

Knowledge, Attitudes and Barriers Toward Breast
and Cervical Cancer Screening
of French and Aboriginal Women in Timmins, Ontario

Master of Public Health Thesis

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ABSTRACT

The knowledge, attitudes, beliefs and practices regarding breast and cervical cancer screening in 30 French and 30 Aboriginal women in the City of Timmins, Ontario, aged 40 years of age and older were examined. An interview guide designed by Steven et al. (2001) was used for this study. The interview guide contained information regarding knowledge, attitudes, and barriers about breast self-examination, clinical breast examination, mammography and cervical cancer screening procedures. The data was obtained through face-to-face interviews in English and French. The interviews were transcribed in English. Four themes emerged from the findings. Both the French and Aboriginal women had a lack of knowledge concerning the risks factors of breast and cervical cancer. Most women in this study were uncomfortable with Pap tests but admitted to being compliant with screening for the benefit of their health. It was also found that reminders to women increased the uptake of breast and cervical cancer screening. Lastly, it was found that half of the Aboriginal women in this study currently smoked. Recommendations are presented to increase education on breast and cervical cancer risk factors, to continue and increase the use of reminders to get women screened, and to encourage Aboriginal women to quit smoking.

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TABLE OF CONTENTS

ABSTRACT.....	ii
ACKNOWLEDGEMENTS.....	iii
LIST OF TABLES.....	vi
LIST OF FIGURES.....	vii
CHAPTER I: INTRODUCTION TO THE STUDY	1
Statement of Purpose.....	1
Objectives of the Study	1
Significance of the Study.....	1
Conceptual Framework	2
CHAPTER II: LITERATURE REVIEW.....	5
Breast Cancer.....	5
Prevalence of Breast Cancer	5
Breast Screening Programs.....	8
Knowledge, Attitudes, Barriers, and Beliefs About Breast Screening	10
Cervical Cancer.....	22
Prevalence of Cervical Cancer	22
Human Papillomavirus Vaccine.....	24
Cervical Screening Programs.....	25
Knowledge, Attitudes, Barriers and Beliefs About Cervical Screening	25
Combined Breast and Cervical Cancer Screening Studies.....	31
Aboriginal Women.....	35
Aboriginal Women and Breast Cancer	35
Aboriginal Women and Cervical Cancer.....	37
Aboriginal Women and Breast and Cervical Cancer	40
Summary.....	43
Needs Assessment.....	44
CHAPTER III: METHODOLOGY	52
Research Design	52
Sample	53
Ethical Considerations.....	54
Data Collection.....	55
Data Analysis	56
Validity and Reliability.....	56
CHAPTER IV: RESULTS	57
Sample Characteristics.....	57
Eating Behaviours	61
Medical Conditions	61
Knowledge of Breast Cancer	62
Perceived Benefits of Breast Cancer Screening.....	68
Perceived Barriers for Breast Cancer Screening	69
Breast Cancer Screening Behavioural Outcome	71
Recommended Strategies to Promote Breast Cancer Screening.....	71
Knowledge of Cervical Cancer	74

Perceived Benefits of Cervical Cancer Screening.....	77
Perceived Barriers to Obtaining a Pap Smear.....	78
Cervical Cancer Screening Behavioural Outcome.....	79
Recommended Strategies to Promote Cervical Cancer Screening.....	80
Interpersonal Factors for Breast and Cervical Cancer Screening.....	83
CHAPTER V: DISCUSSION.....	85
Screening for Breast and Cervical Cancer.....	85
Knowledge of Risk Factors for Breast and Cervical Cancer.....	86
Perceived Control of Health.....	86
Perceived Benefits of Health-Promoting Behaviours.....	87
Perceived Barriers to Health-Promoting Behaviours.....	88
Demographic Factors.....	91
Theme 1: Lack of Knowledge about the Risks of Breast and Cervical Cancer.....	93
Theme 2: Women are uncomfortable with Pap tests but will be complaint with screening for their health.....	95
Theme 3: Reminders to women increase the frequency of breast and cervical screening.....	96
Theme 4: Half of the Aboriginal Women Smoke.....	98
Limitations.....	100
Recommendations.....	101
Education.....	101
Access to Screening Services.....	102
Research.....	103
Conclusion.....	105
REFERENCES.....	107
APPENDIX A: BREAST AND CERVICAL SCREENING QUESTIONNAIRE.....	115
APPENDIX B: COVER LETTER.....	138
APPENDIX C: CONSENT FORM.....	140
APPENDIX D: LAKEHEAD UNIVERSITY ETHICS COMMITTEE LETTER.....	141

LIST OF TABLES

Table 1. Summary of Demographic Information Using <i>t</i> -test Analysis.....	58
Table 2. Summary of Demographic Information Using Chi-square Analysis	58
Table 3. General Health Indices of Participants	60
Table 4. Percentage of Women in Each Group Who Answered <i>yes</i> to the Following Questions	63
Table 5. Identified Risk Factors for Breast Cancer.....	64
Table 6. Women's Response to Breast Cancer Screening	70
Table 7. Identified Risk Factors for Cervical Cancer.....	75
Table 8. Barriers to Pap Smear Testing.....	78
Table 9. Cervical Cancer Screening.....	80
Table 10. Summary of Family Doctor / Nurse Practitioner Access.....	84

LIST OF FIGURES

<i>Figure 1.</i> Pender's (2006) revised health promotion model.....	3
<i>Figure 2.</i> Age-specific incidence and mortality rates for breast cancer, 1999-2003.....	6
<i>Figure 3.</i> Age-standardized incidence and mortality rates for all ages, breast cancer, females Canada, 1969-2007.....	7
<i>Figure 4.</i> Cervical cancer incidence and mortality rates by age group in Canada 2003...	22
<i>Figure 5.</i> Age-standardized cervical cancer incidence and mortality in Canada 1970-2006.....	23
<i>Figure 6.</i> Map of Ontario, indicating the location of Timmins.....	45
<i>Figure 7.</i> 2002 leading causes of cancer incidence female in PDHU.....	46
<i>Figure 8.</i> 2002 leading causes of cancer mortality of females in PDHU.....	46
<i>Figure 9.</i> Number of projected women screened by mammography compared to actual number of women screened by OBSP.....	48

CHAPTER I: INTRODUCTION TO THE STUDY

Statement of Purpose

To evaluate the knowledge, attitudes, and barriers of selected groups of women aged 40 and older in the city of Timmins, Ontario, regarding breast and cervical cancer screening.

Objectives of the Study

- To assess women's knowledge and attitudes towards participation in breast and cervical cancer screening programs in the City of Timmins.
- To assess the usefulness of breast and cervical screening education campaigns in the City of Timmins.
- To identify gaps and barriers to screening and increase screening among Aboriginal and francophone women of Timmins.
- To identify action strategies to help reduce the identified gaps and barriers to breast and cervical screening.

Significance of the Study

Breast and cervical cancer are important public health issues in Canada and around the world. They are a major cause of premature mortality in women. Although there is continuous improvement in many aspects of organized, population-based screening in Canada, participation remains less than favourable.

Less than 80% of women at risk of cervical cancer have had a Pap test within the last three years and the provincial mammography screening programs have not met its nationally accepted targets for the recruitment of women between the ages of 50 and 69 (National Cancer Institute of Canada [NCIC], 2006, p. 1).

As a result, reductions in incidence and mortality of these cancers are not being fully realized.

The majority of deaths from breast and cervical cancer are avoidable. In most women, mammography and the Papanicolaou (Pap) smear test can successfully detect abnormal cells before they become cancerous or, if they are cancerous, before the disease is at a stage that treatment is no longer effective. These early detection screening methods have been some of the most successful public health measures introduced to date for the prevention of cancer; however, more promotion needs to be done to encourage women to be screened (National Cancer Institute of Canada [NCIC], 2006, p. 1).

Conceptual Framework

The health promotion model (HPM; Pender, 1996) served as the theoretical framework for this study (see Figure 1). Pender (1996) viewed health as a positive state, and the HPM explains how humans interact with their environments to pursue health. This model identifies individual characteristics and experiences that directly and indirectly influence behaviour. Pender (1996) identified these characteristics and experiences as personal; behavioural; cognitive, including perception of health factors; and prior health behaviours. She (1982) also noted that behaviours are often the best indicator of current health-promoting activities and that the reinforcement of the behaviours over time leads to habit formation. These factors may be mediated by behaviour-specific cognitions and affects such as interpersonal situational influences (Pender, 1982).

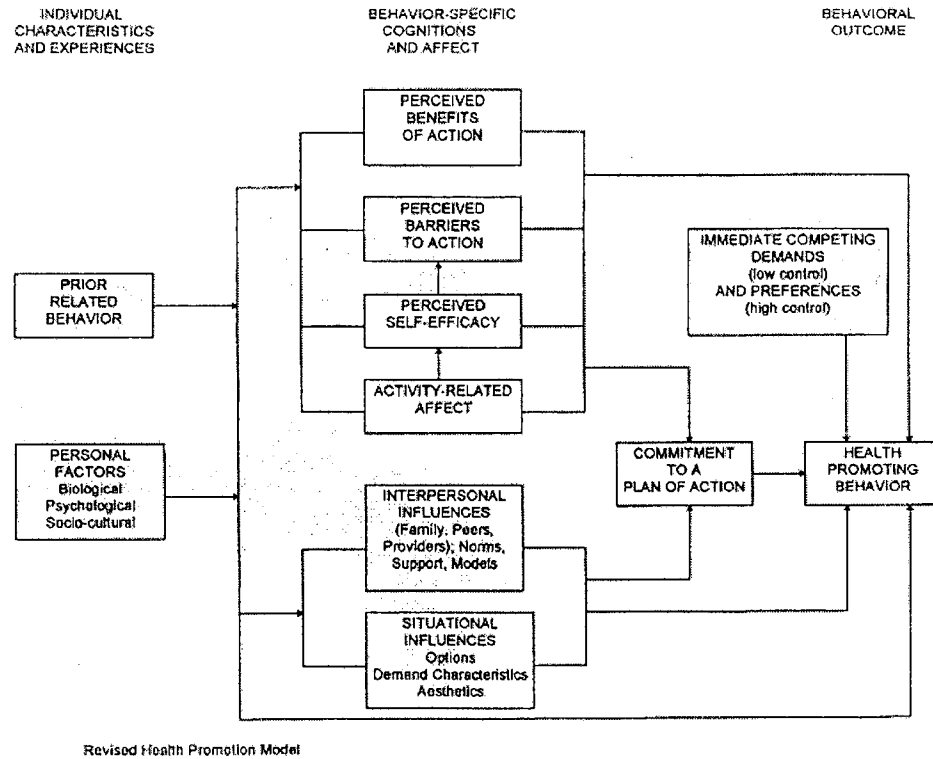


Figure 1. Pender's (2006) revised health promotion model.
 From *Revised Health Promotion Model*, by N. J. Pender, 2006.

The HPM (Pender, 1996) emphasizes the active role of individuals in maintaining health behaviours and modifying their environments to engage in health behaviours. The variables to examine concerning participation in breast and cervical cancer screening include perceived health benefits of health-promoting behaviours, knowledge about predisposing factors, and beliefs about the efficacy of early cancer detection. This study examined how francophone and Aboriginal women in the city of Timmins perceive the health benefits of breast and cervical screening and how effective they believe the screening to be. The research hypothesized that women who believe in the health benefits of cancer screening will be more likely to attend mammogram and Pap test appointments.

According to the HPM (Pender, 1996), cognitive-perceptual factors such as perceived barriers determine participation in health promotion activities. The more

barriers a person encounters in health promotion activities, the less likely that person will participate in health promotion activities. Barriers can be perceived or real. This study assessed what is preventing some Aboriginal and francophone women in the city of Timmins from participating in regular mammography and Pap tests.

Cognitive-perceptual factors such as perceived self-efficacy, perceived health, definition of health, perceived barriers, and perceived benefits are considered primary mechanisms directly affecting the adoption of health-promoting behaviours. In addition, modifying factors such as demographic characteristics, biological characteristics, and interpersonal influences are mediated through the cognitive-perceptual factors, thus indirectly influencing health-promoting behaviours. (Pender, 1996) Modifying factors in the determination of health-promoting behaviours include age, education, ethnicity, and interpersonal factors. In this study, the demographic information and the women's support systems will be compared and evaluated to determine their effect on women's cancer screening behaviours.

Pender's (1996) framework assumes that the acquisition and maintenance of health-promoting behaviours depends not only on cognitive-perceptual factors and modifying factors but also on cues to action. Cues to action may be internal or external, and they may serve to stimulate behavioural actions. According to Pender, women are more likely to engage in health behaviours such as breast cancer screening and cervical cancer screening if their perceptions of susceptibility and seriousness are high, barriers are low, and benefits to engage in cancer screening are high.

CHAPTER II: LITERATURE REVIEW

A literature review was conducted in an attempt to identify gaps and barriers in women's knowledge, attitudes, and beliefs toward breast and cervical cancer screening. Large numbers of studies have looked at the barriers for women, perceived or real, for not attending breast and cervical screening. These are important components in developing strategies to increase screening behaviours. Although breast and cervical cancers are different issues, the barriers to screening are very similar. The literature review was divided into four categories: (a) prevalence, programs and studies of breast cancer screening only; (b) prevalence, programs and studies of cervical cancer screening only; (c) combined breast and cervical cancer screening studies; and (d) studies of Aboriginal women in relation to breast and cervical cancer screening.

Breast Cancer

Prevalence of Breast Cancer

Breast cancer is the most common form of cancer among Canadian women. In 2006, an estimated 22,200 women, compared to 21,600 women in 2005, were diagnosed with breast cancer; and 5,300 of these women died. The Canadian Cancer Society (CCS, 2006) stated that 1 in 9 women is expected to develop breast cancer during her lifetime and that 1 in 27 will die (see Figure 2).

The incidence of breast cancer increases with age, but it levels off somewhat after age 50. Just over 50% of all breast cancer cases occur in women between the ages of 50 and 69, so the provincial screening programs have targeted this age group. Unfortunately, evidence is not clear about the benefits of screening women in their 40s.

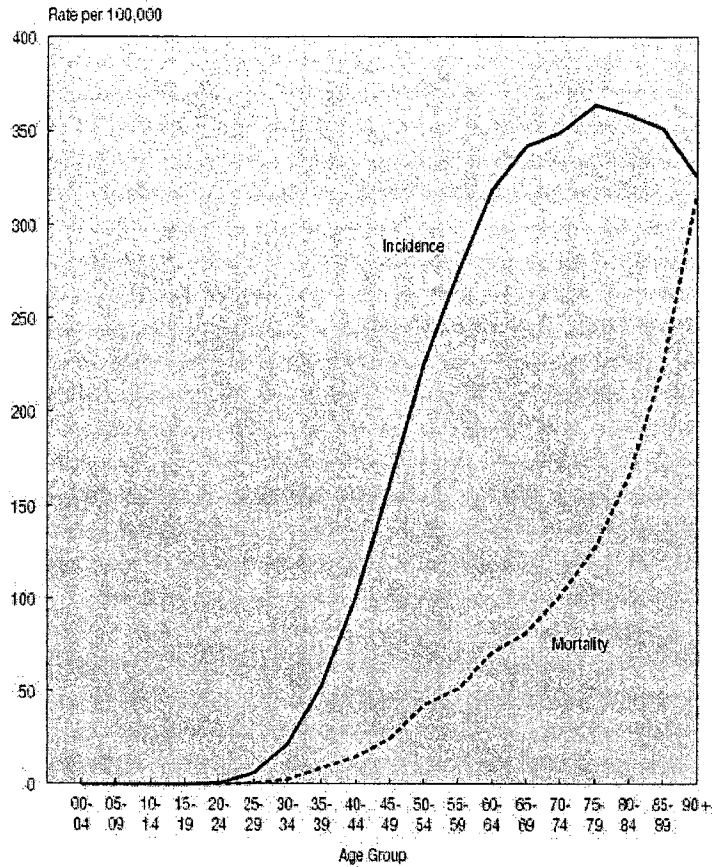


Figure 2. Age-specific incidence and mortality rates for breast cancer, females, Canada, 1999-2003.

From *Quality determinants of organized breast cancer screening programs*, by Public Health Agency of Canada, 2003.

The incidence of breast cancer rose gradually between 1978 and 1999 but has since stabilized (see Figure 3). “Much of the increase was probably due to the gradual uptake of screening, especially mammography that took place during the 1980s and 1990s” (CCS/NCIC, 2007, p. 26). New cases of breast cancer were identified earlier because of mammography, and the early detection of cancer resulted in better treatment outcomes and higher survival rates.

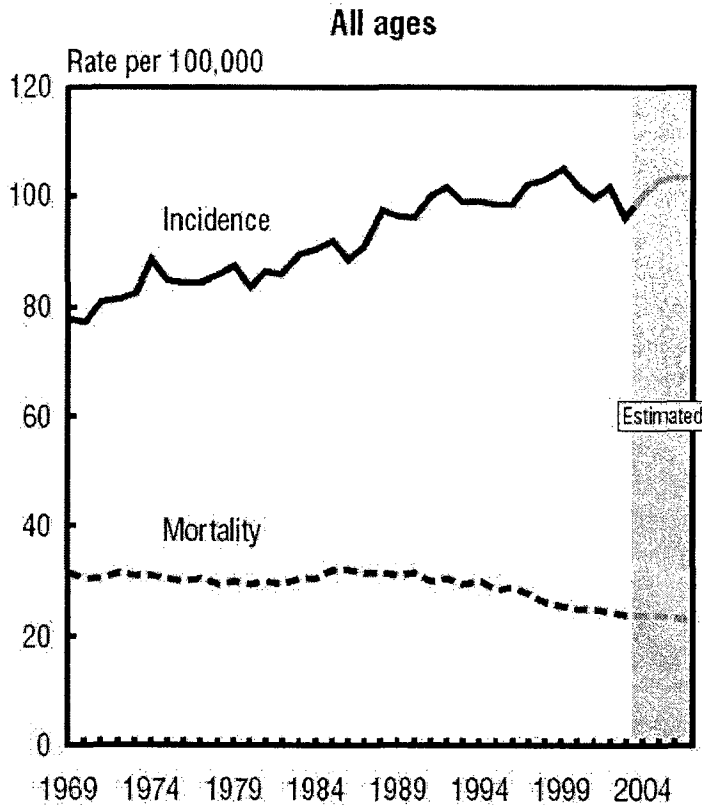


Figure 3. Age-standardized incidence and mortality rates for all ages, breast cancer, females Canada, 1969-2007.

From *Quality determinants of organized breast cancer screening programs*, by Public Health Agency of Canada, 2003.

Over the years, the mortality rate remained relatively stable but began to decline in the mid-1980s. The downward trend was likely due to the increased use of mammography and the improved therapies following breast cancer surgery. “The breast cancer death rate in 2003 is the lowest it has been since 1950” (CCS/NCIC, 2007, p. 26). Nonetheless, Canada, the United States, northern Europe, and Australia have some of the highest breast cancer rates in the world. It is more than twice the incidence found in Asia and Africa (CSS/NCIC).

Within Canada, First Nations and Inuit women have a lower incidence of breast cancer than the population at large. This difference may be partly attributed to variations

in risk factors, such as reproductive patterns; body size; levels of physical activity; use of hormones; and, possibly, screening intensity (CCS/NCIC, 2007). The Porcupine District Health Unit (PHDU, 2003) reported that breast cancer was the leading cause of cancer (41%) among females and the second leading cause of mortality (17%) in 2002.

Unfortunately, the report did not categorize the results into ethnocultural groups. The Ontario Breast Screening Program (2008) stated that in 2003, only 51.9% of women living in Timmins were screened.

Breast Screening Programs

Mammography screening is an effective strategy for the early detection of breast cancer in women. In Ontario, mammography is available through self-referral or physician referral to a publicly managed Ontario Breast Screening Program (OBSP, 2008) site operated by Cancer Care Ontario. Screening recommendation includes a biennial mammogram (a two-view X-ray) of the breast and a clinical breast examination (CBE) in asymptomatic women ages 50 to 69. To achieve a 40% reduction in breast cancer mortality, the OBSP needs to screen 70% of women 50 years of age and older. However, in 2002-2003, the OBSP screening participation rate for Ontario women ages 50 to 74 was only 23.6%. The rate was 37% in the Cochrane District. One of the key goals of Cancer Care Ontario 2020 is to have 90% of women ages 50 to 69 participate in an organized breast screening program by 2020.

Different strategies have been assessed to increase women's participation rate in breast screening programs. Bonfill, Marzo, Pladevall, Marti, and Emparanza (2005) reviewed 14 studies in which women had been invited to community breast screening activities or programs and who had been randomized either to intervention groups or

control groups that had no active intervention. They assessed the effectiveness of different strategies for increasing participation rates. The evidence favoured five active strategies: letter of invitation, mailed educational material, letter or invitation plus phone call, phone call and training activities, or direct reminder for the women. They asserted:

Most active recruitment strategies for breast cancer screening programs examined in this review were more effective than no intervention.... Some costly strategies, such as a home visit and a letter of invitation to multiple screening examinations plus educational material, were not effective. (p. 3)

Bonfill et al. indicated that the mandate of any community screening program is to achieve a high participation rate. A high rate is positively related to method of invitation.

Jean, Major, Rochette, and Brisson (2005) evaluated the influence of the Québec Breast Cancer Screening Program. The program sends a personalized letter signed by a physician to every woman in Québec between the ages of 50 and 69, inviting her to have a screening mammogram. Jean et al. stated that in 2002, Québec's "participation rate in the Breast Cancer Screening program was 45.1 percent. However, mammography screening programs need to achieve a participation rate of a least 70 percent if expected reductions in mortality are to be obtained" (p. 52). They also found that 30% of the women who received the invitation had undergone a mammography, compared to an expected cumulative probability of 20% for the women who did not receive the letter.

