to be seen, like whatever questions I had and whatever little bit of answers I got, that was enough for me.

Mothers also mentioned obtaining information about immunizations from pamphlets they received at the nursing station. They liked reading the pamphlets and expressed an interest in having more pamphlets that focused on topics related to immunization. Professionals were also a source of general child-care advice and information for mothers. Nurses were primarily sought out for specific problem-oriented advice as opposed to parents who primarily supplied general child-care advice. Mothers reported asking nurses for advice when their children had a fever or were sick and reported finding this support helpful.

Health professionals encouraged mothers to immunize their children. However, they also frequently recommended that immunization be delayed if children were sick at the time the immunization was due. Mothers stated that the nurse would not immunize their child if he or she was ill and most had experienced this at some point in the past.

Once the nurse told me from before, with Mary. She told me that they don't want to give out shots when the kid is sick. . . . They said we usually don't give them when they're sick. . . . I have to wait for another day, til

they're better. . . . Sometimes they tell me to wait cause they have an ear infection or fever.

Consequently, when children were due for an immunization and were ill, mothers often did not bring them and would wait for another time when the child was well.

When Thursday came around if she'd have a runny nose and things like that, I would just call and tell them that I can't make it and I would come next week. I'd just call them and let them know she's sick or I'll bring them in for a check up and they'd tell me she's sick.

Some nurses would immunize children if they were sick, but most mothers did not like this and preferred to wait until the children were well. They believed that the immunization made the child feel worse and this was an undesirable outcome.

She's been in so much pain with her ears and if she got her shot she'd have to put up with that fever and that adds to the pain. . . . There's nurses that just give them the shot and then they're worse after. . . I don't know if it's just rumours if they get worse, when they're immunized like that. . . . Like if I didn't object to it, they would go ahead and give the needle, but sometimes I would. I wouldn't feel like having a sick baby that night or the next day. Like any sicker. Like if it was already feeling sick, I didn't want them to have that extra painful arm or leg.

There were mothers who would never allow their children to be immunized when they were sick, even if the illness was minor and children were afebrile. A few stated that they trusted the nurses and left the decision up to them.

Like they say when he has a little cold, it's O.K. they go ahead with a needle. But they know what they're doing, like the nurse, "I can't give it to him because he's got a fever."

Fever was often cited as the deciding factor. Parents said that nurses would not immunize if their child had a fever, and mothers did not want the children immunized if they were febrile.

Mothers found that when their children were due for immunizations they were often ill. Because they were unwilling to have their children immunized when they were ill, this sometimes caused children to fall behind on their immunizations.

Like with Jennifer, I think she's behind her two-year-old needle now.

Cause she's always sick when she's supposed to get her needle. I don't usually want them to have their needles when they're sick. They get more cranky than they normally are.

Mothers whose children had frequent ear and respiratory infections found that they were ill so often that there were few times they were well enough to be immunized. Then when the children were well, mothers said that they simply forgot about the immunizations.

The only time I bring them is when they're sick . . . and then when I'm reminded again usually they're not feeling well and it just keeps going on. With Sam it's been a long time since he had a needle. And he got, he usually gets ear infections and, and I just forget to bring him in when he's well. . . . Like I said, during the time he's sick or he's got fevers and coughing even when he has ear infections, they called. But when he's well I'm, like I just forget. I probably don't even think about it.

#### Provider Reminders

Mothers discussed how they knew when their child was due for an immunization and what prompted them to take their children to the clinic. In general, mothers were aware of the ages at which children are immunized. However, most waited for a reminder from the nursing station telling them that their child was due. If they did not get a call after a certain time, then they would phone the nursing station and make an appointment themselves.

Well the nurse would call at my place and let me know and then I would get her down in my calendar and I would go on that day. Well I would know by like the age too. I would know how many months he would be like every month. So that's how I knew too like, 2 years, 2 months, 4 months, every 2 months. . . . Sometimes I just call. Like I would ask one of the nurses. Can you check on her for me, can you check on my son for me, like, you know. But sometimes they would call.

Again, mothers mentioned that with their first child, they often phoned themselves for appointments, but with their subsequent children they waited for the nursing station to call them. All mothers liked being reminded when their child's immunizations were due. One mother mentioned that it helped knowing the day before rather than on the day it was due, because she was then better able to plan the day and make whatever arrangements were necessary.

For those mothers who were unaware of the set ages for immunization, they totally depended on reminders from the nursing station. One mother who had five children felt that she was too busy to monitor the immunizations and stated that even with reminders she still frequently forgot.

When I had my first two, I usually know when to bring them in but, with five of them I have more to worry about now. . . . I guess that it's just you're constantly reminded of their appointments and there's just too many of them to have so I usually I just forget. So that's basically why. If it's just the two, I could just handle things I guess.

Only one mother carried a wallet card that had the children's immunizations written on it. She stated that she carried this because she moved between two communities frequently and it often took a long time to get records transferred from one community to the other.

### Experiences

Participants' beliefs and behaviours about childhood immunizations were often influenced by direct and indirect experiences with immunizations and by other non-immunization experiences with the health-care system.

#### Direct Immunization Experiences

Generally, mothers were satisfied with the immunization services provided in their community although they unanimously stated that having their children immunized was something that they did not enjoy. They felt bad when their children cried from the needles and a few mothers did not want to be in the same room when the needle was given. A few mothers recalled situations where they had brought their child for immunization and were upset with what occurred. They left feeling distressed by these experiences.

One time when the nurse was there I was holding her and I guess I wasn't holding her enough to keep her still. And she poked her once and she moved and it squirted all over her legs. She poked her two or three times before she could get it. She had to call another nurse to help her and that other nurse, she was holding her so hard her knuckles turned white. And that made me feel so bad. . . . She ended up having bruises on her thighs and fingerprints on her arm from that nurse.

My oldest son, they gave him, like the same shot twice. And I'm just wondering like, if there's going to be anything wrong with that. . . . That

nurse didn't listen, like when I tried to show her that immunization, that he already had his needle. There was this nurse like and I kept telling her that he already had his shot but, you know, she didn't get the immunization record and then she just gave him that shot. Then after that she called and asked for the record and they said that they had already gave him that shot.

Mothers reported having negative experiences that strongly influenced how they felt about immunizing their children. One mother recalled that her first child died within days of being immunized and talked of how she still wonders if she was right in getting him immunized. While she eventually overcame her fear of immunizations with her other children, she reported that they were behind schedule for a long time before she got up the courage to take them for immunizations.

My first baby, um, I lost that first one when it was 2 months old. And he wasn't sick at all that first time but then I was asked to bring him here in the clinic to have his immunizations and then I brought him and that was that first night and he got, there was something wrong with him and then he just got sicker and sicker. He had to go to Winnipeg hospital and that's where he died. And sometimes I wondered that, that it could have been that needle that made him sick.

Several mothers related their own personal experiences with immunizations that contributed to a negative perception. One mother, who had



to have repeated rubella injections post-partum, questioned the coverage provided by vaccines.

I had to get my rubella shot after I had Sara. It was supposed to last a lifetime she says and I guess my lifetime went up and she had to give me another shot. . . When I got that shot again I kept wondering how long will it last with my kids. Like with me it didn't last that long. And they probably have the same genes as me. What if it doesn't last that long I thought, I wonder if it is effective.

Another mother stated that her memories of her having childhood immunizations have positively influenced her beliefs about the importance of immunization. She stated that she was immunized as a child and has not been seriously ill, so therefore she believed that immunizations were beneficial.

Mothers spoke of the importance of having positive interactions with health professionals. They felt that nurses should listen more to mothers during clinic visits and they emphasized that it was important for nurses to take an interest in the mother and baby and to do more than just give the needle.

It's just more nicer to have a nurse who seems caring for the baby, who seems really interested in knowing how are you guys are doing. There should be more questions of that nature. Just a few questions and so forth and then I get examination, needle, and then I get thrown out. It's just nice to have a, like chat with the mother and to get calm and all that.

### Indirect Immunization Experiences

Mothers were also influenced by stories they had heard from family and friends about negative immunization experiences. Stories about children becoming seriously ill as a result of vaccinations made most of the women nervous about immunizing their children.

My sister went to the clinic for my nephew's shot. My sister took him, took my nephew and that night . . . my sister said, something happened to him because of that needle. That was what the doctor said, like they were saying that something happened to him for that shot. Like he died for, I don't know, an hour. I guess he had seizure and stuff like that and went away. . . And, and I was sitting there, like looking at the tiny little body on the table covered with that sheet, and I was saying that I can't believe it. . . I was scared cause on my family's side, they have like my nephew, my nephew and my two brothers, like they have seizures. Cause my little boy has like sometimes he gets it eh. And it scares me.

Another mother said that she knew of someone whose child experienced respiratory problems after an immunization several years ago and the mother since refused to immunize any of her children. Mothers indicated that these incidents often made many community members nervous and hence, reluctant to immunize their children.

There was a concern here about that. There was a, remember what happened to that child, he had an immunization needle the day before he went into seizures and he died recently. He went into, he was in a coma all this time. . . . I heard people say that he had received a needle and that probably was the cause of it. And I think that's what they're scared of at times.

### Non-Immunization Experiences

Negative experiences with the health-care system that occurred at non-immunization visits had an impact upon the mothers' health behaviours. These experiences primarily consisted of negative interactions with health professionals.

