NUTRITIONAL HEALTH PROMOTION IN NEWFOUNDLAND AND LABRADOR: AN EXAMINATION OF THE POTENTIAL ROLES OF FAMILY PHYSICIANS AND CANADA'S FOOD GUIDE IN PROMOTING NUTRITIONAL HEALTH AMONG NEWFOUNDLAND AND LABRADOR RESIDENTS

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NUTRITIONAL HEALTH PROMOTION IN NEWFOUNDLAND AND LABRADOR: AN EXAMINATION OF THE POTENTIAL ROLES OF FAMILY PHYSICIANS AND *CANADA'S FOOD GUIDE* IN PROMOTING NUTRITIONAL HEALTH AMONG NEWFOUNDLAND AND LABRADOR RESIDENTS

by

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ABSTRACT

Chronic diseases are a major cause of death and disability in Newfoundland and Labrador. As nutrition is one of the few modifiable factors associated with the development of chronic diseases, health promotion and disease prevention strategies focused on nutrition have the potential to improve the health status of residents of Newfoundland and Labrador. Collectively, avenues such as the encouragement of healthy eating by family physicians and the promotion of nutrition education tools such as *Canada's Food Guide to Healthy Eating* have the potential to promote health in Newfoundland and Labrador. The purpose of the present study was to examine family physicians' attitudes and behaviours pertaining to the delivery of nutrition information to patients and to assess potential factors related to awareness and use of *Canada's Food Guide to Healthy Eating* in Newfoundland and Labrador residents.

To determine Newfoundland and Labrador family physicians' attitudes and behaviours pertaining to the promotion of nutrition, a self-administered questionnaire was mailed to all family physicians practicing in the province. A secondary analysis of data collected by *Nutrition Newfoundland and Labrador* was conducted to determine factors related to awareness and use of *Canada's Food Guide to Healthy Eating*, focusing on sociodemographic factors, dietary intake, health risk associated with body size and participation in other healthful behaviours. Chi-square analyses of data were conducted, with a p-value<0.01 showing statistical significance. Sample weights were used to allow findings to represent the overall Newfoundland and Labrador population.

Family physician respondents recognized the importance of nutrition to health, acknowledged their role in promoting nutrition to patients, but identified barriers to the delivery of nutrition information. The respondents appreciated the expertise of dietitians and would like to have more dietitians accessible to them. Most respondents were aware of *Canada's Food Guide to Healthy Eating* (95.6%) and 82.3% find it useful when discussing nutrition with patients, but only 45.1% have it posted in their practice setting.

In Newfoundland and Labrador, 82.9% of residents were aware of *Canada's Food Guide to Healthy Eating*, but only 32.7% of those who were aware of *Canada's Food Guide to Healthy Eating* reported that they use it. Analyses indicate that awareness of *Canada's Food Guide to Healthy Eating* was positively associated with education level, income, being female, residing in an urban community, having children living at home and always having enough food to eat, and negatively associated with age. Use of *Canada's Food Guide to Healthy Eating* was positively associated with age, education level, income, being female, being married, residing in an urban community and participation in a variety of health promoting behaviours. Dietary intake of energy, fat, vitamin C and potassium were also related to use of *Canada's Food Guide to Healthy Eating*.

This research suggests that there should be greater promotion of nutrition to the residents of this province using approaches such as interdisciplinary collaboration and promotion of nutrition education tools such as *Canada's Food Guide to Healthy Eating*.

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LIST OF ABBREVIATIONS AND SYMBOLS

χ^2	Chi-Square
p	p-value
AAMC	Association of American Medical Colleges
AI	Adequate Intake
AMDR	Acceptable Macronutrient Distribution Range
BC	British Columbia
BCNS	British Columbia Nutrition Survey
BMI	Body Mass Index
BNS	Bureau of Nutritional Sciences, Health Protection Branch of Health Canada
BRFSS	Behavioral Risk Factor Surveillance System
CD	Census Division
CDC	Centers for Disease Control and Prevention
CFGHE	*Canada's Food Guide to Healthy Eating*
CME	Continuing Medical Education
DRI	Dietary Reference Intake
EAR	Estimated Average Requirement
GP	General Practitioner
HIC	Human Investigations Committee
MCP	Medicare Plan
MUN	Memorial University of Newfoundland
NPS	National Physician Survey
NHIRF	Newfoundland Health Insurance Register File
NL	Newfoundland and Labrador
NLMA	Newfoundland and Labrador Medical Association
NMB	Newfoundland Medical Board
NBNS	New Brunswick Nutrition Survey
NNL	Nutrition Newfoundland and Labrador
NPHS	National Population Health Survey
RNI	Recommended Nutrient Intake
SPSS	Statistical Package for Social Sciences
USA	United States of America
WC	Waist Circumference
WHO	World Health Organization

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CHAPTER 1

INTRODUCTION & LITERATURE REVIEW

1.1 Introduction

In the 1978 Alma-Ata Declaration of the World Health Organization (WHO), the essential role of health promotion and disease prevention in the advancement of individual and population health was recognized (World Health Organization, 1978). Nutrition is widely accepted as a key factor in health promotion and disease prevention (Health Canada, 1989). Given that healthy eating is determined by a number of factors, including such things as individual food preferences, nutrition knowledge, food availability and socio-economic status, health promotion strategies focusing on nutrition need to address all factors that influence eating practices. Equipping people with reliable information to make informed healthy food choices is essential to the promotion of nutritional health. Two potential avenues to provide the population with reliable nutrition information are through the promotion of healthy eating by family physicians and through the use of tools such as *Canada's Food Guide to Healthy Eating* (CFGHE).

1.2 The Population Health Approach

Population health is "the health of a population as measured by health status indicators and as influenced by social, economic and physical environments, personal health practices, individual capacity and coping skills, human biology, early childhood development, and health services" (Federal, Provincial and Territorial Advisory Committee on Population Health, 1999, p.7). Population health appreciates that health is

more than the absence of disease, but rather is a state of complete physical, mental and social well-being (Health Canada, 1998). Also, population health focuses on an "upstream" approach to health, recognizing that the earlier health problems are addressed, the greater the potential benefits for health status (Health Canada, 1998).

As an approach, population health addresses the entire range of known factors that determine health in a comprehensive and interrelated way (Federal, Provincial and Territorial Advisory Committee on Population Health, 1994; Health Canada, 1998; Public Health Agency of Canada, 2002). These factors are collectively referred to as the 'determinants of health'.

1.2.1 The Determinants of Health

It has been recognized for some time that many factors collectively influence health status. More than 30 years ago, Marc Lalonde released the working document *A New Perspective on the Health of Canadians*, which established a framework for the key factors that influence health: human biology, environment, lifestyle and health care organization (Federal, Provincial and Territorial Advisory Committee on Population Health, 1994; Lalonde, 1974). This framework has been expanded over time to include a number of psychosocial factors (Federal, Provincial and Territorial Advisory Committee on Population Health, 1994, 1999). At present, the Public Health Agency of Canada (2003) has identified 12 key determinants of health: income and social status, social support networks, education and literacy, employment and working conditions, social

environments, physical environments, personal health practices and coping skills, healthy child development, biology and genetic endowment, health services, gender, and culture. Each of these factors influences health in its own right, but a point to emphasize is that they are all interconnected, and health is determined by the interplay among all of these factors (Federal, Provincial and Territorial Advisory Committee on Population Health, 1994). Food choices and eating habits will be described in more detail to further illustrate the interconnection between the determinants of health.

1.2.1.1 The Determinants of Healthy Eating

Individual practices and capacities, combined with economic and social forces, influence food choice and availability, and thus nutritional status (Health Canada, 1996). Food choices are complex decisions that are influenced by a number of individual and collective factors and the interplay between these factors (Health Canada, 1996; Raine, 2005).

Healthy eating is influenced in part by personal food choices. Personal food choices are more individual determinants of eating behaviour, including such things as one's physiological state, food preferences, nutritional knowledge, perceptions of healthy eating and psychological factors (Health Canada, 1996; Raine, 2005). There are a number of environmental factors that influence healthy eating, which have been referred to as the collective determinants of healthy eating, and include issues related to one's interpersonal, physical, economic and social environments (Raine, 2005).

To provide a comprehensive examination of the factors that influence eating habits, one must consider the interconnections both between and within the individual and collective determinants of healthy eating. For instance, food preferences are highly individual, although social and cultural norms also have an impact on a person's food preferences (Raine, 2005).

The interplay among the various determinants of healthy eating can further be illustrated by explaining the relationship between healthy eating and income. Inadequate income is an important barrier to healthy eating by negatively influencing the quality and quantity of food available to people (Power, 2005). Income also indirectly influences healthful eating, which is mediated through social class. For example, people with low literacy skills are more likely to be unemployed and poor. As a result, they have less access to healthy physical environments and healthy foods (Public Health Agency of Canada, 2003).

As demonstrated by the above examples, to achieve optimal nutritional health in the Canadian population, all of the factors that influence health must be considered and strategies must be designed to affect all Canadians. Emphasis has been placed on shifting focus from illness treatment toward health promotion and disease prevention, because focusing "upstream" offers great potential for health and wellness (Health Canada, 1998).

1.3 Promoting Nutritional Health in the Community

Canada has contributed significantly to the development of health promotion worldwide, in part because of such initiatives as the Lalonde Report (Lalonde, 1974), *Achieving Health for All: A Framework for Health Promotion* (Epp, 1986) and the *Ottawa Charter for Health Promotion* (World Health Organization, 1986) (Pederson et al., 1994). The *Ottawa Charter for Health Promotion* was a collaborative effort of the WHO, Health and Welfare Canada and the Canadian Public Health Association, which provides a vision of current concepts of health promotion and can be used as a framework for health promotion (Canadian Public Health Association, 1996; Shah, 2003).

Health promotion has been defined as "the process of enabling people to increase control over and to improve their health" (World Health Organization, 1986, p.1). Health promotion involves building healthy public policy, creating supportive environments, strengthening community action, reorienting health services and developing personal skills (World Health Organization, 1986).

Health promotion requires a comprehensive approach that must include information as an essential component. Providing people with appropriate information to make healthy choices allows people to exercise more control over their health and to make choices more conducive to health (Pike & Forster, 1995; World Health Organization, 1986). Strategies to provide individuals with reliable nutrition information could potentially

include the promotion of nutrition by family physicians and the promotion of nutrition education tools such as CFGHE.

1.3.1 Nutrition Promotion in Family Medicine

Community dietitians play a major role in the promotion of nutritional well-being by developing health promotion strategies, nutrition education programs and healthy eating resources (Dietitians of Canada, 2006). Unfortunately, there is limited and unequal access to community-based primary health care nutrition services (Dietitians of Canada, 2001). With the important role nutrition plays in health, it is vital that people are provided with reliable nutrition information. To support the work of the community dietitian, other health professionals can also work towards promoting nutritional health by encouraging healthy eating practices to their clients. As a group, family physicians are in a unique position to promote the importance of nutrition to the health and well-being of the population (Worsley, 1999).

1.3.1.1 The Family Physician as a Source of Nutrition Information

Family physicians have the potential to promote nutritional health to patients. The public relies on family physicians for trusted and reliable nutrition information (Buttriss, 1997; Reid et al., 1996; Serra-Majem et al., 1999; van Dillen et al., 2003; Worsley, 1999). In a population-based nutrition survey carried out in Spain, 79% of the population reported a high level of reliance on general practitioners (GPs) as a source of nutrition information (Serra-Majem et al., 1999). Van Dillen and colleagues (2003) also found that the family

doctor was mentioned most often as a source of nutrition information from Dutch adults during focus groups, though dietitians were considered a more reliable and knowledgeable source. Hiddink and colleagues (1997a) report similar findings from quantitative research with Dutch consumers; while Dutch consumers perceive the level of expertise of dietitians and the Netherlands Food and Nutrition Education Bureau slightly higher than that of the primary care physician, they referred to the primary care physician more often for nutrition information. Data collected from a nationally representative sample of the British general public further illustrates the trust the public has in family physicians; 53% of survey participants said they trusted nutrition advice received from their doctor and 46% said they trust the information they saw in doctors' examining rooms and in hospitals (Buttriss, 1997).

Canadians also regard family physicians as a trusted and reliable source of nutrition information. *Tracking Nutrition Trends*, a series of studies that track changes in nutrition-related attitudes, knowledge and reported actions of Canadians, has consistently found that Canadians identify the family physician as a trusted and credible source of nutrition information (National Institute of Nutrition & the Canadian Food Information Council, 2004; Reid et al., 1996). A recent survey assessing Canadians' level of confidence in various sources of nutrition information similarly found that respondents were very confident about nutrition information received from physicians (Marquis et al., 2005). Conversely, adult females in Calgary, Alberta indicated that doctors are poor sources of nutrition information (Gust et al., 1995a).

In addition to the family physician being a trusted source of nutrition information for the public, research suggests that dietary advice from family physicians can result in favourable dietary changes in patients. Data from the Behavioral Risk Factor Surveillance System (BRFSS) has shown on two separate occasions that patients who received advice from a physician to eat fewer high fat and high cholesterol foods were more likely to report dietary changes than those who had not been advised to make dietary changes (Centers for Disease Control and Prevention, 1999; Greenlund et al., 2002). A study of 915 adult patients in southeastern Missouri found that patients who received advice from a physician to eat less fat were more likely to make some dietary changes (Kreuter et al., 2000). Hunt and colleagues (1995) found that participants who received dietary recommendations from a physician were significantly more likely to report a decrease in the consumption of high-fat foods and an increase in the consumption of high-fibre foods as compared to those who had not received dietary advice from a physician, though this difference was not significant when adjusted for age and history of chronic disease. Although physicians have been shown to favourably influence dietary patterns of patients, a systematic review assessing the effects of dietary advice given by dietitians compared with advice from other health professionals or self-help resources, in reducing blood cholesterol in adults demonstrated that participants receiving dietary advice from dietitians had a statistically significant reduction in blood cholesterol as compared to patients receiving advice from doctors (Thompson et al., 2005).

The structure of the Canadian health care system increases the potential for family physicians to discuss nutrition with patients. In NL, 85.9% of residents report having a regular family doctor, 82% of residents had contact with a family physician within the past 12 months and 65.3% consulted a family physician on more than one occasion within the past 12 months (Government of Newfoundland and Labrador, 2004; Carrière, 2005; Statistics Canada, 2005). This continuity of care presents the opportunity for family physicians to discuss nutrition with patients in a stepwise fashion over time and to provide dietary advice tailored to the patient's needs because he/she has knowledge of the patient's medical and family history, and thus can be effective (Truswell et al., 2003; van Weel, 2003). Worsley (1999, p.S101) has suggested that "when doctors are consulted by individuals, they are as a profession advising the population. Thus they are in an excellent position to further the public's health status as well as that of individual patients." From a nutrition perspective, even if a family physician is providing individual dietary advice to patients, they have the potential to influence the nutritional health of the majority of NL residents.

1.3.1.1.1 Prevalence of Nutrition Counselling by Physicians

The family physician has great potential to promote nutritional health to patients and to the population as a whole. However, many physicians do not discuss nutrition with patients. Physicians' self-report of counselling on diet and nutrition varies greatly. For instance, a postal questionnaire administered to 1000 GPs in the Netherlands found that 28% of respondents gave nutrition information to approximately 10% of patients and

46% to approximately 5% of patients (Hiddink et al., 1995). In a survey of 1000 randomly selected general practitioners in Denmark, only 30% of the 374 respondents reported giving dietary advice to patients once a day or more (Hølund et al., 1997). Results from the Women Physicians' Health Study, which surveyed a stratified random sample of female medical doctors from the United States of America (USA), indicate that 43.4% of female physicians report discussing nutrition with patients at least once a year (Frank et al., 2002). Data from the Centers for Disease Control and Prevention's (CDC) National Ambulatory Medical Care Survey suggest that many office visits did not include diet counselling; physicians reported counselling on diet during 22.8% of office visits only (Centers for Disease Control and Prevention, 1998). Levine and colleagues (1993) conducted a national survey of primary care physicians in the USA to determine the degree to which primary care physicians in the USA practice a variety of basic nutritional competencies previously developed by Young and associates (1983). Results indicated that less than 40% of the physician respondents usually or always practice 17 or more of the 50 nutrition-related competencies in patient care (Levine et al., 1993). On the contrary, in a survey of USA physicians who were members of the Society of General Internal Medicine, two-thirds of respondents reported that they provide nutrition counselling for their patients (Glanz et al., 1995). Kushner (1995) found that 69% of physician survey respondents reported that 40% or less of patients received nutrition counselling. A survey administered to residents and their attending physicians within an academic medical residency program found that only 20% of those physicians always provided prevention counselling for diet (Tsui et al., 2004). A survey of 110 family

practice residents in Texas also found low levels of nutrition counselling. Only 20.2 % of the family practice residents reported that they usually or always asked patients about diet (Guo et al., 2002). Further, it is likely that physicians over-report their nutrition counselling practices. Kreuter and colleagues (1997) compared patient and physician reports of nutrition counselling and found a low level of agreement between patient and physician reports, with the majority of non-agreeing cases involving a physician reporting that they advised and the patient reporting that they were not advised.

Results from research assessing nutrition counselling practices of physicians by patient recall or direct observation also tend to be wide-ranging. Data from a random-digit dialed telephone survey of USA adults from seven states and Puerto Rico found that 41.5% of respondents reported receiving advice from their physician to eat fewer high-fat foods or high-cholesterol foods (Centers for Disease Control and Prevention, 1999). Only 20% of a representative population-based sample of Washington State residents reported that their physician had made recommendations for dietary change in the past year (Hunt et al., 1995). A direct observation study of ambulatory visits with Ohio family physicians showed that only 6.5% of family physicians observed included nutrition counselling in the majority of patient visits (majority set at >50%) and that only 24% of all patient visits included nutrition counselling (Eaton et al., 2002). Similarly, Stange and colleagues (1998), using direct observation of the patient visit, found that of all patients deemed eligible for diet counselling, only 13% actually received this service during their visit. A study that reviewed audiotapes of medical visits in 11 geographic

areas in the USA and Canada found that 43% of the visits included some discussion about diet or weight control (Russell & Roter, 1993).

The family physician as a source of nutrition information for Canadians appears to be declining. *Tracking Nutrition Trends* found that the percentage of respondents who had consulted their family physician on nutrition matters had declined from 57% in 1994 to 48% in 1997 (National Institute of Nutrition & the Canadian Food Information Council, 2004). Furthermore, results of a survey posted on the Dietitians of Canada website found that only 13% of survey respondents use the physician as a source of nutrition information (Marquis et al., 2005).

The general practice is generally viewed as a setting for treating illness, and as such, physicians often view their primary role as managing patients' medical problems rather than preventing future illness (Fuller et al., 2003; Lawlor et al., 2000). Not surprisingly, when physicians discuss nutrition with patients, nutrition is generally introduced in the context of treating an existing condition (Russell & Roter, 1993). Research suggests that physicians provide dietary advice to patients with chronic conditions more often than those without chronic conditions (Hunt et al., 1995). This has been shown for diabetes (Egede & Zheng, 2002; Galuska et al., 1999; Kreuter et al., 1997; Meigs & Stafford, 2000), cardiovascular disease (Centers for Disease Control and Prevention, 1999), hypercholesterolemia (Kreuter et al., 1997), hypertension (Kreuter et al., 1997), stroke (Greenlund et al., 2002) and obesity (Galuska et al., 1999; Guo et al., 2002; Kreuter et al.,

1997; Mokdad et al., 2001). Further, Kreuter and colleagues (1997) found that physicians were more likely to provide dietary advice to patients whose health was already compromised as compared to those who were disease free but engage in unhealthy behaviours. Van Weel (1999) supports providing nutrition information in the context of illness, suggesting that to be most effective, the GPs role should be directed at secondary and tertiary prevention where they prioritize nutritional guidance to target an individual's personal elevated health risk(s). On the contrary, Kreuter and colleagues (1997) explain that by advising only those who have developed chronic conditions, physicians are missing the opportunity to prevent the development of chronic conditions in those patients who engage in unhealthy behaviours.

1.3.1.1.2 Barriers to Providing Nutrition Information

Though physicians' view their primary role as treating patients' medical problems, they recognize the importance of nutrition (Hølund et al., 1997; Levine et al., 1993; Moore & Adamson, 2002), and many feel nutrition and preventive counselling is part of their daily tasks (Ammerman et al., 1993; Frank et al., 2002; Hiddink et al., 1995; Hølund et al., 1997; Kushner, 1995; Richards & Mitchell, 2001; Soltesz et al., 1995; Wechsler et al., 1996). Even so, many do not include nutrition and preventive counselling as part of their daily routine. To understand why physicians are not discussing nutrition with patients, many studies have examined the factors that physicians identify as barriers to providing nutrition information to patients.