Steven et al. (2004) found that fewer than 25% of the Native women in their study had ever had a mammogram. They found that First Nations women have a more intense sense of privacy than other women do. These women resent having strangers touch them, and they find the examinations aversive and intrusive.

Knowledge, Attitudes, Barriers, and Beliefs About Breast Screening

The low participation rate in screening programs also may be related to women's lack of knowledge as well as their attitudes, beliefs, and practices in terms of preventing breast cancer and undergoing mammography. The Public Health Agency of Canada (PHAC, 2003) asserted that there are many factors influencing women's participation in breast cancer screening:

According to a Canadian survey, factors predictive of never having had a mammogram are higher age level, living in a rural area, being born in an Asian country, non-participation in volunteer groups, no regular physician or recent medical visit, smoker, no regular physical activity, and nonuser of hormone replacement therapy [HRT]. (p. 22)

The same survey found that the most important predictive factors of an increase in breast cancer screening include age, education, a consistent source of health care, physician request to have a mammogram, perceived need for mammography, and fear of a positive screening result.

Similarly, Bancej, Maxwell, Onysko, and Eliasziw (2005) also found that women who have a higher age level, live in a rural area, are born outside of Canada, do not have a regular physician, and have an unhealthy lifestyle are more likely not to be screened for breast cancer. The researchers used data from a longitudinal panel of Canadian women interviewed in the National Population Survey in 1994/95 and again 2 and 4 years later. The researchers examined the relative risks of mammography initiation of 505 Canadian women and their adherence according to sociodemographic, health, and lifestyle characteristics. Among the 505 women with no history of mammography use, 23% and 41.4% initiated mammography by 2 and 4 years, respectively. Bancej et al. commented:

Factors such as old age, birthplace outside of Canada, rural residence, lacking a family physician, and negative lifestyle characteristics have been associated with

lower participation among Canadian women. Repeat screening has been associated with younger age, white race, higher socio-economic status, insurance and Medicare status, but has not been assessed among Canadian women. Women over the age of 55 years and those with higher education were less likely to initiate mammography, whereas women residing in urban areas were more likely to initiate use during 2-year follow-up. Being born outside of Canada and having a recent blood pressure check predicted initiation within 4 years. (p. 364)

The researchers also found that strategies that reward, reinforce, and prompt continued use should be emphasized among mammography users. They mentioned efforts that include initiatives to address logistical and access challenges, lack of physician referral, women's negative experiences with mammography, and perceptions that routine screening is unnecessary or not reassuring. They argued:

Women most likely to remain adherent over time had positive lifestyle practices (e.g. non-smokers), higher socio-economic status (e.g. post-secondary degree or highest household income grouping) and reported use of [HRT]. Physicians may be more likely to discuss mammography with women taking [HRT] because of its association with increased risk of breast cancer, prompting continued screening when renewing their prescriptions. (p. 367)

Interestingly, Bancej et al.'s (2005) longitudinal data suggested that other previously identified underserved groups of Canadian women (i.e., women with lower educational attainment and/or those born outside of Canada) are more likely to initiate use. These new findings reflected the cumulative effects of recent strategies to reduce the barriers to screening among underserved groups of Canadian women. They reported that the stronger predictor of initiation identified in their study was urban residence, suggesting that in Canada, rural-dwelling women continue to experience barriers to screening.

Rauscher, Tropman Hawley, and Earp's (2005) analysis provided important data for understanding how to target interventions to increase mammography use among rural women. Their study's prospective cohort design evaluated the baseline factors that

predicted mammography of White and African American rural women over a 7-year period. The researchers used data from a baseline interview (1993-1994), a first follow-up interview (1996-1997), and second follow-up interview (2000) with 336 White and 314 African-American rural women in the North Carolina Breast Cancer Screening Program. Using binomial and logistic regression models adjusted for age, Rauscher et al. examined factors associated with initiation (for women without prior regular use) and maintenance (for women with prior regular use) of mammography. They found that positive attitudes toward mammography were strongly associated with subsequent initiation of regular mammography use as well as other attitudinal measures. The researchers stated, "Physician recommendation was the strongest predictor and having a recent gynaecologic exam at baseline was also strongly predictive of subsequent mammography use" (p. 827).

Rauscher et al. (2005) concluded that the greatest barrier to regular mammography screening by rural women appears to be the initiation of mammography screening in the first place. Clearly, interventions should focus more on helping rural women who are not regular users initiate regular mammography use, because once they start, they are likely to continue. To achieve the greatest effect among rural populations, interventions should encourage physicians to recommend mammograms for all age-appropriate women.

Increased age was also identified by Harris et al. (2002) as having a strong link to decreased mammography uptake among female patients aged 65 and over in a South London practice. The researchers surveyed all female patients ages 65 and over

($N = 613$), asking questions on mammography and cervical screening, general health and functional ability, socioeconomic status (SES) factors, mental health, health behaviours, and attitudes to health. Associations between mammography uptake and other factors were examined using logistic regression. The response rate was 70% (432/613).

Harris et al. (2002) found that increased age is strongly associated with decreased mammography uptake. Most previous research had found that age is typically negatively associated with screening rates, with older women having lower screening. However, Consedine, Magai, and Neugut (2004) found that age among the women in their sample was positively associated with mammography screening when other confounding variables such as education and income were controlled. They suggested that older adults may engage in more self-protective behaviours, although it was also possible that their data reflected the impact of changes in physician recommendation practices.

Harris et al. (2002) found that poor general health, longstanding illness, physical disability, and high depression scores were not related to mammography uptake after age adjustment among the women in their study sample. Other factors that they identified in their sample of UK women ages 65 and over were that “age, socio-economic factors and general health behaviours (previous cervical smear, drinking alcohol and being a non-smoker) were more predictive of mammography uptake than physical and mental health measures, or health attitudes” (p. 662).

Conversely, Consedine et al. (2004) identified two emotion-related variables, such as repression and cancer worry, as strongly influencing breast screening. They studied several emotional propensities associated with the frequency of mammograms and clinical breast exams among six groups of minority women: African American, U.S.-born

White, English-speaking Caribbean, Haitian, Dominican, and Eastern European. The participants in this study were 1,364 women ranging in age from 50 to 70 and living in Brooklyn, New York. They were recruited on the basis of a stratified cluster sampling plan using data from a census. Trained interviewers conducted face-to-face interviews in the respondents' homes or other locations of their choice. The researchers concluded:

Fear/anxiety – operationalized as cancer worry – was positively related to reports of breast cancer screening behaviours. While worry about breast cancer seems to promote screening, embarrassment over screening is associated with lower screening and may act as an internal barrier. Finally, the greater levels of repression were associated with greater levels of mammogram use. (p. 72)

Consedine et al. felt that older adults who anticipate the need to protect their diminished levels of energy and more frail health may avoid emotionally provocative situations. Ignoring health issues until there is severe impairment may be their way of avoiding negative affect and physiological arousal. In other words, they may engage in more preventive self-protective behaviour than younger women do.

Katapodi, Lee, Facione, and Dodd (2004) conducted a meta-analysis synthesizing findings from 42 studies that examined demographic and psychological variables as predictors of perceived breast cancer risk and the relationship between perceived risk and breast cancer screening. The findings were inconclusive in determining if some or most women hold an optimistic bias about their risk of developing breast cancer. From the studies reviewed, Katapodi et al. concluded that women have an optimistic bias about their risk of developing breast cancer. In other words, people have a tendency to claim that they are less likely than their peers to suffer harm. Katapodi et al. asserted:

Having a family history of breast cancer was positively correlated with heightened perception of risk... Having a close relative diagnosed with breast cancer affects a woman's risk perception, presumably by making her more aware

of her own probability of developing the disease and the possible role of heredity as a risk-increasing factor. (p. 398)

Katapodi et al. (2004) concluded that there is a weak association between perceived risk and sociodemographic characteristics. They reported that the younger women in their study had a higher perceived risk, suggesting that the women either had a misconception that breast cancer affects mostly younger women or that the older women in the study did not perceive themselves to be at higher risk. Their findings contended that women with higher levels of education are more likely to have an accurate perception of their actual risk, whereas less educated women are more likely to have inaccurate perceptions in either underestimating or overestimating their risk. In addition, the researchers, who had conducted 5 of the 42 studies themselves, concluded that White women are more likely to perceive themselves at higher risk for breast cancer than women of other racial and cultural backgrounds. Katapodi et al. stated:

A consistent association between heightened perceived risk and negative emotional responses toward breast cancer, conceptualized as either worry, anxiety, or concern. Certain studies suggest that screening behaviours, such as mammography uptake, are not solely controlled by individual volition, and therefore, do not necessarily reflect individual risk perceptions. Second, personal experiences with mammography, especially negative experiences, can affect how mammography is viewed and can influence the magnitude of the relationship between mammography and perceived cancer risk. A belief of being at increased risk is a necessary but not a sufficient condition for action. The decision to act depends on the interaction of numerous factors, such as perceived severity, perceived effectiveness, and perceived costs, and other decision rules, such as framing of the decision as gains or losses, the time frame within which costs and benefits occur, the role of emotions, and the existence of other conditions that compete for the same resources. Therefore, it appears that perceived risk has an indirect effect on breast cancer early detection behaviour. (p. 399)

Buxton et al. (2003) conducted a telephonic survey of a random sample of 761 rural and urban women in British Columbia who had no history of breast cancer. In their descriptive study, they found that the women had difficulty accurately estimating their

breast cancer risk and identifying the known risk factors for breast cancer. They noted, “The risk factors for breast cancer most frequently identified included family history, nutrition/diet, smoking, lifestyle, environment, stress and age” (p. 422). Most women in the study identified only family history as their personal risk factor. Despite the media publicity concerning breast cancer, women still have gaps in their understanding of the risk factors for breast cancer.

Kothari and Birch (2004) explored the combined influence of individual and regional determinants of mammography utilization. “Statistics Canada’s 1996 National Population Health Survey (NPHS) was used to obtain all individual-level data of interest” (Kothari & Birch, p. 291). The researchers found that 80% of Ontario women between the ages of 50 and 69 years reported on the survey having had a mammogram in their lifetime. Their findings demonstrated that “the influence of a woman’s increased participation in volunteer activities, associations and religious services modifies the detrimental influence on mammography uptake of living in a less educated region” (p. 293). This study supported the general concept that being more socioeconomically advantaged might influence women’s uptake to healthier behaviours, such as being screened regularly for breast cancer.

Lagerlund, Sparen, Thurfjell, Ekblom, and Labe (2000) investigated the predictors of nonattendance at a population-based mammography screening program in central Sweden. They conducted telephone interviews to collect their data. They found that the sociodemographic factors of being single or non-employed were the only important predictors of nonattendance. They reported that nonattendance was more likely among the women who had never visited a dentist or had not visited a doctor in 5 years; had

never used oral contraceptives or HRT; had never had cervical Pap smear tests; had never drunk alcohol; smoked regularly; and had never reported breast cancer in family, friends, or self. They concluded that sociodemographic factors alone do not constitute strong predictors of nonattendance at screening programs. Rather, general health behaviour and previous experience of cancer and breast disease seem to be more important factors. Their results suggested that previous contact with the health care system and encouragement from health professionals are more representative determinants of attendance.

Sadler et al. (2001) described the reported breast cancer knowledge, attitudes, and screening behaviours of 194 American Asian Indian women. They asserted, "While monthly breast self exam adherence was low, only 40.7%, 61.3% of women 40 and older, and 70% of women 50 and older, reported having had a mammogram within the past 12 months" (p. 357). They concluded that the women's annual breast screening rates were high perhaps because this sample was generally well educated. Interestingly, less than half of the women reported that they had adequate knowledge about breast cancer.

In a similar study, Banks et al. (2002) compared the characteristics of women who did or did not attend the UK's National Health Service (NHS) Breast Screening Programme. Their study was a population-based multicentre prospective study in the UK intended to investigate the effects of HRT on health. Women invited for screening at participating NHS breast screening programs were asked to join the study by returning the recruitment form when they attended their appointment for breast screening. Banks et al. found that the women in their study who attended screening "come from less deprived areas and are more likely to have a current prescription for hormone replacement therapy

(HRT) than non-attenders, but do not differ in terms of age or recent prescriptions for various other medications” (p. 1). The data were consistent with previous reports that women from a lower SES attend breast cancer screening programs less frequently. Increasing the awareness that women who use HRT are at higher risk of breast cancer than nonusers may encourage them to attend screening. In addition, the women who took HRT were more likely to make use of various medical and screening services, including mammography, than women who did not use HRT.

Conversely, Achat, Close, and Taylor’s (2005) findings did not support previous reports of a strong link between SES indicators and mammography utilization. The researchers performed a cross-sectional study in Australia’s New South Wales (NSW) to examine the SES, beliefs, and knowledge of women ages 50 to 69 regarding breast cancer and mammography. A sample of 2,974 women was selected from the NSW Breast Screen database and the NSW Electoral Roll. These women participated in a structured telephone survey. Associations were assessed using weighted chi-square and age-adjusted odds ratios from logistic regression with 95% confidence intervals.

Achat et al.’s (2005) findings did not support previous reports of a strong link between SES indicators and mammography utilization because the program did not impose a direct cost on the individuals. Never attenders were most likely to be in the youngest age group (51.3%). Women who reported having a mammogram within about the last 2 years were more likely to be married or in a de facto relationship (77.2%) than single (3.5%) or widowed, separated, or divorced (19.3%) women. Recent attenders were more likely to be unemployed (67.5%) and to speak English at home (94.5%). The highest level of education completed and annual household income did not differ across

groups (Achat et al.). “For younger women, hindrances to having a mammogram might include busy schedules, paid employment and the great likelihood of pain during mammography” (Achat et al., p. 318).

Doctor recommendations and perceived breast problems are two important factors that influence mammography utilization. The recommendation for screening from the doctor and the opportunity for discussion about the procedure as well as efforts to ensure minimal discomfort and embarrassment optimizes uptake. Achat et al. (2005) concluded that interventions should be aimed at having doctors increase awareness of mammography.

One of the most important factors associated with women’s decision to have a mammogram is related to their having a regular physician. Barr, Franks, Lee, Herther, and Schachter (2001) found that of a sample of 24,215 women living in New York, 70% of them returned for a subsequent mammogram within the recommended 2-year time interval. They reported:

Nearly all women had a primary care physician visit during the 24-month period following their index mammogram. Those who did not were less likely to have a subsequent mammogram within the study period than those with any primary care visits. (p. 665)

They concluded that communication between the physician and the patient is important in creating a more managed care plan and increasing repeat mammography.

In Giveon and Kahan’s (2000) historical cohort study, the researchers requested that the physicians in two Israeli practices discuss the importance of early breast cancer detection with all eligible female patients who visited the clinic. The women who consented to being screened were helped to schedule an appointment. For the women who did not choose to be screened, the physician spent 4 to 5 minutes discussing the

importance of undergoing these examinations on a regular basis; tried to determine the reasons for their not undergoing periodic examinations, and openly reflected the patients' fears or lack of knowledge. On completion of the programme, the files were divided into those who had received the intervention (those with whom the physician had discussed breast cancer screening $N = 251$) and those with whom he had not ($N = 187$).

The patients in the intervention group showed a significantly greater change in behaviour, with 32% having an examination, compared to 13% in the control group who also had an examination ($p = .001$) Giveon and Kahan (2000) concluded, "Although this is a study in only two practices, the results suggest that primary care physicians can significantly alter the behaviour of their patients regarding regular breast examinations" (p. 42). The use of a special reminder can also help doctors to ensure that each patient has been guided properly. Although Canadian breast screening programs do not require physician referral, physician encouragement remains an important factor in women's decision to be screened.

A barrier identified by women who attend breast screening programs is the pain they experience during the mammography. This discomfort is recognized as a significant deterrent to breast screening and may affect the success or failure of any screening program. Miller, Martin, and Herbison (2006) reviewed the interventions related to any aspect of breast screening to reduce or relieve the pain and discomfort of screening mammography. They searched for relevant studies in the Cochrane Library, as well as a wide variety of databases, Web sites, and journals using such keywords as mammography and pain.

Miller et al. (2006) found three randomized controlled trials that met the inclusion criteria. The studies had to include both assessment of pain and quality of mammogram. The first study found that patient-controlled breast compression gave a significant reduction in discomfort. However, the quality of mammograms was only maintained if the technologist controlled the first compression. The second study involved the technologist reducing compression force for one view. They found that this study was poorly designed and showed no significant difference. The third randomized control trial used acetaminophen as premedication before the intervention. The medication had no effect on the pain of mammography. Miller et al. concluded that “more research into interventions to reduce the pain of mammography is needed if this is to continue as the preferred screening method in the detection of breast cancer” (p. 3).

A number of knowledge and belief barriers to breast screening have been reported for various groups of women with specific characteristics. Women who are older, of an ethnic minority, or are disabled; have a low SES; have less than a high school education; and/or are residing in rural environments continue to encounter a variety of barriers which circumvent their ability to seek and receive adequate preventative health care. These barriers may include fear of a cancer diagnosis, reluctance to be examined by a male health care provider, a personal belief that screenings are unnecessary if they feel well, long work hours, no access to child care, language barriers, inability to make screening appointments at convenient times, lack of reliable transportation, few female physicians, and lack of available interpreters. The most important barrier noted is the lack of a recommendation by a female physician (Achat et al., 2005; Barr et al., 2001; Giveon & Kahan, 2000; Lagerlund et al., 2000; Rauscher et al., 2005).

The characteristics of women who do not get regular mammograms were generally consistent from study to study and were similar to those for Pap tests. Clearly, many factors can and do impact women's breast and cervical cancer early detection screening rates. Although breast and cervical cancers are different issues, the barriers to screening are very similar.

Cervical Cancer

Prevalence of Cervical Cancer

The CCS (2007) estimated that in 2007, 1,350 Canadian women were diagnosed with cervical cancer and that 390 would die from it. For Ontario, 500 new cases of cervical cancer would be diagnosed, and 140 women would die from it. Cervical cancer is the 11th most common cancer among Canadian women and the 13th most common cause of cancer-related death (CCS). In Canada, the incidence of cervical cancer peaks among women in their 40s, declines, and peaks again among women 70 years of age and older (see Figure 4).

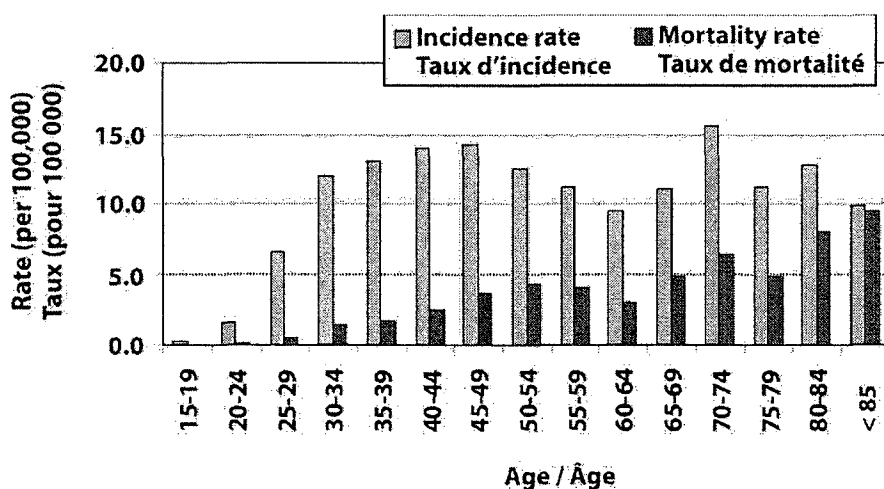


Figure 4. Cervical cancer incidence and mortality rates by age group in Canada 2003. From Canada Communicable Disease Report – Statement on Human Papillomavirus Vaccine, by Public Health Agency of Canada, 2007.

The Canadian incidence and mortality rates associated with cervical cancer have declined since the 1970s (see Figure 5). The declines can be attributed to the success of Pap cytology screening efforts that began in the 1960s.

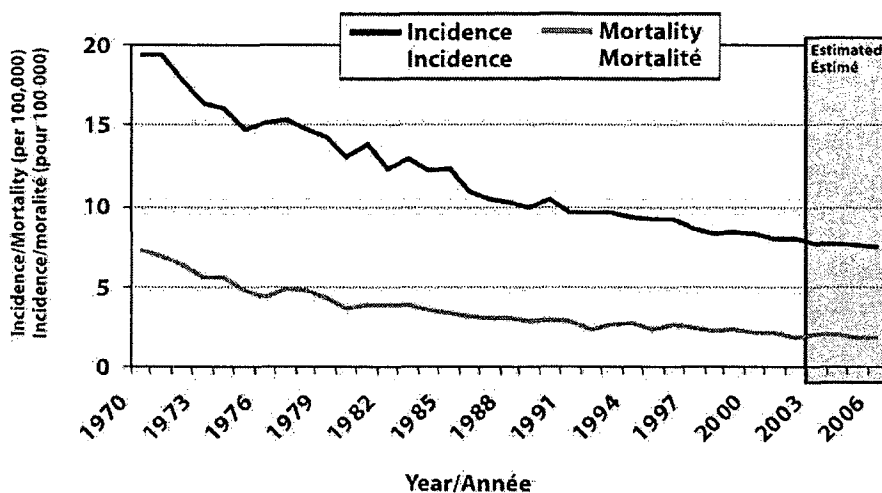


Figure 5. Age-standardized cervical cancer incidence and mortality in Canada 1970-2006.

From *Canada Communicable Disease Report – Statement on Human Papillomavirus Vaccine*, by Public Health Agency of Canada, 2007.