If the baby was starting to get fussy and I noticed that it . . . was coming down with a cold, then I'd think about if I should really take the baby in right then or if it could wait another day. . . . Like I didn't always know like what the fever was from when she started to get a fever, like I hated not knowing what was her problem. And then I'd take her to the station, then I'd take her almost every time she had a fever and then finally one time this one nurse told me, why are you bringing her right away when she has a fever. Like she kind of said like I brought her every time, why do I bring her all the time and I didn't bother to answer. Like to me it seemed like why would anybody even question it. Like the baby can't speak and tell you what's wrong with it so naturally you wonder, you want to know. If it's

got an ear infection or sore throat or if it needs antibiotics or it can be treated or if it's just viral. Then after that I thought I wouldn't take her any more like I had, like that was my second baby, but my first baby died from. She was a SIDS baby. So like I was really cautious with my second one and like that time she said that, that really bothered me. And I thought I won't come any more to the station. Like I was shocked too. And I remember not coming for a while.

### Knowing Victims

Mothers in Community A stated that they were not aware of anyone in their community who had ever had a vaccine-preventable disease. In contrast, there were mothers in Community B who had contact with a polio victim who was permanently disabled. This encounter reinforced the seriousness of childhood diseases and the necessity of immunization. Recent contact with victims of childhood diseases was limited to exposure to children who had pertussis.

There's a guy in town who's in a wheelchair because of polio. Well, I think that guy has had polio. It scares me, like what if I get it or one of my kids get it. . . . Well I just, well I feel like that before we never had anything really . . . that can help us. Like now we have these and I think that I should try and bring my children. When I see that person I know they never had that choice, or it was too late for him cause he couldn't be helped here. Right now we have this chance to have this medical help so I try and bring my kids in.

### Barriers and Drawbacks

Mothers discussed a number of factors that they felt made it more difficult for them to get their children immunized or were drawbacks of immunizations. They cited competing demands and clinic factors as barriers to immunizations. Vaccine side-effects also concerned them.

#### Competing Demands

Mothers found that other demands on their time sometimes made it difficult for them to be able to get to the clinic for immunization. Mothers who had other children found that this was often a barrier to accessing immunization services. Babysitting was a problem for some, while housework and family commitments also left mothers with little time for other things. One mother said that even though she believed the immunizations were important, she had so much going on in her life that she was often unable to find the time.

I felt that same way but I just didn't have, I guess I couldn't manage my time. Cause I had two kids at the same time. At the same time I had so many other . . . things to think about. . . . Sometimes I guess I just forgot. Although many of the mothers worked either full-time or part-time, only a few found it difficult to get away from work to bring their children to the clinic.

Well that's been happening with her and getting in the way. . . Cause I have a very busy schedule. And I work odd hours. . . Like from 10 in the morning, sometimes I stay there til 10 in the evening. . . All day and I

hardly get a break. I breast feed her too so she's with me most of the time. I can't leave her or anything.

### Clinic Barriers

Many mothers mentioned long waiting time in the clinic as a major factor that made it difficult for them to get their children immunized. Mothers stated that they often had to wait for up to an hour and most felt that this was too long. Others complained that even though they were given appointments they were not seen at the scheduled time.

When we phone to make an appointment. And they, they would say, it's the one at 2:30. And then we come here at 2:30 and we sit here until 3:15 like in the waiting room. They specifically said that your appointment is at 2:30 but you have to wait another 30 or 45 minutes.

One mother felt that this upset some people so much that they refused to wait and left the clinic.

I think they get mad and they don't want to come back again. Like when people make appointments, they want to be seen at that time and when they're not, then they read for a while and then they leave. Some of them are like that, not all of them.

While some did not mind waiting, they often had other things to do and were unable to wait long to be seen.

Like if I have a really busy day at work, I can't wait more than half an hour. The other times I don't mind waiting. I enjoy having the other kids

play with them. I feel I get to talk to people more, the ones who are waiting. I really don't mind waiting that long but it depends on which day it is.

Transportation was also cited as a barrier for some parents to get to the clinic for immunizations. Although transportation is provided for parents to come to the nursing station, some denied having access to it and others voiced concerns about the system that was in place.

I had problems getting here. One time this guy came to pick me up and I was still in the house trying to get the baby ready to go and then he just took off on me. . . . I always had problems with rides. . . . It takes a long time to get a ride from the driver. I don't like waiting for him.

Set clinic hours for immunization did not pose a problem for most mothers, however, a few found these times inconvenient.

They would tell me to bring her in on Thursday, that's the well baby clinic. I don't have time on Thursdays, like so I go next week, and go next week and things like that. That's happened quite a few times now. . .

Thursday's usually my busiest day at the office.

### Vaccine Side-Effects

The majority of mothers stated that their children experienced vaccine-side effects such as fever, irritability, and pain, swelling, and redness at the injection site. Most women, however, were prepared for them and did not feel that side-effects prevented them from getting their children immunized. They

stated that the side-effects were only short-term and they realized that the long-term benefits of immunizations were more important. The side-effects usually only lasted for a day or two and with Tylenol administration, the discomfort was minimized.

Usually they have a fever after probably a day. They'd be sore for at least maybe 2 days and that's about all. Two days is the longest really they were sore and have fever. It doesn't really bother me. I was always ready for it. Like I would have the Tylenol ready for them, cause I know they would have a fever. . . . I just know that it has to be done. They have to have it.

A few mothers did report that their children were sometimes febrile and irritable for up to a week after some vaccinations. This was an unusual occurrence and after a few days most children were back to normal. The mothers felt bad that their children had to go through the side-effects. While doubts were expressed about returning for further immunizations, the long-term benefits outweighed the short-term side-effects.

They get fevers and then sometimes they throw up. [My son] he gets fevers, really high fevers. And then he would, he wouldn't sleep at all. He wouldn't roll on his side. He was just cranky all night. Til the morning. It made me didn't want to come back. But I had to for his benefit.

Participants stated that the observed side-effects did not prevent them from immunizing their children. Mothers also appreciated that the effects of



vaccines might influence how some parents felt about immunizations. Mothers interviewed in Community A stated that many people in their community perceived immunizations as something that caused sickness rather than prevented it.

Like they think that once they get the needle then they're more prone to getting sick instead of like. It's like they reverse it. . . . Sometimes I heard it when there was a radio station. Some people they don't like it. . . Cause they think their kids get sick when they get the needles. . . . Some mothers refuse to bring them in cause they get sick after they get their needles. They get some kind of reaction too after they get their needles, that's why they don't bring them in. One mother I was talking to said that she wasn't going to bring her kid in cause he got really sick on her. I think that's what some people think. Some people said that to me. That's what they said, like when they get their needles they get sicker and sicker.

Again, many of the women identified elders as the source of these beliefs. Several mothers from Community B stated that they were told by their parents and grandparents that their children would get sick after immunizations. Mothers were questioned as to why they would want to give a well child something that would only make them sick.

Children, especially the older ones, had become frightened of needles as a result of getting their immunizations and now did not like coming to the nursing station.

Two of my children they've been really scared of needles. . . . My daughter wouldn't come back to the nursing station. Cause she's scared of the needle now. She doesn't want to come back here. She doesn't even want to walk in here.

Because they were frightened of needles, children protested when they had to come to the nursing station. This behaviour embarrassed their mothers and made them dread bringing their children to the clinic.

My son . . . I didn't want to bring him . . . cause I just didn't like the way he acted every time I brought him here. Like I just didn't like the way he was screaming over nothing. He wasn't seen yet, like the nurses didn't even see him yet, like to check him yet. And he was just screaming in front of her, like crying, trying to get away from her. Well, I think it's the needles. When he had those needles, I don't know, I don't know. But when he was about, I forget he was about one year old when had that needle and that's when he started acting that way. . . He just wanted to get out of there, away, he was pulling me and I couldn't talk, like the nurse was trying to talk to me but I couldn't even talk.

### Health and Life Priorities

Initially during the interviews, mothers were asked about events occurring in their lives or in the community that they were concerned about. This question was posed primarily to elicit information regarding the participant's life circumstances that might influence preventive health beliefs and behaviours.

Although factors such as competing demands could be considered a life priority, the purpose of the question was to determine the impact of broader social and community concerns. For the most part, mothers did not state that there were any things in their lives that they were overly concerned with. Several mentioned that high suicide rates in their communities and the social problems with youth were problematic, although they felt it did not directly affect them. Only one mother identified family problems as something that was presently concerning her a great deal. Parents indicated that they were concerned about their children's health problems, although none were serious or life threatening. Most children were experiencing recurrent ear, urine, or respiratory infections and were undergoing diagnostic tests or drug therapy at present.

#### Data From Immunization Records

Immunization records of the participant's children were collected and transcribed onto page two of the demographic data form (see Appendix G). All immunizations that had been given more than 60 days past the due date were highlighted with a yellow pen. The records of mothers whose children had no immunizations given more than 60 days late were extracted. Only three (10.7%) participants fit this category. Immunization records of those whose children had only one or two immunizations given past 60 days late were added. A further four (14.3%) mothers fit into this category. Initially it was intended to compare the interview responses of those participants whose children were age-appropriately vaccinated to those who were not age-appropriately vaccinated.

However, because of the small number of participants whose children were age-appropriately immunized, no patterns of responses between both sets of interviews could be discerned.

Immunization records were then analysed and some comparisons were made between subgroups of the sample. While the results were not statistically analyzed, some patterns emerged that help to identify children at risk for delayed immunizations. Initially, both communities were compared for the number of delayed immunizations per child. Community A had higher numbers of delayed immunizations at 2.1 per child. Community B had 1.6 delayed immunizations per child. Comparisons of delayed immunizations were also made between families with less than four children and families with four or more children. Children in families with less than 4 children had 1.3 delayed immunizations per child, while children in families with four children or more had 2.0 delayed immunizations per child.