Literature suggests that a number of organizational barriers exist for physicians that discourage nutrition counselling. Lack of consultation time has consistently been cited as a major barrier to the delivery of nutrition information to patients. A random sample of 102 Ottawa family physicians cited lack of available time most frequently (70%) as a barrier to dietary counselling (Langner et al., 1989). Research conducted with physicians from the USA, United Kingdom, Netherlands and Denmark have similar findings, with anywhere from 57% to 94 % of respondents indicating that lack of time is a barrier to the delivery of nutrition information to patients (Ammerman et al., 1993; Guo et al., 2002; Hiddink et al., 1995; Hiddink et al., 1997b; Hølund et al., 1997; Kushner, 1995; Moore & Adamson, 2002; Tsui et al., 2004). A convenience sample of Australian general practitioners identified lack of time as a barrier to initiating patient nutrition management as well (Nicholas et al., 2003). Reviewing audiotapes of medical visits, Russell and Roter (1993) found that diet/weight discussions averaged less than two minutes, accounting for 9% of the total visit time. Stange and colleagues (1998) found similar findings for preventive services using direct observation of patient visits. Illness visits with preventive services were significantly longer in duration than those without preventive services (10.9 minutes vs. 8.8 minutes). These additional two minutes do not seem much for one visit, but could contribute substantially over the entire day, especially when physicians view the availability of time as a factor influencing the effectiveness of preventive practices (Grant et al., 1998).

Another organizational barrier that physicians refer to is the lack of financial reimbursement for the provision of nutrition information (Guo et al., 2002; Hiddink et al., 1995; Kushner, 1995). Although these studies were conducted outside of Canada, lack of financial reimbursement is an issue in Canada as well with 62% of a randomly selected sample of Ottawa physicians reporting that the Ontario Health Insurance Plan did not adequately reimburse for dietary counselling (Langner et al., 1989). In NL, the *Medical Care Insurance Insured Services Regulations* stipulate that all services provided by physicians to beneficiaries who are suffering from an illness that requires medical treatment or advice are insurable. Provision of dietary advice may be included as part of the assessment or consultation visit. As such, physicians are reimbursed for this service as part of the general assessment or consultation visit, but do not receive additional reimbursement for dietary advice specifically. Furthermore, general health promotion in healthy individuals is not considered an insurable service, and thus physicians are not reimbursed for this service (Medical Care Insurance Insured Services Regulations, 1996; Newfoundland Medical Care Plan Payment Schedule, 2005).

In addition to the variety of organizational barriers, physicians also cite a number of individual barriers that discourage their involvement in the delivery of nutrition information. Many physicians do not feel confident in their ability to provide nutrition counselling (Ammerman et al., 1993; Frank et al., 2002; Hiddink et al., 1995; Kushner, 1995; Levine et al., 1993; Wechsler et al, 1996), although a survey of 102 Ottawa family physicians found that 87% of respondents felt that they were prepared to provide dietary

counselling (Langner et al., 1989). Further, many physicians do not feel they are effective in producing favourable outcomes (Ammerman et al., 1993; Brotons et al., 2003; Fuller et al, 2003; Wechsler et al., 1996; Yeager et al., 1996). For instance, even though the majority of 102 Ottawa family physicians felt well prepared to provide dietary counselling, only 46% felt they were successful in helping patients achieve diet changes (Langner et al., 1989). Also, physicians who do not feel prepared to offer dietary advice to patients are less inclined to provide dietary counselling (Ammerman et al., 1993). Research has found that physicians who consider themselves well prepared for counselling on lifestyle change give advice more frequently than those who do not (Cho et al., 2003). Ockene and colleagues (1995) report that after participation in a nutrition counselling training program, physicians showed a significant improvement in skills to perform behavioural counselling for dietary change, as well as confidence and perceived preparedness to intervene.

Lack of training, knowledge and skill in nutrition counselling are also commonly cited in the literature as major barriers to the delivery of nutrition information to patients, which may explain why many physicians do not feel confident in their abilities to produce favourable dietary outcomes (Hiddink et al. 1995; Hiddink et al., 1997b; Hølund et al., 1997; Kushner, 1995; Levine et al., 1993; Nicholas et al., 2003; Tsui et al., 2004). This is understandable given that medical students receive little nutrition education in medical school. According to Rosser (2003), medical students in Canadian medical schools receive little instruction on how to provide dietary advice to patients. For instance, the

undergraduate medical program curriculum at Memorial University of Newfoundland (MUN) allots six hours for community nutrition, with some additional nutrition education discussed in the context of specific diseases (B.V. Roebothan, Associate Professor of Community Health (Dietetics/Nutrition) and Biochemistry (Dietetics/Nutrition), personal communication, September 19, 2006). This is similar in USA medical schools. The Association of American Medical Colleges (AAMC) 2002 Medical School Graduation Questionnaire showed that only 53.0% of students felt that their nutrition-related experiences were adequate, and less than half felt they were well prepared to assess a patient's status for obesity and/or undernutrition (47.4%) (Association of American Medical Colleges, 2002). In addition, 62.7% of respondents felt that the time devoted to nutrition instruction was inadequate in 2002, though this number declined to 51.8% in the 2004 analysis (Association of American Medical Colleges, 2004). In a survey of USA female physicians, 39% of respondents indicated that they had received little or no training in weight and nutrition counselling (Frank et al., 2002). Further, the majority of participants of a national survey of USA primary care physicians agreed or strongly agreed that medical schools should place greater emphasis on nutritional education and that continuing medical education (CME) courses should devote time to nutrition-related issues (Levine et al., 1993). A study of Washington State family physicians found that most of the respondents rated their nutrition training in medical school and residency as either poor or fair, with CME ranking somewhat higher in quality (Mihalynuk et al., 2003). In addition, as the perceived quality of training in medical school, residency and CME increased, self-reported nutrition proficiency increased for these respondents. A

study in the United Kingdom found that there was little difference between diet-related knowledge of health professionals and the general public (Barratt, 2001). Further, though the general public considers the family doctor as a good source of dependable nutrition information, they perceive dietitians as being more reliable and knowledgeable about nutrition (van Dillen et al., 2003). Research studying the knowledge of primary health care professionals with respect to obesity, nutrition and weight management concluded that GPs have gaps in their knowledge of nutrition and weight management, which illustrates the potential for these primary health care providers to give misleading advice to patients (Hankey et al., 2004). However, research has demonstrated that after nutrition training, physicians feel better prepared to counsel, have increased nutrition knowledge and are more likely to ask their patients about nutrition and make recommendations for dietary change (Lazarus, 1997; Ockene et al., 1995; Richards & Mitchell, 2001). Conversely, Ockene and colleagues have shown that training alone is not sufficient to influence physicians' counselling practices (1996), or to produce favourable changes in diet, weight and blood lipids (1999), but is effective when complemented with a supportive office environment.

Lack of patient interest, motivation and compliance are also viewed as major obstacles to discussing nutrition with patients (Ammerman et al., 1993; Fuller et al., 2003; Guo et al., 2002; Hiddink et al., 1995; Hiddink et al., 1997b; Hølund et al., 1997; Kushner, 1995; Tsui et al., 2004). In a recent survey of Canadian physicians, the highest ranked problem experienced by respondents in managing patients with cardiovascular disease was

lifestyle change compliance, with 85.3% reporting that this was a problem they experienced (Curran et al., 2002). Research with Quebec physicians has shown they feel that compliance of patients is a major factor (reported by 75% of respondents) influencing the effectiveness of preventive practices, which may help to explain why physicians perceive a patient's lack of interest, motivation and compliance as a major barrier to the delivery of nutrition information to patients (Grant et al., 1998).

Physicians also worry that they will negatively affect the patient-doctor relationship if they try to provide preventive dietary advice (Fuller et al., 2003; Hiddink et al., 1995; Lawlor et al., 2000). They feel that lifestyle advice often annoys patients, that patients would feel they were interfering and that it is an intrusion into the privacy of patients. Research has also shown that physicians feel the relationship with patients is a very important factor influencing the effectiveness of preventive practices (Grant et al., 1998), thus explaining why many are hesitant to provide preventive dietary counselling.

Limited access to appropriate patient education materials is another barrier to the delivery of nutrition information to patients cited by physicians in the literature (Ammerman et al., 1993; Guo et al., 2002; Kushner, 1995). For instance, almost half (48%) of 102 Ottawa family physicians indicated that adequate dietary counselling materials are not available, although this research did not assess if the respondents were aware of where to access dietary counselling materials (Langner et al., 1989). Furthermore, Dodds and colleagues (1995) found that 59% of survey respondents had difficulty in obtaining nutrition

education materials because they did not know where or how to get the materials (36%), the materials were not always available (34%), and/or the materials were too costly to purchase (28%). Similarly, Moore Kenner and colleagues (1999) found that not being able to obtain materials because of cost or because they were unsure of sources (79%) was sometimes or often a barrier to using nutrition and wellness education materials. In addition to accessibility of educational materials, physicians also cite a number of barriers to using available nutrition education materials. Moore Kenner and colleagues (1999) found that lack of patient interest (62%) and limited time with patients (92%) were sometimes, if not often, barriers to using nutrition and wellness materials. Physicians also have concerns with the quality of existing nutrition education materials for patients with issues related to the complexity, length, reading level and possible inaccuracy of educational materials; the cultural relevance of the educational materials; and the inclusion of brand names on the education materials (Dodds et al., 1995; Moore Kenner et al., 1999). In a survey administered by Moore Kenner and associates (1999), most respondents (83%) favoured one-page printed handouts as the most preferred format for nutrition education materials. Richards and Mitchell (2001) found that when physicians have input into what and how nutrition education materials are produced for their use, they are more likely to use it.

In Canada, *Canada's Food Guide to Healthy Eating* can be used by family physicians to advise patients on healthy eating (Health Canada, 1992a). CFGHE is a simple nutrition

education tool developed by the federal government to provide Canadians with a healthful pattern of eating.

1.3.2 *Canada's Food Guide to Healthy Eating*

Canada's first food guide, *Canada's Official Food Rules*, was developed when it was revealed that problems such as inadequate access to food, insufficient money for food and malnutrition were affecting some Canadian populations (Health Canada, 2002a).

Canada's Official Food Rules were introduced to the public in July 1942 in an effort to prevent nutritional deficiencies and improve the health of Canadians in the context of wartime food rationing and poverty (Health Canada, 2002a). Since its introduction in 1942, the Food Guide has evolved, adopting new names, new looks, and new messages, but never shifting from its original purpose of guiding food selection and promoting the nutritional health of Canadians (Health Canada, 2002a).

CFGHE (Health Canada, 1992a) (Appendix A), the current food guide in Canada, was released in 1992 after a comprehensive review by the Task Group on Canada's Food Guide (Health and Welfare Canada, 1990a). Previous food guides in Canada were based on a foundation diet concept, recommending a diet which would meet minimum nutrient requirements, but fall short of meeting the energy needs of most people (Health Canada, 1992b). The 1992 CFGHE underwent a major philosophical shift, moving to a total diet approach to choosing foods. A total diet approach recommends a pattern for selecting

foods to meet both energy and essential nutrient needs (Health Canada, 2002a). It provides dietary guidance for a wide range of people (Health Canada, 1992b).

CFGHE, commonly referred to as the Food Guide, is a nutrition education tool designed to meet the energy and nutrient needs of Canadians four years of age and over while reducing the risk of chronic disease (Health Canada, 1992b; Health Canada, 2003a). It was developed at a grade 7 reading level and intended for use by the general public (Health Canada, 1992b). It is based on *Nutrition Recommendations for Canadians* and *Canada's Guidelines for Healthy Eating*, and embodies scientific knowledge of food and nutrition and national nutrition goals, as well as issues relating to food consumption, supply and food production (Health Canada, 1992b; Health Canada, 2002a; Health Canada, 2003a). CFGHE can be used to help plan healthy meals for individuals or groups and to evaluate eating habits in a general way (but it is not intended for use in assessing nutritional status) (Health Canada, 1992b). Researchers in Canada have used CFGHE and previous food guides to evaluate the dietary intake of study participants (Bunston & Breton, 1990; Dewolfe & Millan, 2003; Jacobs Starkey et al., 2001; Jacobs Starkey & Kuhnlein, 2000; Pomerleau et al., 1997; Roebothan et al., 1994; Shatenstein et al., 2004).

CFGHE recommends that Canadians choose foods from each of the four food groups: grain products, vegetables and fruit, milk products, and meat and alternatives (Health Canada, 1992a). The food guide presents the number of servings for each food group as

a range, includes examples of serving sizes for each food group and emphasizes that different people need different amounts of food (Health Canada, 1992b). An 'other foods' category also appears on CFGHE, which includes foods and beverages that do not fit into the four major food groups. The 'other foods' group includes a wide range of dietary items that are used differently by people, and as such, there is no recommended number of servings or serving sizes included (Health Canada, 1992b). Overall, a diet based on CFGHE will provide approximately 1800 to 3200 kilocalories per day, depending on the number and types of servings, serving sizes and the kinds of 'other foods' added (Health Canada, 1992b). As some of the foods grouped in the 'other foods' category are higher in fat or kilocalories, CFGHE recommends that these foods be eaten in moderation (Health Canada, 1992a). Research has shown on numerous occasions the high contribution of the 'other foods' category to energy and nutrient intake, particularly carbohydrate and fat (Jacobs-Starkey et al., 2001; Levy-Milne, 2004).

Research suggests that Canadians have difficulty meeting the minimum recommended servings suggested by CFGHE. Of a randomly selected sample of Canadians between 18 and 65 years of age, only males aged 13-34 met the minimum recommended number of servings of all four food groups suggested by CFGHE (Jacobs-Starkey et al., 2001). Further, fruit and vegetable intake was marginal or below the CFGHE recommendation for most age and sex groups and intake of milk and milk products was below the minimum recommended number of servings for all females and males aged 35-65. Fewer than 50% of study participants met the minimum recommended servings of milk

products and of fruits and vegetables (Jacobs-Starkey et al., 2001). Similarly, a study of the dietary intake of community-dwelling older adults in the Kingston Area, Ontario found that many of the study participants failed to consume the minimum number of servings recommended by CFGHE (Dewolfe & Millan, 2003). Results from the *British Columbia Nutrition Survey* (BCNS) indicate that only a small percentage of the British Columbia (BC) population met the minimum suggested servings for all four food groups on a given day. Only 0.7-3.2% and 5.2-14.2% of women and men respectively met the minimum suggested servings (Levy-Milne, 2004). Further, the majority of BC residents had intakes of fruits and vegetables (64.6%) and milk products (77.4%) that did not meet the minimum recommendations suggested by CFGHE when adjusted for usual intake (Levy-Milne, 2004).

In addition to the four food groups, CFGHE provides key directional statements for choosing foods, which include 'Enjoy a variety of foods from each group every day', 'Choose lower-fat foods more often', 'Choose whole grain and enriched products more often', 'Choose dark green and orange vegetables and orange fruit more often', 'Choose lower-fat milk products more often' and 'Choose leaner meats, poultry and fish, as well as dried peas, beans and lentils more often' (Health Canada, 1992a, Health Canada, 1992b). The BCNS examined BC residents' dietary intake in relation to the guidance statements included in CFGHE. Results showed that British Columbians were choosing lower fat milk beverages and grain products but higher fat milk products and meats. In addition, British Columbians were choosing whole grain products, dark green and orange

fruit and vegetables, and legumes less often than other choices in each respective food group (Levy-Milne, 2004).

In addition to encouraging people to eat healthy, CFGHE also promotes the other components of the *Vitality* approach, which encourage people to be active and feel good about themselves (Health Canada, 1992b).

1.3.2.1 Attitudes Towards *Canada's Food Guide to Healthy Eating*

Perceptions of CFGHE have been studied on previous occasions. Within four weeks of the release of CFGHE in November 1992, Gust and colleagues conducted focus groups with adolescents and children (1995b) and adult female consumers (1995a) in Calgary, Alberta in an attempt to describe reactions to the new CFGHE by these subgroups. The older children (11-12 year olds and 15-16 year olds) understood the concept of the rainbow design of the new Food Guide, whereas the youngest children (8-9year olds) could not explain the meaning of the rainbow design and did not understand the CFGHE concepts. All age groups commented on the colourfulness of CFGHE as a positive feature of the updated Food Guide. The older groups also commented that the new Food Guide was easier to read and understand than the previous one. Dietitians, teachers and coaches were the individuals from whom the oldest age group would prefer to learn about CFGHE, though they commented that they would favour the reinforcement of CFGHE within the school environment rather than studying the Food Guide. For the 8-9 year olds and the 11-12 year olds, the preferred method of instruction about CFGHE was taste

testing new foods. The 11-12 year olds chose their teacher as the person they would prefer to learn from, whereas the youngest group chose parents, teachers, dentists and doctors as the people most appropriate to teach them about CFGHE (Gust et al., 1995b).

Gust and colleagues (1995a) also examined top-of-mind reactions to the new Food Guide by adult female consumers in Calgary, Alberta. Participants had favourable reactions to the new Food Guide, commenting positively on the colourful appearance, simplicity and readability. Participants mentioned that they would post CFGHE on their refrigerators or bulletin boards to use as a daily reference, but not to plan meals. They felt that copies of the Food Guide should be easily accessible through a variety of sources such as supermarkets, hospitals, schools, health clubs, clinics, doctors, nurses, libraries and drug stores, as they indicated that they would not likely seek out a copy (Gust et al., 1995a).

Garcia and Piché (2001) studied the perceptions and use of CFGHE by grocery shoppers in London, Ontario. They reported that only 26% of respondents found CFGHE very useful and 53% found it useful when making healthy choices. Conversely, 19% felt CFGHE was not useful. Grocery shopper respondents reported using the Food Guide to plan healthy meals for their families, to prepare healthy snacks and/or to plan food shopping lists, teach their children (or students) about healthy eating, evaluate the overall adequacy of their diet, make or reinforce their healthy choices and/or verify their own food consumption in terms of serving sizes and number. Respondents did report some difficulty understanding the 'other foods' category or enriched products, recognizing

some food items depicted on the Food Guide, understanding the concept of serving range, knowing the fat content of foods and serving sizes. Some suggestions offered by participants for improving CFGHE included providing additional information regarding the fat content of foods, specific food components, serving/portion sizes, food labels, food preparation methods, fast-food selection, and items within the 'other foods' category (Garcia & Piché, 2001).

In view of the fact that CFGHE was released more than a decade ago, Health Canada began a review of the 1992 CFGHE in mid 2002 to determine whether it continued to promote a pattern of eating that meets energy and nutrient needs, promotes health and minimizes the risk of chronic disease for Canadians (Health Canada, 2003a; Health Canada, 2004a).

1.3.2.2 Health Canada's Review of *Canada's Food Guide to Healthy Eating*

Health Canada carried out a comprehensive review of CFGHE which included assessments of CFGHE in terms of current scientific knowledge of food and nutrition (Health Canada, 2003b), changes in the food supply and food use patterns in Canada (Health Canada, 2004b), the use and understanding of CFGHE by consumers and intermediaries (dietitians, public health personnel and teachers) (Health Canada, 2003c; Health Canada, 2003d; Health Canada, 2003e; Health Canada, 2003f) and a stakeholder consultation (Health Canada, 2003a).

1.3.2.2.1 Assessment of *Canada's Food Guide to Healthy Eating* Relative to Dietary Reference Intakes

The 1992 CFGHE was based in part on the Recommended Nutrient Intakes (RNIs). The Dietary Reference Intakes (DRIs) have since been released, and thus it was important to determine if CFGHE continued to promote a diet that supplied nutrients in amounts that met nutrient and energy needs and reduced the risk of developing chronic diseases (Health Canada, 2003b). The review of CFGHE involved an assessment of CFGHE in terms of new dietary standards, the DRIs. This assessment involved assigning a food group score of zero to four to the diets of a compilation of food and nutrition surveys. The score was chosen to reflect the number of food groups for which the minimum number of recommended servings at least was consumed (Health Canada, 2003b). Results indicated that as food group score increased, the proportion of diets that met micronutrient specific DRI thresholds increased for most nutrients examined (Health Canada, 2003b). Further, making choices consistent with the directional statements affected the nutrient profile of diets in the direction intended (Health Canada, 2003b).

1.3.2.2.2 Preliminary Examination of Changes in the Food Supply and Food Use Patterns in Canada

A preliminary examination of changes in food supply and food use patterns suggested that consumption of most of the major commodity groups increased between 1992 and 2002, with the exception of meat, fluid milk and vegetable juice (Health Canada, 2004b). Per capita consumption of cereal products increased, though it was not possible to determine the consumption of whole grain or enriched products. Fruit and vegetable

consumption also increased over the time period, though shifts in dark green and orange vegetables were not evident. Though total fluid milk consumption declined over the time period considered, the shift in consumption was consistent with the directional message of CFGHE. Consumption of skim and 1% milk increased while consumption of 2% and whole milk decreased. Consumption of red meat decreased while consumption of poultry, eggs and fish increased over the time period. It was not possible to determine changes in intake of 'other foods' because food consumption data reflect raw and unprocessed foods (Health Canada, 2004b).