Participation of Canadian women in Pap screening appears to be relatively high; however, the rate of screening is lower in the PDHU. In 2000-2001, the total number of women screened less than a year ago was 53.3% in Ontario and the rate in the PDHU was 44.5%. (Canadian Community Health Survey, 2001). The Cancer Care 2020 target is to have 95% of women who have ever been sexually active to participate in an organized cervical screening program by the year 2020. The Canada Quality Council of Ontario (2004) published a report that outlined a number of disturbing facts in relation to breast and cervical cancer. Each week, 11 women in Ontario develop cervical cancer, and 3 of these women die from the disease. Ninety percent of cervical cancer is preventable.

Human Papillomavirus Vaccine

In July 2006, Health Canada approved a new human papillomavirus (HPV) vaccine that provides protection against four types of HPV, two of which are responsible for about 70% of cervical cancers (Ministry of Health and Long-Term Care [MOHLTC], 2007) Because most females will be sexually active at some point in their lives, and because HPV infections are very common, it is essential that females are vaccinated before they become sexually active. The MOHLTC stated that this vaccine is currently licensed for use in females ages 9 to 26. Although the vaccine provides protection against HPV and potentially cervical cancer, it does not replace the need to be screened. The HPV vaccine is only one part of the cervical cancer program to prevent cervical cancer.

The Ontario Government announced on August 2, 2007, that a three-dose HPV vaccination program would be offered to about 84,000 girls in Grade 8. After this announcement, the PDHU commenced providing the vaccine to all females in Grade 8 free of charge in late October 2007. The three-dose vaccination program will be administered at 2 months and 6 months after the initial dose. Females who are not in Grade 8 can ask their family doctor for the vaccine series at a cost of \$400. Some health benefit plans cover the cost of the vaccine.

The PDHU (2003) has unofficially stated that approximately 50% of eligible girls have consented to receiving the vaccine. Many are hesitant because they feel that there are many gaps in knowledge about the vaccine. It is not clear how long the vaccine will be effective or whether a booster shot will be needed in later years. Some parents are worried that they are giving their daughters tacit permission to become sexually promiscuous if they allow them to have the vaccine. It is not known if a mass HPV

vaccination program will lead to reductions in safer sex practices and Pap screening rates. More education is needed to inform the public about the realities of cervical cancer and HPV infection, and the benefits of the HPV vaccines.

Cervical Screening Programs

The Ontario Cervical Screening Program (OCSP), a program of Cancer Care Ontario (CCO), collaborates with public health units and other key stakeholders to ensure that women in Ontario have access to a comprehensive and coordinated system that supports high-quality cervical screening. The OCSP currently has no direct service component. It has implemented a family practice approach that is based on women's contact with their family physicians and health care providers. It has been largely the result of ad hoc (i.e., not organized) screening for cervical cancer with the Pap test that incidence rates have declined by 50% and death rates by 60% since 1977 (CCS, 2006). In the PDHU (2003), the rate of cervical cancer incidence in 2002 was 11.0 per 100,000 women. At present, there are no organized Pap smear screening programs in northeastern Ontario.

Knowledge, Attitudes, Barriers and Beliefs About Cervical Screening

Most women believe strongly that yearly cervical cancer screening is important, but not all women are actually screened yearly. Maxwell, Bancej, Snider, and Vik (2001) examined the cross-sectional (1996-1997) Canadian National Population Health Survey to examine selected SES, health, lifestyle, and system barriers to Pap test participation among 33,817 women ages 18 and older. The researchers stated that the survey results showed the relative importance of several SES health and lifestyle factors to Pap screening among Canadian women. "Significant predictors of under-utilization include

older age, lower education, non-English language, ethnic background, single marital status and poor preventive health behaviours” (Maxwell et al., p. 131). The researchers also found that women ages 25 to 64 that were born in Asia, compared to Canadian-born women, were almost 11 times more likely to report never having had a Pap test. Single women also were less likely to have had a Pap test, and the researchers suggested that the reason could be a lack of support if the woman is dealing with family and/or work responsibilities that may limit her access to a physician.

Unlike previous researchers, Maxwell et al. (2001) did not find a lower likelihood of screening among widowed women who completed the survey. They found that women who self-identified as speaking French and languages other than English were at greater risk only for never having had a Pap test, but not for having a time-inappropriate test. They commented, “There is some suggestion that the increased risk among bilingual women and those speaking French only may reflect provincial differences in screening rates (e.g., provincial variation in physician’s attitudes or training)” (p. 131). Maxwell et al. found that the women in the survey who did not have a regular physician or any medical consultations over the past year were less likely to have had a Pap test. The findings confirmed the continued underutilization of routine Pap testing among subgroups of Canadian women, such as younger and older women, those born outside Canadian and/or experiencing language barriers, those with low education, and those with poor social support.

Smith, French, and Barry (2003) explored the attitudes, beliefs, and perceived barriers to risk-based cervical cancer screening through focus group interviews of 60 patients ages 18 to 65. They conducted eight focus group interviews of women using

semi-structured interviews. The women were recruited from eight Michigan practices located in 3 different settings: urban practices serving a large percentage of indigent women, a university health center serving mostly middle-class women, and a rural family practice residency. All of the women agreed that regular Pap test screening is an important and successful way of reducing the incidence of cervical cancer.

Smith et al. (2003) noted that the “risk factors for cervical cancer mentioned included sexually transmitted diseases, sexual activity, multiple partners, age, smoking, and having a previous abnormal Pap smear finding” (p. 206). The list of barriers to Pap test screening included economic, insurance, low personal priority, fear, embarrassment, and discomfort (the “yucky” factor), fatalism, time/scheduling, confidentiality, and prior sexual abuse. Enablers to Pap screening included female physician, good communication and listening skills, reminder systems, free clinics, contraception prescribing, parental encouragement, and public education. Smith et al. also reported that smoking is a risk factor for cervical cancer.

Marteau, Hankins, and Collins (2002) attested that “there is now good evidence to suggest that smoking doubles the risk of cervical cancer. There is also evidence that for those with a low grade cervical abnormality, stopping smoking lead to improvement in ~50% of women” (p. 18). Marteau et al. conducted a cross-sectional descriptive survey to compare the perceptions of 722 female smokers and non-smokers about the risks of cervical cancer as well as their attitudes toward cervical screening. The women were recruited throughout England and were between the ages of 20 and 64 to reflect the age range of women participating in the National Cervical Screening Program.

Marteau et al. (2002) found that the smokers in their study perceived their relative risk of heart disease as greater than that of non-smokers; however, they did not perceive their risk of cervical cancer as greater. The smokers held less positive attitudes toward cervical screening than did the non-smokers. There was no difference in their intentions to attend cervical screening: It was high for both groups. The results of this study supported the view that many women are unaware of the link between smoking and cervical cancer. The researchers recommend that because smokers have a less positive attitude toward cervical screening than non-smokers, intervention aimed at enhancing positive attitudes to screening has the potential to increase attendance for smokers more than for non-smokers. However, one factor that may reduce the effectiveness of such interventions is the defensiveness of smokers to health messages.

Behbakht, Lynch, Teal, Degeest, and Massad (2004) questioned 148 women diagnosed with invasive cervical cancer about their barriers to screening. They found that many of the women were unaware of the availability and purpose of a Pap test. The researchers found that “fatalistic attitude, lack of family support, and lack of information about the risk of cervical cancer have a significant association with lack of Pap screening in women presenting with cervical cancer” (p. 1358). Consequently, the researchers suggested that to improve screening in urban U.S. women, attention should be focused on culturally sensitive outreach to minority women, immigrants, and women with less than a high school education. They found that a potential area for improvement in cervical cancer screening could be the development of less invasive techniques. The women in the study identified Pap screening as cumbersome, uncomfortable, and embarrassing.

Lockwood-Rayermann (2004) investigated the factors that influence participation in cervical cancer screening by quantifying the characteristics of women who engaged in Pap test screening in a 12-month period. This researcher used a subset of the data collected in 2000 by the National Centre for Health Statistics and the National Institutes of Health and released in 2002. Overall, 88% (16,205) of the sample reported having a Pap smear. One thousand and eighty-one respondents in the final sample had never had a Pap smear (5.9%). Several variables that significantly affected women's participation in annual screening for cervical cancer included age, having a usual place for health care, and being employed. Childbearing women had a lower percentage of screening over the 12 months. Having access to a place for health care generally assumed that the women had health care providers who could recommend the Pap test. Lockwood-Rayermann found that only 32% of the women who reported having a Pap smear in the last 12 months were employed. Interestingly, employment and type of insurance did not ensure the women's participation in screening.

Park, Chang, and Chung (2005) conducted a non-equivalent, control group, post test-only study and found that the women's decision to have a Pap test corresponded to their beliefs that can be changed through the women's participation in an educational program. A convenience sample of 50 women from a church in Korea were recruited and randomly assigned to either the experimental or the control group. The women in the experimental group received an hour-long educational session and, afterwards, were offered a free Pap test. The women in the control group were advised by telephone of the free Pap test. The educational program influenced the women's perceptions about the

procedure and the cognitive barriers to Pap tests. It also improved the women's self-efficacy toward the stage of action, adoption, and intention to have the test.

In their previous descriptive cross-sectional research, Park, Yoo, and Chang (2002) found that Korean women with the intention to repeat the test were more concerned with the test results. The participants in this study, who were selected by convenience sampling, included 515 women aged 24 to 69 who had undergone a previous Pap smear test and did not have cervical cancer. Their results suggested that "women with the intention to repeat the test are more concerned with the test result and that emotional relief after confirming normal findings is an important motivator for repeating the Papanicolaou smear test" (p. 385). Perhaps some women may refuse to participate in future tests because of the fear that the test will be abnormal. Consequently, the researchers concluded that it is best to reduce the waiting time for the results of a Pap smear to minimize women's fear and restlessness.

Fitch, Greenberg, Cava, Spaner, and Taylor (1998) examined the barriers to cervical screening in an urban Canadian setting. Data were gathered from 110 Canadian women from North York, a Toronto suburb, who attended 11 focus groups. Fitch et al. reported four emerging themes: "Women found that being able to talk with doctors is important, being treated as a person is important, finding answers to many questions about cancer is important, and having a Pap test is uncomfortable" (p. 441). They also found that even though cervical screening was not a high priority among the women, communication between the women and their physicians was a very important aspect of care.

Combined Breast and Cervical Cancer Screening Studies

Steven et al. (2004) examined the knowledge, attitudes, beliefs, and practices regarding breast and cervical cancer screening in selected ethnocultural groups in Northwestern Ontario by conducting a descriptive exploratory study. The sample included 105 women ages 40 and older of Italian, Ukrainian, Finish, Ojibwa, or Oji-Cree descent. The researchers found that the Ojibwa and Oji-Cree women were more likely than any other group not to practice breast self-examinations (BSEs), to refuse clinical breast exams or mammograms, to not be told how to perform BSEs, to not receive written information, and to be uncomfortable and fearful about cervical cancer screening procedures.

Four issues emerged from Steven et al.'s (2004) findings: They identified the need to "use multimedia sources to inform women about screening programs; educating women regarding breast and cervical screening; reminding women when they are due for screening and identifying that Pap tests are uncomfortable and frightening" (p. 311). The women in Steven et al.'s study suggested using videos rather than booklets, placing information in grocery bags, on coupons, on refrigerator magnets; and airing special programs on cable television. Interestingly, the women did not suggest the Internet as a learning guide, and this omission was perhaps indicative of their age or their lack of exposure to computer technology. The women in the study highlighted the need for young women to be taught breast and cervical cancer prevention and screening at an early age, such as in high school, so that they can practice healthy behaviours throughout their lives. They also suggested the need for culturally appropriate strategies to remind them to be screened. The women in this study also had very strong concerns about any invasion

of their personal privacy. “Native women suggested that health care practitioners provide information about the step-by-step procedure for the Pap test and the rationale for why it is performed” (p. 310).

Steven et al. (2004) found that the cultural beliefs, attitudes, and practices of marginal populations such as Aboriginal women are an important consideration when developing strategies to overcome the barriers to effective breast and cervical screening. Steven et al. also recommended the provision of “coordinated services by using the Breast Screening Van/Programs as a venue to provide breast and cervical cancer screening in rural and remote regions” (p. 311).

Gupta, Roos, Walld, Traverse, and Dahl (2003) found that rural women surpassed their urban counterparts in screening rates because they had access to a breast screening mobile van. They also suggested that mobile vans, which have helped to lower the transportation and distance barriers facing rural residents of all economic levels, have not been as effective for the urban poor. Gupta et al. suggested that the reason for the lower usage of the mobile van by urban women may be due to “time spent seeking health care, high residential mobility, lack of continuity of care, as well as cultural and knowledge barriers, may play a more significant role in urban settings, requiring different strategies” (p. 2091).

Gupta et al. (2003) examined three different methods of preventive care delivered in Manitoba during the 1990s: childhood immunizations, screening mammography (through a government program introduced in 1995), and cervical cancer screening (no program). Cervical cancer screening rates remained static and showed strong SES differences. However, they reported:

Since 2001, a Manitoba program targeting cervical cancer screening has been under way. All laboratories that process Papanicolaou smears are required to provide individual claims and reports to the provincial screening program, which can now identify individuals, regions, and subpopulation at risk. (p. 2091)

In addition, the introduction of the Manitoba Breast Screening Program has resulted in rising rates of screening and declining SES gradients. Gupta et al. recommended that mammography programs explore more fully the effect on SES disparities on coverage.

Factors such as poverty, unemployment, and lower educational level were found to pose ongoing barriers to cancer screening in Coughlin, Uhler, Hall, and Briss's (2004) study. The researchers studied the relationship of nonadherence to breast and cervical cancer screening and health behaviours to other factors that influence chronic disease risk. They examined the breast and cervical cancer screening practices of 4,961 American Indian and Alaska Native women in 47 states from 1992 to 1997 by using data from the Behavioural Risk Factor Surveillance System. They found that current cigarette smokers in their study who had not had a recent cholesterol or blood pressure check were particularly unlikely to have had a recent mammogram or Pap test. Coughlin et al. also found that the obese women in their study were less likely to undergo breast and cervical cancer screening because they may have been more reluctant to undergo procedures such as pelvic examinations and clinical breast examinations that involved disrobing or a physical examination.

Coughlin et al. (2004) also found that women who had seen a physician in the past year were much more likely to have been screened for breast and cervical cancer. As reported by other researchers such as Fitch et al. (1998) and Miedema and Tatemichi (2003), having regular access to a health care provider increases the likelihood that a woman will be screened.

Lyttle and Stadelman (2006) conducted six focus groups with 69 Appalachian women ages 25 to 64 years to assess barriers to breast and cervical screening. The purpose of this qualitative study was to understand the women's attitudes toward breast and cervical cancer screening, identify factors that motivated the women to be screened, and evaluate educational material. The "findings seem to coincide with the findings of several national surveys which suggest that poor, less educated, and uninsured populations are more likely to underuse breast and cervical cancer screening services" (Lyttle & Stadelman, p. 6). The researchers also found that the cost of health care and the lack of health insurance were the main concerns and barriers to screening for these women. Interestingly, in Canada, women do not have to pay for breast and cervical cancer screening, but the screening rates are still well below the projected rates.

In the Canadian province of New Brunswick, Miedema and Tatemichi (2003) sent self-administered surveys to 800 randomly selected women ages 50 to 69 to find out what prompts women to be screened. The goals of the study were to assess the impact of a public health program by examining breast cancer screening compliance rates, assess cervical cancer screening rates, and document the barriers to screening and prompt that increase screening compliance. The researchers reported that "for mammography screening, the important screening prompts were related to personal contact with a physician, either through a clinical breast exam, attendance for a Papanicolaou smear, or a direct recommendation" (p. 185). The women's perception of personal risk for breast cancer was also a motivator for compliance with mammography screening. Miedema and Tatemichi also found an association between attendance for Pap smears and clinical

breast exams: When women engage in one measure of preventive health, they also engage in other measures.

Aboriginal Women

Aboriginal people have a unique culture, spirituality, and approach to healing. They have healing circles and organizations that focus on the mind, body, and spirit health of the whole being. Given that Aboriginal people have a different view of health, and because Aboriginal women's screening rates are lower than those for other populations, many researchers have sought to identify Aboriginal women's knowledge, gaps, and barriers toward breast and cervical screening. Because of the increased number of studies, this literature review chose to focus on Aboriginal women. The section is divided into three subsections that include studies of Aboriginal women and breast cancer, Aboriginal women and cervical cancer, and Aboriginal women and breast and cervical cancer.

Aboriginal Women and Breast Cancer

Breast cancer is the most common cancer among Canadian women; however, information about Canadian women is drawn from data in cancer registries that are not compiled by ethnic background. Consequently, information about the breast cancer rate in Aboriginal women is unavailable. U.S. data on Aboriginal populations can inform us about breast cancer patterns in Canada. The following studies have concluded that Native American women have the lowest screening rate compared to White American women and that they have the lowest level of education, the lowest insurance coverage, and the least knowledge of breast cancer.

Kagay, Quale, and Smith-Bindman (2006) evaluated 146,669 American women ages 65 years and older between 1991 and 2001. They used a representative 5% sample of elderly women using Medicare data. Multivariate repeated-measures logistic regression was used to examine predictors of screening usage. Kagay et al. found that the Native American women had substantially lower screening rates than either the White American or the African American women in the study. “The biennial screening rate in 2000-2001 was 50.6% for non-Hispanic white, 10.5% for African-American, 34.7% for Asian-American, 36.3% for Hispanic, and 12.5% for Native-American women” (Kagay et al., p. 142). The data showed persistent discrepancies in screening for all racial and ethnic groups when compared to White women.

Paskett et al. (2004) administered a baseline survey to 897 women ages 40 years of age and older who lived in poor, rural Robeson County in North Carolina. They commented, “Overall, Native American and African-American women had lower levels of knowledge, more inaccurate beliefs, and more barriers to screening compared with white women” (p. 2650). In this study, Native American women had the lowest levels of education, the lowest insurance coverage, and the least amount of accurate knowledge regarding breast carcinoma. They also had the highest perceived breast carcinoma risk and elevated levels of concern regarding the development of this malignancy. The researchers concluded that more research is needed to clarify the reasons for these findings. However, the researchers also believed that their results showed that Native American women “require interventions to change their beliefs, minimize their barriers, and improve their level of knowledge, thereby making them more likely to adhere to screening guidelines” (p. 2658).

Using an exploratory design study, Becker, Affonso, and Blue Horse Beard (2006) recruited 28 American Indian women ages 35 to 75 to discuss their views of cancer. The women expressed the belief that although American Indians do not get cancer as often as other groups, when they do, it is deadly. "Screening for cancer causes cancer, and talking about cancer may invite the spirit of the disease into one's body or the body of a family member.... Cancer is viewed as threatening, damaging, and often final to women" (Becker et al., p. 34). The women believed that life with "Mother Earth" is only part of the continuum. The participants felt that life is to be taken as it presents itself, that cancer is beyond their control, and that one must ultimately die of something.

The women in this study felt more intense psychological barriers with Pap tests than with either clinical breast exam or mammography. The participants talked about the trauma they felt during Pap tests because of past personal experiences of incest or rape. They stated that "our women have experienced humiliation with this type of test, because of what has happened to some of us" (as cited in Becker et al., 2006, p. 32). They also stated they would have no anxiety if they could be scheduled for a mammogram without the Pap test. The researchers concluded that health care professionals must be sensitive to cultural beliefs and traditions when working with American Indian women.

Aboriginal Women and Cervical Cancer

Nova Scotia is one of only two Canadian provinces, Manitoba being the other, with a longstanding, organized cervical screening program. Because Canadian provincial health databases do not identify ethnicity or language, analyses employing these variables are typically not available. Johnston, Boyd, and MacIsaac (2004) overcame this problem by using community-based rather than person-based measures. They identified 360,587

females who were 18 years and over who resided in Nova Scotia between June 1998 and April 1999 through the provincial claims administration organization. The provincial Health Care Number database and Provincial Cytology Registry (PCR) were linked using health card numbers and other personal identifiers to ascertain the screening status of all women in Nova Scotia. Postal codes of residence were linked to census enumeration areas and then to 1996 census data to obtain community measures for each woman.

Associations with having had a recent Pap smear were then reported by community, income, language, ethnic group, and urban/rural status, as well as the woman's age. Johnston et al. (2004) concluded:

Women were less likely to have had a recent Pap smear if they resided in Cape Breton and were from Aboriginal or mixed Black communities, or were living in lower incomes areas. Women who were 30 to 44 years were most likely to have had a recent Pap smear. Women who were older and living in low income, Aboriginal, mixed Black and rural communities were less likely to have had a recent Pap smear. Women in mainland Nova Scotia were more likely to have had a recent Pap smear. Women in majority Francophone communities did not differ markedly from other women regarding whether they had had a recent Pap smear. (pp. 97-98)

Young, Kliewer, Blanchard, and Mayer (2000) sought to estimate the rates of cervical cancer and Pap testing among Aboriginal and non-Aboriginal women in Manitoba, Canada. Based on information from the Manitoba Health Services Insurance Plan databases, they identified all women whose physicians had submitted claims for performing Pap tests. They were then able to establish a cohort of women who were continuously resident in the province for a 3-year period during fiscal years 1993-1994 and 1995-1996 and determine the number of Pap tests each woman received within that period.

Young et al. (2000) found that “in comparison to non-Aboriginal women, Aboriginal women have 1.8 and 3.6 times the age-standardized incidence rates of in situ and invasive cervical cancer, respectively” (p. 2). With the exception of females ages 15 to 19, Aboriginal women are less likely to have had at least one Pap test in the preceding 3 years. Aboriginal women in Canada and the United States are at higher risk for developing and dying from cancer of the cervix than the general population. Young et al. found that despite the effectiveness of Pap test screening, high-risk groups such as Aboriginal women are not participating as frequently as lower risk groups. Such nonparticipation is not only the result of lack of information; it is also due to cultural and gender-related factors.