Examination of the immunization records of children who had not been age-appropriately immunized revealed that there were many instances where vaccines could have been administered simultaneously but were not. Of 27 children who became eligible for multiple vaccines; only 10 (37%) were given all of the vaccines at that visit. In many of these cases, simultaneous vaccine administration would have resulted in age-appropriate immunization for those children.

### Summary

This chapter has described the findings of the study. Qualitative analysis of the data revealed five themes that describe parents' beliefs about childhood immunizations and the factors that influence uptake: mothers' perceptions, community perceptions, advice and guidance, experiences, and barriers and drawbacks. Results of the analysis of the immunization records of the participants' children were also presented.

## CHAPTER FIVE: DISCUSSION

This research highlighted beliefs of Native parents about childhood immunizations and factors that influence uptake. The discussion of these findings is presented in two sections. In the first section, research results are discussed and findings are related to the literature and to the Health Belief Model (HBM). In the second section, implications for nursing practice, education, and research are presented along with recommendations for improving immunization uptake in First Nations' communities. This chapter begins with a brief discussion of some of the methodological issues and concludes with a summary of the research study.

### Methodological Issues

Twenty-eight mothers were interviewed for this research study, however only 20 interviews were used for the qualitative analysis. Eight of the interviews yielded so little "usable" data that they were omitted from the qualitative analysis. In the eight unusable interviews, the responses of the participants' were almost always brief, consisting primarily of one or two word answers. Common responses to questions were "yes" "no" "I don't know" or "I hadn't thought about that." This suggests that the research topic was not something these mothers had considered extensively, or that a different methodology was required to elicit their thoughts and opinions on childhood immunizations.

In Community B, all of the mothers interviewed were known to me from my past experience as a Community Health Nurse in that community. I think that

this both enhanced and detracted from the research to a certain extent. Because most mothers knew me, it was easier to recruit participants, as mothers were more willing to talk to someone they knew. Although participants were assured of confidentiality and encouraged to speak openly and honestly, I do accept that some may have been less forthcoming with more negative opinions because of their familiarity with me as a health professional. In Community A participants were made aware that I was a Community Health Nurse in the Sioux Lookout Zone, however, most were less willing to be interviewed. I was told by one participant that "women in this community don't want to talk to strangers about things." Over the past several years, residents of Community A have been subjected to extensive media scrutiny and numerous research studies. This has undoubtedly impacted upon the residents' willingness to participate in research. Therefore, I was appreciative of the 11 women who did agree to participate in the study.

Throughout the data collection, mothers generally attributed negative health beliefs about immunizations to "other people in the community" and most denied holding such beliefs themselves. Therefore, in Chapters Four and Five, there are many references to others' beliefs identified by study participants. Third party information is limiting in that it does not come directly from the source, however, it arises from key informants who are members of a community where these beliefs are prevalent. As well, people holding negative perceptions are difficult to reach and are often unwilling to participate in research studies.

Because I was known to some mothers, projecting their beliefs onto others may have been a way for them to express their beliefs without acknowledging to me how they actually felt about immunizations. Participants who agreed to be in the study and were willing to discuss concerns about immunizations were also likely to have a greater perception of vaccine importance than those who did not want to participate.

Interviews were conducted in two separate First Nations communities and it was anticipated that there would be many differences in the data between the two communities. Conversely, data analysis revealed that both communities were similar in their beliefs about immunizations and the influences on these beliefs. While the general makeup of both communities is different (e.g., demographics and religious influences) study samples were homogenous and this likely contributed to some similarity in the data. The correspondence in the data also suggests that mothers of young children in disparate communities hold comparable beliefs and perceptions toward childhood immunizations. This enhances transferability of the findings to other First Nations communities in the Sioux Lookout Zone and elsewhere.

#### Health Belief Model

The HBM was used to guide this research study and hence, will also be used to guide this discussion. The HBM postulates that if a person perceives himself or herself as susceptible to a disease and perceives the consequences of that disease to be serious, and if the benefits of completing the health



promotive behaviour outweigh the barriers, the person is motivated to complete the health promotive behaviour. Health beliefs are also modified by cues to action and sociodemographic factors. Health promoting behaviours do not always occur unless certain cues are present and can be modified by factors such as demographic variables (Rosenstock, 1990).

### Benefits

Most mothers reported a belief that immunizations were important for their children, although they did stress that they knew of many others in their community who did not agree. While several studies of immunization uptake have found positive correlations between perceived importance and benefits of immunizations and uptake rates (Kvis et al., 1985; Lewis et al., 1988), Rosenblum et al. (1981) established that professed health beliefs and actual compliance with childhood immunizations were not positively correlated. In this study I did not directly correlate children's immunization records with mothers' perceptions of vaccine importance. However, immunization rates for both communities reflected low levels of uptake. Whether this is due to low perceptions of vaccine benefits in the communities or an inconsistency between health beliefs and behaviours is uncertain.

Although mothers stated that they perceived immunizations as important, the word immunizations evoked negative reactions from most. Similarly, Keane et al. (1993) found that negative words such as "crying" "screaming" "pain" and "fever" were the immediate responses of participants in focus group discussions.

On a cognitive level, mothers may be aware of the importance of immunizations, but there are often strong negative emotions associated with the procedure of vaccination. Therefore, when a child is due for immunization, these negative thoughts are likely forefront in mother's minds.

When questioned directly about the benefits of immunization, disease prevention was the usual response from participants. However, in response to more general questions about strategies to keep their children healthy, few participants mentioned childhood immunizations. Keane et al. (1993) reported a similar finding from focus group discussions with 40 parents. When parents were asked what they did to keep their child healthy, most gave similar responses of maintaining a proper diet and dress, adequate sleep, and good hygiene. Only one of the 40 parents mentioned immunizations. Immunizations are episodic and are only required periodically, whereas other strategies mentioned by the parents, such as nutrition and hygiene, must be attended to daily. Thus, it is reasonable to suggest that tasks they have to do for their children daily are more on their minds than those that only have to be done every few months.

The word "prevention" was used frequently by mothers to describe the benefits of immunization and many did believe that their children were totally protected from childhood diseases by immunizations. White and Thomson (1995) found that the use of such descriptors by health-care providers can sometimes mislead parents and give them false security about the true

protection offered by immunizations. Hence, when diseases occur in vaccinated children, it diminishes parents' trust and faith in immunizations. Similarly, some mothers in this study who knew of or who had children who were vaccinated and still caught diseases expressed doubts about the effectiveness of vaccines.

White and Thomson suggest that terms such as protection may be more prudent since few vaccines can totally prevent someone from catching a disease.

Statements made by mothers that children still develop chicken pox and coughs and colds despite being immunized were consistent with findings by Keane et al. (1993) who identified misconceptions about which diseases immunizations actually work against. As well, some mothers whose children did not catch frequent coughs and colds, and who were fully immunized, believed that it was the immunizations that protected the children from the coughs and colds. Therefore, they sometimes advised other mothers to immunize because of this fact. Consequently, a few mothers revealed that they were convinced by others to immunize their children because they were told that immunizations prevented illnesses such as coughs and colds. In these situations, when children subsequently contract minor illnesses, mothers often attribute the illnesses to the ineffectiveness of vaccines. Nurses may also contribute to these misconceptions by not being specific with parents about the protection offered by immunizations. Since the most frequent illnesses that children encounter are coughs and colds, simply advising mothers that immunizations protect children

from "illness" or "disease" can lead to the misunderstanding that immunizations help prevent coughs and colds.

### Susceptibility and Severity

Mothers in this study had limited knowledge of how vaccines worked and how they protected children. Other studies have also established that parents' knowledge of immunizations and childhood diseases is low (Dalphinis, 1986; Roden, 1992; White & Thomson, 1995). In this study, when mothers were asked about their knowledge of childhood diseases, the diseases named most frequently were also the diseases that children received the most immunizations for (e.g., meningitis, whooping cough, polio, and diphtheria). Thus, this likely reflects a familiarity with these terms from frequent immunizations rather than true knowledge or experience with diseases. Comparatively, diseases for which children receive a one-time immunization, (e.g., measles, mumps, and rubella) were mentioned less frequently. While it is generally accepted that knowledge does not necessarily translate into behaviour, knowledge does have an impact upon perceptions of disease severity and susceptibility. If mothers have little knowledge of the diseases and their consequences, they are unlikely to fear them and more likely to feel that their children are less susceptible. Hence, low knowledge levels perpetuate misconceptions and contribute to negative perceptions of immunizations.

Mothers in this study perceived childhood diseases as serious, but few could name any consequences of contracting the diseases other than death. Although mothers were aware of older adults who had contracted diseases in childhood, few mothers had any recent exposure to childhood diseases, other than pertussis. Mothers also had mixed perceptions of their children's susceptibility to childhood diseases. Prevention of disease was cited as a motivating factor by participants, however, most did not understand what immunizations were actually preventing. In fact, Rosenblum et al. (1981) discovered that perceived susceptibility did not correlate with vaccine uptake. They suggest that with the continued decrease in the actual cases of childhood communicable diseases, the concept of perceived susceptibility needs to be reexamined as it is difficult for someone to fear something that is not known to them. Since mothers in this study had little understanding or awareness of the consequences of childhood diseases and their children's susceptibility to them, it is unlikely that these factors are strong motivators for them to seek immunizations for their children.