1.3.2.2.3 Use and Understanding of *Canada's Food Guide to Healthy Eating* by Consumers and Intermediaries

As part of Health Canada's review of CFGHE, consumers' perspectives on healthy eating and CFGHE were assessed using quantitative and qualitative methodologies. Results from telephone interviews with a representative sample of 3,005 Canadians (18 years and older) found that 86% of Canadians were aware of CFGHE and 68% report having looked at it. Awareness and use was highest among women, consumers 35 to 54 years of age and those with at least a high school education (Health Canada, 2003c). CFGHE was most commonly used to choose the right kinds of foods for healthy eating and to assess eating habits (Health Canada, 2003c).

Participants in the qualitative study reported seeing CFGHE most frequently in doctors' offices or health centres, fitness centres, or when their child brought it home from school (Health Canada, 2003e, 2003f). Results from the qualitative study indicated that most of

the participants were aware of CFGHE and half of the participants mentioned eating a balanced diet or a variety of foods when describing healthy eating advice which they would offer to someone. Even so, some participants had difficulty identifying the types of foods or food groups that could possibly be included as part of a balanced diet, overlooking grain products and milk products most often (Health Canada, 2003e, 2003f). The *Vitality* message included on CFGHE was not often recalled by participants (Health Canada, 2003e). Participants seemed to misunderstand the term 'serving size' and reported that they found it difficult to track the number of servings eaten for foods that are a combination of different food groups (Health Canada, 2003f).

Qualitative research with intermediaries (dietitians, public health personnel and teachers) was conducted to determine how well CFGHE functions at advising Canadians on the kinds of foods to choose for healthy eating (Health Canada, 2003d). Intermediaries cited the overall visual appeal of CFGHE, the ease with which the messages are read and understood and the presentation of serving ranges and serving sizes as the major strengths (Health Canada, 2003d). Conversely, intermediaries identified as problem areas with CFGHE that consumers are not knowledgeable of serving sizes and have difficulty placing themselves within the range of servings (Health Canada, 2003d). Participants also suggested including more information about 'other foods', such as more detail regarding what kinds of foods are included in the 'other foods' category and how much of them to eat (Health Canada, 2003d).

1.3.2.2.4 Stakeholder Consultation

A stakeholder consultation was conducted using an on-line survey to provide stakeholders with an opportunity to comment on the strengths and areas of improvement for CFGHE (Health Canada, 2003a). Stakeholders felt CFGHE has been moderately effective in providing Canadians with a pattern of healthy eating (Health Canada, 2003a). Conversely, 46% felt that the key messages of CFGHE were not well understood by the general public (Health Canada, 2003a). Many stakeholders supported the use of the total diet approach to promote healthy eating, but felt that consumers are confused about the serving ranges and unsure of how much food they should be eating from each food group (Health Canada, 2003a). Stakeholders also thought that the confusion surrounding serving ranges could be in part explained by the lack of understanding of serving sizes (Health Canada, 2003a). Stakeholders felt CFGHE needed to be modernized to represent foods that people are consuming today, that some of the food groups may need to be updated and that consumers need more information on the 'other foods' category (Health Canada, 2003a). Stakeholders had positive comments regarding the current design of CFGHE, though there is concern that the one-page format can present a limited amount of information. There were also suggestions to develop separate versions of CFGHE for different target groups (Health Canada, 2003a).

1.3.2.2.5 Health Canada's Interpretation of Findings

The review of CFGHE demonstrates that the Food Guide provides a pattern of food selection that is scientifically sound and it continues to be a useful nutrition education

tool for Canadians (Health Canada, 2004c). It is simple, flexible, visually appealing and widely recognized by the Canadian population (Health Canada, 2004c). Notwithstanding the many strengths of the Food Guide, many challenges were also identified by the review. Major challenges of the current Food Guide included its application by individuals (i.e. serving ranges), understanding of the terminology (i.e. variety, moderation, more often, whole grains, enriched products, vitality and serving) and messaging (i.e. directional statements, energy balance, 'other foods', foods groups and serving sizes/serving ranges), a need for modernization (i.e. foods pictured on CFGHE, font size, symbols, colour and layout) and issues related to communicating in the current environment (i.e. balance between keeping CFGHE simple and providing sufficient detail to allow people to individualize the information) (Health Canada, 2004c).

Based on the challenges identified by the review of CFGHE, Health Canada announced in 2004 that it would revise CFGHE (Health Canada, 2006). Potential areas for revision which have been identified will address technical (serving sizes, serving ranges, food groups and energy balance) and communication issues (terminology, messaging and modernization). Further research into these areas will determine what changes, if any, will be made and how extensive these changes will be (Health Canada, 2006).

1.4 *Nutrition Newfoundland and Labrador*

During the 1990s, nutrition surveys were carried out in many Canadian provinces to provide information on the dietary intakes of adults. These surveys were conducted as a

federal-provincial health initiative (Health Canada, 2004d). *Nutrition Newfoundland and Labrador* (NNL) is the Newfoundland and Labrador provincial nutrition survey, which was conducted on a representative sample of 1927 adult residents of NL in 1996 (Roebothan, 2003). The goal of NNL was to collect reliable data on the dietary consumption patterns of NL residents, and to use these data in the planning and implementation of programs intended to reduce the risks of developing chronic illnesses that affect many residents of this province (Roebothan, 2003).

Data were collected through in-person interviews by trained interviewers. Five pre-tested questionnaire tools were used to obtain information from participants: a non-response form, which was completed only by non-responders; a 24-hour dietary recall using validated food models, to allow for accurate estimates of the amount of food eaten; a modified food frequency questionnaire, to obtain data related to frequency of consumption of foods that are important to health, the use of fats and oils with homemade foods, food habits, conscious dietary modifications, as well as awareness and use of CFGHE; a nutrition and health questionnaire, to retrieve data on respondents' general health, and attitudes towards nutrition and health; and a demographic profile, which provided demographic information (i.e. education, income, family size) (Appendix B). Measured anthropometric data were also collected. To account for intra-individual variability in nutrient intakes, one third of the potential participants were selected for a repeat interview to allow for the calculation of intra-individual (day-to-day) variation in

the intakes for the 24-hour dietary recall single-day nutrient intake data. This allows for a more accurate estimate of usual intake (Roebothan, 2003).

The Bureau of Nutritional Sciences, Health Protection Branch of Health Canada, carried out data processing. A method for weighting raw data was developed to compensate for the varying response rates of potential participants in various geographic regions and different age-sex groups. A detailed description of NNL methodology has been previously reported by Roebothan (2003).

1.5 Summary of Introduction & Literature Review

Nutrition is an integral component of health promotion and disease prevention and thus is essential for the advancement of individual and population health. Given that healthy eating is determined by a number of factors, including such things as individual food preferences, nutrition knowledge, food availability and socio-economic status, health promotion strategies focusing on nutrition need to address all factors that influence eating practices. Promotion of healthy eating by family physicians, as well as through the use of tools such as CFGHE, provides the opportunity to promote the nutritional health of the population.

Family physicians are in a great position to promote nutritional health because they reach almost the entire population and they are considered to be a trusted source of nutrition information by their patients. The prevalence of dietary counselling by family physicians

is quite variable, but not sufficient to reach the potential it has to promote nutritional health. Common barriers to the delivery of nutrition information identified by family physicians include: lack of consultation time, lack of financial reimbursement, lack of confidence in their abilities, lack of training, lack of patient motivation, potential negative influence on the doctor-patient relationship, and limited access to patient educational materials.

CFGHE is a nutrition education tool designed to meet the energy and nutrient needs of Canadians while reducing the risk of chronic disease. Results of recent work in BC indicate that very few British Columbians meet the minimum number of servings for all four food groups on a given day. Given that the current Food Guide was developed in 1992, Health Canada initiated a review of CFGHE in 2002. Findings suggest that CFGHE is a useful nutrition education tool, which is scientifically sound. Challenges with CFGHE identified by the review included: application by individuals, understanding of the terminology and key messages and a need for modernization. The review also found that awareness and use of CFGHE was higher among certain subgroups of the population: females, consumers 35-54 years of age and those with at least high school education. Based on the findings of the review, Health Canada announced in 2004 that CFGHE would be revised.

CHAPTER 2

AIM OF STUDY

2.1 Introduction

Chronic diseases are a major cause of death and disability in Canada. Further, morbidity and mortality rates due to many chronic diseases are higher in NL than in any other province/territory of Canada. With the economic, physical and emotional burden these chronic conditions impose upon Canada, and particularly the province of NL, it is vital that strategies be developed and implemented to promote health. As nutrition is one of the few modifiable factors associated with the development of chronic diseases, health promotion and disease prevention strategies focused on nutrition have the potential to improve the health status of residents of NL.

2.2 Rationale

To promote health and prevent disease, it is vital that people be equipped with reliable nutrition information to make informed healthy food choices. To be successful in promoting the nutritional health of the people of NL, the action plan needs to incorporate a variety of strategies to ensure the people of this province are receiving reliable nutrition information. Encouraging healthy eating in NL family medicine as well as promoting nutrition through the use of nutrition education tools such as CFGHE are two possible strategies. Although they are two completely different approaches to health promotion, collectively they will help to achieve nutritional health for the people of NL. To

determine if these strategies are practicable and achievable, it is vital that research examine these.

Family physicians have the potential to promote nutrition and thus promote health in NL because they are considered a reliable source of nutrition information and they influence a high proportion of the population. Most research in this area has been carried out in Europe and the USA. There is limited recent Canadian data available to address the role of the physician in nutrition education. To determine the value of the family physician in the role of a nutrition health promoter in this province, it is important to ascertain NL family physicians' views regarding nutrition in the family medicine practice setting. To the author's knowledge, no other studies in this area have been published on NL physicians.

CFGHE is a simple and practical nutrition education tool that was developed by the federal government to help Canadians make healthy food choices. For the Food Guide to be effective in promoting nutritional health in NL, residents have to be aware of it and use it regularly. Thus, it is important to examine the potential relationship between awareness and use of the Food Guide and more specifically the demographic and socio-economic factors which characterize those who tend to use the Food Guide. This information will allow policy makers to focus on subgroups of the population that are not currently being reached. Further, it is important to examine the potential association of awareness and use of the Food Guide with nutritional health status. Given that dietary

intake is not the only behaviour that promotes health, it is also important to determine if people who are aware of and/or use the Food Guide are more likely to participate in other health promoting behaviours. No studies examining these relationships have been published on NL residents.

NNL was a provincial nutrition survey that collected nutrition-related information on a representative sample of NL residents. Much of the information to answer the questions for the present study was collected by NNL, so a secondary analysis of the relevant NNL data was a practical method to examine the above-mentioned associations.

2.3 Purpose and Objectives

The purpose of this study was to examine the attitudes and behaviours of family physicians pertaining to the dissemination of nutrition information to patients and to assess potential factors related to awareness and use of CFGHE in NL residents aged 18 to 74 years inclusive. These data could possibly be used to shape nutrition policy and promotion at both the provincial and national level.

The specific objectives of the present study were:

1. To examine the nutrition advising attitudes and practices, as well as the knowledge of, attitudes towards, and use of CFGHE, by NL family physicians.
2. To examine how NL residents use CFGHE.

3. To examine the relationship between awareness of CFGHE and sociodemographic factors in NL residents.
4. To examine the relationship between use of CFGHE and selected factors in NL residents:
    a. sociodemographic factors
    b. dietary intake
    c. body size indicators
    d. health related behaviours

CHAPTER 3

METHODOLOGY

3.1 Introduction

This chapter describes in detail the methodologies carried out in the present study. The project involved a survey of NL family physicians and a secondary analysis of some of the data collected by NNL.

3.2 Survey of Newfoundland and Labrador Family Physicians

The first part of this chapter addresses the methodologies involved in surveying NL family physicians.

3.2.1 Study Design

A cross-sectional descriptive study was conducted between January and March, 2005. This study focused on NL family physicians' nutrition advising attitudes and behaviours in their practice setting. Furthermore, NL family physicians' knowledge of, attitudes towards, and use of CFGHE were assessed.

3.2.2 Survey Population

Inclusion criteria for this study were that potential participants be licensed to practice in NL and currently practicing family medicine in NL. Names and mailing addresses of potential participants were retrieved from the Newfoundland Medical Board (NMB) website listing of general practice physicians (http://www.nmb.ca/FindDoctor.asp). This

website listing is updated frequently, thus a specified date was set for retrieving the data. On December 14, 2004, there were a total of 517 family physicians meeting the inclusion criteria. Of the 517 family physicians listed, 13 were excluded because there was no mailing information available for them (11 had no fixed practice address and two withheld their addresses), leaving a total of 504 potential participants.

3.2.3 Questionnaire Development

Data were collected by a 23-item self-administered questionnaire, incorporating a combination of open- and closed-ended questions. Based on an extensive review of the literature, the questionnaire was developed to collect information about NL family physicians' attitudes and practices in nutrition promotion, as well as their knowledge of, attitudes towards, and use of CFGHE.

Attitudinal questions addressing such topics as the importance of nutrition to health, the most appropriate and effective health care provider to provide nutrition information to patients, the importance of the family physicians' role in promoting nutrition and what this role should include were included in the questionnaire to get a sense of NL family physicians' position on their involvement in the promotion of nutrition. The survey also collected data pertaining to barriers faced by NL family physicians to determine what factors may limit the potential of NL family physicians to promote nutritional health to the residents of NL. A question pertaining to possible strategies to address these barriers was also included to determine what NL family physicians feel would be appropriate

solutions to ensure that the residents of this province are receiving reliable nutrition information.

To determine NL family physicians' nutrition advising practices, the questionnaire included questions pertaining to the inclusion of nutrition advice in practice and the occasions when nutrition would be discussed with patients. These questions were included to determine the prevalence of nutrition promotion by NL family physicians and to determine if nutrition is discussed in terms of treatment/management of illness or if it is discussed to promote health. To examine the effectiveness of the interdisciplinary approach to health care delivery, the questionnaire also assessed whether family physicians referred patients to other members of the health care team for nutrition advice.

In lieu of Health Canada's announcement to revise CFGHE, the survey instrument also included questions to address awareness and use of CFGHE by NL family physicians. Attitudes around the usefulness of CFGHE when discussing nutrition with patients were also assessed by the questionnaire. The questionnaire also provided family physicians the opportunity to comment on problem areas with CFGHE.

Given that lack of training is one of the most frequently cited barriers to the delivery of nutrition information to patients, the questionnaire also included questions to determine NL family physicians' level of nutrition training. The questionnaire included demographic questions to allow the researcher to assess potential differences in nutrition

advising attitudes and practices on the basis of demographic characteristics. A question was also included to determine NL family physicians' survey administration preferences. This will be important for future survey research with this group of professionals.

Demographic questions used in this questionnaire were adapted from a previous survey developed to question NL family physicians (Curran et al., 2003). All remaining questions were developed based on relevant literature in the area. In an attempt to reduce bias, close attention was paid to the wording of questions, appropriateness of response choices, potential for leading questions, formatting issues, as well as the length of the questionnaire (Choi & Pak, 2005).

Prior to administration, the questionnaire was reviewed by a number of professionals to test the readability, accuracy and applicability of questions. Included among these professionals were four family physicians, a community nutritionist, an epidemiologist, a medical officer of health and the executive director of the Newfoundland and Labrador Medical Association (NLMA). The reviewers brought forth a number of issues relating to the first draft of the survey instrument. For instance, the first draft did not include a question pertaining to the amount of nutrition training received during the undergraduate medical school program. The question "Do you find CFGHE useful when discussing nutrition with patients?" initially only included either a "Yes" or "No" response, but did not include a choice for those who did not use CFGHE. The response choices for the question pertaining to areas of CFGHE that should be changed were leading. As well,

this question assumed that respondents would be familiar with CFGHE, and thus a copy of CFGHE was included in the mail out. Each of these issues was addressed prior to survey administration, but the survey was not pre-tested with a sample of family physicians prior to administration.

3.2.4 Data Collection Procedure

A survey package was sent to all potential participants by mail in January 2005 and included the questionnaire, a cover letter (Appendix D), a postage-paid self-addressed envelope and a copy of the CFGHE tearsheet (Appendix A). Prior to administration, questionnaires were coded with a survey number to allow for follow-up of non-responders.

Participants were given three weeks to respond to the survey. In early February, a second survey package was sent to non-responders in an attempt to increase the response rate.

3.2.4.1 Improving Response Rates

In addition to conducting a second mail out, a number of considerations were made in an attempt to increase response rate. Much effort went into the design and organization of the survey package. The questionnaire was printed double-sided on 11"x17" pastel-coloured paper, which was folded to present as a booklet. In addition, questions were grouped into topic areas to improve the readability and appearance of the survey instrument. Questions were clear and concise and addressed issues relevant to NL family

physicians. The cover letter, which preceded the questionnaire in the survey package, was printed on coloured Memorial University of Newfoundland (MUN) letterhead. To add a personal touch, cover letters were individualized and signed by the author. A self-addressed, stamped envelope was included to facilitate return.

The survey was also advertised on numerous occasions by the NLMA. Prior to administration of the initial mailout, a brief introduction to the survey was included in the *NLMA's President's Letter* and *Nexus Newsletter*. With the administration of the second mailout, an advertisement for the survey was included in the *NLMA's e-update*, which announced that family physicians had a second opportunity to respond. A note of thanks to those who had previously responded was also included in the *NLMA's e-update*. Copies of advertisements are included in Appendix E.

3.2.5 Data Analysis

Data were entered and analyzed with the Statistical Package for Social Sciences (SPSS 12.0.1 for Windows). Results from the majority of closed-ended questions are presented as descriptive statistics (percentages) in figures. Percentages represent the percentage of respondents to the survey. Results from each survey question are presented as the response categories on the questionnaire, with the exception of the question pertaining to nutrition training during medical school, which was categorized as '10 hours or less', '11 to 20 hours', 'more than 20 hours', 'no specific nutrition training' and 'not sure'. After survey administration, it was determined that there were problems with the structure of

the questions pertaining to referral of patients to health care providers and the question pertaining to the provision of CFGHE to patients. The question assessing NL family physicians' referral to health care providers was designed to be skipped by those who discussed nutrition education, overlooking the fact that family physicians who discuss nutrition with patients may also refer to other health care providers as well. The question pertaining to the provision of CFGHE to patients was also designed to be skipped by those who did not have CFGHE on hand in their practice setting, but some respondents indicated that they did not have copies of CFGHE on hand, but they provide CFGHE to patients when they do have CFGHE available. Due to problems with these questions, these questions were excluded from all analyses.

Statistical tests (chi-square test of independence) were conducted to determine if gender (male versus female) or geographic (urban versus rural) differences existed for responses to all questions with the exception of the questions pertaining to the type of practice setting, and places where CFGHE were posted. In the present study, rural was denoted as a community size less than 10,000 people and urban was denoted as a community size with 10,000 or more. A significance level of $p<0.01$ was used to establish statistical significance. This level of significance was used to control for type 1 error (i.e. to assume that an association exists when it does not) (Daniel, 1999).

For questions that asked respondents to check all choices that applied, gender and geographic differences were assessed for each response choice. To assess possible

associations between nutrition training during medical school and gender and/or geographic differences, the 'not sure' category was excluded from the analyses. To determine if respondents' perceptions of the importance of nutrition to health and the importance of the family physician's role in promoting nutrition differed on the basis of gender and geographic location, the five response choices were reclassified into three groups: 'very important/important', 'moderately important' and 'of little importance/ unimportant'. When assessing gender and geographic differences for respondents' perceptions regarding the usefulness of CFGHE when discussing nutrition with patients, those who responded that they did not use CFGHE were excluded from the analysis. Although the questions pertaining to the most appropriate and effective health care provider asked respondents to choose only one health care provider, some respondents selected more than one response. As a result, these data were not analyzed for gender and geographic differences.

3.3 Secondary Analysis of *Nutrition Newfoundland and Labrador*

A secondary analysis of some data collected by NNL was conducted to determine what factors, if any, were related to awareness and use of CFGHE. Factors considered in the analysis included sociodemographic factors, dietary intake, body size and health-related behaviours. In addition, how NL residents reported using CFGHE was also assessed.

3.3.1 Sample Design

For NNL, potential participants were chosen from the Newfoundland Health Insurance Register File (NHIRF). A total of 6502 potential participants were drawn from the NHIRF which includes the names of all participants of the provincial medicare plan (MCP). To choose a sample which was representative of the NL population, a multi-stage stratified random sampling plan was employed, which considered subjects of both sexes, 18 to 74 years of age inclusive and residing in communities of various sizes across the province. Only those who were pregnant, employed by the Canadian Armed Forces, institutionalized, living on a reserve, living in an area of the province not being surveyed or no longer residing in NL were excluded (Roebothan, 2003).

Data were collected for NNL in two phases, the spring and fall of 1996, and the sampling plan was designed to select approximately 1000 participants for each of the two seasons. In addition, potential participants were randomly assigned to days of the week so data would be collected to represent intake on all days (Roebothan, 2003).