Women who are older, immigrant, or Aboriginal, or who have a lower SES, are at higher risk of developing cervical cancer because these groups show lower compliance with regular screening schedules. The PHAC (2002) asserted that “most women who develop cervical cancer remain unscreened or underscreened. Canadian studies show that 60% of cervical cancers occur in women who have not been screened in the previous 3 years” (p. x). The PHAC also found considerable international variation in incidence. Cervical cancer is the most common cancer in women in less developed nations; rates in many of these countries are 3 to 4 times higher than in Ontario. Within Canada, Ontario rates are intermediate, between the higher rates in the Atlantic regions and the lower rates in Québec and the West. The increased use of the Pap test through the 1960s and 1970s resulted in a dramatic decline in the rate of cervical cancer. Since 1980, the decline has been much slower, probably because many women do not have regular Pap tests.

Aboriginal Women and Breast and Cervical Cancer

Coughlin, Uhler, and Blackman (1999) examined the breast and cervical cancer screening practices of 4,961 American Indian and Alaska Native women. They concluded:

The older American Indian and Alaska Native women are less likely to be screened for breast and cervical cancer than are younger American Indian and Alaska Native women and that those with less education are also less likely to be screened. Women who had seen a physician in the past year were much more likely to have been screened for breast and cervical cancer. (p. 293)

Orians et al. (2004) examined tribal programs' implementation of public education strategies for delivering breast and cervical cancer screening in American Indian and Alaska Native populations by utilizing a multisite case study design. Data were collected from 141 semi-structured interviews with key informants and 16 focus groups with program-eligible women. Orians et al. found that the five tribal programs increased the level of awareness among women and their family members concerning breast and cervical cancer risks. They achieved this goal by carefully creating outreach and education activities that built on local understanding of the barriers and facilitators to screening among the women in their service areas. These included tailored messages and media, with an emphasis on one-on-one education and gifts, incentives, and outreach materials that incorporated Native artwork and images. The tribal programs used two common themes, namely, (a) honouring elder women as the spiritual leaders and the concern that if they lose the elder women, they will lose their culture, and (b) using the central role of personal encounters and word of mouth in conveying information. One interview quote illustrated the second theme:

It takes a community to put on a health program and to get women in for...screening - you not only have to talk to the woman, you have to talk to the

family, you have to talk to their friends, you have to talk to their coworkers. (as cited in Orians et al., p. 50)

Orians et al. (2004) also found that local media channels played some role in outreach. Radio was the most frequently used mode of transmission. Each year, a different pin depicting dancing Native women was distributed to each woman who came in for a mammogram, thus allowing her to acquire a collection through repeated annual visits. An idea for a one-time magazine came from a survey of local women regarding how they like to receive information. Word of mouth was at the top of the women's list, but second was picking up and reading a magazine. If it had a recipe or a craft they were interested in, they would read the whole magazine. The researchers reported:

The twin themes of honouring women and their culture and of approaching them one-one-one were evident across all five programs in their customized gifts and incentives, their radio shows or announcements, and in the personal interactions of screening providers with women when they come in for screening. (p. 53)

Curbow et al. (2004) conducted a comprehensive literature review of studies published from 2000 to 2003 that dealt with behaviour interventions for breast, cervical, and colorectal cancer screening. They identified 114 behavioural intervention studies published prior to 2000 and 42 studies published between 2000 and 2003. From these, 17 studies were identified as model interventions that were effective in significantly increasing screening rates among older populations. The researchers found that although older women have lower screening rates, they can be encouraged to engage in appropriate cancer screening behaviours through community-based interventions such as lay health care workers, mass media, community-based education, reminder notices/behavioural cues, and health care provider assistance.

Regrettably, most of the studies identified by Curbow et al. (2004) used multicomponent interventions that did not identify which component was causing the change. “It is important to focus on the components that induce the highest levels of change so that funds can be used to reach more people” (Curbow et al., p.686). In addition, the costs of the associated interventions would be necessary to know to make informed decisions concerning expanded services, design changes, and policy development.

Summary

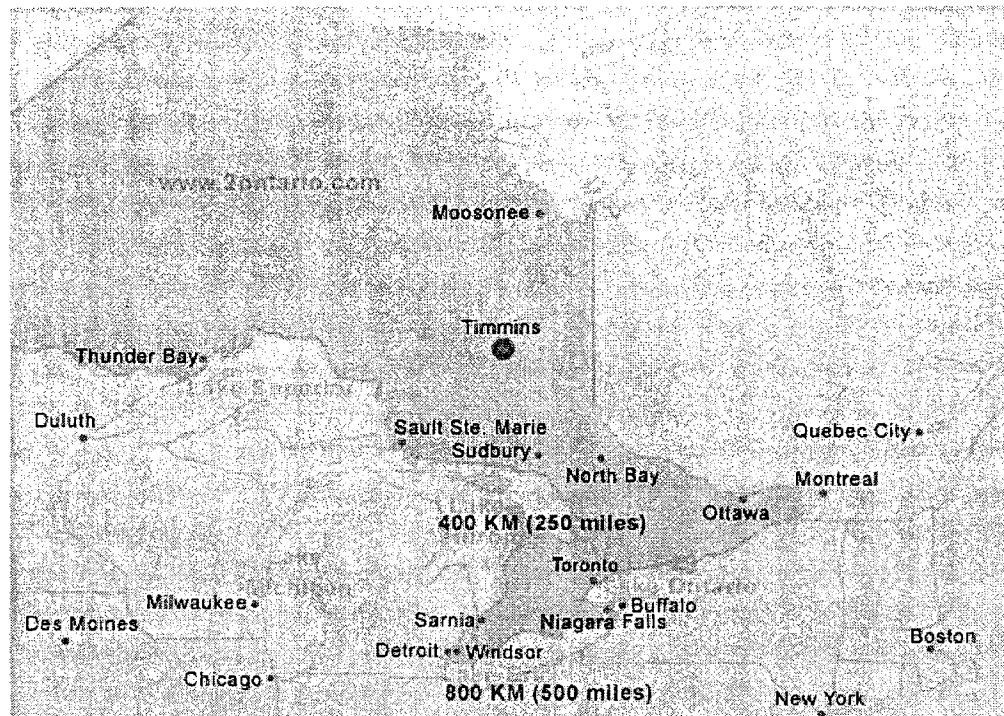
The majority of the research reviewed in this study highlighted the need to provide information about breast and cervical health and breast and cervical screening to women from minority ethnic groups, especially Aboriginal women. Health care professionals' lack of understanding about cultural beliefs, values, and knowledge, together with racial stereotyping and misconceptions about cancer in minority ethnic groups, poses challenges to information dissemination. Health care professionals need to work collaboratively with women from minority ethnic groups to identify culturally specific beliefs and values about breast and cervical cancer, as well as breast and cervical cancer risks and screening, to develop appropriate and acceptable information and dissemination strategies.

In this study, the breast and cervical cancer knowledge, attitudes and barriers of French Canadian and Aboriginal women living Timmins will be assessed. The purpose of this research is to provide a preliminary understanding of the effectiveness of breast cancer education campaigns directed at these women. This information, in turn, may provide insight into whether more focused, ethnic-specific health promotion programs are warranted.

Needs Assessment

Timmins is one of the largest cities in terms of area in Canada (3,210 sq km). It is situated 680 km north of Toronto (see Figure 6). The gold rush of 1909 earned Timmins the nickname of the “City with the Heart of Gold.” Mining is a large contributor to the city’s economic base. The city continues to prosper because of numerous additional gold deposits and important zinc, copper, nickel, and silver finds. The mining industry employs approximately 25% of the city’s workforce. (City of Timmins, 2009)

Timmins was founded in 1912 and named after Noah Timmins, founder of the Hollinger Gold Mine. The total population of Timmins is 42,997 (Statistics Canada, 2006). The median age of the residents of Timmins is 39.6, compared to 39.0 for Ontario and 39.5 for Canada (Statistics Canada). Timmins is in line with provincial and regional averages in terms of age-related demographics. Women ages 45 to 74 represent 17.5% of the Timmins population, compared to the provincial average of 17.3% (Statistics Canada).



*Figure 6. Map of Ontario, indicating the location of Timmins.
From 2ontario. (2007). Map of Ontario indicating the location of Timmins.*

The total population of Aboriginal people living in Timmins is 3,280 (7.6%), compared to 242,490 (1.9%) in the province of Ontario, respectively. There are approximately 475 Aboriginal women ages 45 to 74 living in Timmins. They represent 2.2% of the Timmins total female population. As well, 8,265 (38.5%) of Timmins' female population reported French as their first language learned and still understood, compared to 11,385 (53%) of the females in Timmins who reported English as their first language learned and still understood (Statistics Canada, 2006).

In 2002, breast cancer (41%) was the leading cause of cancer among females in the PDHU, followed by cancer of the trachea, bronchus, and lung (14%) and colon (13%; see Figure 7). It is important to note that the incidence of breast cancer was the highest among all cancers and that mortality from breast cancer was second to cancer of the

trachea, bronchus, and lung. Screening mammography is one of the most important methods of early diagnosis (PDHU, 2003).

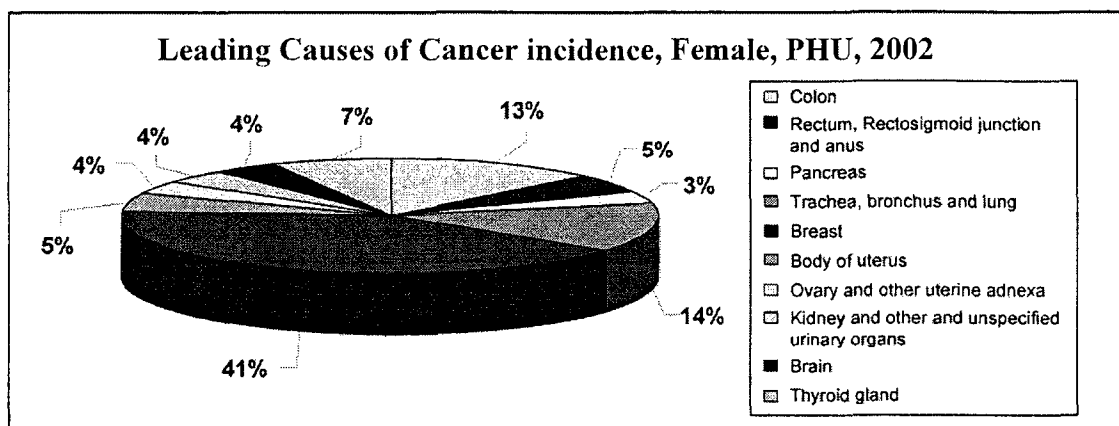


Figure 7. 2002 leading causes of cancer incidence female in PDHU.

From "Cancer incidence and mortality rate (1998-2002)," by Porcupine District Health Unit, 2003, *Epi News*, 5(2), 1-5.

Figure 8 shows the leading causes of mortality among females in the PDHU (2003) population in 2002. First was cancer of the trachea, bronchus, and lung at 36%; second to cancer of the respiratory tract was female breast cancer; third was colon cancer.

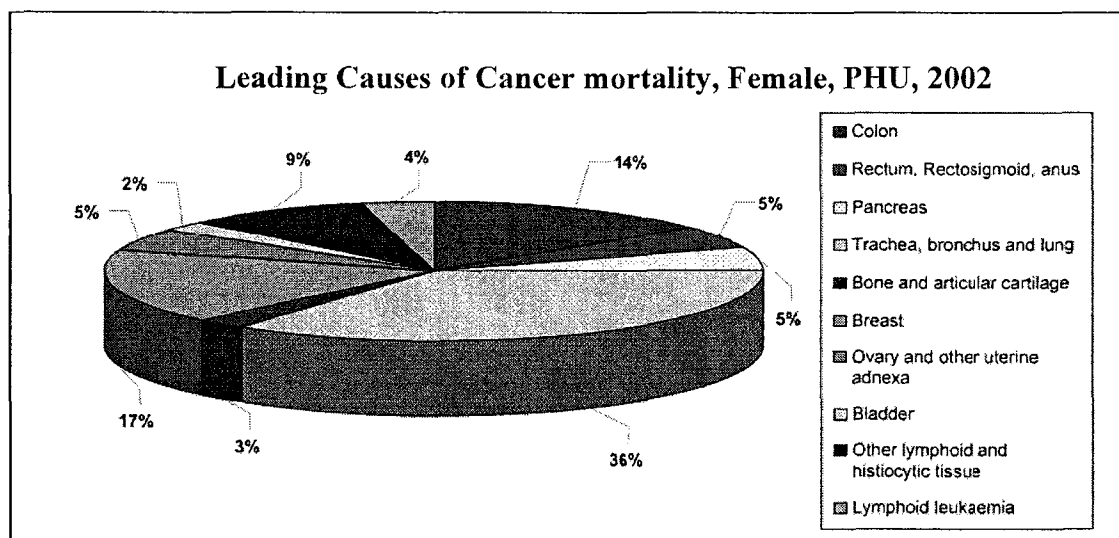


Figure 8. 2002 leading causes of cancer mortality of females in PDHU

From "Cancer incidence and mortality rate (1998-2002)," by Porcupine District Health Unit, 2003, *Epi News*, 5(2), 1-5.

According to the 2005 Statistics Canada census, there were 6,650 women ages 45 to 74 residing in Timmins. The number of women screened by the Ontario Breast Screening Program (OBSP) in Timmins in 2005 was 1,725, 1,924 in 2006 and 2,184 in 2007 (see Figure 9). Since it is recommended that women be screened every two years, it stands to reason that only half of the total number of these women should be screened on a yearly basis. Furthermore, Statistics Canada only provides the age range of 45 to 74; an additional 5 year range that would normally be precluded from our study of women aged 50 to 74. Consequently, less than 3,325 women in the City of Timmins would be screened on an annual basis. In theory, based on the 2005 census, 51.9% of the target population was screened in 2005, 57.9% in 2006 and 65.7% in 2007. The Cancer Care Ontario target rate of 70% of women 50 years of age and older to be screened by 2010 is closely being reached by the Timmins OBSP.

It is important to note that not all women are having their mammograms done through OBSP. As shown below in Figure 9, Timmins and District Hospital administer a large number of mammograms to women 50 years of age through their diagnostic services. These women, who come from the Cochrane District area, are not taken into account when calculating the percentage of women screened. As a result, more women are being screened than are actually recorded. Unfortunately, we cannot simply use the number of mammograms taken outside the OPSP process as a means to calculate the total number of women screened because a woman going through the diagnostic services may receive multiple mammograms.

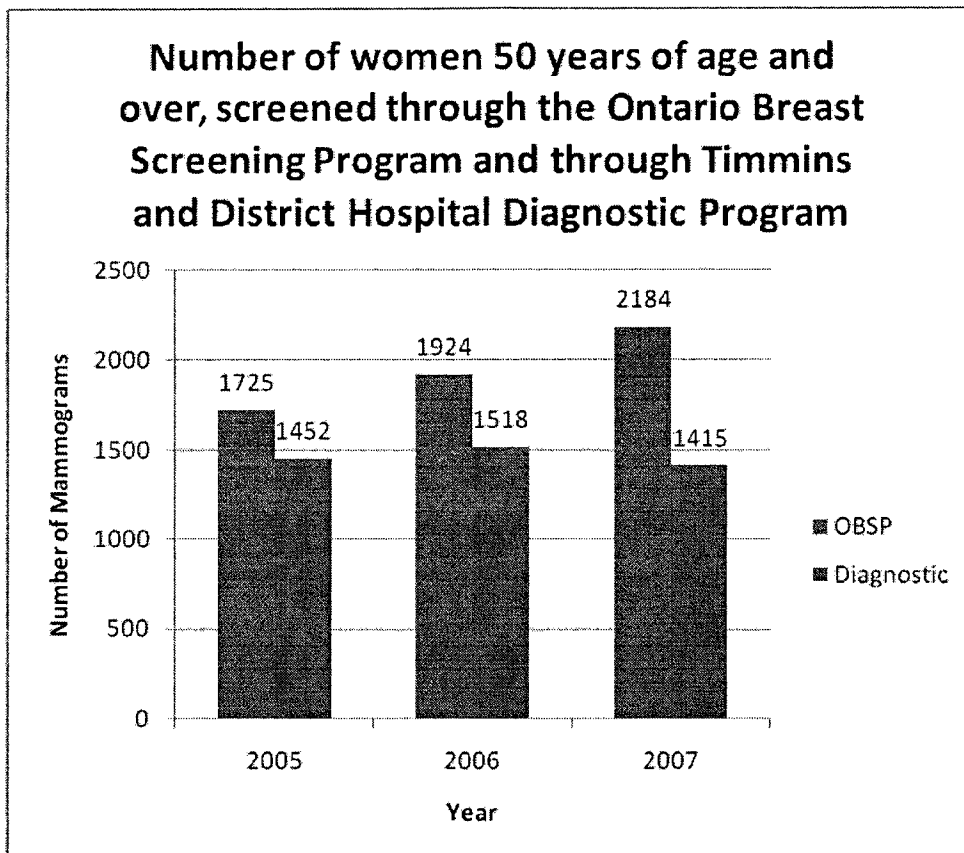


Figure 9. Number of women, 50 years of age and over, screened through the Ontario Breast Screening Program and through Timmins and District Hospital Diagnostic Program.

From Participation rate (%) for Each County in Northeast CCOR region, by Age Group, 2005, 2006 and 2007, by OBSP, Sudbury, ON.

Canadian Cancer Society (2007) stated that breast cancer is the most commonly diagnosed cancer in Ontario women, accounting for almost 28% of all female cases. Incidence increases with age, but it levels off somewhat after age 50. During the 1970s and 1980s, the incidence of breast cancer rose steadily, but mortality remained relatively stable. During the 1990s, the overall age-adjusted incidence rates levelled off; mortality rates have fallen somewhat since then. There is considerable international geographic variation in incidence, with Ontario, the rest of Canada, and the United States having some of the highest rates in the world. They are more than twice the incidence found in

Asia and Africa. Within Canada, the provinces of Manitoba and Nova Scotia have higher rates, whereas Newfoundland, Ontario, and Québec have lower rates.

The Timmins and District Hospital provides mammography services through the OBSP; physicians can also refer women through the diagnostic route. The OBSP has not reached its capacity and is currently able to increase staff hours to meet the needs of the population. Because of the physician shortage, more nurse practitioners (NPs) have been hired in Timmins to serve clients who do not have family physicians. However, the NPs have stopped taking referrals because they also have reached the maximum number of clients for their practices. Unfortunately, women without family physicians or NPs are not receiving regularly scheduled Pap tests. The PDHU's Sexual Health Department used to offer Pap tests to women who did not have family physicians, but it, too, is no longer taking new referrals because of the shortage of nursing staff. According to the North East Local Health Integration Network (2006), Timmins has 36 physicians, but it needs 1 more doctor and 4 more NPs.

To date, however, no formal data collection has been done on the factors that affect the participation of women to breast and cervical screening programs in Timmins. The PDHU conducted a survey in 2005 of physicians and NPs in the district. The survey goal was to identify their views and practices relevant to the OBSP. A total of 88 surveys were sent out, and 26 surveys were returned. Of the physicians and NPs who replied, 42.3% always refer to OBSP, 46.15 often refer, 7.69% seldom refer, and 3.84% never refer. When asked the reasons for not referring clients to OBSP, they replied that their patients did not meet the OBSP guidelines because they were under the age of 50, they had a history of cancer, they had breast implants, or they had acute breast problems.

Some other comments were that they did not feel that all women require breast screening; they found the OBSP to be a duplication of service, that is, an expensive alternative that is too narrow in scope. It was interesting to note that following the mail-out of the survey with OBSP pamphlets and posters, there was an increase of referrals to the Timmins OBSP site. (PDHU, 2005)

In May 2007, the CCS, in collaboration with the Northeastern Ontario Regional Cancer Program, developed its 2-year Lay Health Educator Pilot Project for Timmins, Cochrane, Kirkland Lake, Sudbury, and the 7 First Nations communities in the Manitoulin Island District (NORCP/CCS, 2007). The purpose of the project was to demonstrate that an increase in screening rates for breast and cervical cancers can be achieved by using lay health educators. These volunteer educators are trained “natural helpers” (e.g., relatives, friends, neighbours, coworkers). They are women who might ask another woman in their daily lives what she knows about the early detection of breast and cervical cancer, listen to her concerns, tell her about available services, or talk to and encourage her after she has been screened.

The overarching goal of this project was to increase breast and cervical cancer screening across the selected communities and reduce breast and cervical cancer mortality rates among members of underscreened and unscreened target groups. The project targeted women ages 50 to 74 for breast screening and sexually active women ages 18 to 69 for organized cervical screening. A senior coordinator was hired within Ontario Division’s Prevention portfolio and is now based in the CCS’s Regional Office in Sudbury. Four community coordinators from the target communities were hired to work under the guidance of the senior coordinator to bridge their communities with the formal

health care system. The community coordinators recruit and train the lay health educators, who are CCS volunteers. In addition, community advisory groups were formed in each community.

The lay health educator volunteers' central function is to organize community-oriented interventions, such as helping to build an informal support network with other women in the community. Their role is to increase women's knowledge about and positive attitudes toward screening and increasing screening behaviours, and informing women about related community resources. They are trained to clarify misperceptions about breast and cervical cancers, mammography and Pap screening, and to identify barriers to screening. These volunteers can be health care workers, hairdressers, retired women, or any other interested individuals.