### Barriers

Most children experience minor side-effects such as fever and irritability after immunization. Studies examining the impact of side-effects on vaccine uptake concluded that they present a major barrier to parents. Bennett and Smith (1991) reported that more than 50% of parents who delayed their children's immunizations were concerned about distress during and after

vaccination. Although several mothers stated that their children's hysteria and fear of needles did prevent them from taking certain children to the clinic for vaccinations, most mothers in this study stated that side-effects did not dissuade them from having their children immunized. However, many mothers reported that they knew of other mothers who were reluctant to immunize their children because of vaccine side-effects. Overall, mothers found the side-effects of immunization unpleasant and the experience anxiety provoking.

Study participants from Community A reported that side-effects from immunizations contributed to the belief that immunizations caused illness. Fever, irritability, and local reactions after immunization were perceived by some parents as an "illness" rather than self-limiting consequences of vaccination. While the belief that immunizations caused illness, rather than prevented it, was only identified in one other study reviewed by this researcher, it was a major factor in the under vaccination of children. Salsberry, Nickel, and Mitch (1994b) found that children of parents who believed that vaccinations induced illness were 8.4 times more likely to be inadequately immunized as compared to children of parents not expressing this belief. This belief is of significance in First Nations communities where the incidence of childhood illness and the morbidity associated with it are higher. If immunizations are perceived as causing illness as opposed to preventing it, this one factor could be a major contributor to low immunization rates in First Nations communities. Parents of children who are frequently ill are unlikely to welcome an intervention that they

feel also induces illness. As well, on those occasions when their children are well, parents may be hesitant to agree to immunizations if they perceive that the immunization will make their children ill again.

Adverse reactions to vaccinations were also mentioned by mothers as a factor contributing to avoidance of immunization. Several parents reported personal experiences with adverse reactions, while some mothers developed their perceptions vicariously through others' experiences and through the media. New and Senior (1991) found that mothers of incompletely immunized children were overly concerned with adverse reactions to vaccines and would feel responsible if their child experienced sequelae as a consequence of vaccination. In contrast, they also found that mothers of completely immunized children had more experience with childhood diseases and were more concerned with their child experiencing sequelae as a consequence of *not* having a vaccination.

Many incidents that occur following vaccination are not caused by the immunization and are coincidental events that would have occurred anyway. However, immunization is frequently blamed because it provides an easy answer to the question of why a previously healthy child succumbs to some unusual illness (White & Thomson, 1995). These incidents can have a powerful impact on people's perceptions of potential consequences of vaccination especially in small communities where stories spread rapidly and most families are closely connected. Mothers in this study had limited first-hand experience with the vaccine-preventable childhood diseases and several reported vicarious

experiences with vaccine reactions. Therefore, it is not surprising that adverse reactions have a negative impact on perceptions of immunizations. In general, many parents forget that the benefits of immunization by far outweigh the risks and consequences and that it is because of immunization that their experience with these diseases is limited.

Mothers also spoke of becoming more neglectful of their children's immunizations after their first child. This was usually attributed to a decreased anxiety over childrearing and having less free time. Several mentioned having other children as a barrier to accessing immunization services. Data from the immunization records corroborates this as children from families with four or more children had almost twice as many delayed immunizations as children from families with less than four children. Other studies have confirmed that children from large families are more likely to be incompletely immunized than children from smaller families (Abbotts & Osborn, 1993; Bobo et al., 1993; & Dalphinis, 1986; New & Senior, 1991; Peckham, Bedford, Senturia & Ades, 1989; Salsberry et al., 1994b). Bobo et al. (1993) discovered that children who were not firstborn were less likely to be up to date for all immunizations, Abbotts and Osborn (1993) found that rates of on-time immunization fell as family size increased, and Dalphinis (1986) reported that 77% of immunization defaulters had more than three children in the family.



Mothers also spoke of unpleasant experiences with health-care professionals as something that negatively influenced their health-seeking behaviours and many emphasized the importance of having nurses who are sympathetic and who listen to them. Bennett and Smith (1992) reported that almost one-fifth of the parents who delayed their children's immunizations cited unsympathetic treatment by clinic staff as a factor. In small First Nations communities, this factor is of greater importance than in urban areas. Communities have only one health-care facility with a limited number of health professionals. If a parent has a negative interaction with a health professional, there are no other facilities from which to obtain services. As a few mothers indicated in this study, this can cause parents to avoid going to the facility all together.

Other demands on mothers time and clinic barriers were also mentioned as negatively influencing immunization behaviours. Mothers cited family responsibilities and other children as factors that made it difficult to access immunization services. Others found that lack of transportation and long waiting times were annoying factors. Mothers interviewed by Salsberry et al. (1993, 1994a) also reported long waiting times, inconvenient clinic hours, lack of transportation, and lack of child care, as barriers to immunization services. However, the impact of these variables on immunization uptake was not measured.

### Cues to Action

Mothers identified that negative attitudes toward immunizations were held by community members, most notably elders. Participants denied that they shared these beliefs or that their immunization behaviours were influenced by them. However, so many mothers reported being advised against immunizations by their mothers or grandmothers, that it is unlikely that these attitudes did not influence mothers' beliefs and behaviours to some extent. Mothers also reported receiving pro-immunization advice from health professionals and while most appreciated this advice, it appeared that in some cases it had limited influence on parents. McIntosh (1992) reported that mothers preferred lay advice to professional advice and Carter and Jones (1985) found that mothers were often uninfluenced by professional advice. Reid (1987) observed that lay advice was more negative than positive.

The identification of the anti-immunization beliefs held by elders in both communities was interesting and in contrast to what was expected considering their probable experience with childhood communicable diseases. Historical literature suggests that elders would have been exposed to outbreaks of communicable disease and would have also witnessed the reduction of communicable diseases by mass immunization campaigns (Young, 1988). Despite this, mothers in both communities reported that elders were not supportive of immunizations. Participants hypothesized as to why elders felt this way. Although this information must be interpreted with caution, as it was not

obtained directly from the elders, it does offer some explanation for their beliefs. It is likely that even though most elders were exposed to communicable diseases and immunizations, they were often unsure of what was being "done" to them, and possibly never connected immunizations to communicable disease control. As well, exposures to the health care system were sporadic and immunizations were often given without proper explanations. This has resulted in a general mistrust of the health-care system and little understanding of the contributions that vaccinations have made to improving the health of Native people.

#### Missed Opportunities

Participants were informed by nurses that they would never immunize an ill child. Aware of this, most mothers would not bring their children to be immunized during an illness. These situations represent potential missed opportunities to immunize children. In many of these instances, where nurses do not immunize because of illness, or where parents choose not to take children for immunization due to illness, children could be vaccinated safely. Although this study did not examine specific incidences of missed opportunities, researchers have frequently substantiated that health professionals' beliefs about contraindications to vaccination are inaccurate or invalid. Studies have shown that the majority of immunizations delayed due to illness lack true contraindications to vaccination and contribute to the under immunization of children (Gindler et al., 1993; Klein et al., 1989). Although illnesses do sometimes pose a valid contraindication to immunization, researchers have

documented that only 1 to 4% of children who present for immunizations possess legitimate contraindication to vaccination (McConnochie & Roghmann, 1992; Nicoll & Jenkinson, 1988; Peckham et al., 1989). It is not valid to comment on the frequency of missed opportunities from the results of this study, however, the data suggest that they do occur.

Some researchers have suggested that a contributing factor to health professionals' misconceptions about the true contraindications to immunization is the lack of guidelines that specifically outline what are, and what are not, contraindications. The NACI (1993) states that minor illnesses, with or without fever, are not contraindications to vaccination; while moderate to severe illnesses, with or without fever, are a reason to defer immunization. Many health professionals define mild and moderate illnesses differently, so what constitutes a contraindication to one may not to another. Hughart et al. (1994) recommend that consistent recommendations that define, and give examples of, the most common "mild" and "moderate" illnesses be developed and clearly articulated to practitioners.

It was evident from the data that professionals' refusal to vaccinate children during illness has had a negative impact on parents' behaviours. Not only would mothers avoid bringing their children for vaccination during illness, most stated that they would refuse to have their child immunized during an illness. Abbotts and Osborn (1993), Loevinsohn (1989), and New and Senior (1991) found similar results in that half of parents who delayed immunizations,

did so because of minor illnesses that did not pose contraindications to vaccination. It is important to note that mothers are learning these immunization avoidance behaviours from nurses and other health professionals. Learning is taking place, however, the behaviours learned are not promoting immunization uptake.

Although most illnesses do not pose contraindications to vaccination, many mothers stated that the extra burden of vaccine side-effects added to an illness, however minor, would only make the child worse. They felt that the side-effects of the vaccines combined with the illness was too much for the child, especially when the child was febrile, and preferred to wait until the child was well for immunization. Fever is not a direct contraindication to immunization. However, health professionals are reluctant to immunize a child who is febrile and few mothers were willing to permit a febrile child be immunized. Buchanan and Spencer (1983) cite medical folklore that dictates "thou shalt not vaccinate a child with a fever, a snotty nose, or one who is in any way unwell" as a source of this misconception. Ideally, most health professionals would prefer to immunize completely well children and most parents would like their children to be well when they are vaccinated. Immunizations are just as effective in sick children as in healthy ones and there appears to be no increase in side-effects in sick children. (Hutchins, Jansen, Robertson, Evans, & Kim-Farley, 1993). Given the high incidence of childhood illnesses such as upper respiratory tract infections and otitis media in Native children, if higher levels of immunization coverage are

to be obtained, immunizing only when children are completely well is not an option in most First Nations communities.