3.3.2 Data Sources

For the present study, data from all five NNL questionnaires were analyzed: the Non-Response Questions (Form A-2), the 24 Hour Recall Form (Form B), the Food Frequency Questionnaire (Form C), the Nutrition and Health Questionnaire (Form D) and the Demographic Profile (Form E) (Appendix B). NNL Non-Response Questions were

asked by phone. All other NNL questionnaires were administered in-person by trained interviewers.

3.3.3 Study Population

For the present study, the study population included all NNL participants who responded to the question pertaining to awareness of CFGHE (Food Frequency Questionnaire, Appendix B). To examine factors potentially related to awareness of CFGHE, the study population was divided into groups based on whether they were aware of CFGHE or not. A further analysis to examine factors potentially related to use of CFGHE included only the subset of this study population who were aware of the CFGHE and went on to answer the question pertaining to the use of CFGHE (Food Frequency Questionnaire, Appendix B). This subset of the population was divided into groups based on whether they used CFGHE or not.

3.3.4 Variables

To determine if awareness and/or use of CFGHE differed on the basis of sociodemographic factors, awareness and use of CFGHE were compared among different subgroups of the population. Sociodemographic factors used to classify NNL participants into different subgroups included age, sex, area of residence, marital status, having children living at home, education level, income and food sufficiency.

It was hypothesized that use of CFGHE may have an effect on nutrient intakes, body size and participation in health-promoting behaviours. Therefore, subsequent analyses examined potential differences in nutrient intakes, body size and health-related variables between those who used CFGHE and those who did not use CFGHE. Data were also examined to determine the reasons why NL residents would use CFGHE.

3.3.4.1 Awareness and Use of *Canada's Food Guide to Healthy Eating*

A NNL participant was deemed to be aware of CFGHE if he/she had ever seen or heard about "*Canada's Food Guide to Healthy Eating*"?'. A NNL participant was deemed to use CFGHE if he/she was aware of CFGHE and answered 'Yes' to the question, "Do you use it [CFGHE]?".

3.3.4.1.1 Reasons for Using *Canada's Food Guide to Healthy Eating*

To determine how NL residents use CFGHE, the subset of Food Guide users was also asked to indicate, "How do you use it [CFGHE]?" with four response choices offered: 'for shopping', 'for planning/choosing meals (at home)', 'for choosing foods in restaurants' and 'other' (Food Frequency Questionnaire, Appendix B). Further analyses were conducted to determine which reasons were reported individually and which were reported in combination.

3.3.4.2 Demographic and Socioeconomic Factors

A number of demographic and socio-economic factors that could potentially be related to awareness and use of CFGHE were examined in the present analyses. With the exception of age, sex and area of residence, NNL collected socioeconomic information on participants using the Demographic Profile (Appendix B).

3.3.4.2.1 Age and Sex

NNL participants were divided into three age groups for analysis: 18-34 years, 35-54 years and 55-74 years. The analyses included both males and females. Age and sex were studied as separate variables throughout the analyses.

3.3.4.2.2 Area of Residence

NNL was conducted in eleven areas throughout NL; two rural areas of the province (<4,000 residents), three medium-sized population centres (between 4,000 and 10,000 residents) and six large population centres (≥10,000 residents). In the present analysis, the six large population centres were classified as urban communities and included St. John's, Mount Pearl, Corner Brook, Grand Fall's/Windsor, Labrador City/Wabush and Gander. The two rural population centres and the three medium-sized population centres were classified as rural communities and included Carbonear, Bonavista, Stephenville/ Stephenville Crossing, Census Division 1 (CD-1) and Census Division 4 (CD-4). This urban-rural designation has been used in previous analyses of NNL data (Kettle, 2000; Iqbal, 2003).

3.3.4.2.3 Marital Status

For the purpose of this study, NNL participants were classified into one of three marital groups:

- single (never married);
- married (and not separated) or living in a common-law relationship; and
- divorced, separated or widowed.

3.3.4.2.4 Children Living at Home

NNL asked participants the number of persons under 18 years living in their household who were their dependents. For the present study, a NNL participant was classified as having a child/children (less than 18 years of age) living at home if they indicated that one or more persons under 18 years were living in their household.

3.3.4.2.5 Education Level

In the present study, education levels of NNL participants were classified into five education level groups:

- less than a high school graduation (no schooling, some elementary, completed elementary or some secondary);
- high school graduation without post-secondary (completed secondary);
- high school graduation with some post-secondary (some community college, technical college or nurses training; or some university);
- completed trade or private college; and
- completed university degree.

3.3.4.2.6 Income

NNL participants were asked to estimate their total household income for 1995. For the purpose of the present analysis, total household income was divided into five total household income groups:

- $10,000 or less;
- $10,001 to $20,000;
- $20,001 to $40,000;
- $40,001 to $60,000; and,
- more than $60,000.

These income categories have been used in a previous analysis of National Population Health Survey (NPHS) data (McLeod et al., 2003). Those who did not know their total household income were excluded from analyses including income.

Total household income provides information regarding the amount of money available to a household, but does not give any information as to how much money is available for each household member. A method of categorizing household income into low, middle and high levels of income adequacy has been developed, which takes into account both the total household income and the household size, and provides a better indication of the distribution of money among household members. The income adequacy classifications for the present study were adapted from the classification system in the 1995 Adult Health Survey (Segovia et al., 1996). See Appendix F for a detailed description of income adequacy classifications.

3.3.4.2.7 Food Sufficiency

In the present study, NNL participants were designated as food sufficient if they reported always having enough food to eat. NNL participants who reported that sometimes or often there was not enough food available to be eaten during the 30 days prior to being interviewed were designated as food insufficient.

3.3.4.3 Dietary Intake Variables

As awareness and use of CFGHE could potentially be related to dietary intake, nutrient intakes were compared between those who used CFGHE and those who did not. Information collected by the 24 Hour Recall Form (Appendix B) was used to characterize the single-day nutrient intakes of NNL participants for the present study. Energy, fat, fibre and a selected group of micronutrients were analyzed in the present study.
In the present study, single-day intakes of energy and fat were classified as '<range', 'within range' or '>range'. A range of 1800 to 3200 kilocalories was used to categorize energy intakes as it has been suggested that foods chosen using CFGHE will provide in the range of 1800 to 3200 kilocalories depending on the number and types of servings selected from each food group, the portion sizes of servings and the kinds of 'other foods' consumed (Health Canada, 1992b).

The Institute of Medicine (2005) has set age-specific Acceptable Macronutrient Distribution Ranges (AMDRs) for fat, which are given as a percentage of total kilocalories. The AMDR was set at 25%-35% of total kilocalories for individuals 14-18

years and 20%-35% of total kilocalories for individuals 19 years of age and older. Data for fat were given in grams. To calculate the percent kilocalories from fat, grams of fat were multiplied by 9 (9 kilocalories/g fat), divided by total kilocalories and multiplied by 100.

The Institute of Medicine (1997, 1998, 2000a, 2001, 2004, 2005) has also set age- and/or sex-specific Estimated Average Requirements (EARs) (or Adequate Intakes [AIs] where appropriate) for fibre and most micronutrients. For the purpose of this study, single-day intakes of fibre, folate, vitamin B12, vitamin C, calcium, iron, zinc, potassium and sodium were classified as < EAR (or AI where appropriate) cut-point or ≥ EAR (or AI where appropriate) cut-point. A summary of the ranges and cut-points used in the present study are presented in Appendix G.

The Institute of Medicine (2000b) has developed the EAR cut-point method to assess the adequacy/inadequacy of a nutrient intake of groups within the population by classifying people as either below the EAR or at or above the EAR for that particular nutrient. The EAR cut-point method requires knowledge of the median requirement (the EAR) for a nutrient and the distribution of usual intakes of that nutrient in the population (Institute of Medicine, 2000b). Though single-day nutrient intakes of NNL participants were adjusted to estimate usual intakes, this adjustment only accounted for age and sex. Since the estimation of usual intakes did not take into account use of CFGHE, they were not suitable for the present analysis. Although the method used in the present study is very

similar to the EAR cut-point method, it is not possible to make inferences regarding the adequacy/inadequacy of a particular nutrient intake between people who use CFGHE as compared to those who do not use CFGHE.

3.3.4.4 Health Risk Associated with Body Size

For the present study, use of CFGHE was examined in relation to health risk associated with body size. NNL participants were classified as either at 'least risk' or at 'increased risk' using Health Canada's (2003g) *Canadian Guidelines for Body Weight Classification in Adults*. In the present analyses, health risk associated with body size was determined using Body Mass Index (BMI), Waist Circumference (WC) and a combination of BMI and WC. For health risk according to BMI, respondents were classified as either least risk (BMI between 18.5 kg/m^2 and 24.9 kg/m^2) or increased risk (BMI <18.5 kg/m^2 or ≥25.0 kg/m^2). For health risk according to WC, respondents were classified as either least risk (WC<102 cm for males, WC<88 cm for females) or increased risk (WC≥102 cm for males, WC≥88 cm for females). For health risk according to BMI and WC combined, respondents were classified as either least risk (BMI between 18.5 kg/m^2 and 24.9 kg/m^2 and WC<102 cm for males, WC<88 cm for females) or increased risk (BMI <18.5 kg/m^2 or ≥25.0 kg/m^2 and/or WC≥102 cm for males, WC≥88 cm for females) (Health Canada, 2003g). In the present study, only measured anthropometric data were used. All self-reported data were excluded. WC was based on the average of at least two WC measurements. A summary of Health Canada's (2003g) *Canadian Guidelines for Body Weight Classification in Adults* is presented in Appendix H.

3.3.4.5 Health-Related Behaviour Indicator Variables

This study analyzed possible relationships between a variety of health-related behaviours and use of CFGHE. The health-related behaviours examined included: food choice patterns, vitamin/mineral supplement use, physical activity and smoking.

3.3.4.5.1 Food Choice Patterns

NNL examined why participants choose the foods or types of foods they eat to determine if food choices were determined by concern for health (i.e. maintaining or improving health, heart disease, cancer, osteoporosis, high blood pressure, weight gain) and the nutrients foods contain (i.e. nutrient, unsaturated fat, fibre, fat, salt, cholesterol, sugar, saturated fat) (Food Frequency Questionnaire, Appendix B). NNL participants were considered to be making health conscious food choices if they were choosing/avoiding foods because they were concerned about health; if they were choosing foods because of the nutrients, unsaturated fat and fibre content; or if they were avoiding foods because of the fat, salt, cholesterol, sugar or saturated fat content. Each determinant of food choice was analyzed separately in the present study.

NNL also examined the type of bread and milk consumed by both those who responded to and those who refused to participate in the survey (Non-Response Questions, Appendix B). In the present study, only responses of NNL participants were analyzed. Interviewers asked individuals, by telephone, what type of bread and milk they usually

consumed (only one choice was selected). Choices were not read aloud to individuals and the interviewer checked off the selected choice from a list.

Bread choices included whole wheat, multi-grain/cracked wheat, white bread, molasses raisin bread, other or do not know. Only those participants who usually consumed whole wheat, multi-grain/cracked wheat or white bread were examined. For the purpose of this study, NNL participants were characterized as usually consuming higher fibre breads (whole wheat or multi-grain/cracked wheat) or lower fibre breads (white).

Milk choices included whole milk, 2% milk, 1% milk, skim milk, powdered skim milk, powdered whole milk, evaporated milk, other or do not know. Only those participants who usually consumed whole milk, 2% milk, 1% milk, skim milk, powdered skim milk or powdered whole milk were examined. For the purpose of this study, NNL participants were characterized as usually consuming lower fat milks (skim, 1% or powdered 1%) or higher fat milks (2%, whole or powdered whole).

3.3.4.5.2 Use of Vitamin/Mineral Supplements

NNL responders and non-responders were asked by telephone if they used any vitamin/mineral supplements in the month prior to being interviewed (Non-Response Questions, Appendix B). For the present analyses, only NNL participants were included. NNL participants were designated as vitamin/mineral supplement users if they had used any vitamin/mineral supplement in the month prior to being interviewed.

3.3.4.5.3 Participation in Regular Physical Activity

Participation in regular physical activity was determined for the present study by considering a combination of the frequency and duration of physical activity performed during leisure time. Both low intensity physical activities (activities in which the heart does not beat rapidly) and high intensity physical activities (activities in which the heart does beat rapidly) were considered (Nutrition and Health Questionnaire, Appendix B). For this study, respondents were classified as either active on a regular basis (≥30 minutes, >3 times per week) or not active on a regular basis (< 30 minutes, ≤3 times per week). The definition of regular physical activity is similar to that used to assess motivational readiness for lifestyle physical activity in the *Report on Physical Activity and Body Weight* from the BCNS (Barr, 2004). The classifications used for this study are summarized in Appendix I.

3.3.4.5.4 Cigarette Smoking

NNL respondents were asked a number of questions regarding smoking, to assess those who had ever smoked cigarettes, those who were currently smoking occasionally and those who were daily smokers. For the purpose of this study, a NNL participant was deemed to be a daily smoker if he/she smoked at least one cigarette per day (Nutrition and Health Questionnaire, Appendix B).

3.3.5 Data Analysis

The Nutrition Research Division of the Food Directorate, Health Canada, compiled the data collected by NNL into electronic data files. A number of these electronic files were used in this study to explore the potential factors related to awareness and use of CFGHE. All data analyses were conducted using SPSS 12.0.1 for Windows.

Chi-square analyses (test of independence) were used to determine if either awareness of CFGHE or use of CFGHE were associated with demographic and socio-economic factors, dietary intake, body size and health behaviours. An attempt was made to use logistic regression to determine predictors of awareness and/or use of CFGHE, but no suitable prediction equations could be obtained with the data. To allow for conclusions to reflect the entire NL population, and not just NNL respondents, sample weights were applied to the data and used in all analyses.

Awareness and use of CFGHE by NL residents are presented as figures. The reasons for which NL residents use the Food Guide are also presented as figures. Comparisons of both awareness and use of the Food Guide with the above-mentioned variables are presented in tables. Data in tables are presented as n (%), in which n represents the actual number of NNL participants responding to that question and the percentage (%) represents the percent of the overall NL population, as weighted data were used to calculate percentages. To allow for a critical analysis of the data, associations were taken to be statistically significant when the p-value was <0.01. This level of significance was

used to control for type I error (i.e. to assume that an association exists when it does not) (Daniel, 1999).

3.4 Ethical Considerations

NNL was reviewed and approved by the Ethics Committee for Research with Human Subjects, Faculty of Science, MUN. The present study (survey of NL family physicians and secondary analysis of some NNL data), including the survey cover letter and questionnaire, was reviewed and approved by the Human Investigation Committee (HIC), Faculty of Medicine, MUN. In addition, advertisements were approved by HIC. Approval letters from HIC are included in Appendix J.

Names and mailing addresses of NL family physicians were accessed from the NMB website. As this is publicly available information, permission to use this information was not required in accordance with the guidelines of the *Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans.*

For the survey of family physicians, consent was implied by the return of the questionnaire. Consent from NNL participants was obtained when the interviewer contacted them. As this study includes a secondary analysis of NNL, consent is implied. To access data collected by NNL, approval was sought and granted from NNL's principal investigator (Dr. Barbara Roebothan) (Appendix K). The author signed an *Oath of*

Confidentiality and a *Preservation of Confidentiality Statement* (Appendix L) prior to commencement of this study.

CHAPTER 4

RESULTS

4.1 Introduction

The results of the present study are described in detail throughout this chapter. First, data collected by a recent survey of NL family physicians are presented. They describe the attitudes and practices of respondents regarding nutrition advice as well as the barriers they face in discussing nutrition with their patients.

The results of a secondary analysis of some data collected by NNL follow. The secondary analysis evaluated the awareness and use of CFGHE by NL residents in terms of sociodemographic factors, body size indicators, nutrient intakes and health-related behaviours to look for potential relationships.

4.2 Survey of Newfoundland and Labrador Family Physicians

Data collected by a recent survey of NL family physicians were analyzed by descriptive statistics. To determine if survey respondents' nutrition advising attitudes and practices, as well as the barriers they face in the delivery of nutrition information to patients, were related to their gender and/or geographic area of practice, the chi-square test of independence was used.

4.2.1 Response Rate

Surveys were administered to 504 family physicians licensed to practice in NL. Of the 504 surveys mailed out, three were returned because the mailing address was no longer valid, leaving a total of 501 potential participants. A total of 237 (47.3%) surveys were completed and returned. Of the 237 returned surveys, nine were excluded from the analysis because the respondent was not currently practicing family medicine.

4.2.2 Demographic Characteristics and Nutrition Education Background of Survey Respondents

Demographic characteristics of survey respondents and their practice settings are presented in Table 1. The majority of respondents were male (62.9%) and 56.0% practiced in a group. Most of the respondents (86.1%) had a dietitian/nutritionist easily accessible in the community in which they practice (Table 1).

Table 2 presents the respondents' level of nutrition training. Of the respondents, 37.3% had 10 hours or less of nutrition training during medical school and 11.4% reported having no specific nutrition training during medical school. Only 23.0% of respondents reported that they had formal training outside their medical school program. Data suggests that male physicians participated in continuing medical education (CME) more often than female physicians (71.4% vs. 31.8%; χ^2=7.782, 1 df, p=0.005) (Table 3) and physicians practicing in rural communities were more likely to have participated in CME

Table 1: Characteristics of Survey Respondents and their Practice Settings

Variable	n (%)
Sex	n=221
Male	139 (62.9%)[a]
Female	82 (37.1%)
Type of Practice Setting	n=225
Solo Practice	39 (17.3%)[a,b]
Group Practice	126 (56.0%)
Hospital-based Clinic	41 (18.2%)
Other[c]	19 (8.4%)
Population Size of Community	n=223
<10,000 residents (Rural)	98 (43.9%)[a]
≥10,000 residents (Urban)	125 (56.1%)
Health Care Providers Easily Accessible in Community	n=187
Dietitian/Nutritionist	161 (86.1%)[a,b]
Nurse/Nurse Practitioner	58 (31.0%)

[a]% of total respondents.
[b]Some respondents selected more than one option.
[c]Other types of practice settings specified by respondents included emergency rooms, academic family practice, community health care centres and locum practices.

Table 2: Survey Respondents' Level of Nutrition Training

Variable	n (%)
Nutrition Training in Medical School Training Program (Undergraduate Medical School and/or Residency)	n=220
≤10 hours	82 (37.3%)[a]
11-20 hours	20 (9.1%)
>20 hours	21 (9.5%)
Not sure	70 (31.8%)
None	25 (11.4%)
Other[b]	2 (0.9%)
Nutrition Training Outside the Medical School Training Program	n=226
Yes	52 (23.0%)[a]
No	174 (77.0%)
Specific Type of Nutrition Training Outside the Medical School Training Program	n=226
Bachelors Degree in Nutrition/Dietetics	4 (1.8%)[a,c]
University Course(s)	21 (9.3%)
Continuing Medical Education (CME)	27 (11.9%)
Other[d]	11 (4.9%)

[a]% of total respondents.
[b]Other nutrition training in the medical school program specified by respondents was that nutrition was often taught as part of other topics.
[c]Some respondents may have nutrition training outside of medical school from more than one of the choices.
[d]Other nutrition training outside medical school specified by respondents included self-education and nutrition taught as part of non-nutrition courses.

Table 3: Survey Respondents' Participation in Continuing Medical Education by Sex

Participation in CME	Sex		Overall n (%)
	Male n (%)	Female n (%)	
Yes	20 (71.4%)	7 (31.8%)	27 (54.0%)
No	8 (28.6%)	15 (68.2%)	23 (46.0%)
Total	**28 (100.0%)**	**22 (100.0%)**	**50 (100.0%)**

$\chi^2 = 7.782$
df = 1
p=0.005

as compared to those practicing in urban communities (76.2% vs. 34.5%; χ^2=8.489, 1 df, p=0.004) (Table 4).

4.2.3 Nutrition Advising Attitudes and Practices of Survey Respondents

Results indicate that survey respondents recognized the importance of nutrition to health (Figure 1) with more than 87% stating that it is 'very important'. Respondents also recognized the importance of the family physician in promoting nutrition to patients, with 70.0% indicating that the family physician's role was 'very important' (Figure 2). Respondents' perceptions regarding the most appropriate and most effective health care provider to discuss nutrition with patients are presented in Figure 3. Although the questionnaire was designed for one response for the questions pertaining to the most appropriate and most effective health care provider, some participants chose more than one health care provider. Results indicate that respondents felt the dietitian/nutritionist was the most appropriate (80.7%) and most effective (71.4%) health care provider to discuss nutrition with patients.

Nevertheless, respondents felt that they too played a role in the delivery of nutrition to patients. Respondents felt that the family physician played a role in discussing nutrition with patients for a number of reasons including disease management (96.4%), weight management (96.4%), general health promotion (93.3%), motivating patients to seriously consider nutrition (82.6%), pregnancy (91.5%) and breastfeeding (90.2%) (Figure 4).