After almost a year and a half since implementation, the project in Timmins has trained 10 volunteers. The project is being evaluated by assessing the increase of women's knowledge of breast and cervical cancer screening through pre- and post-tests during all information sessions. The volunteers are also providing OBSP postcards with stickers to women and asking them to present them to the OBSP staff as one way to track the number of uptake. It will be interesting to see the success this project has accomplished after the 2-year term is over.

CHAPTER III: METHODOLOGY

Research Design

The study is a descriptive exploratory design that is quantitative and qualitative in nature. Gay (2007) defined a descriptive study as “the most basic form of epidemiology, which is the description of the patterns of occurrence of health-related states or events in groups; answering the questions of ‘Who?’ ‘What?’ ‘Where?’ and ‘When?’ ” (p. 1). It has no regard to causal or other hypotheses. The primary goal of this research design is to assess a sample of women ages 40 and older in Timmins at one specific point in time without trying to make inferences or causal statements. The primary reason for conducting this study is to provide informal information about the barriers to cancer screening.

Last (2001) defined qualitative research as “any type of research that employs nonnumeric information to explore individual or group characteristics, producing findings not arrived at by statistical procedures or quantitative means” (p.1 47). The aim of qualitative analysis is to present a complete and detailed description, whereas quantitative research involves the analysis of numerical data in an attempt to explain what is observed. Both qualitative and quantitative analyses have something to contribute to this study.

The purpose of this study is to evaluate the knowledge, attitudes, and barriers with regard to breast/cervical health, early detection and screening of the francophone and Aboriginal women in Timmins. These two cultures represent the largest minority groups within Timmins as a result they provide the best opportunity to determine the barriers within non majority groups in the community. In addition, there is a lack of research of

francophone women in relation to breast and cervical cancer screening consequently, this study provides an opportunity to advance information for this population.

A breast-cervical health-screening questionnaire was administered to 30 francophone and 30 Aboriginal women (see Appendix A). The questionnaire, designed by Steven et al. (2001), will document the community-identified needs with regard to breast and cervical screening requirements. It will also explore culturally accepted methods of healing.

This research used an interview guide originally developed by Steven et al. (2001). The interview guide contains information regarding knowledge, attitudes, beliefs and practices about BSE, mammography, and cervical cancer screening procedures. Steven et al. conducted a pilot study to assess the appropriateness of the tool, and an expert committee reviewed the tool to enhance its validity and reliability. The data were obtained through face-to-face interviews in English and French with 30 francophone and 30 Aboriginal women. The researcher speaks both English and French. Fortunately, all Aboriginal women in this study spoke English; consequently a Cree translator was not needed to participate during the interviews.

Sample

The researcher used convenience sampling to recruit participants for this study. All of the participants were residents of Timmins, Ontario, and belonged to one of the selected ethnic groups: francophone or Aboriginal. The participants were recruited through networking, or snowball sampling. According to Salganik and Heckathorn (2004) the basic intent of snowball sampling is that the following:

Respondents are selected not from a sampling frame but from the friendship network of existing members of the sample. The sampling process begins when

the researchers select a small number of seeds who are the first people to participate in the study. These seeds then recruit others to participate in the study. This process of existing sample members recruiting future sample members continues until the desired sample size is reached. Experience with chain-referral methods has shown them to be effective at penetrating hidden populations. However, researchers also correctly realized that the promise of chain-referral methods was tempered by the difficulty of making statistical inferences from this type of sample. (pp. 196-197)

The snowball sampling approach allows the researcher to present summary statistics about the sample; however, generalization to the target population of interest will not be possible because the sample was not randomly selected. The participants were initially identified through the researcher's francophone acquaintances, and the Aboriginal women were identified through the Misiway Milopemahtesewin Community Health Centre, the Wabun Tribal Council Health Nurse and the Timmins Native Friendship Centre. These organizations have graciously consented to help the researcher recruit Aboriginal women to participate in the study and answer the questionnaire. Those participants were then asked to name acquaintances that were added to the sample; these individuals, in turn, were asked to name further acquaintances, and so on, until 30 participants were accumulated for each group.

Ethical Considerations

This study was approved by the Ethics Review Board of Lakehead University of Thunder Bay, Ontario (see Appendix D for approval letter). The participants were informed that their responses would be kept strictly anonymous and confidential. Anonymity of the responses was ensured through the use of coded numbers rather than names to identify the participants.

Data Collection

A total of 60 interviews were completed, 30 from the French population and 30 from the Aboriginal population. The researcher started with interested French co-workers and then used the snowballing effect to recruit more French women. As for the Aboriginal sample population, the researcher asked for help to recruit Aboriginal women from the Misiway Community Health Centre, the Wabun Tribal Council Community Health Nurse and the Timmins Native Friendship Centre. The snowball method was also used once interested Aboriginal women agreed to participate in the study.

Because the participants were taking time out of their schedules to help the researcher, she made sure to be prepared, organized, and punctual for the scheduled appointments. The purpose, nature, and format of the interview were made clear to each participant before the meeting. Prior to the interview, the researcher tried to establish a rapport by having a casual conversation with the participant. The researcher asked one question at a time and attempted to remain as neutral as possible.

Prior to collecting the data, the researcher read an information letter to each participant explaining the objectives and procedures of the study (see Appendix B). Both parties signed the informed consent form (see Appendix C). Each interview lasted from 1 to 1.5 hours and was conducted in the participant's home or at an alternate location of the participant's choosing.

The researcher asked structured questions, and each participant was allowed to speak freely of her experiences. All interviews were audiotaped and transcribed by the researcher. The researcher assured the participants that the data would remain confidential and secure. The participants were told that they were free to withdraw from

the study at any time and that they would not suffer any consequences because of their decision.

The survey instrument included qualitative and quantitative questions. The questionnaire collected demographic information, including participant's age, education level, employment, marital status, number of children, and so on. All of the participants were asked questions regarding their general health and their eating and exercising habits. Information on knowledge, attitudes, and practices related to breast and cervical screening were assessed using specific questions. The participants were encouraged to speak freely about their experiences.

Data Analysis

Demographic information was summarized for descriptive purposes. The researcher compared survey responses for French and Aboriginal women using Student's t tests for scores and X^2 statistics for categorical responses. The interviews were analyzed using content analysis, which enabled the researcher to sift through large volumes of data with relative ease and in a systematic fashion (Stemler, 2001). Following data collection, the interview data were transcribed verbatim by the researcher. The interviews that were conducted in French were translated into English by the researcher. The translations of the interviews were confirmed as accurate by a local professional translator.

Validity and Reliability

Transferability (external validity) involves the ability to generalize findings to the population from which the sample was drawn. Various approaches were taken by the researcher in this study to increase generalizability of this study's findings. The researcher sampled several networks of women with various incomes from different parts

of the City of Timmins. The researcher also ensured that the various socio economic groups were represented in the sample.

Reliability was confirmed in this study through keeping field notes and transcribing the interview data verbatim. The verbatim translation was to ensure that the participant's responses were not misrepresented. Dependability was achieved by having a second person fluent in both English and French confirm the translations and transcriptions. The objectivity of the researcher was achieved by reading the data several times to confirm the relationships between the responses.

CHAPTER IV: RESULTS

Sample Characteristics

Demographic information for each group on age, marital status, education, number of children and whether they reside in the urban city centre or in the city's rural area are presented in Table 1 and 2. The sample was comprised of women between the ages of 40 and 77, and French women were significantly older than the Aboriginal women. This age difference is a limitation for comparing the groups on indices that increase with age, such as the incidence of breast and cervical cancer. However, for the purposes of this study, the identification of strategies for improving cancer screening behaviours, the age difference was not a serious limitation.

Table 1
Summary of Demographic Information Using t-test Analysis

Demographic Information Percentages	French	Aboriginal	p-value
Age Range			0.019*
40 – 45	30.0	50.0	
46 – 50	20.0	16.7	
51 – 55	0	16.7	
56 – 60	6.7	6.7	
61 – 65	20.0	0	
66 and over	23.3	10	
Parenting			
Children	2.62	2.86	0.467

Table 2
Summary of Demographic Information Using Chi-square Analysis

Demographic Information Percentages	French	Aboriginal	p-value
Marital Status			0.001*
Single	3.3	16.7	
Married	80.0	36.7	
Common-law	3.3	23.3	
Separated	6.7	6.7	
Widowed	3.3	6.7	
Divorced	3.3	10.0	
Education			0.024*
Grade School	36.7	36.7	
Diploma	20.0	46.7	
Degree	43.3	10.0	
Graduate	0	6.7	
Employment			0.028*

Full-time	53.3	80.0	
Part-time/ no employment	46.7	20.0	
Live			0.559
Urban	70.0	76.7	
Rural	30.0	23.3	
Parenting			
Mothers	96.7	96.7	1.000
Breastfed	46.7	56.7	0.438

Other demographic differences between the groups were that the French women were significantly more likely to be married (the analysis compared those who were married to the other categories). As well, the Aboriginal women were significantly more likely to be employed full time. This may be due to the fact that the French women in this study were older and many were retired. The majority of the French participants in this study were nurses, health inspectors, administrative workers, and teachers. Most of the Aboriginal women were community services workers, administrative workers, teachers and nurse practitioners.

The groups did not differ significantly in living in urban versus rural areas. They did differ significantly in education. The women were equal in grade school levels but Aboriginal women were more likely to have only a high school diploma, whereas more of the French women had university degrees.

The participants were mostly mothers. The groups did not differ in the average number of children. The French women had an average of 2.62 children and the Aboriginal women had an average of 2.86 children. Approximately, 46.7% of the French women reported having breastfed compared to 56.7% Aboriginal women who breastfed.

Table 3 summarizes the participants' general health indices. The groups differed significantly on three measures. The French women described their health as significantly better (analysis compared those who stated that their health was very good or good to the women who stated their health was okay or not very good). They also reported significantly more control over their health (analysis compared those who had a lot control to the other categories). No one answered they felt no control over their health. As well, the French women were significantly less likely to currently smoke or to have ever smoked.

The groups did not differ significantly in whether they had a check up in the last year (analysis compared those who had a check-up within the last year to the other categories), how often they exercise each week, whether they have used oral contraceptives in the past, or whether they have used hormone replacement therapy. Only 16.7% of Aboriginal women reported having taken Hormone Replacement Therapy as compared to 33.3% of French women. This might be related to the age difference.

Table 3
General Health Indices of the Participants

General health indices Percentages	French	Aboriginal	p-value
Last Check Up			0.405
within last year	63.3	73.3	
within past 1-2 years	23.3	6.7	
within past 3-4 years	6.7	10.0	
5 years or more	6.7	10.0	
Description of Health			0.020*
very good	40.0	20.0	
good	46.7	40.0	
okay	10.0	33.3	

not very good	3.3	6.7	
Control over Health			0.007*
A lot of control	53.3	20.0	
A fair bit of control	43.3	73.3	
Not very much control	3.3	6.7	
Exercise (times per week)			0.108
0 to 2	26.7	46.7	
3 and more	73.3	53.3	
Smoking Behaviours			
Ever smoked	30.0	90.0	<0.001*
Currently smoke	6.7	50.0	<0.001*
Birth Control			0.739
Yes	80.0	83.3	
No	20.0	16.7	
Used Hormone replacement therapy in the past			0.136
Yes	33.3	16.7	
No	66.7	83.3	

Eating Behaviours

Fifty percent of the French women and 43.3% the Aboriginal women reported cooking with mostly low fat and some high fat. Approximately 40% of the French women and 36.7% of the Aboriginal women stated they ate 5 or more portions of fruits and vegetables a day.

Medical Conditions

The women were asked if they had ever been diagnosed with several illnesses. The most frequent response for the French women was high blood pressure (33.3%) and cancer (36.7%). As for the Aboriginal women they were more prone to diabetes (33.3%).

Five women reported having had cervical cancer: 4 French (13.3%) women and 1 Aboriginal (0.03%) woman. Four French (13.3%) women reported having had breast cancer. None of the Aboriginal participants reported ever having had breast cancer.

Knowledge of Breast Cancer

This section addresses the women's knowledge of breast cancer screening and the causes of breast cancer. The responses to questions designed to determine the participants' general knowledge of breast self-exam, clinical breast exam, and mammograms are presented in Table 4. None of the group differences were significant, although the difference between women in the two groups having their breasts examined approached statistical significance, $p=0.053$. When asked if "you ever had your breasts examined", 90% of the French women answered "yes" while only 70% of Aboriginal women answered "yes". The participants' knowledge of breast cancer screening is generally adequate (80 – 100 % answering "yes"). The slightly lower rate of mammograms in the Aboriginal women (60%) compared to 76.7% of French women is likely due to age differences since women under the age of 50 are not eligible to have a breast mammogram and would be less likely to get a clinical breast exam.

All women interviewed were aware that a woman can examine their own breasts and most were comfortable doing a breast self-exam (BSE). Most of the women stated that BSE had been demonstrated to them by their family physician, the OBSP nurse or the Public Health Nurse.

Table 4
Percentage of Women in Each Group who Answered "yes" to the Following Questions

Breast Cancer	French	Aboriginal	p-value
Have you ever had your breast examined?	90.0	70.0	0.053
Have you had a lump in your breast?	20.0	6.7	0.129
Are you aware that women can examine their own breasts?	100.0	100.0	1.000
Has anyone demonstrated breast self-exam (BSE) to you?	90.0	80.0	0.278
Have you ever done a BSE?	93.3	90.0	0.640
Do you do BSE on a monthly basis?	43.3	26.7	0.176
Do you feel comfortable doing BSE?	90.0	90.0	1.000
Do you feel you would be able to detect any abnormality?	63.3	53.3	0.432
Do you know anyone who has breast cancer?	80.0	80.0	1.000
Do you know about breast x-ray or mammography?	100.0	100.0	1.000
Have you ever had a breast x-ray or mammography?	76.7	60.0	0.165

Women were also asked to identify risk factors for breast cancer. As noted in Table 5, most French women identified at least one risk factor for breast cancer. Only 6.7% of French women could not think of a risk factor, which was significantly lower than the 60.0% of the Aboriginal sample who could not think of a risk factor. The risk factors that were significantly different for both populations included: genetics, increased age, high fat diet, lack of exercise, pesticides and other environmental hazards.

Table 5
Identified Risk Factors for Breast Cancer

Knowledge of Breast Cancer Risk Factors Percentages	French	Aboriginal	p-value
Genetics	50.0	20.0	0.015*
Increased age	20.0	0.0	0.010*
High Fat Diet	63.3	16.7	<0.001*
Lack of Exercise	33.3	3.3	0.003*
Never being pregnant	3.3	0.0	0.313
Having a child after the age of 35 years	3.3	0.0	0.313
Not Breastfeeding	6.7	10.0	0.640
High Breast Density	3.3	0.0	0.313
Oral contraception	10.0	0.0	0.076
Hormone Replacement Therapy	10.0	0.0	0.076
Alcohol Consumption	10.0	0.0	0.076
Radiation	3.3	0.0	0.313
Pesticides and other Environmental Hazards	23.3	0.0	0.005*
I don't know	6.7	60.0	<0.001*

When asked about the causes of breast cancer, half of the Francophone women and 20% of the Aboriginal women cited family history or genetics as the main cause of breast cancer, suggesting there may be some exaggeration of this risk factor when health professionals are educating women. Most women who get breast cancer do not have an inherited abnormal breast cancer gene. BRCA1 and BRCA2 abnormalities probably account for only about 10% of all breast cancers (Love, 2005, p.173). None of the Aboriginal women identified age as a risk factor and only 20.0% of the French women identified it. There is a cumulative risk of breast cancer as a woman ages. Most breast

cancers occur after the age of 50, hence the reason why mammograms are recommended for women 50 years of age and over.

Only French women identified “never being pregnant” and “having a child after 35 years of age” as risk factors. In fact, women who have never been pregnant seem to be more at risk than women who have a child before 35. The hormones of pregnancy carried to term will mature the breast tissue, making it less susceptible to carcinogens (Love, 2005, p.152). One French woman identified high breast density as a risk factor. Women whose mammograms show very dense tissue are at significantly higher risk of breast cancer (Love, 2005, p.153). Another risk factor, oral contraception, was identified by 10.0% of the French women only. Oral contraceptives may produce a slight increase in breast cancer risk among long-term users, but this appears to be a short-term effect.

An analysis of the effect of birth control pills on the risk of breast cancer by age found no increased risk among women age 24 to 39, but did find a risk for women under 24 and over 39 who were currently taking the pill. Specifically, women between 46 to 54 had just about double the risk of breast cancer. Among those who stopped taking the pill, the additional risk disappeared after three years. (Love, 2005, p.154)

Hormone replacement therapy was identified as a risk factor by only 10% of the French women. Hormone replacement therapy was confirmed as a risk factor for breast cancer when the Women’s Health Initiative (WHI), a randomized controlled trial of about 160,000 postmenopausal women, investigated the risks and benefits of HRT. The estrogen-plus-progestin arm of the study, which randomized more than 16,000 women to receive combined HRT or placebo, was halted early because health risks exceeded benefits. Adverse outcomes prompting closure included significant increase in both total (245 vs. 185 cases) and invasive (199 vs. 150 cases) breast cancers (RR = 1.24; 95% CI,

1.02–1.5, $p < 0.001$) and increased risks of coronary heart disease, stroke, and pulmonary embolism (Writing Group for the Women's Health Initiative Investigators, 2002, p. 321).

Again only 10% of the French women identified alcohol consumption as a risk factor. The risk of breast cancer increases by approximately 10% for each 10g of daily alcohol intake (approximately 1 drink or less) in the general population (Hamajima et al, 2002, p. 1234). The reason behind alcohol consumption being a risk factor is that it increases the estrogen level in the blood of women putting them at high risk for breast cancer.

Only 1 woman (3.3%) in the French sample identified radiation as a risk factor. Observations in survivors of the atomic bombings of Hiroshima and Nagasaki and in women who have received therapeutic radiation treatments to the chest and upper body document increased breast cancer risk as a result of radiation exposure. Pesticides and other environmental hazards were not identified by the Aboriginal population, while 23.3% of the French population identified them as risk factors. Sources of estrogen in the environment are organochlorines (DDT) and PCBs, persistent environmental contaminants known as estrogen mimics that have been identified throughout the global ecosystem (Love, 2005, p. 160). While there may be an environmental relationship between pesticides and breast cancer it is probably small as several observational studies have failed to demonstrate a relationship. (Love, 2005, p.156-7). One French participant was convinced that environmental hazards were a cause of breast cancer. She stated:

- There are four or five women on one street near a mine site who have all developed breast cancer. That is too much to be a coincidence. I think the mines are polluting the environment.

Diet was identified by more than half of the French sample (63.3%) and 16.7% of the Aboriginal sample identified it. The idea that dietary fat can contribute to breast cancer has been around for a long time. The fat cells in a woman's body can make estrogen, so it is possible that an obese woman can have an oversupply of estrogen which increases her vulnerability to cancer (Love, 2005, p.163).

Lack of exercise was identified by 33.3% of the French women as compared to 3.3% of the Aboriginal group who identified it. Sedentary lifestyle may also be a risk factor. Weight gain and being overweight are commonly recognized risk factors for breast cancer and can also be a result of a lack of exercise.

Nine French women (30.0%) and five Aboriginal women (16.6%) identified smoking as a risk factor for breast cancer. Smoking is not a confirmed risk factor for breast cancer, however "other risk factors, including those that are only weakly associated with breast cancer and those that have been inconsistently associated with the disease in epidemiologic studies (e.g., cigarette smoking), may be important in subgroups of women defined according to genotype. For example, some studies have suggested that certain N-acetyl transferase alleles may influence female smokers' risk of developing breast cancer" (Ambrosone et al., 1996, p.1494). More studies would need to be conducted to confirm this risk factor.

Three French women (10.0%) believed that if a woman gets hit in the chest that it is a risk for breast cancer. One of those women stated that: "I think that the lady that was hit in the chest by a box... her cancer was dormant and it was woken up by the trauma." Trauma to the breasts has not been confirmed as a risk factor for breast cancer. "All a

bruised breast causes is temporary pain. Similarly, scar tissue that results from an injury to the breast won't cause cancer" (Love, 2005, p.26).

Other risk factors that were identified by the women and that have not been confirmed are stress, push-up bras, tanning beds and the sun. Three French women (10.0%) believed that stress was a risk factor for breast cancer. One French woman (3.3%) believed push-up bras caused cancer and another French woman (3.3%) identified tanning beds and the sun as risk factors for breast cancer.

Perceived Benefits of Breast Cancer Screening

All of the French and Aboriginal women stated that they believe that women should go through breast screening, even though some state that going through breast screening is uncomfortable. Some of the women stated that:

- It is smart and they are responsible for taking care of themselves.
- It's important especially with the number of people I know who have breast cancer.
- I think it's an excellent preventative habit. Women should all do it. Some women discover lumps by themselves. It's taking charge of your own health.
- I think it's a necessary practice because women are masters of their own bodies. They can do it more often than physicians. It's a good practice especially if there is a history.

Some women are in favour of BSE however they believed that mammograms were a better screening method than BSE.

- They (women) should not rely on BSE only; they should go for follow-up.

- I'm hesitant about the value I bring to the exercise. I wonder if I would pick up on it (breast cancer) as compared to a health professional.
- If they know what to look for, it's a good idea. When they find something then they can get it checked.

Perceived Barriers for Breast Cancer Screening

Most French and Aboriginal women were comfortable with breast self-exam and clinical breast exam; conversely most found mammograms hurtful and uncomfortable (Table 6). More French women (70.0%) stated being very comfortable with BSE as compared with Aboriginal women (50.0%), however, this difference was not significant (those very comfortable with BSE were compared to the other categories). Nevertheless, this difference is consistent with reports that French women are more comfortable with their bodies while Aboriginal women are shyer and more modest with their bodies.