Failure to administer vaccinations simultaneously is another contributing factor to missed opportunities. Reviews of immunization records in this study revealed many instances where vaccines could have been administered simultaneously, but were not. Dietz et al. (1994) found that 67% of all school-children surveyed had missed at least one opportunity to receive simultaneous vaccination. They estimated that the elimination of this one missed opportunity could increase age-appropriate immunization levels by 12 to 22%.

#### Health and Life Priorities

Questions related to participants life circumstances revealed that although participants were concerned with larger community problems, most were focused on concerns more specific to their lives. Children's health problems appeared to be the main concern. However, I sensed that participants were reluctant to discuss other, perhaps more personal, concerns that they were having that might have impinged on immunization uptake. Although I informed the participants that I wanted to discuss general concerns about their family and community, their responses focused primarily on their children. Perhaps mothers likely felt that since this was a research study about childhood immunization, they should focus on concerns related to their children. Therefore, I was unable to determine the impact of other priorities on immunization uptake. However, a recent health needs assessment conducted in

the Sioux Lookout Zone revealed that problems of infectious diseases and social pathologies, such as mental health, were both ranked as serious by the two study communities (Sioux Lookout Zone First Nations Health Authority, 1995).

To further examine the impact of other priorities on immunization uptake participants were also asked to try and rate the importance of immunizations in comparison to other health-related activities that were important to them.

However, despite rephrasing this question and repeated probing, mothers did not identify other health or illness-related events or life circumstances that might compete with the relative importance of immunizations.

### Summary

In this study, probing areas of perceived susceptibility and seriousness yielded brief and sometimes conflicting data. There were vague perceptions of children being susceptible to serious diseases. However, knowledge of disease transmission and consequences of disease was limited, supporting the contention of Rosenblum et al. (1981) that the concepts of susceptibility and severity may need to be reevaluated when examining immunization uptake. Similarly, questions concerning the perceived benefits of immunization revealed that the impact of the perception of benefits on immunization uptake was not clear. Mothers from the study reported a perceived benefit of immunizations, however, misconceptions about the "true" benefits of immunizations were confusing to some parents. Barriers to immunization services were mentioned more frequently by parents as factors that impede immunization uptake. Side

effects, adverse reactions, negative interactions with health professionals, and personal and clinic barriers were all factors contributing to immunization delay in this study.

Cues to action, most notably advice from family members and elders beliefs toward immunizations, were identified by mothers as strongly influencing perceptions toward immunizations. Because of the small sample size and the homogeneous nature of the sample, modifying factors such as demographic variables could not be compared in this study. In examining the impact of all the components of the HBM on childhood immunization uptake, women in this study were able to articulate more clearly the effect of perceived barriers and cues to action than the other dimensions of the HBM.

One factor that is not directly covered under the HBM is missed opportunities. Missed opportunities could be considered a barrier to immunization uptake, however, so much data exists on this subject that it is usually examined as a separate phenomenon. Data from this study indicate that missed opportunities could be a critical factor in low immunization rates in First Nations communities.

### Conceptual Framework

The HBM served two purposes in this research study. First, since most other studies analysing immunization uptake also used the HBM, it served as a guide to analyse and critique the relevant literature. Secondly, it provided the basis for a conceptual model that directed the study and interview questions.



Although the HBM was a useful tool in this research, it was not the purpose of this study to test the HBM or any of its components. However, where appropriate, conceptual comparisons of the HBM have been made between data in this study and data from other studies.

The HBM has been criticized for being simplistic in suggesting that all preventive health behaviours are determined by factors included in the framework. The underlying assumption of the HBM is that health is a valued and important component of people's lives. The proposition built on this assumption is that if people perceive their health, or the health of their children, to be threatened, and the benefits of acting to reduce or eliminate that threat outweigh the barriers to taking the action, the person will attempt to prevent disease or restore health. While most participants in this study were concerned about their family's health, nurses often work with groups who do not hold health as a high priority in their lives. It is ideological to suggest that the components of the HBM work as simply and methodically as it is often suggested in the literature.

One major limitation on the usefulness of the HBM is its failure to incorporate cultural considerations into the theory. Many researchers have examined ethnicity in relation to health beliefs, but most have merely classified it as another modifying factor, such as age and socioeconomic status. The conceptual model for this study proposed that health beliefs are culturally determined. Culture has a major impact on health beliefs and preventive health behaviours and consequently, health beliefs must be examined within the whole

cultural context to correctly determine how the beliefs are defined by that culture. Results from this study suggest that health beliefs toward childhood immunizations are at least partially determined by factors inherent to the participant's culture (e.g., the influence of historical antecedents on current beliefs toward childhood immunizations). Therefore, further research that examines health beliefs and health behaviours of First Nations people is necessary to increase the usefulness of the theory and to determine any modifications that may be necessary.

#### Reflexion and Reflexivity

In reflecting on the research process, I believe that the methodology and research design that I selected were appropriate for this population. However, the fact that I had eight interviews that yielded little data leads me to conclude that a different design may have been better suited for those participants. Other options, such as questionnaires or a selection of forced choice items may have elicited more useful data.

Recruiting participants was difficult in one of the study communities and likely would have been in the other community if I had not been known to many of the mothers. Therefore, in the future I might consider interviewing in several more communities to increase the sample size and the number of potential participants. Travel in the north is expensive however, and this is a critical factor to consider when conducting research in isolated communities.

While I was in both communities conducting my data collection, I was informed that some mothers I wished to interview were out of town and most would not be back for days or weeks. Since I was in each community for limited time periods, these interviews were lost to me. I was not in a position to wait several weeks to interview these mothers, nor could I return to the community to interview them at a later date. In an urban setting this would not have been problematic as participants could have been interviewed when they returned home.

This research provided me with the opportunity to return to a community where I had spent a great deal of time as a community health nurse. It was an opportunity for me to reestablish contact with clients that I once knew so well and it was nice to see children that I had known as infants, now grown. Throughout this research project I have frequently reflected on my own practice as a community health nurse. Each step of this thesis, from the literature review to the data analysis, has been a learning process. I feel that I have learned as much about my practice as I have about the research process. In researching the many factors that influence immunization uptake, I found that I was often guilty of many of the factors that cause unnecessary delays in childhood immunizations. Consequently, this research will profoundly influence my future practice as a community health nurse.

## Implications and Recommendations

### Nursing Practice

1. This study demonstrated that mothers' knowledge of childhood diseases and immunizations is limited. This is not to say that nurses in these communities have not been providing adequate patient education. Nurses often assume, however, that if a client has been through an experience before, they are aware of what is happening. Although most mothers in this study had more than one child, many were not aware of some of the basic facts related to immunization. Therefore, it is important that teaching about the purpose and consequences of vaccination is conducted at every immunization visit, regardless of how many children the parent has. Clients should be provided opportunities to ask questions and nurses should talk with parents to dispel any misconceptions that parent's may have regarding immunizations.

In light of some of the knowledge deficits and misconceptions highlighted in this study, parents need to be informed about the true impact of immunizations and the actual diseases that they protect children from. It is important that parents know that immunizations do not protect children from coughs, colds, and other minor illnesses. It would be helpful to communicate to parents that vaccines do not always prevent a disease and that children can sometimes contract a disease they are vaccinated against. Salsberry et al. (1994b) recommend that fears about the effects of immunizations be addressed and that parents be educated about disease risk relative to

possible adverse reactions. Parents would be aided through advisement of aftercare to minimize side-effects so that this is not a barrier to future immunization. If fever and other post-immunization discomforts can be minimized, parents may be more receptive to further vaccinations.

2. Mothers in this study mentioned printed materials such as pamphlets, magazines, and books, as important sources of information on immunizations and other health-related topics. Therefore, while it is important to do teaching with clients during visits, it is also essential to provide them with relevant, culturally appropriate, printed materials that reinforces what was taught and answers common questions.
3. To help eliminate missed opportunities, nurses must ensure that they are aware of the valid contraindications to vaccination and try to maximize opportunities to immunize children. It is also important to educate parents about true contraindications and to emphasize the importance of immunizing children, even when they are mildly ill. Providers need to remember that withholding vaccines is often of greater risk to the child and the consequences of children being under-vaccinated are much worse than the small risk associated with vaccinating mildly ill children. Peckham et al. (1989) suggest that health-care providers should change their philosophy and become more concerned about the effects of depriving children of immunizations.

If valid contraindications do exist or if parents still refuse to vaccinate, follow-up appointments should be scheduled for a few days later when the child will likely be well. Parents should be given specific appointment times and the importance of returning for follow-up should be stressed. While it is important to try and educate parents about the importance of immunization even when children are ill, it is important to respect parents' wishes in this area. Pressuring parents to consent to immunize an ill child will only increase the negative perceptions if side-effects occur.

4. Nurses must be aware of children who are under-immunized and make concerted efforts to bring these children up to date. Often only one visit is required to bring most deficient children up to date on their immunizations (Marks et al., 1979). Charts of children who are behind on immunizations could be flagged so all health-care professionals are aware and can make a concerted effort to immunize. Data from this study indicate that children from large families and those with frequent illnesses are less likely to receive immunizations at the appropriate time. Therefore, it is important to be aware of those children who are at risk of not receiving their immunizations and to make an extra effort to ensure that barriers to immunization services are minimized.
5. Well-child visits are an opportunity for health-professionals to interact with parents and to provide support and feedback regarding childrearing. It is important for nurses to show genuine interest in how the child and family are

doing and to create a positive atmosphere. The focus of the visit should be the child and not merely the needle.