Table 4: Survey Respondents' Participation in Continuing Medical Education by Geographic Location

Participation in CME	Geographic Location		Overall n (%)
	Urban n (%)	Rural n (%)	
Yes	10 (34.5%)	16 (76.2%)	26 (52.0%)
No	19 (65.5%)	5 (23.8%)	24 (48.0%)
Total	**29 (100.0%)**	**21 (100.0%)**	**50 (100.0%)**

$\chi^2 = 8.489$
df = 1
p=0.004

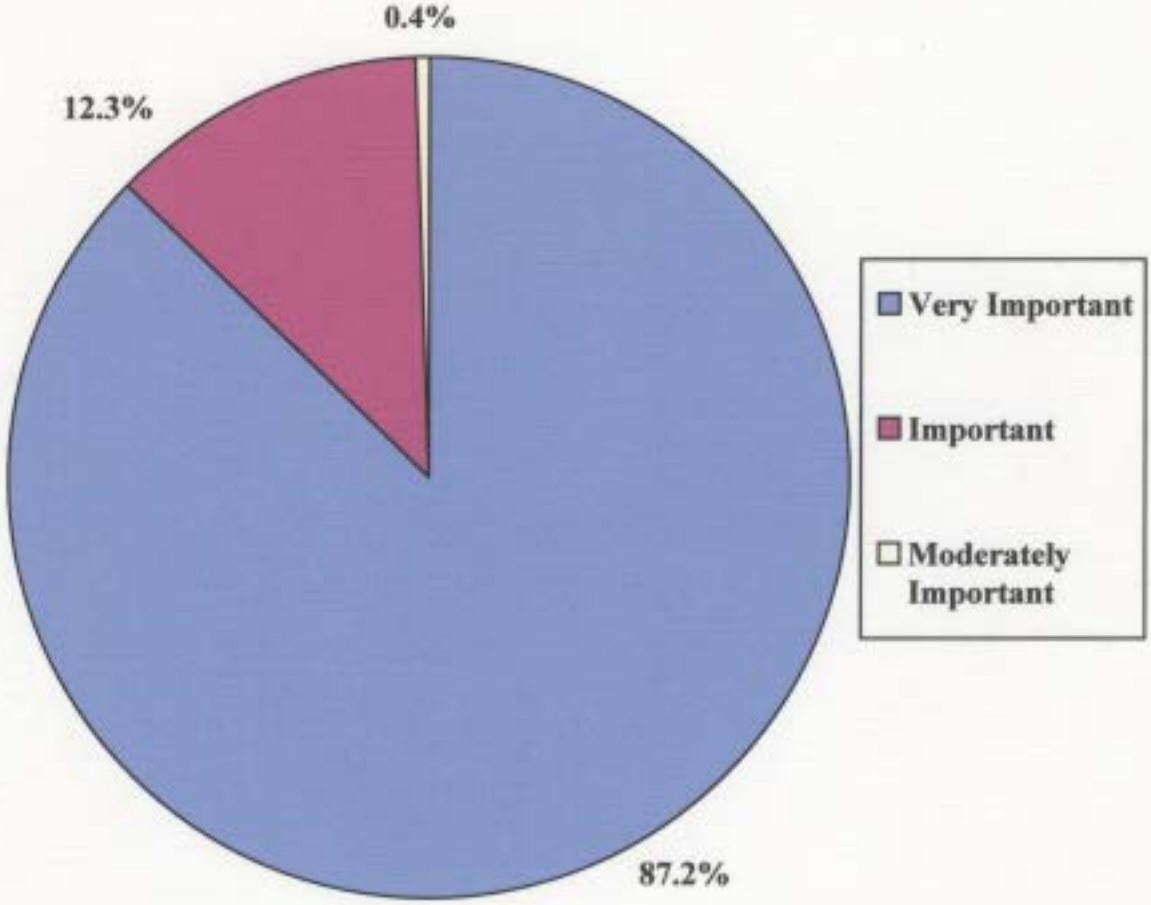

Figure 1: Survey Respondents' Perceptions Regarding the Importance of Nutrition to Health (n=227)[a]

[a]Respondents were asked *"How important do you think nutrition is to health?"* Respondents were asked to choose one of the five offered answers: 'Very Important' OR 'Important' OR 'Moderately Important' OR 'Of Little Importance' OR 'Unimportant'.

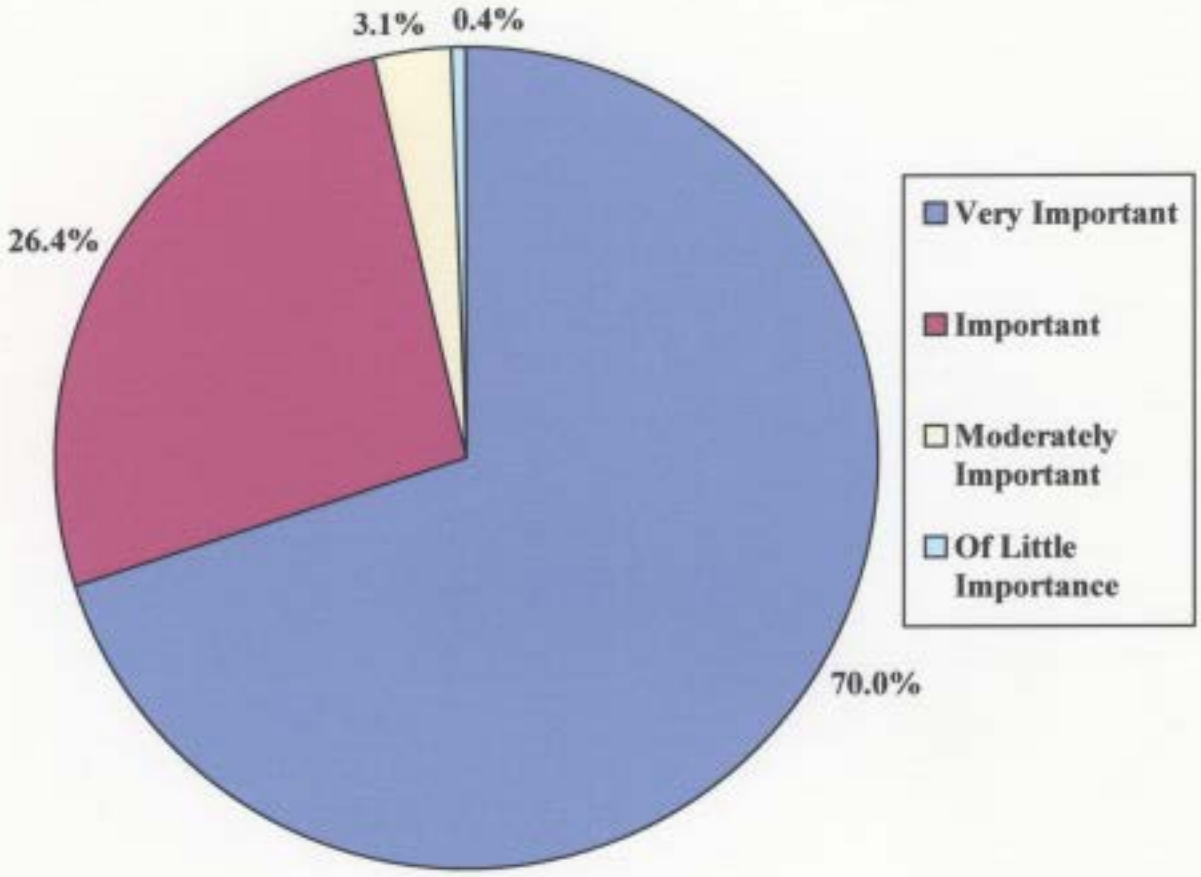

Figure 2: Survey Respondents' Perceptions Regarding the Importance of the Family Physician in Providing Nutrition Advice to Patients (n=227)[a]

[a]Respondents were asked *"How important do you think a family physician's role is in promoting nutrition?"* Respondents were asked to choose one of the five offered answers: 'Very Important' OR 'Important' OR 'Moderately Important' OR 'Of Little Importance' OR 'Unimportant'.

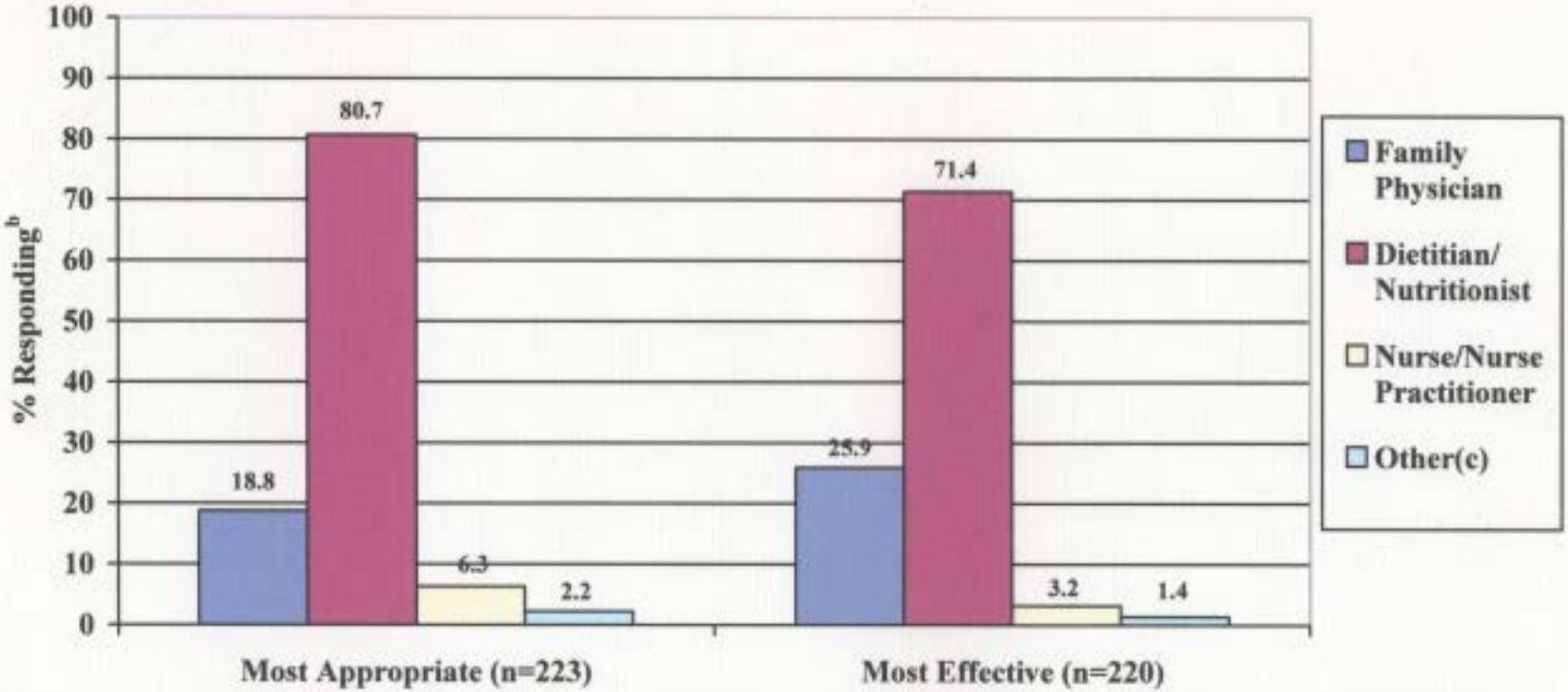

Figure 3: Survey Respondents' Perceptions of the Health Care Provider Most Appropriate and Most Effective to Discuss Nutrition with Patients[a]

[a]Respondents were asked "Ideally, which member of the primary health care team do you think is MOST APPROPRIATE to discuss nutrition with patients?" AND "Which member of the primary health care team do you think would be MOST EFFECTIVE in discussing nutrition with patients?" For each question, respondents were asked to choose one of the four offered answers: 'Family Physician' OR 'Dietitian/Nutritionist' OR 'Nurse/Nurse Practitioner' OR 'Other'.

[b]Respondents may have chosen more than one health care provider.

[c]Those respondents who chose 'other' specified that the most appropriate health care provider depends on the clients' needs. For the most effective health care provider, respondents who selected 'other' included responses such as the primary care giver, whoever establishes the best rapport and that discussing nutrition with patients is usually not effective.

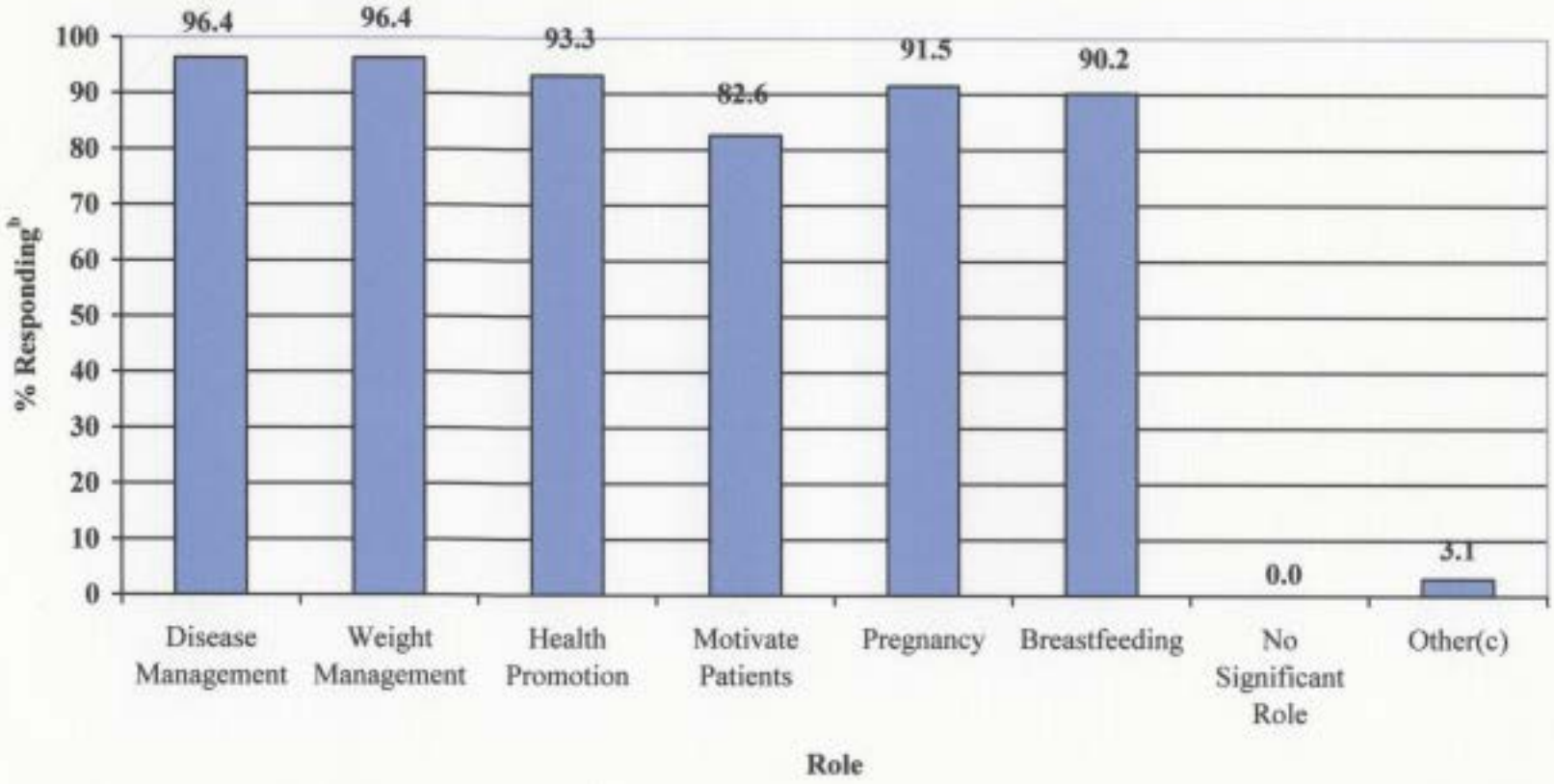

Figure 4: Survey Respondents' Perceptions Regarding the Family Physician's Role in the Delivery of Nutrition Information to Patients (n=224)[a]

[a]Respondents were asked "What do you think a family physician's role in discussing nutrition should include?" Respondents were asked to check all answers that applied: 'Disease management', 'Weight management', 'General health promotion', 'Motivate patients to seriously consider nutrition', 'Discuss nutrition for a healthy pregnancy', 'Discuss breastfeeding', 'A family physician does not play a significant role in discuss nutrition' OR 'Other(s)'.

[b]Respondents may have chosen more than one role.

[c]Other roles specified by respondents included advising patients about vegetarian diets, exercise and lobbying for nutrition education in schools.

Over 95% of respondents reported that they discussed nutrition with patients (Figure 5). Occasions when respondents discussed nutrition with patients included when nutrition was related to the treatment of a disease/condition (96.4%), for weight loss (93.8%), when the patient asks for nutrition information (71.1%) and for general health promotion (57.3%) (Figure 6). Analyses indicated that female physicians were more likely to discuss nutrition with patients for weight loss/management (100.0% vs. 89.8%; χ^2=8.952, 1df, p=0.003) (Table 5).

4.2.4 Challenges to the Provision of Nutrition Information to Patients

Respondents identified a number of challenges to the delivery of nutrition information to patients, including lack of time (94.7%), insufficient training (64.6%), difficulty motivating patients to eat healthy (59.3%) and difficulty in discussing complex nutrition and health information with patients (47.3%) (Figure 7). More than 75% of survey respondents felt that increasing the number of dietitians/nutritionists accessible to family physicians was the best strategy to overcome the challenges they face. Receiving more nutrition education in medical school was selected by 38.7% as a strategy to overcome challenges to the delivery of nutrition information to patients (Figure 8). Similar to questions pertaining to the most appropriate and most effective health care provider to discuss nutrition with patients, the question relating to the best strategy to overcome barriers was designed for one response, although many participants chose more than one strategy.

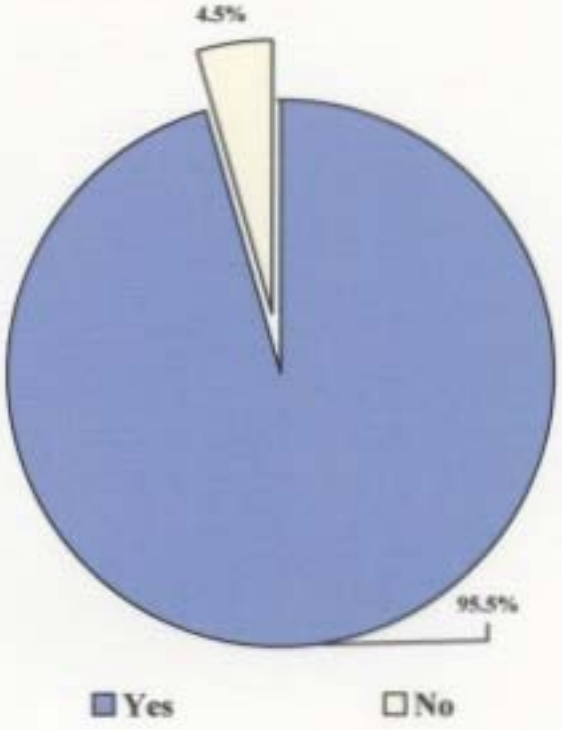

Figure 5: Percentage of Survey Respondents that Discuss Nutrition with Patients (n=222)[a]

[a]Respondents were asked *"Do you discuss nutrition with patients as part of your practice?"* in which they could answer 'Yes' or 'No'.