Slightly more Aboriginal women (30.0%) stated they never had a clinical breast exam as compared to the French women (10.0%). This is probably due to the fact that half of the Aboriginal sample is younger than 45 years of age and is less likely to have had a mammogram or clinical breast exam.

Of the women that had a clinical breast exam slightly more of the French women reported that it was "O.K. and fine" or they were "comfortable" with it than Aboriginal women. A small number of Aboriginal women stated feeling awkward, nervous or scared.

Table 6
Women's Response to Breast Cancer Screening

<i>Percentages of women's response to breast screening</i>	<i>French</i>	<i>Aboriginal</i>	<i>p-value</i>
Breast Self Exam			0.114
Uncomfortable	10.0	10.0	
Fairly comfortable	20.0	40.0	
Very comfortable	70.0	50.0	
Clinical Breast Exam			0.537
O.K. It's fine	40.0	26.7	
Comfortable	23.3	16.7	
Relieved when it's over	3.3	3.3	
Embarrassed	3.3	0.0	
A little uncomfortable	13.3	0.0	
Not comfortable	3.3	3.3	
Awkward	0.0	3.3	
Nervous	0.0	6.7	
Scared	0.0	3.3	
Comfortable with female uncomfortable with male	3.3	6.7	
Never had clinical breast exam	10.0	30.0	
Mammogram			0.048*
Did not hurt	6.7	20.0	
Uncomfortable – hurts a little	30.0	16.7	
Hurts, very painful, bruising and torture	36.7	23.3	
It's barbaric I get an ultrasound instead	3.3	0.0	
Never had a mammogram	23.3	40.0	

In this study, 40.0% of Aboriginal women have never had a mammogram as compared to 23.3% of French women. A significantly greater number of French than

Aboriginal women stated that mammogram hurt. Additionally, one French participant stated:

- I do not get mammograms done because they are barbaric

Even though some women ask for an ultrasound instead of a mammogram to screen for breast cancer, it is not the preferred screening method as it does not detect microcalcifications or other signs visible on mammogram. (Love, 2005, p.111)

Breast Cancer Screening Behavioural Outcome

This section addresses the participants' behavioural outcome following their knowledge of screening recommendations. The question asked if a woman had been screened by a mammogram. The findings indicate that the participants (51 years of age and over) are compliant in having gone for a mammogram, 100% of the French and 90% of the Aboriginal women answered "yes". All reported having had a mammogram in the past except for one Aboriginal lady who is in the age range of 51 to 55 years and hasn't seen her family physician in over 5 years because she has not gotten around to it. All of the woman in the study heard the term mammogram and knew what it was for. However, there were a few who know they should be screened but are not being screened.

Participation may be impeded by cultural codes framing modesty or privacy issues for some aboriginal women (Trussler, 2007).

Recommended Strategies to Promote Breast Cancer Screening

Women were asked what strategies could be used by the Health Unit to encourage women to get breast cancer screening. Sixteen out of thirty French women suggested emphasizing the benefits of breast screening through advertising in magazines and television. They recommended having survivors tell about their experiences and

reminding us to get screened. One French woman stated that it “hits home when you know someone that has breast cancer.” For the past few years, the Health Unit in collaboration with OBSP and a local breast cancer survivor teacher have done a poster which promotes breast cancer screening. It has been very successful in that women notice it and it makes them realize that if it can happen to someone they know it can happen to them.

Eight out of thirty French women suggested that the doctor should play a role in educating women how to do BSE and they also suggested that doctors give out pamphlets. One French woman stated that “information should be made available for women to learn by themselves. Then it's completely private.”

Three French women mentioned that the Health Unit should continue the Woman's Wellness Day where there are several female doctors, nurse practitioners and nurses who teach about BSE and do CBE. One of the women stated that she “found that very good (Woman's Wellness Day), all women can talk and laugh. It's very comfortable.”

Three French women also suggested that BSE education be done for the high school and college girls. Three other women recommended that the Public Health Nurse hold forums or night sessions for women and men to educate them on breast cancer screening. Other methods of advertising mentioned were mail outs, the internet, display, health fairs, postcards, workplace factsheets and posters at bus stop.

In general, sixteen out of thirty (53.3%) of the French women suggested advertising breast cancer screening on television and in magazines. They also

recommended that women be educated by their physician through demonstration and pamphlets.

The Aboriginal women recommended other strategies for their population. Ten out of thirty women recommended that the Health Unit do presentations or demonstrations in Aboriginal women's groups. One Aboriginal lady stated, "Come and do presentations in an environment where they feel comfortable. Having an Aboriginal woman speak would be best... by telling her story." Two Aboriginal women suggested having a celebrity such as "Shania Twain or Susan Aglukark" to promote the need for breast screening. Four women suggested using a video and giving out pamphlets during the presentation.

Two Aboriginal women suggested having clinics in different areas of the City so that it is more accessible for women.

Other suggestions that were mentioned only once were to have mail outs, a poster of an Aboriginal woman, advertisement on television, getting information from women's doctor, do a tour of the Ontario Breast Screening Program and one on one education. It was also mentioned that the Wabun Tribal Nurse suggests that women have their annual check-ups and screening done on their birthday. Accordingly, the Aboriginal woman suggested the idea being very good and that other women should do the same.

One of the Aboriginal nurse practitioners stated that breast cancer screening is important, but she states: "unfortunately, there are other pressing issues such as diabetes and heart disease."

In general, Aboriginal women seem to want to be educated through presentations, pamphlets and videos. It was also suggested that the information given should be at a good literacy level and it should depict an Aboriginal woman.

Knowledge of Cervical Cancer

During the interviews, it was evident that most of the women had heard of cervical cancer. The women were asked to identify what they perceive to be the causes of cervical cancer. A risk factor is anything that changes your chance of getting a disease such as cancer. Having several risk factors increases your chance of developing cervical cancer. Women without any of the risk factors listed in Table 7 rarely develop cervical cancer. Although these risk factors increase the odds of developing cervical cancer, many women with these risks do not develop the disease. The causes recognized by the participants are presented in Table 7. A significantly greater number of Aboriginal than French women were unable to identify a single risk factor, answering "I don't know". However both groups showed a poor recognition of these risk factors. The risk factors for cervical cancer do not seem to be communicated as well as the risk factors for breast cancer. The risk factors that were significantly different for both populations included: multiple sexual partners and sexually transmitted infection.

Twenty percent of French women (20.0%) reported that early onset of sexual activity is a risk factor for cervical cancer as compared to only ten percent (10.0%) of the Aboriginal women. Early sexual activity is believed to increase the risk because during puberty, cervical tissue undergoes many changes that might make the area more vulnerable to damage (Health Canada, 2006).

Table 7
Identified Risk Factors for Cervical Cancer

Knowledge of Cervical Cancer Risk Factors	French	Aboriginal	p-value
Early onset of sexual activity	20.0	10.0	0.278
Multiple sexual partners	40.0	10.0	0.007*
Family history of cervical cancer	13.3	6.7	0.389
Human papillomavirus infection	10.0	6.7	0.640
Cigarette smoking	13.3	10.0	0.688
Sexually transmitted infection	20.0	3.3	0.044*
Diet	6.7	0.0	0.150
Oral contraception	6.7	0.0	0.150
Diethylstilbestrol	0.0	0.0	1.000
I don't know	33.3	80.0	<0.001*

Forty percent of the French women (40.0%) reported multiple sexual partners as a risk factor for cervical cancer; this was different from only ten percent of the Aboriginal women who reported it. Women are more likely to develop cervical cancer if they have multiple sexual partners or if the woman's partner has had many sexual partners.

Family history of cervical cancer was a risk factor identified by 13.3% of the French women and only 6.7% of the Aboriginal women. As well, there was not a difference in identifying HPV as a risk factor. Only 10% of the French women and only 6.7% of the Aboriginal women identified HPV as a risk factor. This is surprising considering all the publicity and controversy over the HPV vaccine.

Cigarette smoking was another risk factor with poor recognition. Some of the women had difficulty connecting smoking to cervical cancer. To the women, cervical cancer must be associated with materials or objects that have direct contact with the cervix or the vagina. In fact, smoking exposes the body to many cancer-causing

chemicals that affect more than the lungs. These harmful substances are absorbed by the lungs and carried in the bloodstream throughout the body. Tobacco by-products have been found in the cervical mucus of women who smoke. Researchers believe that these substances damage the DNA of cervix cells and may contribute to the development of cervical cancer (American Cancer Society, 2008).

Sexually transmitted infection was slightly different; twenty percent of the French women identified it as compared to only 3.3% of the Aboriginal women.

Only 6.7% of the French women reported oral contraception as a risk factor for cervical cancer. Research suggests that there is a potential long-term relationship between prolonged use of oral contraceptives and development of cervical cancer (Moreno, 2002).

As well, only 6.7% of the French women identified diet as a risk factor. There is some association between diet and increased cervical cancer risk. In particular, diets low in fruits and vegetables may increase the risk of cervical cancer. Increasing one's intake of micronutrients, such as carotene, vitamins C, and vitamin E may reduce the risk of cervical cancer. Like smoking, it is unlikely that diet plays any direct part in causing cervical cancer. But if you have a poor diet and are infected with 'high risk' HPV, your body may be less able to fight off the virus (American Cancer Society, 2008).

None of the participants identified Diethylstilbestrol (DES) as a risk factor for cervical cancer. DES is a hormonal drug that was given to some women to prevent miscarriage between 1940 and 1971. Women whose mothers took DES (when pregnant with them) develop clear-cell adenocarcinoma of the vagina or cervix more often than would normally be expected. There is about 1 case of this type of cancer in every 1,000

women whose mothers took DES during pregnancy. This means that about 99.9% of "DES daughters" do not develop these cancers (American Cancer Society, 2008).

In summary, the most dramatic finding was that majority of the women are unaware of the risk factors of cervical cancer, especially the Aboriginal women. Multiple sexual partners was the most recognized risk factor for cervical cancer.

Perceived Benefits of Cervical Cancer Screening

All of the French and Aboriginal women believe that women should go through cervical cancer screening, even though some state that going through a Pap test is uncomfortable. Women stated the following:

- It's never comfortable but you get it done for your health.
- I didn't like it at first but you get accustomed. You do it because you know it's important.
- I'm comfortable (with Pap tests). I'm more interested in my health than being embarrassed.

Some of the women identified the following strategies as beneficial to helping them be more comfortable:

- warm equipment, nice relaxing room, non-sterile, nice music, female examiner
- My doctor warms speculum and puts a fair amount of gel and talks it through.
- pretend you are in Hawaii, visualisation
- Use relaxation techniques and deep breathing.
- I shower before a Pap to relax.
- My doctor has a cartoon on the ceiling to help women relax.

Perceived Barriers to Obtaining a Pap Smear

To assess the barriers to obtaining a Pap smear the question was asked how they feel when having a Pap test. The findings are presented in Table 8 and show that Aboriginal women were significantly more likely to report being comfortable than were French women (analysis compared those women who were comfortable to the women who were not comfortable; the women who were uncomfortable with male doctors and who did not answer were not included).

This finding is very surprising as Aboriginal women are more private and modest. One of the reasons the Aboriginal women may feel more comfortable is that most are being seen by the Misiway Health Centre. The doctor and the two nurse practitioners at the Centre are three women who are well liked and very well respected.

Table 8
Barriers to Pap Smear Testing

Pap Smear Practices	French	Aboriginal	p-value
How did you feel having a Pap test?			
Male doctor uncomfortable and female doctor comfortable	6.7	13.3	
Not comfortable	80.0	36.7	
Comfortable	13.3	43.3	0.010*
Never had Pap test	0	3.3	
Did not respond	0	3.3	

Only one Aboriginal woman did not receive a Pap test. One of the women was elderly and could not recall ever having a Pap test in the past.

One French woman stated that:

- Before I was married I used to refuse because I was shy. It doesn't bother me anymore because my doctor makes me feel comfortable.

One Aboriginal woman stated that:

- I would refuse a Pap test if I'm not comfortable. I don't like to get undressed in front of others.

Another barrier to getting a Pap test which was reported by some of the women was a lack of time. One of these women stated:

- It takes a long time to get an appointment and I don't have time to wait half a day in a doctor's office.

When the women were asked if they would refuse to have a Pap test, 76.7% of the French women and 60.0% of the Aboriginal women stated they would never refuse a Pap test. When the women were asked if they had ever refused a Pap test, 93.3% of the French women said they hadn't and 83.3% of the Aboriginal women said they hadn't either. Neither difference was significant.

Fear and embarrassment were the main reason the French women (10.0%) stated they would refuse a Pap test; whereas, the Aboriginal women would refuse because the doctor was male (10.0%) and because of fear and embarrassment (13.3%).

Cervical Cancer Screening Behavioural Outcome

The questions about Pap smear practices were designed to elicit information about the participants' Pap smear history. Of the women surveyed, 100.0% of the French women and 96.7% of the Aboriginal women had had a Pap test in the past (see Table 9). There were no significant differences in reported frequency of pap tests between the two groups. "Screening should be done annually until there are three consecutive negative Pap tests. After three annual negative Pap tests, screening should continue every two to three years" (CCO, 2005). Both the French and Aboriginal women seem to be screened according to provincial guidelines.

Table 9
Cervical Cancer Screening

Cervical Cancer	French	Aboriginal	p-value
Have you ever had a pap test	100	96.7	
Frequency			0.981
Yearly	30.0	40.0	
Every two years	40.0	36.7	
Every 3 years	23.3	20.0	
More than 5 years ago	3.3	0	
No longer have Pap tests	3.3	0	
Never had a Pap test	0	3.3	
Pap done by female doctor or nurse practitioner	40.0	50.0	

Recommended Strategies to Promote Cervical Cancer Screening

There were many suggestions about different strategies that the Public Health Unit could use to increase the number of French women who get screened for cervical cancer. Many of the French women (11 out of 30) in the study recommended that the Health Unit use media such as advertising on television, newspapers and magazines to encourage women to get checked regularly. Fifteen out of 30 French women recommended putting plain language posters, pamphlets or postcards in places where women go like the gym, school bags at school and especially in doctors' office. The women believed that doctors and nurse practitioners were in the best position to educate women. Only one woman out of thirty stated that she didn't like written material like pamphlets she would rather get the information face to face from a physician or nurse. One French woman stated that she was shy and she preferred to get written material that she could bring home and read in privacy. Another woman stated that "all women should

by-pass their doctors and go directly to a nurse practitioner because they are more thorough and a better use of resources.”

Eight out of 30 French women stated that breast and cervical cancer screening education should start at the puberty age. They believed that education should be done in the school in health class and by giving handouts at the beginning of the year. One woman suggested “having peer leaders to teach about pap tests and cervical cancer.” She believed that girls listen more to their own peers. Another woman stated that she believed that the Health Unit Sexual Health clinic in the school was very important and that education to girls could also be done through the Public Health Nurse. One woman mentioned that Public Health Nurse who administers the HPV vaccine in grade 8 could also take this opportunity to make the girls aware of Pap screening.

Seven out of thirty French women recommended making women aware about cervical cancer by holding evening workshops, health fairs, information booths and a day at the mall. Four French women stated that they would like to have the Women’s Wellness Clinics previously held by the Porcupine Health Unit. During this one day clinic, women were able to get screened for breast cancer, cervical cancer, blood pressure, cholesterol levels and sugar levels. As well, there were many information booths specific to women’s health for them to peruse. One woman said it was nice to get everything done in a day.

Two other women stated that they can learn about breast and cervical cancer screening by discussing with friends to friends. One woman stated that she is aware of volunteers with the Canadian Cancer Society who are trained with breast and cervical cancer screening education and are supposed to educate other women. Another French

woman stated that awareness starts in the home and mothers should be teaching their daughters.

“Personal direct mail, like from the Health Unit, it has a lot of weight,” stated one woman. She states that “a letter and questionnaire could be sent to the women explaining without big words about cervical cancer screening. They would have to make an appointment and bring the questionnaire to the Health Unit for her file. That will make the women accountable and the Health Unit has to care and not treat the woman as a number.”

Another suggestion was to have “people in limelight that has had cervical cancer to talk about it. That would mean, it can happen to anyone”.

In summary, most of the French women believed education would be best given by the physician or nurse practitioner. Most preferred receiving pamphlets and believed that education should start at puberty.

The Aboriginal women in the study also gave many suggestions about different strategies that the Public Health Unit could use to increase the number of Aboriginal women who get screened for breast and cervical cancer.

Only one Aboriginal woman suggested that the Health Unit advertise through the Media to reach women. She stated that “a lot of women watch TV; they could put ads in newspapers, on the radio, at Bingos, and on coasters for drinks.” Six out of thirty Aboriginal women recommended using culturally appropriate pamphlets and it would be better if they were created by the Aboriginal women. These women liked to be able to pick up information at the doctor’s office. However, one Aboriginal woman stated that posters and pamphlets don’t work. She believes that “one on one session is better and

don't do Power Point presentation. It is best to bring an Aboriginal woman to give a testimonial." Nine out of thirty women recommended that presentations, workshops using basic language, should be given to women in women's groups or at the Friendship Centre. Five out of thirty Aboriginal women recommended using videos and to have a Bring a Friend night.

Four Aboriginal women recommended that the doctor remind clients to get their Pap test by calling them to make an appointment. Only one Aboriginal woman stated awareness of Pap screening should be done in the schools. Another woman stated that the Health Unit should work through the mothers to get their daughters screened. A woman stated to "have a woman's wellness clinic day. You know that everyone is going there for that. Everybody knows what to expect; there is no hidden agenda."

Someone suggested maybe having a draw to attract women to the doctor's office. One woman stated that the fact she knows someone with cancer. It makes her want to get a Pap. Having female Aboriginal celebrities speak of the necessity of Pap screening would help.

In summary, Aboriginal women seemed to prefer having presentations with an Aboriginal survivor or with the use of a video. Pamphlets and Posters could be used as long as they are culturally appropriate and created by the Aboriginal people.

Interpersonal Factors for Breast and Cervical Cancer Screening

Surprisingly, a high percentage of the French (93.3%) and Aboriginal (86.7%) women in this study had a family physician (see Table 10). Of the women who did not have a family physician, some reported being new to the city and having not found a family physician or some stated that their physician had retired and they had not found a

replacement. Some of the participants with no family doctor or with no female family doctor stated they attended the Porcupine Health Unit Sexual Health clinic to receive a Pap test and a clinical breast exam.

Table 10
Summary of Family Doctor/ Nurse Practitioner Access

	<i>French</i>	<i>Aboriginal</i>	<i>p-value</i>
Family doctor/nurse Practitioner			0.389
Yes	93.3	86.7	
No	6.7	13.3	
Gender of doctor/nurse practitioner			0.743
Male	40.0	33.3	
Female	53.3	53.3	
I do not have a family doctor	6.7	13.3	

Of those who had family doctors, 53.3% of them had a female doctor. Many of the participants reported preferring a female doctor when it came to having a Pap test. Some stated they would refuse a Pap test if it was a male doctor. The lack of physician and nurse practitioners in the City of Timmins does not seem to be a huge barrier for women to receive a Pap test. Access to the Porcupine Health Unit Sexual Health Clinic seems to be a solution for women who refuse to have a Pap test with a male doctor.

CHAPTER V: DISCUSSION

This study investigated the knowledge, attitudes and barriers about breast and cervical cancer screening among samples of 30 French and 30 Aboriginal women in the City of Timmins. The findings revealed a number of significant differences between the two samples, for example, French women had a better knowledge of breast and cervical cancer risk factors, while Aboriginal women were more likely to say that mammograms did not hurt and that they were comfortable with Pap tests, and they were more likely to smoke. As well, the qualitative data revealed that French women preferred to be educated about breast and cervical cancer screening through television, magazines and their physician by demonstration and pamphlets. The Aboriginal women preferred presentations, workshops using basic language given to women in women's groups. These findings will be discussed below and the implications for program planning will be presented.

Screening for breast and cervical cancer

In this study, French women were more likely than Aboriginal women to report doing monthly BSE and less likely to report never having had a clinical breast exam. As for the mammograms, 100% of the French women and 90% of the Aboriginal women over 51 years of age reported having had a mammogram in the past. Both the French and Aboriginal women appear to be screened for cervical cancer according to provincial guidelines. Overall, the French women have a higher rate of screening.

Information about Canadian women drawn from cancer registries is not compiled by ethnic background. However, studies of the Native American inform us that they have the lowest screening rate (Coughlin et al., 1999). Conversely, in this study, the Aboriginal

women have similar rates of breast and cervical screening to French women and to provincial guidelines.

Knowledge of risk factors for breast and cervical cancer

The French women were significantly better at identifying risk factors for breast cancer. Most (93.3%) French women identified at least one risk factor for breast cancer; in contrast only 40% of the Aboriginal sample could think of a risk factor. Clearly the Aboriginal women's knowledge of breast cancer risk factors in this study is very poor. For cervical cancer, both groups showed inadequate knowledge of risk factors, although the Aboriginal sample was again significantly poorer. A total of 33.3% of the French women reported not knowing any risk factors for cervical cancer and an overwhelming 80.0% of the Aboriginal women stated they didn't know any risk factors. Although the knowledge of risk factors was poor this did not seem to affect the rates of breast and cervical cancer screening.

Perceived Control of Health

In this study, significantly more of the French women felt they had a lot of control over their health than Aboriginal women. No one answered they felt no control over their health.

The ability to develop health-promoting behaviours is enhanced by a perception of internal control (Pender, 1996). Compliance with medical care and treatment is attributable in part to a well-developed internal locus of control (Murray & Zentner, 1989).

One French participant stated that:

- She was hesitant to get screened because she was worried about what the physician would find.

The possible diagnosis of cancer tends to foster an external locus of control or learned helplessness, which contribute to non-compliance or not wanting to know.