### Nursing Education

1. Education of health professionals involved with immunization delivery programs must be a priority if opportunities to immunize are to be maximized. Although education may focus on all aspects of immunization delivery, emphasis on dispelling the myths about vaccine contraindications and highlighting true contraindications to immunization is a priority. Health professionals must also be made aware of the impact that provider behaviours can have on immunization uptake rates and the beliefs and behaviours of parents.
2. Immunization certification programs are one strategy that can help to improve provider practices and reduce missed opportunities for immunization. It is recommended that agencies responsible for immunization delivery implement a program that provides certification to all health professionals who administer vaccinations. However, certification programs must go beyond the basic protocols required for immunization delivery and should be relevant to the needs of practitioners in First Nations communities. Emphasis on the necessity of eliminating barriers to immunization services and particular focus on strategies that maximize opportunities to vaccinate is required.

### Future Research

1. Elders' beliefs toward immunizations in First Nations communities were identified by many participants as a key factor that influenced community members' perceptions of immunizations. However, this data has not been corroborated by elders themselves. Further research is required to explore these beliefs and other perceptions toward immunizations and the impact these may have on immunization uptake. It may also be beneficial to further explore the influences of other family members, particularly husbands, on immunization uptake.
2. This research study was a small endeavour to examine a complex issue. Further research with larger samples and using other methodologies is required to further understand the problem. As well, this research was conducted in only two communities in the Sioux Lookout Zone. Replication of this research in other communities would be helpful to determine if these findings are relevant for other communities.
3. While the data from this study did not quantify the impact of missed opportunities on low immunization rates, it did strongly suggest that missed opportunities were a problem in these communities. Further research is required to document the impact of missed opportunities on immunization rates in the Sioux Lookout Zone.



4. This study examined immunization uptake from the perspective of mothers.

To have a more complete understanding of all the issues involved in immunization delivery, research with health professionals is also required. This will provide further insight into the factors that they believe influence immunization uptake and provide a more comprehensive overview of the problem.

5. The HBM was only partially beneficial in understanding immunization uptake in First Nations communities. The applicability of the HBM to First Nations people needs to be further explored. Also since immunization uptake is a complex phenomenon, further research using both qualitative and quantitative methodologies may be more beneficial to understand factors that affect uptake.

#### Recommendations to Improve Immunization Rates

Improving immunization rates in First Nations communities will require some changes and initiatives from health care administrators and from the communities themselves. Fortunately, most changes are minor and do not require increased funding of public health programs.

1. **Every visit a child makes to a health-care facility should be viewed as an opportunity to immunize.** The World Health Organization's Expanded Program on Immunization (EPI) has recommended that all contacts with children be viewed as opportunities to immunize (Hutchins et al., 1993). Although the EPI is primarily aimed at developing countries, this strategy

could be effective in the Sioux Lookout Zone. First Nations communities have an advantage in providing immunization services. Children primarily receive all health-care services from one facility, usually the community nursing station. Immunization records are readily available and immunization defaulters can be easily identified. However, immunizations are primarily delivered only during well-child clinics. While these clinics are beneficial, it should be a matter of policy that the immunization status of every child is reviewed at every visit, regardless of the reason for the visit. If no valid contraindications exist, the child should be given all immunizations for which they are due.

2. **Multiple vaccination should be the rule and not the exception.** Health-care providers may be reluctant to administer more than one vaccine simultaneously. cursory reviews of the immunization records of children whose parents participated in this study revealed numerous cases where immunizations could have been given simultaneously, but were not. Since deficient children can often be brought up to date in one visit if multiple vaccines are administered, it should also be a policy that all vaccines for which a child is eligible are administered at that visit.
3. **Improve printed materials and educational resources available to health professionals involved in immunization delivery.** It is unrealistic to expect field nurses to provide quality patient education to parents about immunizations without some basic educational aids. Current educational

materials on immunizations primarily consist of Ontario Ministry of Health information leaflets on specific vaccines. Culturally appropriate pamphlets and leaflets that explain more about immunizations than what each vaccine is for, are necessary. Parents need to be made aware of the rationale behind vaccination and of some of the myths that have been perpetuated over time. It may also be beneficial to highlight the history of communicable diseases in First Nations communities and the contributions that immunizations have made to reducing death and decimation. Brief pre-taped audio programs translated into the local dialect and played on community radio stations would also be beneficial to improve community awareness and knowledge about immunizations.

4. **Establish an immunization committee to examine strategies to improve immunization uptake.** While this study highlighted several factors that may prohibit immunization uptake, research in isolation will not improve immunization rates. An immunization committee can further investigate the problem of immunization uptake, set targets for immunization rates, and devise strategies to meet those targets that are congruent with community values and beliefs. With the current Health Information System (HIS) that is in place in the Sioux Lookout Zone, the committee can examine monthly and quarterly reports that can facilitate analysis of goal accomplishment and reevaluation of immunization priorities. It is also crucial that monthly or quarterly reports are sent to field nurses so that they can be aware of their

progress and areas that need attention. Lochhead (1991) stresses that health-care professionals require up-to-date information on the immunization status of their clients to make more efficient use of their time and so they can better target individuals who require further attention.

A further goal of the committee could be to establish criteria that clearly articulate what are considered minor and moderate illnesses. This would result in less confusion among health professionals about exactly what conditions are contraindications to vaccination. Hughart et al. (1994) suggest that simplified and consistent recommendations about valid contraindications defined more quantitatively should be established and communicated clearly to practitioners.

5. **Examination of Alternative Delivery Methods.** Issues such as clinic hours, lack of babysitting, and transportation were identified by some mothers as factors that prohibited immunization uptake. Therefore, the examination of the feasibility of some alternative delivery methods, such as evening immunization clinics and home immunization, is warranted. Small pilot projects could be conducted in some communities to determine mothers' receptiveness to such initiatives. Evening clinics and home immunization could be advertised and conducted monthly to allow those who are unable to attend regular clinics to obtain immunizations for their children. Certainly staffing levels are also a factor to consider before these changes can be implemented. The fear of anaphylactic reactions is often an argument raised

against home immunization. However, anaphylactic reactions to vaccinations are so rare that it is estimated that a nurse administering 100 immunizations per week would encounter an anaphylactic reaction once every 18 years. (Jefferson, Sleight, & MacFarlane, 1987). The possibility of anaphylactic reactions in the home can be addressed with a few simple measures, such as portable resuscitation kits and a vehicle readily available for immediate transportation to the health facility.

6. **Communities must make an effort to speak with elders and examine their perceptions of immunizations.** Elders were frequently identified as a source of negative advice regarding immunizations. Communities might consider investigating the impact of elders' beliefs on immunizations in their community. Elders who do support immunizations can be recruited to promote immunizations to younger mothers and to speak to other elders about their perceptions of immunizations.

7. **Examine strategies to "market" or promote immunizations.**

Governments and health consultants have developed clever and culturally appropriate campaigns that address such health threats as AIDS and smoking in First Nations communities. Similar initiatives can be used to promote immunizations among First Nations people.

### Mother's Recommendations

At the end of each interview, mothers were asked if they had any suggestions to improve immunization services and uptake in their community. Mothers' suggestions included radio programs, more pamphlets, mothers' meetings, and home immunization.

1. **Radio Programs.** Most mothers felt that since many community members listen to the radio, this would be a good forum for disseminating information. Some mothers mentioned that this would be especially effective with elders as most did not read and write English and radio programs could be translated into the local dialect.
2. **Pamphlets.** Most mothers suggested improving and increasing the available pamphlets on many child-care topics including immunization. Others suggested that a selection of pamphlets be placed at other sites where people gather, such as the band office and the Laundromat.
3. **Mothers Classes.** Several mothers felt that get togethers with other mothers, especially younger ones, to talk about child-care topics would be helpful to provide information and answer questions that mothers have.
4. **Home Immunization.** Several mothers who had problems getting to the nursing station suggested that giving immunizations in the home would make it easier for them to get their children immunized. Another mother whose child screamed constantly in the nursing station felt that home immunization may be less traumatic for both her and the child.

### Conclusion

Low immunization coverage among young children in First Nations communities is a complex problem. The purpose of this study was to explore First Nations parents' beliefs about childhood immunizations and to examine factors influencing uptake. Study results highlighted the varied beliefs of parents about childhood immunizations and the numerous factors that both positively and negatively impacted on immunization uptake. While this research was a beginning initiative toward understanding a perplexing problem, it has emphasized some considerations that must be addressed if immunization rates are to be improved in First Nations communities. There are many implications for nursing practice and education and future research is required to further explore and understand the problem.