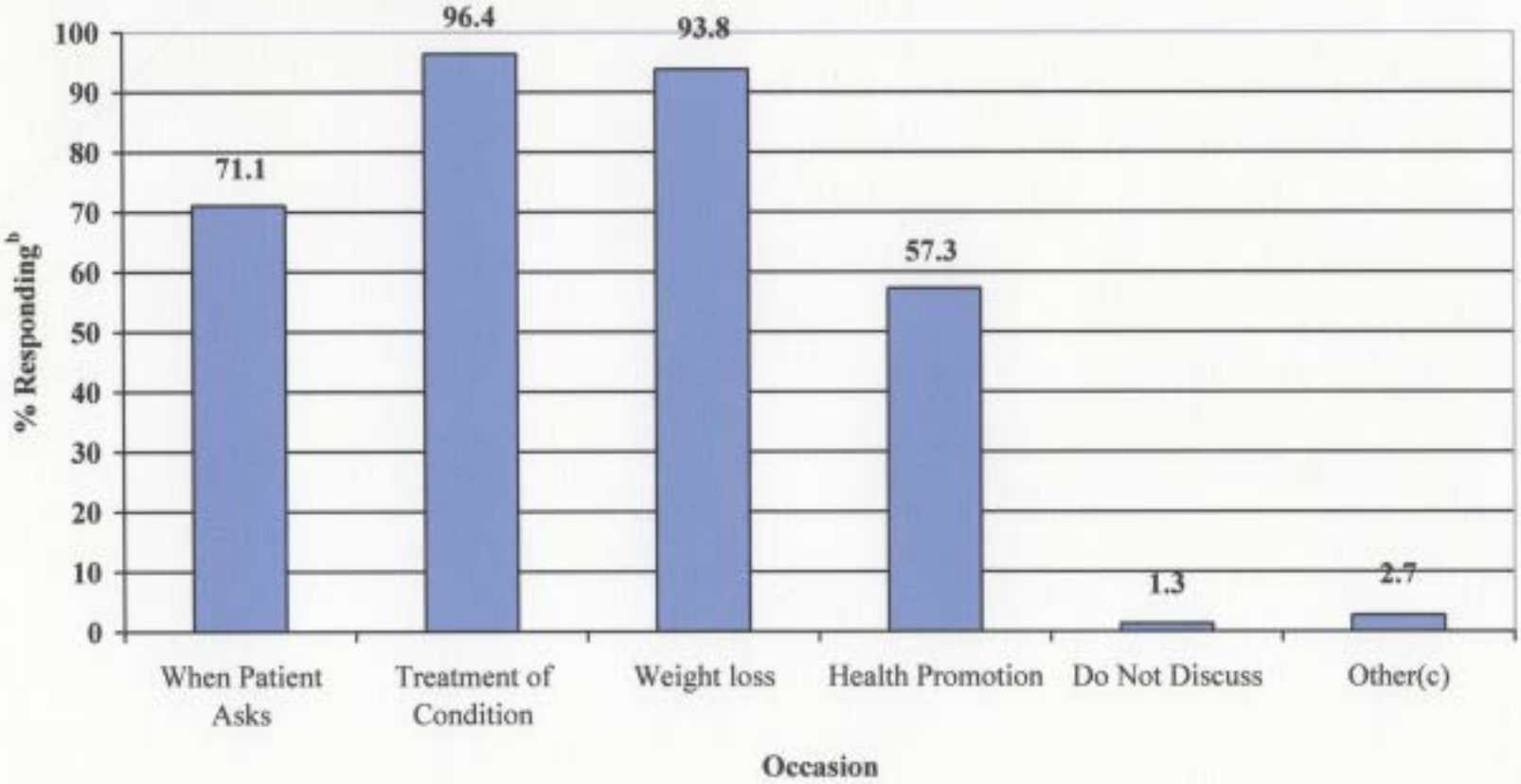

Figure 6: Occasions when Survey Respondents Discuss Nutrition with Patients (n=225)[a]

[a]Respondents were asked *"On what occasion(s) would you discuss nutrition with a patient?"* Respondents were asked to check all answers that applied: 'Discuss nutrition with a patient when he/she brings it up', 'Discuss nutrition with a patient to manage a specific disease/condition', 'Discuss nutrition with a patient as part of a weight loss/management regime', 'Discuss nutrition with all patients as part of my health promotion practice', 'I do not generally discuss nutrition with my patients' OR 'Other(s)'.

[b]Respondents could choose more than one option.

[c]Other occasions specified by respondents included vegetarian patients, obesity, pregnancy and prenatal care.

Table 5: Survey Respondents' Nutrition Discussion of Weight Loss/Management by Sex

Discuss Nutrition for Weight Loss/Maintenance	Sex		Overall n (%)
	Male n (%)	Female n (%)	
Yes	123 (89.8%)	82 (100.0%)	205 (93.6%)
No	14 (10.2%)	0 (0.0%)	14 (6.4%)
Total	**137 (100.0%)**	**82 (100.0%)**	**219 (100.0%)**

$\chi^2 = 8.952$
df = 1
p=0.003

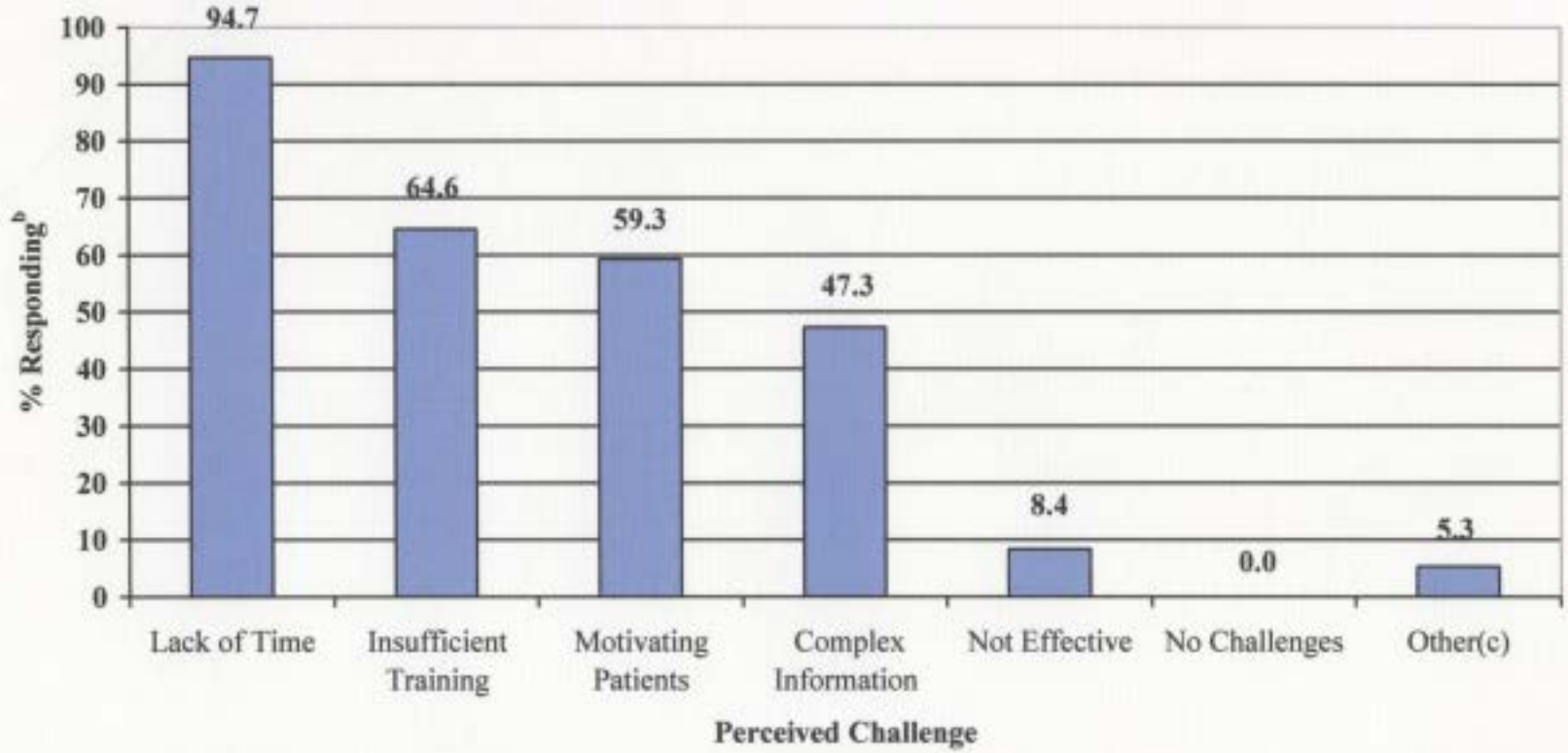

Figure 7: Challenges of Survey Respondents to Discussing Nutrition with Patients (n=226)[a]

[a]Respondents were asked *"What challenges do you think family physicians face when discussing nutrition with patients?"* Respondents were asked to check all answers that applied: 'Lack of time during consultation visits', 'Insufficient training to provide good nutritional advice', 'Difficulty in motivating patients to eat healthy', 'Difficulty in discussing complex food and health information to patients', 'Discussing nutrition with patients is not effective in producing positive health changes', 'Family physicians face no challenge to providing nutrition advice to patients' OR 'Other'.
[b]Respondents could choose more than one option.
[c]Other challenges specified by respondents included the cost of purchasing healthy foods, inability to refer patient to a dietitian for weight loss, lack of remuneration, lack of information handouts, as well as the food habits and compliance of patients.

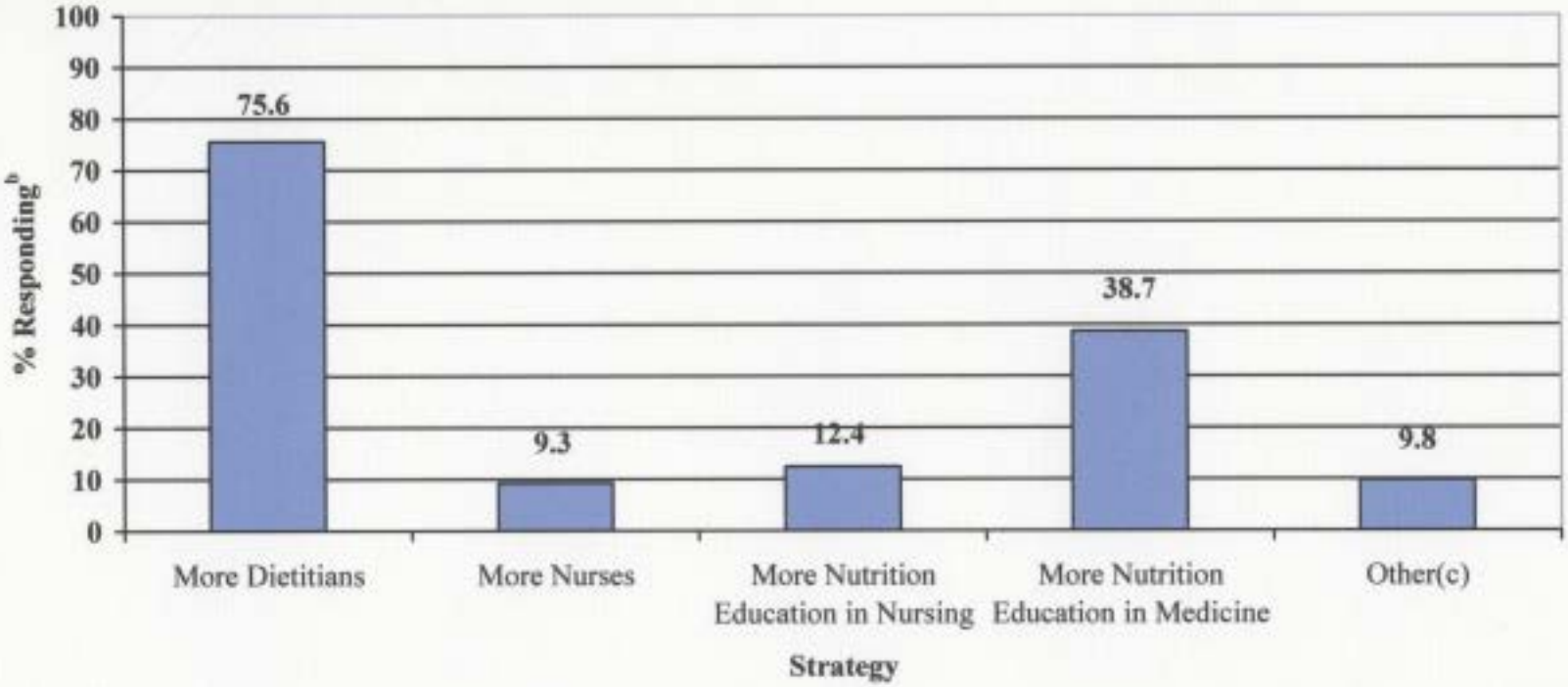

Figure 8: Survey Respondents' Perceptions of Effective Strategies for Overcoming Challenges to the Delivery of Nutrition Information (n=225)[a]

[a]Respondents were asked *"Which of the following do you think would be MOST EFFECTIVE in overcoming the challenges associated with discussing nutrition with patients?"* Respondents were asked to choose one of the five offered answers: 'Increase in the number of dietitians/nutritionists accessible by family physicians' OR 'Increase in the number of nurses/nurse practitioners accessible by family physicians' OR 'Increase nutrition education in nursing training program' OR 'Increase nutrition education in medical school training program (undergraduate and/or residency)' OR 'Other'.

[b]Respondents may have chosen more than one option.

[c]Other strategies specified by respondents included booking extra time for nutrition counselling, having nutrition handouts for patients, adequate remuneration, CME available at convenient times, increased interdisciplinary collaboration, increased nutrition education in high school, more emphasis in public health/advertising, public education and a reduction in the cost of healthy food choices.

4.2.5 *Canada's Food Guide to Healthy Eating* in Newfoundland and Labrador Family Medicine

Awareness of, attitudes towards and use of CFGHE by family physicians in NL are presented in Figure 9. Almost all respondents (95.6%) were aware of CFGHE, and 82.3% thought that it was useful when discussing nutrition with patients. Many of the respondents (83.3%) use the principles of CFGHE to discuss nutrition with patients, but only 59.2% have copies of CFGHE on hand in their office/clinic and only 45.1% have CFGHE posted in their office/clinic (Figure 9). Findings in Table 6 suggest that rural physicians were more likely to post CFGHE as compared to urban family physicians (56.7% vs. 36.4%; χ^2=8.595, 1df, p=0.003). The reception waiting area was a more common place for family physicians to have CFGHE posted (64.9%), though 50.0% had CFGHE posted in the examining room (Figure 10). Some other places respondents had CFGHE posted were in the hallway and the emergency room.

4.2.6 Survey Administration Preferences

Respondents were asked, "If given the option, which of the following would you prefer to complete?" with three response choices offered: postal survey, online survey or no preference. A postal survey was the preferred method of survey administration by 51.6% of respondents (Figure 11).

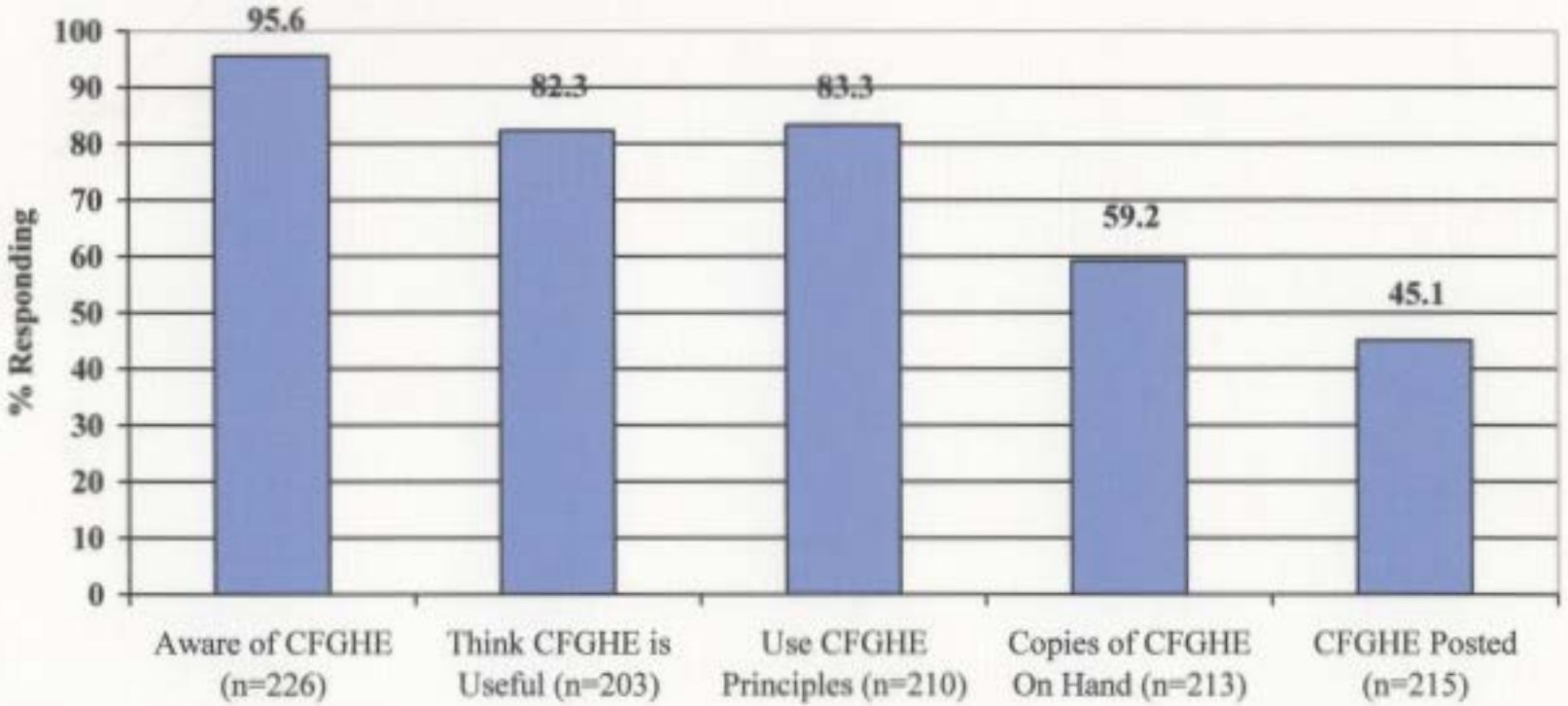

Figure 9: Survey Respondents' Knowledge of, Attitudes Towards and Use of *Canada's Food Guide to Healthy Eating*[a]

[a]Respondents were asked *"Are you aware of CFGHE?"* in which they could respond 'Yes' OR 'No'. Respondents were also asked *"Do you find CFGHE useful when discussing nutrition with patients?"* in which they could answer 'Yes', 'No' OR 'Do not use CFGHE to discuss nutrition with patients'. Respondents were asked *"Do you use the PRINCIPLES of CFGHE to discuss nutrition with patients?"* in which they could respond 'Yes', 'No' OR 'Unaware of the principles of CFGHE'. In addition, respondents were asked *"Do you have copies of the Canada's Food Guide to Healthy Eating tearsheet on hand in your office/clinic?"* AND *"Do you have a copy of the CFGHE poster and/or tearsheet posted anywhere in your office/clinic?"* Respondents were asked to answer 'Yes' OR 'No'.

Table 6: ***Canada's Food Guide to Healthy Eating*** **Posted in Practice Setting by Geographic Location**

CFGHE Posted in Practice Setting	Geographic Location		Overall n (%)
	Urban n (%)	Rural n (%)	
Yes	44 (36.4%)	51 (56.7%)	95 (45.0%)
No	77 (63.6%)	39 (43.3%)	116 (55.0%)
Total	**121 (100.0%)**	**90 (100.0%)**	**211 (100.0%)**

$\chi^2 = 8.595$
df = 1
p=0.003

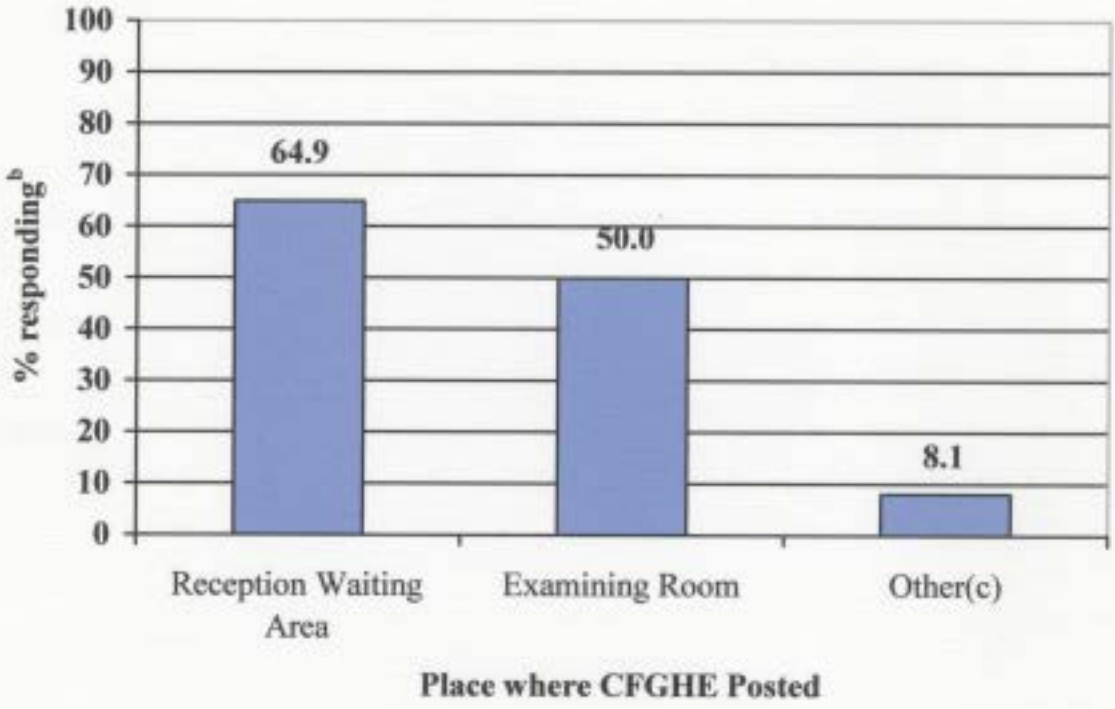

Figure 10: Places Where Survey Respondents Have *Canada's Food Guide to Healthy Eating* Posted in Their Practice Setting (n=74)[a]

[a]Respondents were asked "*... where is Canada's Food Guide to Healthy Eating posted in your office/clinic.* Respondents were asked to check all answers that applied: 'Reception waiting area', 'Examining room OR 'Other(s)'.