Building the patient's self-esteem, educating about risk factors that a woman has control over, acknowledging the psychological and physiological impact of the unpredictable nature of cancer and providing reasons why screening is desirable and beneficial can help shift the locus of control more internally (Murray & Zentner, 1989).

Perceived Benefits of Health-Promoting Behaviours

The person must realize some individual benefit out of engaging in health-promoting behaviours in order to continue them (Pender, 1996). All of the French and Aboriginal women, even though some state that going through breast screening is uncomfortable, believed that women should go through breast screening. Some of the women felt that it was smart and responsible for other women to take care of themselves. They believed that women should take charge of their health because they could discover a lump by themselves. Some women were in favour of BSE however they believed that mammograms were a better screening method than BSE.

Furthermore, most of the French and some of the Aboriginal women reported being uncomfortable with Pap tests but believed that women should go through cervical cancer screening for their health. Some of the women identified strategies as beneficial to helping them be more comfortable such as having warm equipment, nice non-sterile relaxing room and a female examiner. Many women preferred to have a female physician

or nurse practitioner do the Pap test. Only two French women and three Aboriginal women stated they would refuse a Pap test if it were a male physician. Some of these women reported going to the Porcupine Health Unit Sexual Health clinic to have their Pap test done by a nurse practitioner or a trained nurse.

The main benefit reported in this study is that women engage in cancer screening for their “health”. They gain the knowledge and the personal satisfaction of being cancer free. It is important to help women see the benefits of being screened, and provide positive reinforcement for attempts at behavioural lifestyle changes.

Perceived Barriers to Health-Promoting Behaviours

Perceived barriers were measured with questions addressing obstacles to BSE, clinical breast exam, mammograms and Pap test. These obstacles included embarrassment, physical pain, time constraints, perceived inability to carry out the procedure and the gender of the health care professional.

More French women stated being very comfortable with BSE as compared with Aboriginal women. Aboriginal women’s shyness and modesty with their bodies could be considered as a barrier for screening. It is important for women to be aware and know their breasts so that if any changes occur they will be able to detect it.

Of the women who have had a clinical breast exam, more French women were comfortable with CBE as compared with Aboriginal women. A small number of French women stated being embarrassed and being a little uncomfortable; whereas some Aboriginal women stated feeling awkward, nervous and scared. However, all women denied ever refusing a CBE except for one French woman who did not have the time at

that specific appointment. Consequently, even though some women are uncomfortable they still consent to the examination.

In this study, 40.0% of Aboriginal women have never had a mammogram as compared to 23.3% of French women. Interestingly, a greater number of Aboriginal women stated that mammogram did not hurt as compared to few French women who acknowledge the same fact. More French women stated that mammograms were hurtful, painful, bruising and like torture as compared to a smaller number of Aboriginal women. A very small percentage of French women stated that they do not get a mammogram; they get an ultrasound done instead. The difference between women stating that mammograms did not hurt compared to the other who stated it hurt was statistically significant. However, 100% of the French women and 90% of the Aboriginal women over 51 years of age reported having had a mammogram in the past. The pain felt during a mammogram seems to be a barrier for only 3.3% of the women.

Two French women and four Aboriginal women reported having refused a Pap test in the past. The reasons the women refused a Pap test were because of shyness, not mentally ready, they worked for the doctor, they were uncomfortable and because it was a male doctor.

In this study, the majority of the French women were not comfortable with Pap test, which was significantly different from the Aboriginal population. However, this barrier to screening did not affect the screening rate of cervical cancer. Almost all women in this study are being screened for cervical cancer as per provincial guidelines.

Other barriers identified in this study to getting a Pap test were a lack of time, travel difficulties and getting the time off work. A number of women saw it as an

inconvenience to make an appointment to see the health care provider. In the City of Timmins, most of the health care professionals provide services during the daytime. To overcome the barrier of availability, a few physicians will have after hours clinics that extend to 7:00 pm. Mammogram appointments can also be had during the evenings and on weekends. To help their members get screened, the Wabun Tribal Council will provide transportation to medical appointments.

Some women feared their health provider would find cervical cancer as the result of a Pap smear, and a few revealed that they feared the pain of a Pap test. Some of the women interviewed in this study mentioned that the doctor's attitude and the office's cleanliness were also barriers for women to be comfortable in obtaining the Pap test.

Denial of a possible cancer diagnosis was not mentioned by the women in this study but can be a major obstacle to compliance, so it is important to establish how the woman feels about cancer.

Since barriers are rated differently for different persons it was difficult to assess if a certain barrier or a number of barriers would discourage women from being screened. When a woman had a strong reaction to a barrier it was a good indicator that she would not be screened, such as the woman who viewed mammograms as barbaric and ultimately did not get screened by a mammogram. She did, however, see the necessity of being screened and convinced her doctor to do an ultrasound instead. The women who stated they would not get screened by a male physician overcame the barrier by finding a female physician or nurse practitioner. It seems that the benefit of cancer screening overcomes most of the barriers mentioned above. The weight of importance of a

woman's health seems to be considerable as compared to the weight of the barriers mentioned by the women in this study.

Demographic Factors

Individual characteristics such as age, sex, race, ethnicity, education and income are demographic factors identified by Pender that affect a person's lifestyle choices (Pender, 1996). The Public Health Agency of Canada (PHAC, 2003) found that some of the most important predictive factors influencing a lack of breast cancer screening include higher age level, lower education, and living in a rural area. As well, the Canadian National Population Health Survey found that the significant predictors of under-utilization of Pap tests include older age, lower education, non-English language, ethnic background, single marital status and poor preventive health behaviours (Maxwell et al., 2001, p. 131).

In this study, the sample was comprised of women between the ages of 40 and 77. It is clear that the French group was significantly older than the Aboriginal group. The Aboriginal population contained a greater number of young women and fewer older women than the French population; 50% of the Aboriginal women were between the ages of 40 to 45 as compared to 30% in the French population. As well, there was a significant difference in education; a higher percentage of French women had a university degree as compared to the Aboriginal women. Overall, the French women were significantly older and better educated. Conversely, the difference in age, education and ethnicity did not significantly influence the uptake of breast and cervical cancer screening in this study. However, there was a significant difference between the two groups in their knowledge of risk factors. French women were more knowledgeable about breast and cervical cancer

risk factors. It is not known if this is due to ethnicity, older age, better education or because French women are more verbally expressive than Aboriginal women. Further research is warranted to assess the sociodemographic factors that affect cancer screening.

Despite the fact that women reported getting screened in this study, it is important that women understand the risk factors for breast and cervical cancer so that they can avoid them and lower their likelihood of developing cancer. It is clear that better health education is needed to raise awareness of cancer prevention. This study investigated women's preference for health education strategies.

Most of the French women believed education would be best given by their physician or nurse practitioner. Most preferred receiving pamphlets and believed that education should start at puberty. Aboriginal women seemed to prefer having presentations with an Aboriginal survivor or with the use of a video. Pamphlets and posters could be used as long as they are culturally appropriate and created by the Aboriginal people.

This study is a first in the City of Timmins to investigate the knowledge, attitudes and barriers of French and Aboriginal women related to breast and cervical cancer screening. The findings revealed a number of significant results that will influence health care professionals' decision making when planning health promotion initiatives to increase the awareness and the uptake of cancer screening. Most of the participants 51 years of age and older revealed that they had been screened by a mammogram and almost all of the participants reported having had a Pap test as per provincial guidelines. Client reminders played a significant role in Aboriginal women being screened. Nonetheless, only a few of the participants had knowledge of the risk factors that could be prevented to

reduce the risks of acquiring breast and cervical cancer. Further education is needed to increase women's knowledge. Different methods should be used such as advertising through television, magazines, pamphlets and family physicians for the French population and through presentations and workshops for the Aboriginal population. Better health education is needed to maximise women's awareness of cancer prevention.

In combination with the views expressed in the interviews, four themes emerged from the findings: a lack of knowledge about the risks factors of breast and cervical cancer, women are uncomfortable with Pap tests but will be compliant with screening for their health, reminders to women increase the uptake of breast and cervical cancer screening, and half of the Aboriginal women smoke.

Theme 1: Lack of Knowledge about the Risks of Breast and Cervical Cancer

This study found that overall; the participants had very limited knowledge of the risk factors for breast and cervical cancer. They were knowledgeable about breast self-exam, mammograms and Pap tests. However, when it came to what a woman can do or should do to prevent breast and cervical cancer, the knowledge was limited.

More than 60% of the Aboriginal participants and 6.7% of the French women in this study could not mention a single cause for breast cancer and 80.0% of Aboriginal women and 33.3% of French women could not mention a single cause for cervical cancer. This is most likely due to lack of education.

This finding is consistent with results from other studies. For example, in a study conducted in British Columbia, Canada, Buxton et al. (2003) conducted a telephone survey of a random sample of 761 rural and urban women who had no history of breast cancer. They found that the women had difficulty accurately estimating their breast

cancer risk and identifying the known risk factors for breast cancer. Sadler et al. (2001) described the reported breast cancer knowledge, attitudes, and screening behaviours of 194 American Asian Indian women. They concluded that the women's annual breast screening rates were high perhaps because their sample was generally well educated. Interestingly, less than half of the women reported that they had adequate knowledge about breast cancer. The Women's Knowledge, Attitudes and Behaviours (WKAB) Survey (2000) conducted in Alberta obtained information about breast cancer and mammography, cervical cancer and screening and colorectal cancer screening among Alberta women between the ages of 40-69. They found that over 25% of women surveyed did not know how to reduce their risk of getting cervical cancer (Alberta Cancer Board, 2000).

In summary, the lack of knowledge about the risk factors of breast and cervical cancer is closely linked to a lack of education and awareness of the disease. Women need to be educated about the preventative behaviours that they can adopt to decrease their risks of acquiring breast and cervical cancer. In this study, the educational methods suggested by the Aboriginal women were to have presentations with an Aboriginal survivor, an Aboriginal celebrity or with the use of a video. Pamphlets and posters could be used as long as they are culturally appropriate and created by the Aboriginal people.

Many of the French women recommended advertising on television, newspapers and magazines to encourage women to get checked regularly. In addition, they recommend putting plain language posters; pamphlets or postcards in places where women go like the gym, school bags at school and especially in doctors' office. The French

women believed that doctors and nurse practitioners were in the best position to educate women.

Theme 2: Women are uncomfortable with Pap tests but will be compliant with screening for their health.

Many of the women in this study stated that they find Pap tests uncomfortable; however, most have been screened for cervical cancer in the past three years as per provincial guidelines. The women state that they go through with Pap screening because they know it is good for their health. In Smith et al.'s study (2003), women were in agreement that cervical cancer screening was important and that women should get Pap smears regularly as an important way of protecting their health. Likewise in this study, the participants engaged in uncomfortable screening behaviours because of their knowledge that it may save them from acquiring cervical cancer and dying from it.

The woman must realize some individual benefit out of engaging in health-promoting behaviours in order to continue them (Pender, 1996). "Canadian women who engage in positive health behaviours (e.g., blood pressure checks and regular exercise) were more likely to report ever having had a Pap test and a time-appropriate test" (Maxwell et al., 2001, p.131). When educating women on the importance of cervical cancer screening it is important to make them realize the value and the benefit of being screened early. Promotion should focus on the statistics of women who were "saved" because they were screened early as compared to the women who waited too long or did not get a Pap test at all. Details could be given as to what a woman has to endure after being diagnosed with cervical cancer (e.g. cancer treatment, emotional trauma,

hysterectomy and not being able to have any more children etc...). Informing women of the value of cervical cancer screening should encourage them to get screened.

Theme 3: Reminders to women increase the frequency of breast and cervical cancer screening

Surprising in this study was the higher rate of Aboriginal women screened for cervical cancer within a year as compared to the French women. This finding was contrary to the literature review. It was found in British Columbia, that mortality from cervical cancer was much higher among First Nations women and Pap testing was much lower. For that reason, a study was undertaken about how best to implement a screening program among First Nations women in Vancouver. Challenges included identifying and locating First Nations women and engaging the women in First Nations screening clinics in a way that would increase their participation in screening. It was found that having a trusting relationship with their caregiver was critical for them to make use of the screening services available. (CCO, 2004b)

In Nova Scotia, letters to women reminding them about the importance of Pap screening were tested for their effectiveness in increasing screening participation. Research found that receiving a letter improves somewhat the likelihood that a woman will participate in Pap screening. This was also true for areas of the province with high proportions of Aboriginal women or of black women. (Johnston et al., 2004)

When discussing this finding with the Misiway Health Centre in Timmins, it was found that the Misiway Health Centre is “relentless” at getting their Aboriginal women clientele to book a Pap test. The Misiway secretary will call the women who are due for their Pap test three times. If after three calls they haven’t booked their appointment, a

letter will be sent. The secretary states she will send up to three letters. However, after one letter the women usually book their appointment to have their Pap test. As well, the women have a very trusting relationship with the Misiway female physician and the two female nurse practitioners.

The Misiway secretary only calls the women to book a Pap test. She does not call them to book a clinical breast exam or for a mammogram. She states that the women are usually referred to the Ontario Breast Screening Program, or the physician will ask the secretary to call certain women to get their clinical breast exam done. The Misiway Health Centre does not have an effective patient reminder system for breast cancer screening.

The Timmins Family Health team, which is comprised of 15 doctors and 4 nurse practitioners, will only send two letters to the women reminding them of their Pap test. They state that most women will call for an appointment after receiving a letter. Unfortunately, they were not able to say what percentages of women respond. As for sending reminders to women about their clinical breast exam or mammograms, that is dependent on the doctor's request. Most physicians' offices have patient software that reminds them that their clients are due for either a Pap test or a mammogram.

Family Health Teams in Ontario have preventive care payment incentives established to increase the rates of breast, cervical and colorectal screening. Physicians who have 55% to 75% of their enrolled women (50 to 70 years) screened by a mammogram can get a fee payable of \$220 to \$2,200 on an annual basis. They also get an enhancement fee payable ranging from \$220 to \$2,200 for having 60% to 80% of their enrolled eligible clients screened for cervical cancer (Mai, 2006).

The Timmins Ontario Breast Screening Program states that they send two letters to remind women to book an appointment for a mammogram. If a woman does not call to make an appointment after two letters, it is assumed that she doesn't want to be screened and nothing is done thereafter. The retention rate for OBSP mammograms in the province is 81.4% (Mai, 2006).

In summary, reminder letters and calls are successful in increasing the uptake of cancer screening. Misiway Health Centre has effectively used this strategy to increase the uptake of cervical cancer screening amongst the Aboriginal women in the City of Timmins. Provincial incentives to increase cancer screening should be maintained.

Theme 4: Half of the Aboriginal Women Smoke

In this study, 50% of the Aboriginal women reported being smokers and 90.0% stated that they smoked in the past. This rate is high as compared to the Porcupine Health Unit area smoking rate where only 29.0% of the population smoke and in Ontario where 20% of the adult population smoke (OTRU, 2006). If comparing to the Canadian Aboriginal smoking rate, the rates are comparable. Health Canada reports that well over half (57%) of Canada's Aboriginal adults are smokers and 46% on a daily basis (Health Canada, 2008).

Smoking has been identified as a risk factor for cervical cancer and other cancers; therefore, smoking cessation programs for the Aboriginal women should be considered a priority. Health Canada recommends that Program providers working with Aboriginal women to reduce their smoking should bear the following in mind:

- Tobacco has important spiritual and ceremonial uses in Canadian Aboriginal cultures. Historically, medicine men and women mixed tobacco with other plants to use during their rituals and ceremonies.
- Because of cultural preferences for involving the entire community in problem-solving, some Aboriginal women may prefer programs that include both women and men.
- Approaches, materials, messages and services for Aboriginal women should reflect their language and culture. That means involving Aboriginal women in developing prevention and cessation programs. A community-based approach, rather than general media campaigns, is more effective in reaching Aboriginal women.
- In addition to cultural issues, socioeconomic disadvantages (e.g., poverty, few educational opportunities) and discrimination issues need to be considered in addressing Aboriginal women's health issues such as smoking (Health Canada, 2008).

The strategies to reach Aboriginal women suggested by Health Canada are consistent with this study's Aboriginal women's suggestions to educate women by giving presentations to women's groups. As well, both suggested having the Aboriginal women involved when developing materials for distribution. Important consideration should be given to developing such programs in the city of Timmins to reduce smoking rates among the Aboriginal women. In doing so, it will have a domino effect on the women's health and her risk of developing cancer.

Limitations

Three limitations were noted in this study. First, the size of the study sample, 30 French women and 30 Aboriginal women, may be small and the information gathered may not be generalized to other communities. As well, there was a significant difference in education; a higher percentage of French women had a university degree. Overall, the French women were significantly older and better educated, so some of the group differences could be due to these factors and not ethnicity. However, the number of French and Aboriginal women with a grade school education and with a post-secondary education, were very similar.

Another limitation was the absence of standardized measures of knowledge of cervical cancer and Pap smear tests. This study used a measurement that was developed and reviewed by experts in the medical and nursing fields and used in the Steven et al. (2004) study in Northwestern Ontario. Assessment of the participants' knowledge using a survey and open-ended interview questions method may not have covered the entire content domain on knowledge about breast and cervical cancer as well as breast and cervical screening. However, the interviews provided new information on the topic under investigation that may not otherwise be captured by standardized measures.

Third, the sample was recruited using a snowball sampling technique, which may have resulted in a convenience, or self selected sample so that people with similar characteristics may have been recruited into the study. The responses may also be biased to those with vested interests and therefore may have overestimated their knowledge and practices of breast and cervical cancer that were explored. The study may have been limited also by the fact that the researcher recruited some of the participants personally.

As such, selection bias may have been introduced unintentionally. However, to minimize this limitation, the sample included several women from various parts of the City.

Recommendations

Education

1. Developing quit smoking programs for Aboriginal women to reduce smoking rates among the Aboriginal women.
2. Develop community-based educational and support programs for health care professionals on cultural sensitivity about breast and cervical cancer for French and Aboriginal populations.
3. Develop educational programs for women in rural settings regarding the risks factors and the importance of screening for the early detection of breast and cervical cancer.
4. Develop cultural sensitive education programs and resources (French women: pamphlets, posters, television advertisements, and education by physician. Aboriginal women: presentations, videos, story from survivors, posters and pamphlets).
5. Develop culturally sensitive health education written materials with consideration for literacy and visual appeal. Many Aboriginal women indicated that the use of an Aboriginal celebrity on the cover would lead more Aboriginal women to take notice and get screened
6. Develop educational programs for younger adults in the school system regarding the risks and the importance of screening in the prevention of cervical cancer.

7. Use the appropriate channels to disseminate educational information to women (women's groups, friendships centres, churches, traditional leaders, etc.).
8. Raise awareness among health care professionals about their large influence on women's uptake of breast and cervical screening.
9. Increase health service professionals' awareness of the prevalence of breast and cervical cancer and screening services utilization rates.
10. Increase health service professionals' engagement in promoting breast and cervical cancer screening programs.

Access to Screening Services

1. Provide services that meet cultural, emotional, and practical needs and reduce apprehension surrounding screening procedures e.g. embarrassment of having pelvic exams.
2. Provide accessible screening programs to women living in rural areas. (e.g. provide transportation to mammogram site and to health care professionals for screening or review the feasibility of having a mobile van which would have the amenities to perform mammograms and Pap tests)
3. Increase service availability at preferred locations and times (i.e., evenings and weekends) so that it is convenient for working women.
4. Ensure a positive provider-client relationship. Women are more likely to seek breast and cervical cancer prevention services from providers who are sensitive and responsive to their needs.
5. Train all levels of female examiners in cervical screening programs e.g. doctors, nurses, nurse practitioners and midwives.

6. Work in collaboration with women's groups and traditional community leaders to overcome barriers to accessing services.

7. The Porcupine Health Unit should provide regular **Wellness Women Days** where women who do not have a family doctor or women who do not want their male doctor to do an internal examination can come to the Health Unit and have a pap test, a clinical breast exam and education about breast self exam.

Research

1. Develop a quantitative design using a larger randomly selected sample to provide standardized measurement of knowledge about breast and cervical cancer, mammograms and pap smears.

2. Evaluate the effects of poverty on women's knowledge, attitudes, and beliefs about cervical cancer.

3. Determine men's views regarding their role in the spread of cervical cancer.

4. Experts believe controlling risk factors such as diet, exercise and smoking can reduce breast cancer incidence. Determine the contributions that would help to reach this goal.

5. Evaluate if there are true genetic differences that underlie differences in cancer incidence. If so, can this information help tailor preventive efforts?

6. Determine the underlying psychosocial causes of cancer-related risk behaviors.

7. Determine how we can reach the women who are under-screened or never been screened.

8. Develop a provincial breast and cervical cancer surveillance organization where all mammography and cervical screening could be tabulated so as to have a better picture.

9. Develop enhanced surveillance of risk factors and the environment that may lead to breast and cervical cancer.

Conclusion

This study reviewed the knowledge, attitudes and barriers of French and Aboriginal women in the City of Timmins regarding breast and cervical cancer screening. The findings from this study have a number of significant implications for designing and implementing policies aimed at improving the outcomes in the field of breast and cervical cancer screening. This study also provides insights into the health needs of French and Aboriginal women living in Timmins. The results from this study may be used to help health care providers understand the challenges facing women who are contemplating cancer screening.

Four themes emerged from the findings: a lack of knowledge about the risk factors of breast and cervical cancer; women are uncomfortable with Pap tests but will be compliant with screening for their health; reminders to women increase the frequency of breast and cervical cancer screening; and half of the Aboriginal women in this study smoke.