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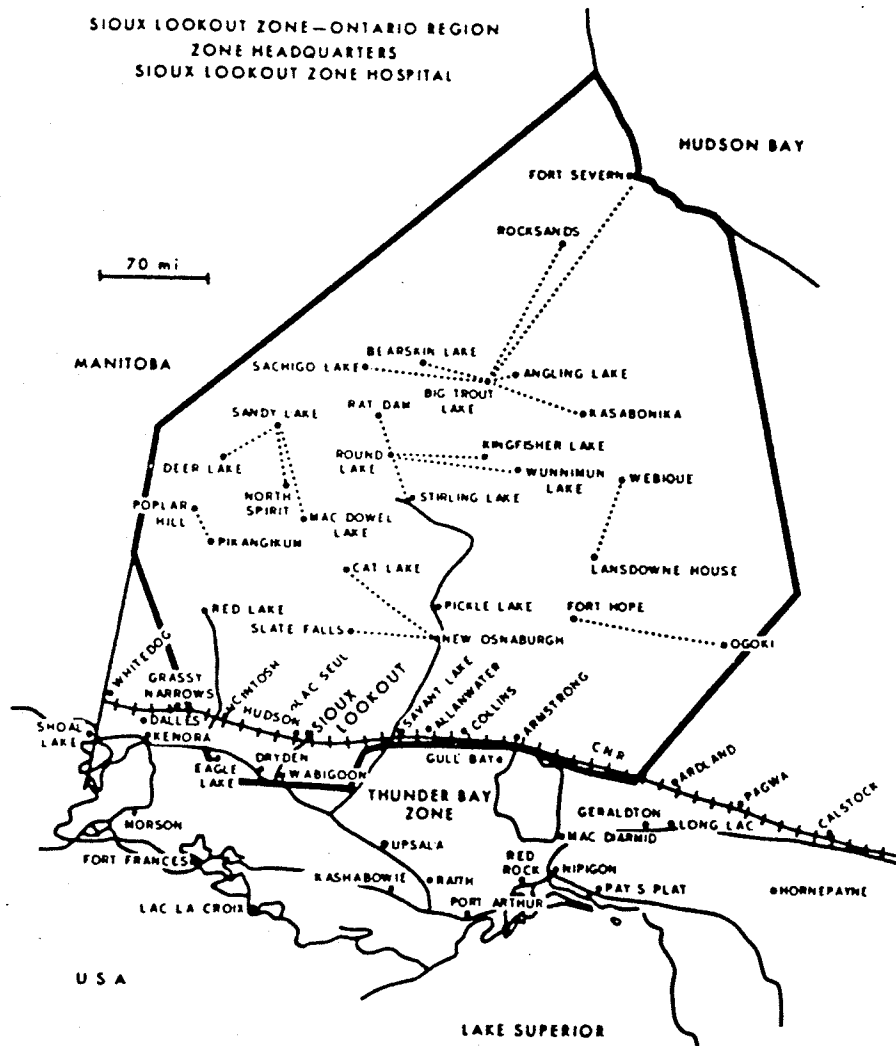
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## Appendix A

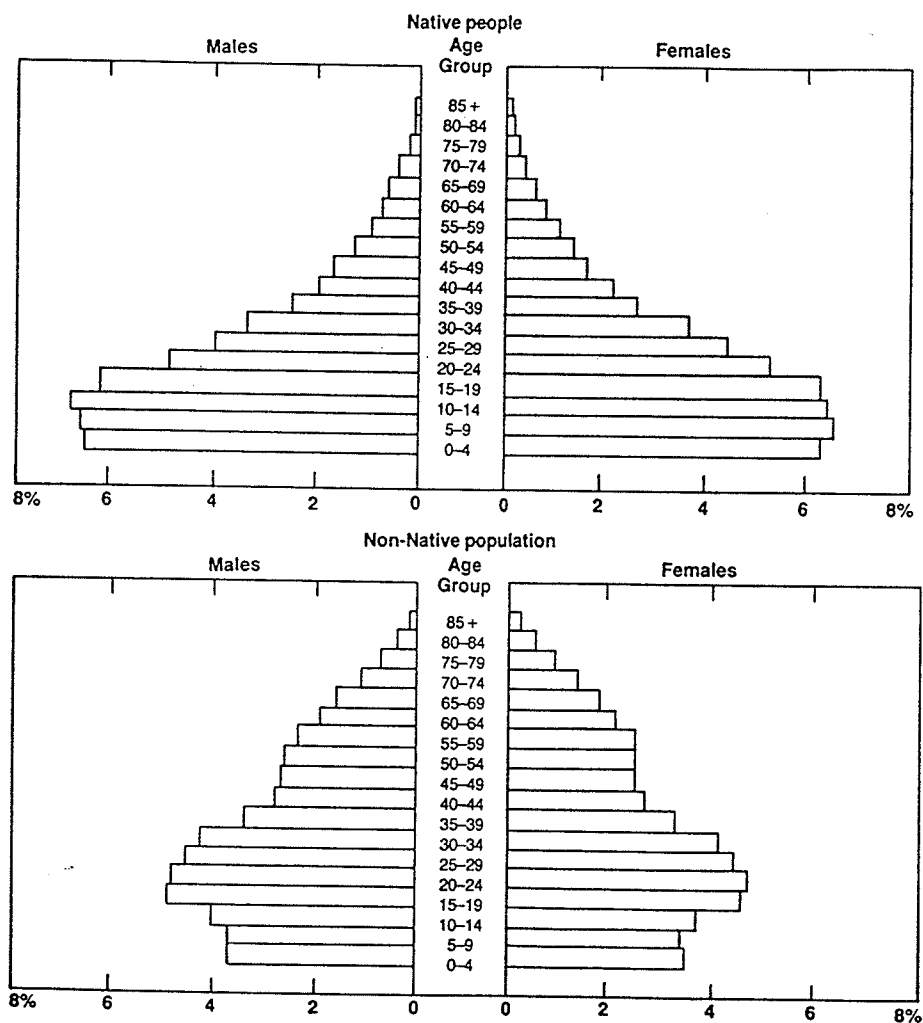
Map of Sioux Lookout Zone

(taken from Goldthorpe, 1975)

## Appendix B

Population Distributions

Age-sex Profile of Native People and of Non-Native Population, Canada, 1981



Source: 1981 Census of Canada

(taken from Postl &amp; Moffatt, 1988)

## Appendix C

### Invitation to Participate

You are being invited to take part in a study to discuss what First Nations parents think about childhood immunizations. The study will be conducted by Marie Tarrant, a student in the Masters of Nursing Program at the University of Manitoba in Winnipeg.

She would like to talk to you about your thoughts on childhood immunizations. The interview will take about one hour of your time. You are being invited to take part because you have a small child. It is up to you to decide if you want to take part in the study. If you do decide to participate you are still free to withdraw from the study at any time.

If you think you may be interested in participating or want to know more about the study, I will give your name to Marie. She will then contact you, explain the study, and answer any questions you may have. If you do not want to participate in the study I will not give her your name.

## Appendix D

### Explanation of Study for Participants

My name is Marie Tarrant. I am a student in the Masters of Nursing program at the University of Manitoba in Winnipeg. As part of my program, I am conducting a study to explore what First Nations parents think about childhood immunizations. Understanding parents' feelings about immunizations may assist nurses to provide better services to parents of young children who are undergoing immunizations.

You have been asked to take part in the study because you have a young child who has had, or is currently having, his or her immunizations. I would like to hear your thoughts and feelings about immunizations.

It is up to you to decide if you want to take part in the study. If you do decide to take part, I would like to talk with you and ask some questions for about one hour regarding your thoughts and beliefs about childhood immunizations. We could talk at the nursing station or another place of your choosing at a time that is best for you. Everything you tell me is private and your name will not be used at any time. Participation in this study is completely voluntary and if you decide not to take part in the study you are free to withdraw from the study at any time. If you decide not to take part in the study you will not be treated differently by any of the staff at the nursing station.



## Appendix E

## Consent Form for Study Participants

Childhood Immunizations: Understanding Uptake in First Nations  
Communities of Northwestern Ontario

You are invited to participate in a study of your thoughts and beliefs about childhood immunizations. The study will be conducted by Marie Tarrant, a Masters of Nursing student at the University of Manitoba. You have been asked to take part in the study because you have a young child who has had, or is currently having, his or her immunizations. Your participation in this study will help to increase understanding of Aboriginal parents' feelings about immunizations and may assist nurses to provide better services to parents of young children who are undergoing immunizations.

You are entirely free to participate or not to participate. If you agree to take part in the study, your participation will involve:

- The completion of a basic data form that includes some questions about you and your children.
- Permitting Marie Tarrant to examine the immunization records of your children that are kept at the nursing station.
- Being interviewed by Marie Tarrant once for about one hour at a time and place that is convenient to you. Interview questions will focus on your thoughts and beliefs about childhood immunizations. With your permission, the interviews will be tape-recorded. The tape recordings will be typed word for word after the interviews.

Confidentiality

- All information that you provide will be kept confidential. **Your name will not be identified in any way with any of the answers you give.** Your community will also not be identified.
- Only my study supervisor and myself will have access to the interview transcripts and tape recordings. A typist from Winnipeg will be hired to transcribe the interviews. This person will have access to only the tapes and your identity will be unknown to them.
- The tape recordings, the transcripts, and these consent forms will be kept locked and separate from each other. After a period of seven years, the tapes will be erased and the transcripts and consent forms will be destroyed.
- Specific information from the interviews will not be shared with the local community health nurses, community members, or other study participants.

Voluntary Participation

- Taking part in this study is completely voluntary and you may withdraw at any time without any harmful effects.
- You may refuse to answer any questions at any time during the interview.

## Appendix E (continued)

## Consent Form for Study Participants

- You may also refuse to complete any item on the basic data form.
- You may refuse to have the interview tape-recorded and you are free to turn off the recorder at any time during the interview.
- You are free to refuse the examination of your child's immunization records by Marie Tarrant.

Benefits and Risks

- There are no direct benefits to you for participating in this study. However, results of the study may prove helpful in improving health services in your community.
- There are no direct risks involved in participating in the study. You may experience some inconvenience in having to be interviewed for one hour.

Your signature on this form indicates that you have read the explanation of the study, you understand the general purpose of the study, have discussed any questions or concerns with Marie Tarrant, and are willing to participate in the study. You will be given a copy of this consent form to keep. Even after signing this form you are still free to withdraw from the study at any time. If you have any further questions or concerns about this study, you may contact my study supervisor, Dr. David Gregory, Faculty of Nursing, University of Manitoba, at \_\_\_\_\_. If you wish, arrangements can be made through the CHR so that there is no cost to you for this phone call.