[b]Respondents could choose more than one option.

[c]Other places respondents had CFGHE posted included the hallway and the ER.

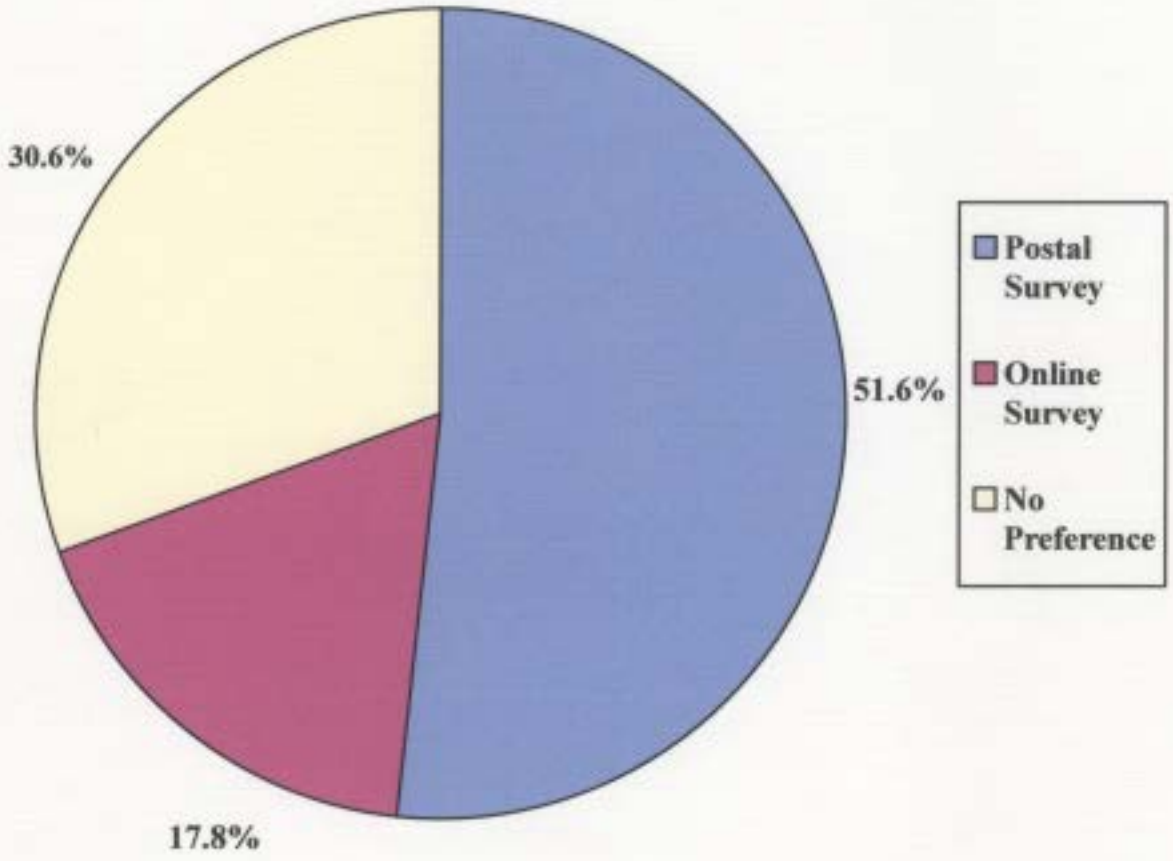

Figure 11: Survey Respondents' Survey Administration Preferences (n=219)

[a]Respondents were asked *"If given the option, which of the following would you prefer to complete?"* Respondents were asked to choose one of the three offered answers: 'Postal survey' OR 'Online survey' OR 'No preference'.

4.3 Secondary Analysis of *Nutrition Newfoundland and Labrador*

The secondary analysis of NNL data assessed whether awareness and use of CFGHE differed among different subgroups of the population. Further analysis examined whether nutrient intakes, health risk associated with body size and participation in health-promoting behaviours differed between those who use CFGHE and those who do not.

4.3.1 Response Rate of *Nutrition Newfoundland and Labrador*

NNL had an overall 51.4% data collection response rate (Table 7) (Roebothan, 2003). Although response rates did not differ much between seasons (50.8% in the spring versus 52.0% in the fall), they did vary with geographic region and age-sex groups (Roebothan, 2003). Table 7 provides a detailed description of the response status by sex for NNL.

4.3.2 Characteristics of the Study Population

Table 8 presents the demographic characteristics of all NNL participants. Data are given as weighted percentages. Data from the NL 1996 Census are also presented in Table 8 to compare NNL participants to the NL population (Statistics Canada, 1999). The Chi-square test of homogeneity indicates that the NNL population was similar to the NL population (according to the 1996 Census data for NL) with respect to age and sex. Conversely, NNL participants were more likely to be married, have completed a university degree and have lower total household incomes.

Table 7: Response Status for *Nutrition Newfoundland and Labrador* by Sex (Accountability Table)[a]

Summary Status	Male	Female	Total
# Drawn from NIHRF file[b]	3271	3231	6502
# Attempted[c]	3270	3230	6500
# Resolved[d]	2416	2288	4704
# Eligible[e]	1929	1817	3746
# Responding with interview	938	992	1930
Response – Usable 1st 24-Hour Recalls[f] (% of eligible cases)	936 (48.5%)	991 (54.5%)	1927 (51.4%)

[a]Data from Roebothan, 2003, p.252.
[b]Total number of names drawn from the Newfoundland Health Insurance Register File (NHIRF).
[c]Total number of individuals attempted to be located.
[d]Total number of individuals located in (c).
[e]Total number of individuals located and eligible to participate in Nutrition Newfoundland and Labrador.
[f]Percentage of individuals that were located, eligible and completed the survey with a usable 1st 24-hour recall.

Table 8: Characteristics of *Nutrition Newfoundland and Labrador* Participants

Variable	NNL Participants (%)[b]	Reference NL Population[a] (%)[b]
Age[c]	(n=1858)	
20-34[d]	35.4%	34.4%
35-54	44.0%	44.4%
55-74	20.6%	21.2%
Sex[e]	(n=1927)	
Male	50.3%	49.3%
Female	49.7%	50.7%
Marital Status[f,g]	(n=1924)	
Single	25.6%	32.3%
Married or living common law	66.0%	55.7%
Separated, divorced or widowed	8.4%	12.0%
Education Level[h,i]	(n=1890)	
Less than high school graduation	28.4%	45.4%
High school graduation without post-secondary	22.6%	9.8%
High school graduation with some post-secondary	16.9%	14.6%
Trade or college certificate or diploma	18.9%	22.0%
University degree	13.1%	8.1%
Total Household Income[j]	(n=1602)	
$10,000 or less	11.8%	8.9%
$10,001 - $20,000	16.4%	19.5%
$20,001 - $40,000	30.8%	29.6%
$40,001 - $60,000	20.9%	20.4%
More than $60,000	20.1%	21.6%

[a]Data derived from Statistics Canada, 1999.
[b]Percentages are calculated from weighted data.
[c]χ^2=0.795, 2 df, p>0.100
[d]Though the age range of the present study populations are 18-74 years inclusive, to allow for a comparison to the 1996 Census data, an age range of 20-74 years inclusive for the study populations was used.
[e]χ^2=0.830, 1 df, p>0.100
[f]χ^2=85.064, 2 df, p<0.0001
[g]For marital status, the 1996 Census collected data on the NL population 15 years and over whereas NNL collected data on the NL population 18-74 years inclusive.
[h]χ^2=517.164, 4 df, p<0.0001
[i]For educational level, the 1996 Census collected data on the NL population 15 years and over whereas NNL collected data on the NL population 18-74 years inclusive.
[j]χ^2=25.790, 4 df, p<0.0001

Further, a comparison between the study population (responders to the question pertaining to awareness of the Food Guide) and the remaining NNL sample (non-responders) showed that those who had responded were significantly different than those who had not responded with respect to age and smoking status (data not presented). Non responders tended to be between 35 and 54 years of age and to be non-smokers.

4.3.3 Awareness and Use of *Canada's Food Guide to Healthy Eating* by Newfoundland and Labrador Residents

Awareness and use of CFGHE are presented in Figures 12 and 13, respectively. Data are given as percentages within age-sex groups and have been weighted to represent the population as a whole. Overall, 82.9% of NL residents had previously seen or heard about CFGHE when shown a copy of the CFGHE tearsheet (Figure 12). Although many NL residents were aware of CFGHE, Figure 13 demonstrates that only 32.7% of those who were aware of CFGHE reported that they use it.

The reasons why NL residents use CFGHE are presented in Figures 14 and 15. The results in Figure 14 considered each reason individually. It is valuable to assess if people used CFGHE for only one reason, or if there were a number of reasons why they used it. Figure 15 presents how NL residents used CFGHE as combinations of reasons. Figure 14 suggests that of those who use CFGHE, most use it for meal planning (81.4%). Figure 15 illustrates that even in combination, meal planning was the major reason people use the CFGHE.

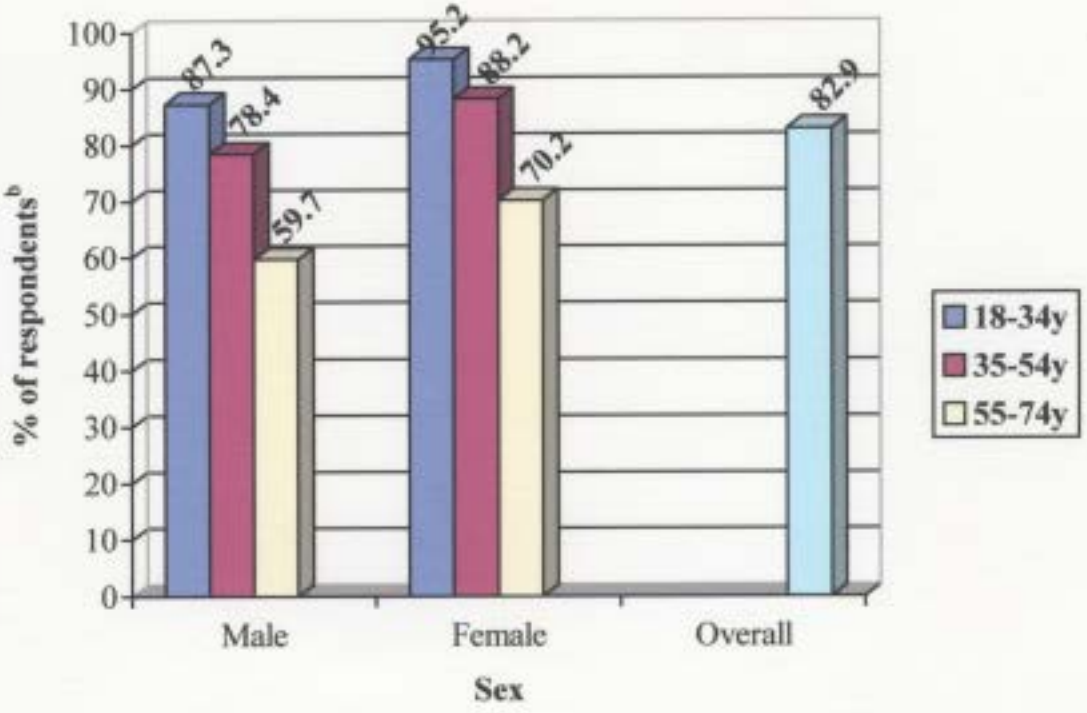

Figure 12: Awareness of *Canada's Food Guide to Healthy Eating* by Newfoundland and Labrador Residents (n=1801)[a]

[a]Those respondents deemed to be aware of *Canada's Food Guide to Healthy Eating* were those answering "Yes" to the question "Have you ever seen or heard about the Canada's Food Guide to Healthy Eating?"
[b]Values represent percentage within age-sex group. Percentages are calculated from weighted data.

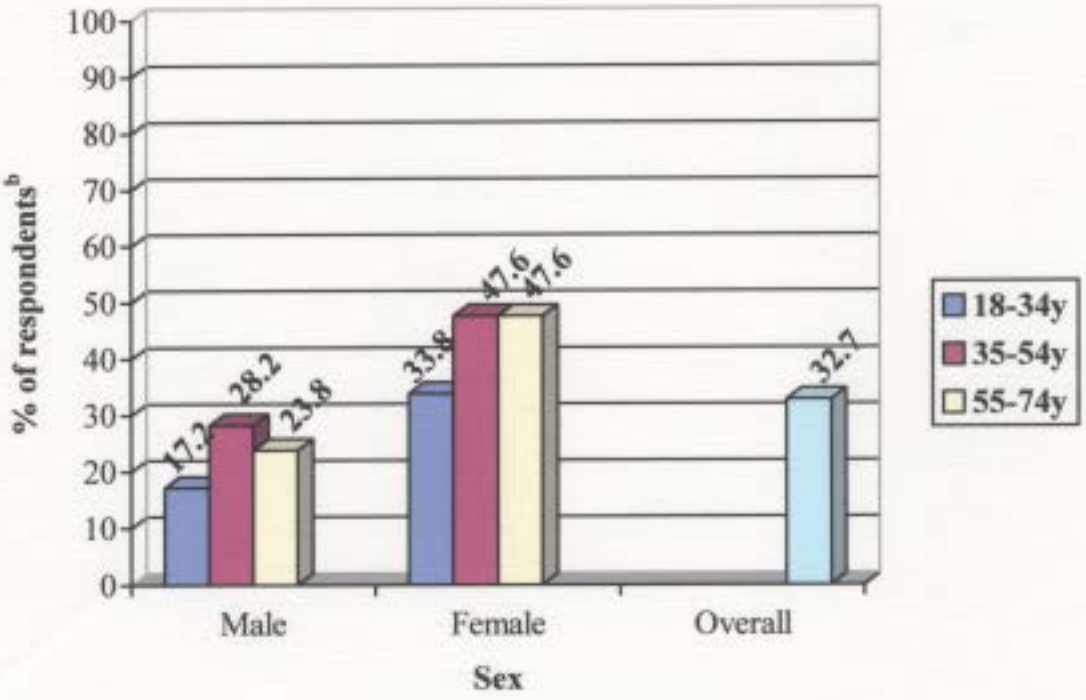

Figure 13: Use of *Canada's Food Guide to Healthy Eating* by Newfoundland and Labrador Residents (n=1480)[a]

[a]Those respondents deemed to be using *Canada's Food Guide to Healthy Eating* were those who were aware of CFGHE and went on to answer "Yes" to the question "Do you use it [CFGHE]?"
[b]Values represent percentage within age-sex group. Percentages are calculated from weighted data.

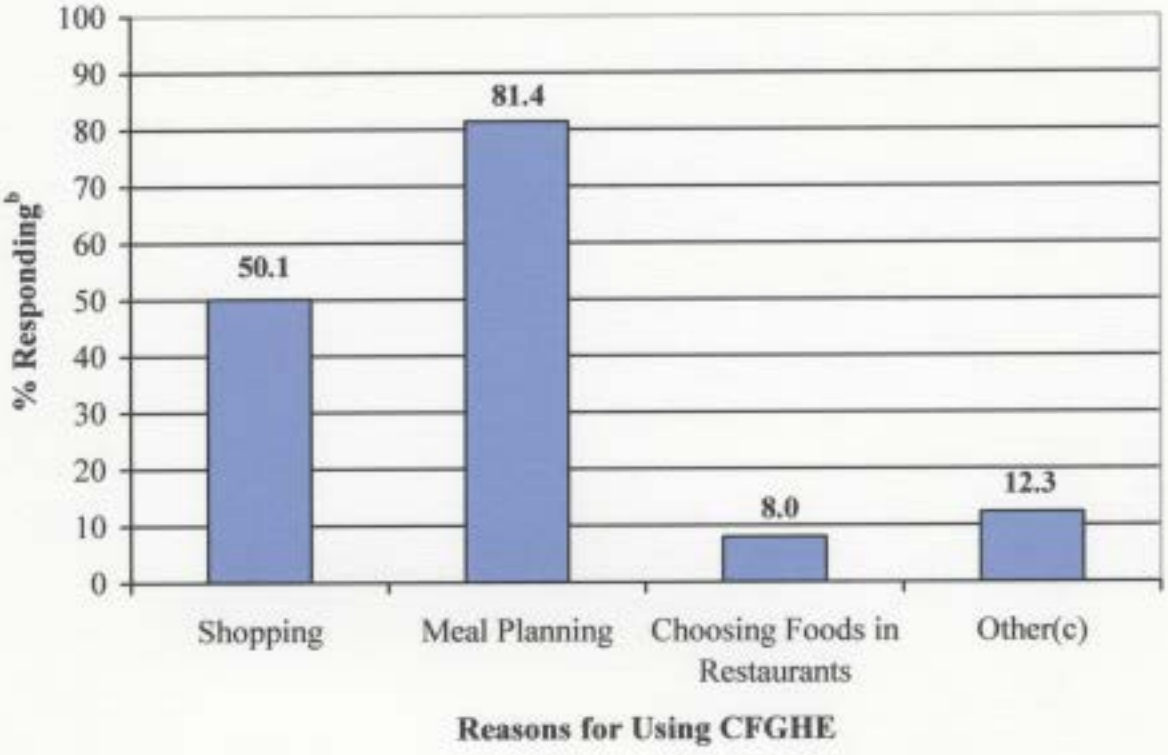

Figure 14: Individual Reasons for Using *Canada's Food Guide to Healthy Eating* (n=555)[a]

[a]Only respondents that reported using *Canada's Food Guide to Healthy Eating.*
[b]Percentages are calculated from weighted data.
[c]Other reasons for using CFGHE as specified by NNL participants included: as a nutrition education tool, for work and for healthier living.

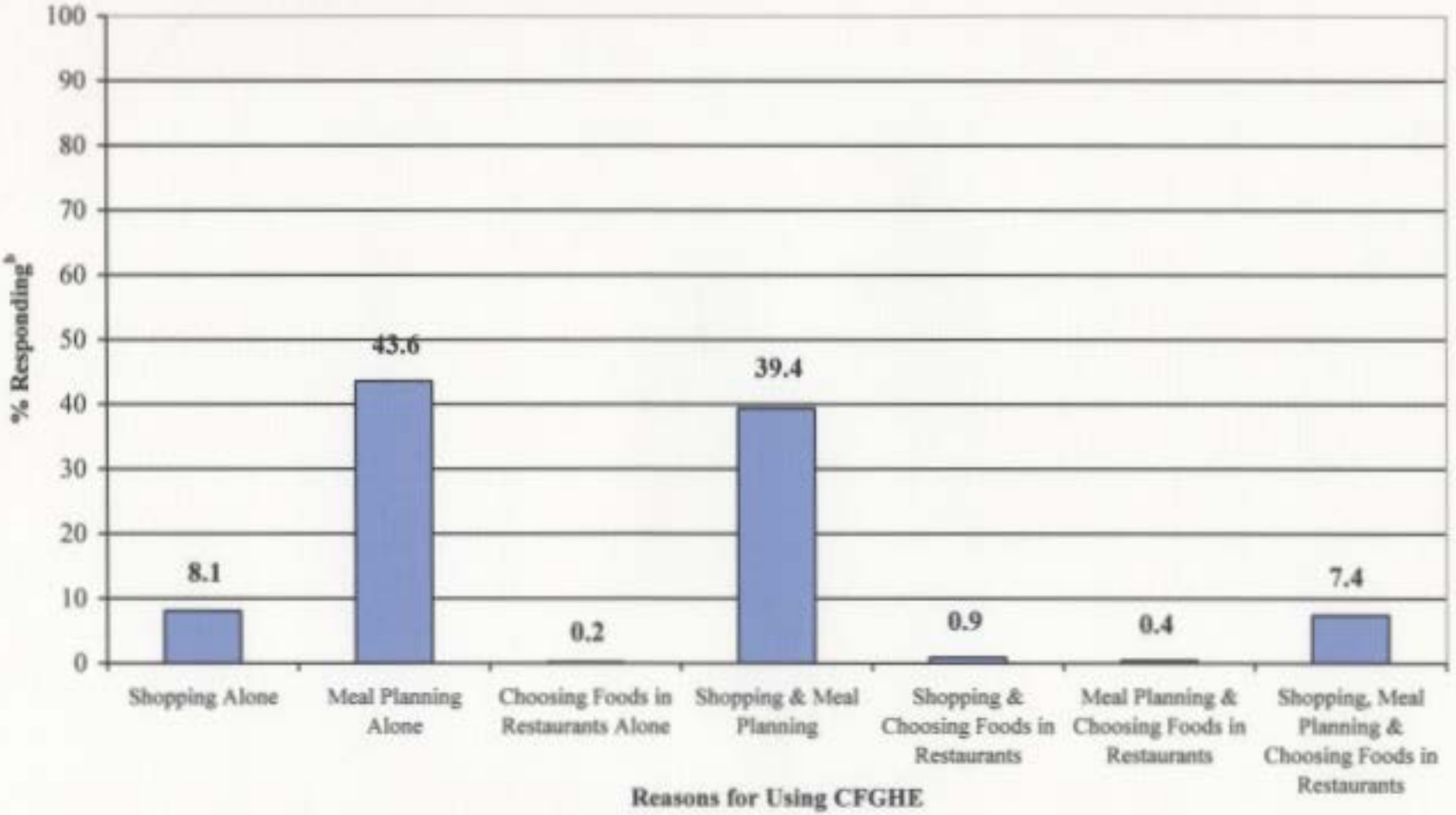

Figure 15: Combined Reasons for Using *Canada's Food Guide to Healthy Eating* (n=500)[a]

[a]Only respondents that reported using *Canada's Food Guide to Healthy Eating*. The "other" category was excluded from the analysis.
[b]Percentages are calculated from weighted data.