The findings of this study indicate that many French women and especially Aboriginal women know very little about breast and cervical cancer and its prevention. Interventions are needed to raise awareness of French and Aboriginal women about the causes of breast and cervical cancer. There is a need to educate women to prioritize health and about the importance of early detection. Many strategies were recommended in this study to increase women's awareness. The Aboriginal women recommended having presentations with an Aboriginal survivor, an Aboriginal celebrity or with the use of a video. Pamphlets and posters could be used as long as they are culturally appropriate and created by the Aboriginal people. Many of the French women recommended



advertising on television, newspapers and magazines to encourage women to get checked regularly. In addition, they recommend putting plain language posters; pamphlets or postcards in places where women go like the gym, school bags at school and especially in doctors' office. The French women believed that doctors and nurse practitioners were in the best position to educate women.

The results, however, suggest that utilization of breast and cervical cancer screening is very high among women in this study. Most women confirmed that breast and cervical cancer screening was uncomfortable but most would comply with screening for their health. As well, reminders from physician and nurse practitioners asking women to make an appointment for breast and cervical cancer screening appeared to play a role in increasing the rate of screening. The Misiway Health Centre in Timmins has done exemplary work in getting Aboriginal women screened to a level that is equal and even a little higher than the rate of cervical cancer screening among the French women.

The last emerging theme in this study was the realization that half of the Aboriginal participants in this study smoke. Smoking is a risk factor that has been proven to cause cancer and is preventable. The need to establish programs to help the Aboriginal women quit smoking is one of this study's most important recommendations.

As a result, this project provides policy makers and health care practitioners with a series of strategies for improving uptake of breast and cervical cancer screening among under screened groups and other vulnerable populations.

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BREAST & CERVICAL CANCER SCREENING QUESTIONNAIRE

PART A DEMOGRAPHIC DATA

1. How old are you?

1. Under 40
2. 40 – 45
3. 46 – 50
4. 51 – 55
5. 56 – 60
6. 61 – 65
7. Other (specify): _____

Response

2. What is the highest education you have received?

1. Grade School
2. Diploma
3. Degree
4. Graduate

3. Are you currently working?

1. Yes, Full Time
2. Yes, Part Time
3. Not Employed

4. What is your usual job or occupation?

5. Where do you live?

1. Urban (city centre)
2. Rural

6. To which ethnic or cultural group do/did your parents belong?

- | | | | | | |
|-----------|--------------------------|----------|--------------------------|-------------|--------------------------|
| Italian | <input type="checkbox"/> | German | <input type="checkbox"/> | Finnish | <input type="checkbox"/> |
| Polish | <input type="checkbox"/> | Ojibwa | <input type="checkbox"/> | East Indian | <input type="checkbox"/> |
| Ukrainian | <input type="checkbox"/> | Oji-Cree | <input type="checkbox"/> | Spanish | <input type="checkbox"/> |
| Chinese | <input type="checkbox"/> | English | <input type="checkbox"/> | French | <input type="checkbox"/> |

7. What is your marital status?

1. Single
2. Married
3. Common-law relationship
4. Separated
5. Widowed
6. Divorced

Response

8. If married (or common-law), what is the highest level of education your husband obtained?

1. Grade School
2. Diploma
3. Degree
4. Graduate

9. Is your husband/spouse presently working?

1. Yes, full time
2. Yes, part time
3. Not employed

10. What is your husband's/spouse's usual job/occupation?

11. If you are married or living in a common-law relationship, please indicate:

	1 st	2 nd	3 rd	4 th
Date of Marriage/Relationship	19_____	19_____	19_____	19_____
Age at Marriage				
Age of Husband at Marriage				
Length of Relationship				
If ended, please specify the reason (separation, divorce, or death)				
If husband died, please specify cause of death				

12. Do you have children?

1. Yes
2. No

If yes, how many children do you have? ___

How old are your children?

Response

13. Do you have a family doctor?

1. Yes
2. No

14. What is the gender of your family doctor?

1. Male
2. Female

15. What is the ethnic background of your family physician?

PART B
GENERAL HEALTH

16. Have you ever been diagnosed by a physician as having any of the conditions listed below?**A. High blood pressure:**

No Yes If "yes", age at diagnosis: _____

B. High blood cholesterol:

No Yes If "yes", age at diagnosis: _____

C. Heart disease:

No Yes If "yes", age at diagnosis: _____

D. Diabetes:

No Yes If "yes", age at diagnosis: _____

E. Cancer:

No Yes If "yes", age at diagnosis: _____

What type of cancer was it? _____

17. Are you currently taking medications for any of the conditions listed above? Please specify:

Blood pressure medication	No <input type="checkbox"/>	Yes <input type="checkbox"/>
Cholesterol reduction	No <input type="checkbox"/>	Yes <input type="checkbox"/>
Heart medication	No <input type="checkbox"/>	Yes <input type="checkbox"/>
Birth control pills	No <input type="checkbox"/>	Yes <input type="checkbox"/>
Hormones	No <input type="checkbox"/>	Yes <input type="checkbox"/>
Thyroid	No <input type="checkbox"/>	Yes <input type="checkbox"/>
Insulin	No <input type="checkbox"/>	Yes <input type="checkbox"/>

18. Have you ever smoked cigarettes?

No Yes

19. Do you currently smoke?

No Yes

If "yes", how many cigarettes do you smoke per day? _____

20. At what age did you start smoking?

Age (yrs).

21. When did you stop smoking?

Age (yrs).

22. When you smoke (smoked), did you inhale?

(Specify to what extent):

Did no inhale
 Inhaled, slightly
 Inhaled, moderate
 Inhaled, deeply

PART C EATING HABITS

23. Meat / Protein:

1. Eat regular cuts of red meat.
2. Eat a mixture of regular meats and some protein.
3. Eat only lean meats, skinless poultry, or fish.
4. Eat very little red meat, mostly poultry and fish.
5. Seldom or never eat meat; eat vegetable proteins.

Response

24. Dairy Products / Eggs:

High fat: ice cream, sour cream, yellow cheese, whole milk, eggs, butter.

Low fat: Skim milk, low fat yogurt or cottage cheese, egg whites, or egg replacers.

1. Nearly always eat high fat products.
2. Eat mostly the high fat products, some low fat
3. Eat both about the same.
4. Eat primarily low fat products, some high fat
5. Eat only low fat products or not at all.

25. Desserts:

High fat: cake, deep fried pastry, pies, ice cream, custards, chocolate.

Low fat: Fruit salads, gelatin, melons, grapes, dried fruit, home baked goods using vegetable oil in moderation.

1. Nearly always eat high fat products.
2. Eat mostly the high fat products, some low fat
3. Eat both about the same.
4. Eat primarily low fat products, some high fat
5. Eat only low fat products or not at all.

26. Cooking Fats / Food Preparation:

High fat: frequent frying, deep fat frying, primarily use shortening, frequently add butter or other fats to foods for flavouring, use regular amount of fat called for in recipes.

Low fat: broil, bake or broil. Primarily use vegetable oil, flavour food with seasonings, keep added fat very low.

1. Nearly always eat high fat products.
2. Eat mostly the high fat products, some low fat
3. Eat both about the same.
4. Eat primarily low fat products, some high fat
5. Eat only low fat products or not at all.

27. Breads and Grains:

Refined: white bread, rolls, biscuits, crackers, regular pancakes, waffles, white rice, typical breakfast cereals and baked goods.

Whole grain: whole grain bread, rolls, brown rice, oatmeal and other whole grain cereals such as Shredded Wheat or Grapenuts.

Response

1. Nearly always eat refined grains.
2. Eat mostly refined grains
3. Eat both about the same.
4. Eat primarily whole grain products.
5. Eat only whole grain products.

28. Fruits and Vegetables

How often do you eat fruits and vegetables?

1. 5 or more servings per day.
2. 4 servings per day
3. 3 servings per day.
4. 2 servings per day.
5. 1 or less servings per day.

29. Fast Foods:

How often do you eat fast food meals such as hamburgers, tacos, fried chicken, hot dogs, French Fries?

1. Every day.
2. Several times per week.
3. Occasionally.
4. Seldom or never.

30. Salt:

How often do you add salt to your food at the table?

1. Always.
2. Most of the time.
3. Little of the time.
4. Never.

31. Alcoholic Beverages:

In the past two weeks, on how many days did you drink an alcoholic beverage such as beer, wine or liquor?

1. Did not drink in the past year.
2. None in the past two weeks.
3. One to three days.
4. Four to six days.
5. Seven to ten days.
6. Eleven to fourteen days.

32. Number of Drinks

How many drinks did you have per day, on the average?

1. One.
2. Two.
3. Three.
4. Four.
5. Five.
6. Five or more drinks.

Response

33. Caffeine:

How many caffeine-containing drinks do you usually have per day?

1. None.
2. 1 per day.
3. 2 – 3 per day.
4. 4 – 5 per day.
5. 6+ per day.

34. What type of exercise do you do?

- Aerobics
- Active Sports (Specify): _____
- Bicycling, easy pace
- Bicycling, fast pace
- Canoeing
- Racquetball
- Walking briskly
- Walking at an easy pace
- Skating
- Cross-country skiing
- Swimming
- Stationary bicycle
- Tennis
- Outdoor work (lifting, carrying, shoveling)

35. How often do you exercise per week? times/ week

36. In general, how would you describe your health?

1. Very Good.
2. Good.
3. Okay.
4. Not Very Good.
5. Poor.

Response

37. In your opinion, how would you describe your health in comparison to other women of your age?

1. Better Than.
2. About the Same.
3. Worse Than.

38. In order to keep yourself healthy, what kinds of activities do you do (i.e. walking, regular visits to the doctor, etc.)?

39. Do you encounter any difficulties or problems while performing the above activities?

- No Yes

If "yes", please describe them below:

40. When did you have your last check-up?

1. Within the last year.
2. Within the past 1 – 2 years.
3. Within the past 3 – 4 years.
4. 5 Years or more.
5. Never
6. Don't Know.

41. Was an internal examination performed?

1. Yes.
2. No.

42. Why did you have the examination performed?

Reason	Yes	No	Don't Know	No Answer
Symptoms – something was troubling you.				
Regular check-up				
Friend or relative suggested it				
Required at work				
Required for employment application.				
Insurance examination				
Something you read in a magazine				
Something you saw on Television				
A doctor suggested you should				
No reason				

Response

43. Have you ever been pregnant?

1. Yes.
2. No.

44. If yes, how many pregnancies have you had (please include all live births, still births, miscarriages, abortions, and extopic pregnancies)?
 Pregnancies
45. How old were you at the beginning of your first pregnancy?
 Age (years)
46. How many pregnancies lasting 5 months or more have you had?
 Pregnancies
47. How old were you at the end of your first pregnancy lasting 5 months or more?
 Age (years)

48. How many pregnancies have ended in live births?

Pregnancies

Response

49. Did you breastfeed after any of your pregnancies?

1. Yes.
2. No.

50. How many months in total did you breastfeed?

Months

51. Have you ever taken oral contraceptives?

1. Yes.
2. No.

52. Are you currently taking oral contraceptives?

1. Yes.
2. No.

53. How old were you when you took your first oral contraceptive?

Age (years)

54. For how long did you use oral contraceptives before age 25?

Year(s) Months

55. For how long did you use oral contraceptives before your first pregnancy?

Year(s) Months

56. At what age did you stop using oral contraceptives?

Age (years)

57. Has a doctor ever refused to give you a prescription for oral contraceptives?

1. Yes.
2. No.

Response

If yes, why? _____

**58. Have you ever used other methods of birth control?
(check as many as you have used)**

1. IUD
2. Rhythm
3. Cervical Cap
4. Sponge
5. Diaphragm
6. Spermicides
7. Other (Specify): _____

59. Have you ever had tubal ligation?

1. Yes.
2. No.

60. Are you currently using female replacement hormones?

1. Yes.
2. No.

IF YES:

61. At what age did you start using female replacement hormones?

Age (years)

62. For how long did you use female replacement hormones?

Year(s) Months

Response
Response**63. Which type of female hormones did you use?**

1. Oral Premarin (Estrogen alone)
2. Oral Estrogen (Premarin) and Progesterone (Provera)
3. Patch Estrogen
4. Oral Progesterone (Provera)
5. Vaginal Estrogen
6. Patch Estrogen and Progesterone

PART D
CLINICAL EXAMINATION OF BREASTS

64. In your opinion, how much control do you have over your health?

1. A lot of control
2. A fair bit of control
3. Uncertain
4. Not very much control
5. No control

65. BREAST CANCER:**A. Are you currently using female replacement hormones?**

1. Yes.
2. No.

IF YES, PLEASE ANSWER THE FOLLOWING QUESTIONS:

How often have you had your breasts examined? _____

Who did this examination (record as many as are mentioned)?

1. Self
2. Doctor (male)
3. Doctor (female)
4. Nurse
5. Other (specify) _____

What was the cultural background of the examiner?

Why was the examination necessary?

1. Do not know
2. Routine check-up
3. Had a lump in breast

How did you feel about this examination being done?

IF NO, PLEASE ANSWER THE FOLLOWING QUESTION:

Has your doctor / nurse ever discussed examining your breasts with you?

1. Yes
2. No

Response

66. Have you ever refused a breast examination?

1. Yes.
2. No.

If yes, explain why you refused:

**PART E
BREAST SELF-EXAMINATION**

67. Are you aware that women can examine their own breasts?

1. Yes
2. No

This examination is done to detect cancer at an early state and is called breast self-examination or BSE

How familiar are you with the breast self-examination?

Has anyone ever told you how to do a breast self-examination?

1. Yes
2. No
3. Uncertain

Has anyone ever demonstrated BSE to you?

- 1. Yes
- 2. No

Response

If yes, who was it? _____

Have you ever received any written information about BSE?

- 1. Yes
- 2. No

IF YES,

Who gave you the information?

What were the benefits of receiving this information?

68. Have you ever done a breast self-examination?

- 1. Yes.
- 2. No.

IF YES,

How often do you do it (i.e. once per month):

How do you do the examination?

69. In your opinion, how often should you do a breast self-examination?

70. How important do you think breast self-examination is?

71. Tell me what you know about breast cancer.

72. When you think about examining your own breasts, tell me how you feel.

73. How comfortable do you feel in doing BSE?

1. Uncomfortable
2. Fairly comfortable
3. Very comfortable

Response

74. What do you think about women examining their own breasts?

75. In your own opinion, if you were examining your own breasts do you feel that you would be able to detect any abnormality or anything that feels different?

1. Yes
2. No
3. Unsure

76. What would you do if you did find something that felt suspicious or different?

77. Who would you tell?

**PART F
BREAST CANCER**

78. Do you know anyone who has breast cancer?

1. Yes
2. No

Response

What is your relationship with that person?

1. Mother
2. Sister
3. Grandmother
4. Aunt
5. Cousin
6. Friend
7. Work Colleague
8. Neighbour
9. Other: _____

Tell me what happened to that person.

79. Thinking about their illness / experience, how do you think it has influenced you?

80. In your opinion, who can acquire breast cancer, or who is more likely to get breast cancer?

81. What are the risks for breast cancer?

**PART G
MAMMOGRAPHY**

82. Do you know about breast x-ray or mammography?

- 1. Yes
- 2. No

Response

83. Do you know about breast screening?

- 1. Yes
- 2. No

IF YOU ANSWERED YES TO QUESTIONS 82 & 83,

Where did you find out about mammography?

How helpful did you find this information?

Have you ever had a breast x-ray or mammography?

- 1. Yes
- 2. No

How did you feel when the mammography was done?

Did the individual who conducted the procedure explain what was being done?

What emotional support was provided to you when this procedure was being done?

84. If we wanted to tell women like yourself about breast cancer and breast self-examination, what would be some good ways (strategies) that we could use?

**PART H
PAP SMEAR**

85. In the next few questions, we talk about pap smears and cervical cancer.

A. Have you ever had a pap smear?

1. Yes.
2. No.

Response

IF YES, PLEASE ANSWER THE FOLLOWING QUESTIONS:

How often have you had a pap smear?

1. Yearly
2. Every two years
3. Other: _____

Who did this examination (record as many as are mentioned)?

1. Doctor (male)
2. Doctor (female)
3. Nurse Practitioner

What was the cultural background of the examiner?

Why was the examination necessary?

1. Do not know
2. Routine check-up
3. Unusual symptoms (bleeding)

Response

Have your periods been irregular?

1. Always
2. Often
3. Sometimes
4. Rarely
5. Never

Have your periods been unusually heavy?

1. Always
2. Often
3. Sometimes
4. Rarely
5. Never

How old were you when your periods started?

Age (years)

86. Has a doctor / nurse ever discussed the importance of regular pap smears?

1. Yes
2. No

87. Have you ever refused an internal examination (pap smear)?

1. Yes
2. No

88. How did you feel about having this examination?

89. Is there any strategies you could suggest to prepare you for this examination?

90. Have you ever had any written information about having regular pap smears?

- 1. Yes
- 2. No

Response

Who gave you this information?

What were the benefits of receiving this information?

Describe some of the reasons why you would not have a pap smear (i.e. fear, embarrassment, pain, travel difficulties, no female doctor, etc.)?

**PART I
CERVICAL CANCER**

91. Have you ever been diagnosed with cervical cancer?

1. Yes
2. No

Response

IF YES, PLEASE ANSWER THE FOLLOWING QUESTIONS:

At what age were you diagnosed?

Age (years)

What were the symptoms (if any)?

1. Abnormal vaginal bleeding
2. Contact bleeding related to intercourse
3. Feeling that you have to urinate urgently
4. Pain when you urinate
5. Other Symptoms: _____

Are you aware of the risk factors for cervical cancer? (provide answers):

Did your mother ever take the drug DES (Diethylstilbesterol), a drug which was given for high risk pregnancies?

1. Yes
2. No
3. Do not know

92. What type of treatment did you receive?

1. Cryosurgery
2. Electrocautery
3. Colposcopy
4. Cone Biopsy
5. Hysterectomy
6. Radiation
7. Other: _____

93. What type of information were you given related to cervical cancer (i.e. treatment, follow-up)?

94. What type of emotional support did you receive when you were diagnosed (specify by whom)?

95. If we wanted to tell women like yourself about cervical cancer and the importance of regular pap smears, what would be some good ways (strategies) that we could use?

96. If you have had breast or cervical cancer, please answer the following:

Did you use other forms of alternative medicine (if yes, please explain – i.e. herbs, massage, chiropractor, sweat lodge, healing ceremonies, etc.)?

Do you feel that these methods were of help? Explain.

Source: Steven, D., Fitch, M., Dhaliwal, H., Kirk-Gardner, R., Sevean, P., Jamieson, J., et al. (2004). Knowledge, attitudes, beliefs, and practices regarding breast and cervical cancer screening in selected ethnocultural groups in northwestern Ontario. *Oncology Nursing Forum*, 31(2), 305-311.

APPENDIX B: COVER LETTER

Lakehead

UNIVERSITY

Public Health

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Spring / Summer 2008

Dear Potential Participant:

I am writing to request your participation in a study regarding practices of women aged 40 and older on the subject of breast screening and cervical cancer screening in selected ethnic groups (French and Aboriginal) in the City of Timmins, Ontario.

The overall purpose of the study is to assess the knowledge, attitudes, beliefs, and practices regarding breast screening and cervical cancer screening of selected cultural groups in order to provide specific populations with programs designed to meet their needs.

The objectives of the study are to:

1. Identify demographic, environmental, lifestyle and cultural aspects that have an impact on acceptance of and participation in preventative measures (eg. lack of knowledge, fear, income, marital status, activity limitation, extent of physician contact, transportation to screening centers, and lack of female physicians in the community).
2. Develop strategies that would assist individuals in overcoming barriers to participate in these screening programs.
3. The participation of the women in this study will increase the knowledge of the gaps and barriers to breast and cervical screening in the City of Timmins.

The interview will take approximately 1 to 1½ hours and will be conducted in your home at your convenience. Participation in this study is voluntary. During the interview you can choose not to answer any question and you can stop the interview at any time. There is no risk of physical or psychological harm involved with this study.

All information you provide will be confidential. Please omit using your name during the interview as the interview will be recorded. The information will be compiled by the investigator, Michelle Haavaldsrud. All data collected will be kept in a locked cupboard and be securely stored at Lakehead University for 5 years and then shredded. The questionnaires will be number coded and your name will never be used at any time when reporting the information collected.

A copy of the results will be made available in your area either through the health unit or in the library.

If you have any questions or concerns, please feel free to contact me or my supervisor, Dr. Darlene Steven. If you have any concerns related to your rights as a research subject, you may contact the Lakehead University Research Ethics Board at 807-343-8283.

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Timmins, ON
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(705) 264-0937

Dr. Darlene Steven, RN, PhD
Professor, School of Nursing and Master of Public Health Program
Lakehead University
955 Oliver Road
Thunder Bay, ON
P7B 5E4

(807) 343-8643

Thank you in advance for your participation in this survey.

Sincerely

Michelle Haavaldsrud

APPENDIX C: CONSENT FORM



Public Health

(705) 264-0937

(705) 267-1933

mhaavald@lakeheadu.ca

**CONSENT FORM
BREAST AND CERVICAL CANCER SCREENING**

INTERVIEW AND AUDIOTAPE

I have read and understood the covering letter for the study entitled Knowledge, Attitudes, and Barriers Toward Breast and Cervical Cancer Screening in Selected Ethnocultural Groups in Timmins.”

I agree to participate in a study conducted by a Master’s in Public Health Nursing student at Lakehead University.

I agree to the following:

1. Participation is completely voluntary and I can withdraw at any time from the study;
2. I am 40 years of age and older;
3. There is no risk of physical or psychological harm to me;
4. I may choose not to answer any question asked of me;
5. I will receive, upon request, a copy of the study;
6. All information will be kept in a locked cupboard and be securely stored at Lakehead University for 5 years. It will be number coded, and my name will never be used at any time when reporting the information collected.

The information letter has been read to me by the researcher, and the nature of the study, the purpose, and procedures have been explained.

Signature of Participant

Signature of Researcher

Date