Date: \_\_\_\_\_ Participant's Signature: \_\_\_\_\_

Date: \_\_\_\_\_ Researcher's Signature: \_\_\_\_\_

If you want to receive a summary of the study results, please write your name and permanent address below. A copy will be mailed to you when the study is completed.

Name: \_\_\_\_\_

Address: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

## Appendix F

## Interview Guide

1. At this time, what are some of the most important concerns (health and otherwise) that you and your family have?  
Probes: Things that are worrying you? Things that you have been thinking a lot about?
2. a) Can you tell me some things that you believe are important to keep a person healthy.  
b) Can you tell me some things that other people in this community (your family and friends) believe are important to keep a person healthy.  
c) What do you think makes a child healthy?  
Probes: Things you do to keep your children healthy? To prevent them from getting sick?
3. Where did you find out most of what you know about child care and child health problems?  
Probes: Advice from parents, family, friends, or health professionals?
4. When I say the word "immunization", what are some thoughts that come to your mind?
5. How important do you think immunizations are? Why or explain?  
Probes: Do they work? How do they work?
6. How do you think immunizations affect your child's health? In the short-term? In the long-term?  
Probes: Consequences of immunization? Consequences of non-immunization?
7. a) Tell me about some of the good things that you think your child gets from immunizations.  
b) Tell me about some of the bad things about immunizations.
8. a) Tell me about some of the diseases that you think immunizations prevent or can protect your child from.  
Probes: Seriousness of diseases? Knowledge of people who have had the diseases? Experiences with outbreaks of diseases?

## Appendix F (continued)

## Interview Guide

- b) How likely do you think it is that your child could possibly catch any or some of these diseases? Why or explain?
9. a) Where did you get information about childhood diseases and immunizations?  
b) Did you find it sufficient and helpful? Did it answer all of your questions?
10. How did you know when to take your child to the clinic for immunization?  
Probes: Knowledge of the schedule? Call from the nursing station?
11. Tell me about some situations that get in the way of you having your child immunized.  
Probes: clinic barriers; time constraints; getting to the clinic?
12. a) Tell me about what usually happens when you take your child to the clinic for an immunization. Best case scenario? Worst case scenario?  
b) How satisfied are you with this experience? Why or explain?
13. Can you tell me some stories that you have heard about immunizations from family and friends or other community members.  
Probes: Diseases or epidemics that occurred? Negative consequences of immunization? General community attitudes?
14. Lets go back to some of the things that you mentioned that are concerning your family right now. In view of these concerns, how important do you think that immunizations are?
15. Do you have any suggestions for improving immunization services in your community?
16. Do you have any other thoughts or concerns about childhood immunizations that you have not stated yet and would like to tell me?

## Appendix G

## Demographic Data Form

1. Informant ID number: \_\_\_\_\_
2. Gender: Female \_\_\_\_\_ Male \_\_\_\_\_
3. Age: \_\_\_\_\_
4. Highest level of education: \_\_\_\_\_
5. Occupation: \_\_\_\_\_ Full-time \_\_\_\_\_ Part-time \_\_\_\_\_
6. Marital Status: S \_\_\_\_\_ M \_\_\_\_\_ CL \_\_\_\_\_ S/D \_\_\_\_\_ Other \_\_\_\_\_
7. Number of children: \_\_\_\_\_
8. Age of children:

Child #1 DOB:	_____
	dd/mm/yr
Child #2 DOB:	_____
	dd/mm/yr
Child #3 DOB:	_____
	dd/mm/yr
Child #4 DOB:	_____
	dd/mm/yr
9. Immunization history of children (to be taken from immunization records). See next Page.

## Appendix G (continued)

## Demographic Data Form

**CHILD #1****CHILD #2**

AGENT	DATE GIVEN	AGENT	DATE GIVEN
BCG		BCG	
DPT, polio, Hib #1		DPT, polio, Hib #1	
DPT, polio, Hib #2		DPT, polio, Hib #2	
DPT, polio, Hib #3		DPT, polio, Hib #3	
DPT, polio, Hib #4		DPT, polio, Hib #4	
DPT, polio #5		DPT, polio #5	
MMR		MMR	

**CHILD #3****CHILD #4**

AGENT	DATE GIVEN	AGENT	DATE GIVEN
BCG		BCG	
DPT, polio, Hib #1		DPT, polio, Hib #1	
DPT, polio, Hib #2		DPT, polio, Hib #2	
DPT, polio, Hib #3		DPT, polio, Hib #3	
DPT, polio, Hib #4		DPT, polio, Hib #4	
DPT, polio #5		DPT, polio #5	
MMR		MMR	

## Appendix H

## Facility Access Letter

Marie Tarrant

Winnipeg, MB  
R

Date

Mr. Bob McCulloch  
Zone Director, Health Canada  
PO Box 1500  
Sioux Lookout, ON  
P8T 1C2

Dear Mr. McCulloch:

As per your discussions with Dr. Beth Henning, I am writing to request permission to conduct my thesis research project in the Sioux Lookout Zone. My research proposal has been submitted for review to the Ethical Review Committee, Faculty of Nursing, University of Manitoba. Ethical approval is still pending, however I am enclosing a copy of my proposal for your perusal.

The purpose of the study is to explore and understand First Nations parents' beliefs regarding childhood immunizations so as to improve services and ultimately increase immunization coverage among young children. I would like to interview primary caregivers of young children in two communities. Interviews will be conducted by myself and ideally will be initiated in April or May of 1995.

Participation in the study will be completely voluntary and participants who take part in the study will not be identified in any manner. The communities will also not be identified in any manner. After agreeing to participate in the study, participants are also free to withdraw at any time. Permission from the Chief and Council in both communities will be obtained before the research is initiated.

In order to facilitate my research among this population, I am requesting access to the birth records of both communities for the past two years and the immunization records of the children whose caregivers agree to be study participants. I can obtain this data upon my arrival to the communities in the spring.

## Appendix H (continued)

## Facility Access Letter

If you have any questions or concerns about the proposed research please do not hesitate to contact me at . If you wish to speak to my Thesis Chairperson, Dr. David Gregory, Assistant Professor, Faculty of Nursing, he can be reached at

Thank-you for considering my request and I look forward to hearing from you.

Sincerely,

Marie Tarrant RN BN  
Masters of Nursing Student  
University of Manitoba



## Appendix I

## Community Access Letter

Marie Tarrant

Winnipeg, MB  
R

Date

Dear Chief and Council:

I am writing to request permission to conduct my thesis research in the your community. I have been a Community Health Nurse in the Sioux Lookout Zone and have worked in your community in the past. Currently I am a student in the Masters of Nursing program at the University of Manitoba. My research proposal has been submitted for review to the Ethical Review Committee, Faculty of Nursing, University of Manitoba and to the Sioux Lookout Zone of Health Canada.

The purpose of the study is to explore and understand First Nations parents' beliefs regarding childhood immunizations so as to improve nursing services to parents of young children and increase the number of children who are completely immunized. As you are aware, communicable diseases continue to inflict illness and death on many Native children every year. Complete immunization coverage among First Nations children is important to decrease and prevent this occurrence. The findings from this study could provide insight into First Nations parents' perceptions of childhood immunizations which we hope will contribute to improving the health status of the children in your community.

For this study I will be interviewing caregivers of young children in your community and one other community in the Sioux Lookout Zone. Interviews will be conducted by myself and if granted permission, I would complete the study in May or June of 1995. The interviews will last approximately one hour and with the caregiver's permission, will be tape recorded. Participation in the study will be completely voluntary and caregivers who take part in the study will not be identified in any manner. The communities will also not be identified in any manner. After agreeing to participate in the study, caregivers are free to withdraw at any time. Withdrawal from the study will have no effect on the health care provided by the nurses and physicians in your community.

## Appendix I (continued)

## Community Access Letter

Once the study is complete a summary of the findings will be forwarded to you and I would be most willing to discuss the findings of the study with you. If you have any questions or concerns about the proposed research please do not hesitate to contact me at . If you wish to speak to my research supervisor, Dr. David Gregory, Assistant Professor, Faculty of Nursing, he can be reached at

Would it be possible for you to inform me of your decision by mail or telephone prior to [DATE]. Thank-you for considering my request and I look forward to hearing from you.

Sincerely,

Marie Tarrant RN BN  
Masters of Nursing Student  
Faculty of Nursing  
University of Manitoba

## Appendix J

## Ethical Approval Form

The University of Manitoba  
FACULTY OF NURSING  
ETHICAL REVIEW COMMITTEE

## APPROVAL FORM

Proposal Number N#94/41

Proposal Title: "CHILDHOOD IMMUNIZATIONS: UNDERSTANDING UPTAKE AMONG THE  
OJIBWAY-CREE OF NORTHWESTERN ONTARIO."

Name and Title of  
Researcher(s):

MARIE TARRANT  
MASTER OF NURSING GRADUATE STUDENT  
FACULTY OF NURSING, UNIVERSITY OF MANITOBA

Date of Review: JANUARY 02, 1995.

APPROVED BY THE COMMITTEE: JANUARY 02, 1995.

Comments: APPROVED WITH SUBMITTED CHANGES RECEIVED JANUARY 13, 1995.

Date: January 13/95

Linda J. Kristjanson, PhD, RN  
Associate Professor  
University of Manitoba Faculty of Nursing

Chairperson

Position

## NOTE:

Any significant changes in the proposal should be reported to the Chairperson for the Ethical Review Committee's consideration, in advance of implementation of such changes.

Revised: 92/05/08/se