4.3.4 Factors Related to Awareness of *Canada's Food Guide to Healthy Eating*

The chi-square test of independence was used to assess the potential relationship between awareness of CFGHE and sociodemographic factors. Data are presented as actual frequencies and weighted percentages. Sampling weights were applied to all analyses to allow for inferences regarding the entire population. NNL participants who chose not to answer questions were excluded from the analyses.

4.3.4.1 Demographic and Socioeconomic Factors

Awareness of CFGHE by demographic and socioeconomic factors is presented in Tables 9 through 11. The results suggest that awareness was negatively associated with age (χ^2=116.001, 2 df, p<0.0001) and positively associated with being female (χ^2=25.934, 1 df, p<0.0001) and residing in an urban community (χ^2=24.061, 1 df, p<0.0001) (Table 9). The data also suggest that education level is positively associated with awareness of CFGHE (χ^2=265.309, 4 df, p<0.0001) (Table 10). Awareness was higher among those who are single (87.8%) and those who are married (82.8%) as compared to those who are separated, divorced or widowed (67.4%) (χ^2=32.311, 2 df, p<0.0001), as well as higher among those who have children living at home (χ^2=38.239, 1 df, p<0.0001) (Table 10). Income (χ^2=109.908, 4 df, p<0.0001), income adequacy (χ^2=63.650, 2 df, p<0.0001) and food sufficiency (χ^2=48.408, 1 df, p<0.0001) were also positively associated with awareness of CFGHE (Table 11).

Table 9: Awareness of *Canada's Food Guide to Healthy Eating* by Age, Sex and Area of Residence (n=1801)

Demographic Factor	Awareness of CFGHE		Total n (%)[a]
	Aware of CFGHE n (%)[a]	Not Aware of CFGHE n (%)[a]	
Age[b]			
18-34	489 (91.3%)	26 (8.7%)	515 (100.0%)
35-54	538 (83.4%)	90 (16.6%)	628 (100.0%)
55-74	445 (64.9%)	213 (35.1%)	658 (100.0%)
Sex[c]			
Male	669 (78.3%)	204 (21.7%)	873 (100.0%)
Female	803 (87.4%)	125 (12.6%)	928 (100.0%)
Area of Residence[d,e]			
Urban	873 (88.1%)	151 (11.9%)	1024 (100.0%)
Rural	599 (79.2%)	178 (20.8%)	777 (100.0%)
OVERALL	**1472 (82.9%)**	**329 (17.1%)**	**1801 (100.0%)**

[a]Data are presented as actual number responding and weighted percentage.
[b]χ^2=116.001, 2 df, p<0.0001
[c]χ^2=25.934, 1 df, p<0.0001
[d]χ^2=24.061, 1 df, p<0.0001
[e]Urban = community size > 10,000 people; rural = community size ≤ 10,000 people

Table 10: Awareness of *Canada's Food Guide to Healthy Eating* by Educational Level, Marital Status and Having Children Living at Home

Socioeconomic Factor	Awareness of CFGHE		Total n (%)[a]
	Aware of CFGHE n (%)[a]	Not Aware of CFGHE n (%)[a]	
Education Level[b]			
< High school	314 (60.0%)	214 (40.0%)	528 (100.0%)
High school without post-secondary	325 (85.9%)	53 (14.1%)	378 (100.0%)
High school with some post-secondary	292 (93.7%)	26 (6.3%)	318 (100.0%)
Trade or college certificate/diploma	308 (93.7%)	25 (6.3%)	333 (100.0%)
University degree	203 (96.9%)	7 (3.1%)	210 (100.0%)
OVERALL	1442 (83.0%)	325 (17.0%)	1767 (100.0%)
Marital Status[c]			
Single	326 (87.8%)	41 (12.2%)	367 (100.0%)
Married	1018 (82.8%)	222 (17.2%)	1240 (100.0%)
Separated, divorced, widowed	126 (67.4%)	66 (32.6%)	192 (100.0%)
OVERALL	1470 (82.8%)	329 (17.2%)	1799 (100.0%)
Having Children Living at Home[d]			
Yes	520 (90.1)	55 (9.9%)	575 (100.0%)
No	951 (78.6%)	274 (21.4%)	1225 (100.0%)
OVERALL	1471 (82.8%)	329 (17.2%)	1800 (100.0%)

[a]Data are presented as actual number responding and weighted percentage.
[b]χ^2=265.309, 4 df, p<0.0001
[c]χ^2=32.311, 2 df, p<0.0001
[d]χ^2=38.239, 1 df, p<0.0001

Table 11: Awareness of *Canada's Food Guide to Healthy Eating* by Income and Food Sufficiency

Socioeconomic Factor	Awareness of CFGHE		Total n (%)[a]
	Aware of CFGHE n (%)[a]	Not Aware of CFGHE n (%)[a]	
Total Household Income[b]			
≤$10,000	106 (59.4%)	51 (40.6%)	157 (100.0%)
$10,001 - $20,000	154 (79.4%)	57 (20.6%)	211 (100.0%)
$20,001 - $40,000	395 (84.6%)	91 (15.4%)	486 (100.0%)
$40,001 - $60,000	297 (89.5%)	37 (10.5%)	334 (100.0%)
>$60,000	292 (94.0%)	24 (6.0%)	316 (100.0%)
OVERALL	1244 (83.7%)	260 (16.3%)	1504 (100.0%)
Income Adequacy[c,d]			
Low	320 (74.3%)	115 (25.7%)	435 (100.0%)
Middle	420 (84.3%)	92 (15.7%)	512 (100.0%)
High	504 (92.7%)	53 (7.3%)	557 (100.0%)
OVERALL	1244 (83.7%)	260 (16.3%)	1504 (100.0%)
Food Sufficiency[e,f]			
Food Sufficient	1412 (84.5%)	300 (15.5%)	1712 (100.0%)
Food Insufficient	58 (58.9%)	29 (41.1%)	87 (100.0%)
OVERALL	1470 (82.9%)	329 (17.1%)	1799 (100.0%)

[a]Data are presented as actual number responding and weighted percentage.
[b]χ^2=109.908, 4 df, p<0.0001
[c]See Appendix F for details regarding income adequacy classification.
[d]χ^2=63.650, 2 df, p<0.0001
[e]Food sufficient are those who always had enough food to eat; food insufficient are those who sometimes or often did not have enough food to eat.
[f]χ^2=48.408, 1 df, p<0.0001

4.3.5 Factors Related to Use of *Canada's Food Guide to Healthy Eating*

The chi-square test of independence was also used to assess the potential relationship between use of *Canada's Food Guide to Healthy Eating* and sociodemographic factors, dietary intake, body size and health-related behaviours. Data are presented as actual numbers and weighted percentages. Sampling weights were applied to all analyses to allow for inferences regarding the entire population. NNL participants that chose not to answer questions were excluded from the analyses.

4.3.5.1 Demographic and Socioeconomic Factors

Use of CFGHE by demographic and socioeconomic factors is presented in Tables 12 through 14. Use of CFGHE appears to be highest among those aged 35 years and older (χ^2=24.031, 2 df, p<0.0001) (Table 12). The results suggest that use of CFGHE was positively associated with being female (χ^2=60.702, 1 df, p<0.0001), residing in an urban community (χ^2=13.541, 1 df, p<0.0001) and being married (χ^2=34.139, 2 df, p<0.0001) (Tables 12 and 13). Data suggests that education level and use of CFGHE are positively related (χ^2=44.405, 4 df, p<0.0001) (Table 13). Income (χ^2=18.254, 4 df, p=0.001) and income adequacy (χ^2=15.781, 2 df, p<0.0001) were also positively associated with awareness of CFGHE (Table 14). Having children living at home or food sufficiency do not appear to be related to use of CFGHE (Tables 13 and 14).

Table 12: Use of *Canada's Food Guide to Healthy Eating* by Age, Sex and Area of Residence (n=1480)

Demographic Factor	Use of CFGHE		Total n (%)[a]
	Use CFGHE N (%)[a]	Do Not Use CFGHE n (%)[a]	
Age[b]			
18-34	143 (26.0%)	347 (74.0%)	490 (100.0%)
35-54	223 (38.5%)	318 (61.5%)	541 (100.0%)
55-74	189 (36.8%)	260 (63.2%)	449 (100.0%)
Sex[c]			
Male	187 (22.6%)	487 (77.4%)	674 (100.0%)
Female	368 (41.6%)	438 (58.4%)	806 (100.0%)
Area of Residence[d,e]			
Urban	361 (37.8%)	517 (62.2%)	878 (100.0%)
Rural	194 (28.7%)	408 (71.3%)	602 (100.0%)
OVERALL	**555 (32.7%)**	**925 (67.3%)**	**1480 (100.0%)**

[a]Data are presented as actual number responding and weighted percentage.
[b]χ^2=24.031, 2 df, p<0.0001
[c]χ^2=60.702, 1 df, p<0.0001
[d]χ^2=13.541, 1 df, p<0.0001
[e]Urban = community size > 10,000 people; rural = community size ≤ 10,000 people

Table 13: Use of *Canada's Food Guide to Healthy Eating* by Educational Level, Marital Status and Having Children Living Home

Socioeconomic Status	Use of CFGHE		Total n (%)[a]
	Use CFGHE n (%)[a]	Do Not Use CFGHE n (%)[a]	
Education Level[b]			
< High school	90 (23.4%)	228 (76.6%)	318 (100.0%)
High school without post-secondary	110 (25.5%)	217 (74.5%)	327 (100.0%)
High school with some post-secondary	108 (35.6%)	184 (64.4%)	292 (100.0%)
Trade or college certificate/diploma	132 (36.3%)	177 (63.7%)	309 (100.0%)
University degree	102 (47.3%)	102 (52.7%)	204 (100.0%)
OVERALL	542 (32.6%)	908 (67.4%)	1450 (100.0%)
Marital Status[c]			
Single	83 (21.6%)	244 (78.4%)	327 (100.0%)
Married	430 (37.7%)	595 (62.3%)	1025 (100.0%)
Separated, divorced or widowed	41 (29.9%)	85 (70.1%)	126 (100.0%)
OVERALL	554 (32.7%)	924 (67.3%)	1478 (100.0%)
Having Children Living at Home[d]			
Yes	200 (34.5%)	321 (65.5%)	521 (100.0%)
No	354 (31.6%)	604 (68.4%)	958 (100.0%)
OVERALL	554 (32.7%)	925 (67.3%)	1479 (100.0%)

[a]Data are presented as actual number responding and weighted percentage.
[b]χ^2=44.405, 4 df, p<0.0001
[c]χ^2=34.139, 2 df, p<0.0001
[d]χ^2=1.402, 1 df, p=0.236

Table 14: Use of *Canada's Food Guide to Healthy Eating* by Income and Food Sufficiency

Socioeconomic Status	Use of CFGHE		Total n (%)[a]
	Use CFGHE n (%)[a]	Do Not Use CFGHE n (%)[a]	
Total Household Income[b]			
≤$10,000	35 (27.6%)	72 (72.4%)	107 (100.0%)
$10,001 - $20,000	41 (21.9%)	113 (78.1%)	154 (100.0%)
$20,001 - $40,000	162 (33.5%)	236 (66.5%)	398 (100.0%)
$40,001 - $60,000	123 (36.4%)	175 (63.6%)	298 (100.0%)
>$60,000	117 (39.0%)	178 (61.0%)	295 (100.0%)
	478 (33.1%)	774 (66.9%)	1252 (100.0%)
Income Adequacy[c,d]			
Low	102 (25.7%)	219 (74.3%)	321 (100.0%)
Middle	168 (33.8%)	255 (66.3%)	423 (100.0%)
High	208 (38.5%)	300 (61.5%)	508 (100.0%)
OVERALL	478 (33.0%)	774 (67.0%)	1252 (100.0%)
Food Sufficiency[e,f]			
Food Sufficient	534 (33.3%)	886 (66.7%)	1420 (100.0%)
Food Insufficient	20 (20.0%)	38 (80.0%)	58 (100.0%)
OVERALL	554 (32.7%)	924 (67.3%)	1478 (100.0%)

[a]Data are presented as actual number responding and weighted percentage.
[b]χ^2=18.254, 4 df, p=0.001
[c]See Appendix F for details regarding income adequacy classification.
[d]χ^2=15.781, 2 df, p<0.0001
[e]Food sufficient are those that always had enough food to eat; food insufficient are those that sometimes or often did not have enough food to eat.
[f]χ^2=4.984, 1 df, p=0.026

4.3.5.2 Nutrient Intakes

Use of CFGHE by intake of selected nutrients is presented in Tables 15 through 17. Results suggest that people who reported using CFGHE were more likely to have energy intakes less than the range cited in Health Canada's (1992b) *Food Guide Facts* (χ^2=25.691, 2 df, p<0.0001), fat intakes within or less than the AMDR (χ^2=29.255, 2 df, p<0.0001), vitamin C intakes at or above the EAR (χ^2=31.521, 1 df, p<0.0001) and potassium intakes less than the AI (χ^2=10.194, 1 df, p=0.001) as compared to those who did not report using CFGHE.

4.3.5.3 Health Risk Associated with Body Size

Table 18 presents use of *Canada's Food Guide to Healthy Eating* by body size. Results suggest that health risk related to body size was not associated with use of CFGHE.

4.3.5.4 Health-Related Behaviours

Tables 19 through 23 present use of *Canada's Food Guide to Healthy Eating* by health behaviours. NL residents who claim that they use CFGHE also state that they make other health conscious decisions regarding the foods they eat (Tables 19 to 21). Those who used CFGHE were more likely to choose whole wheat or multi-grain bread (χ^2=37.963, 1 df, p<0.0001), lower-fat milk (χ^2=34.724, 1 df, p<0.0001) and use vitamin/mineral supplements (χ^2=8.184, 1 df, p=0.004) (Table 22) and less likely to smoke cigarettes (χ^2=32.732, 1 df, p<0.0001) (Table 23) compared to those who did not use CFGHE. Physical activity does not appear to be related to use of CFGHE (Table 23).

Table 15: Use of *Canada's Food Guide to Healthy Eating* by Energy, Fat and Fibre Intakes (n=1480)

Intake	Use of CFGHE		Overall n (%)[a]
	Use CFGHE n (%)[a]	Do Not Use CFGHE n (%)[a]	
Energy[b,c]			
< Range	311 (54.5%)	417 (42.3%)	728 (46.3%)
Within range	215 (40.0%)	404 (45.9%)	619 (44.0%)
> Range	29 (5.6%)	104 (11.8%)	133 (9.7%)
Fat[d,e]			
< Range	72 (11.3%)	80 (8.7%)	152 (9.6%)
Within range	343 (61.9%)	493 (50.1%)	836 (53.9%)
> Range	140 (26.8%)	352 (41.2%)	492 (36.5%)
Dietary Fibre[f,g]			
≥ Cut-point	48 (4.5%)	44 (3.5%)	92 (3.9%)
< Cut-point	507 (95.5%)	881 (96.5%)	1388 (96.1%)
TOTAL	**555 (100.0%)**	**925 (100.0%)**	**1480 (100.0%)**

[a]Data are presented as actual number responding and weighted percentage.
[b]Range = 1800-3200 kcal, based on *Food Guide Facts: Background for Educators and Communicators* (Health Canada, 1992b).
[c]χ^2=25.691, 2 df, p<0.0001
[d]Range = 20%-35% of kcal, based on the AMDR (Institute of Medicine, 2005)
[e]χ^2=29.255, 2 df, p<0.0001
[f]Cut-point based on the age- and sex-specific AI for total fibre (Institute of Medicine, 2005). See Appendix G for details.
[g]χ^2=0.921, 1 df, p=0.337

Table 16: Use of *Canada's Food Guide to Healthy Eating* by Selected Vitamin Intakes (n=1480)

Micronutrient Intake	Use of CFGHE		Overall n (%)[a]
	Use CFGHE n (%)[a]	Do Not Use CFGHE n (%)[a]	
Folate[b,c]			
≥ Cut-point	64 (8.1%)	100 (9.7%)	164 (9.2%)
< Cut-point	491 (91.9%)	825 (90.3%)	1316 (90.8%)
Vitamin B_{12}[b,d]			
≥ Cut-point	371 (66.1%)	621 (66.4%)	992 (66.3%)
< Cut-point	184 (33.9%)	304 (33.6%)	488 (33.7%)
Vitamin C[b,e]			
≥ Cut-point	357 (59.8%)	445 (44.3%)	802 (49.4%)
< Cut-point	198 (40.2%)	480 (55.7%)	678 (50.6%)
TOTAL	**555 (100.0%)**	**925 (100.0%)**	**1480 (100.0%)**

[a]Data are presented as actual number responding and weighted percentage.
[b]Cut-point based on the age- and/or sex-specific DRI. See Appendix G for details regarding DRI cut-points.
[c]χ^2=1.115, 1 df, p=0.291
[d]χ^2=0.015, 1 df, p=0.904
[e]χ^2=31.521, 1 df, p<0.0001

Table 17: Use of *Canada's Food Guide to Healthy Eating* by Mineral and Electrolyte Intakes (n=1480)

Micronutrient Intake	Use of CFGHE		Overall n (%)[a]
	Use CFGHE n (%)[a]	Do Not Use CFGHE n (%)[a]	
Calcium[b,c]			
≥ Cut-point	70 (11.8%)	134 (15.1%)	204 (14.0%)
< Cut-point	485 (88.2%)	791 (84.9%)	1276 (86.0%)
Iron[b,d]			
≥ Cut-point	473 (81.6%)	795 (84.7%)	1268 (83.7%)
< Cut-point	82 (18.4%)	130 (15.3%)	212 (16.3%)
Zinc[b,e]			
≥ Cut-point	327 (56.4%)	538 (55.7%)	865 (56.0%)
< Cut-point	228 (43.6%)	387 (44.3%)	615 (44.0%)
Potassium[b,f]			
≥ Cut-point	34 (3.9%)	78 (8.4%)	112 (7.0%)
< Cut-point	521 (96.1%)	847 (91.6%)	1368 (93.0%)
Sodium[b,g]			
≥ Cut-point	467 (82.4%)	788 (83.5%)	1255 (83.2%)
< Cut-point	88 (17.6%)	137 (16.5%)	225 (16.8%)
TOTAL	**555 (100.0%)**	**925 (100.0%)**	**1480 (100.0%)**

[a]Data are presented as actual number responding and weighted percentage.
[b]Cut-point based on the age- and/or sex-specific DRI. See Appendix G for details regarding DRI cut-points.
[c]χ^2=2.943, 1 df, p=0.086
[d]χ^2=2.287, 1 df, p=0.130
[e]χ^2=0.059, 1 df, p=0.807
[f]χ^2=10.194, 1 df, p=0.001
[g]χ^2=0.271, 1 df, p=0.603

Table 18: Use of *Canada's Food Guide to Healthy Eating* by Health Risk Associated with Body Size

Body Size	Use of CFGHE		Overall n (%)[a]
	Use CFGHE n (%)[a]	Do Not Use CFGHE N (%)[a]	
Health Risk According to BMI[b,c]			
Least risk	132 (32.6%)	241 (37.7%)	373 (36.1%)
Increased risk	304 (67.4%)	520 (62.3%)	824 (63.9%)
TOTAL	436 (100.0%)	761 (100.0%)	1197 (100.0%)
Health Risk According to WC[d,e]			
Least risk	323 (77.1%)	525 (71.0%)	848 (72.9%)
Increased risk	124 (22.9%)	235 (29.0%)	359 (27.1%)
OVERALL	447 (100.0%)	760 (100.0%)	1207 (100.0%)
Health Risk According to BMI and WC[f,g]			
Least risk	115 (31.4%)	220 (36.5%)	335 (35.0%)
Increased risk	269 (68.6%)	472 (63.5%)	741 (65.0%)
OVERALL	384 (100.0%)	692 (100.0%)	1076 (100.0%)

[a]Data are presented as actual number responding and weighted percentage.
[b]Health risk according to BMI based on the *Canadian Guidelines for Body Weight Classification* (Health Canada, 2003g). See Appendix H for details.
[c]χ^2=2.851, 1 df, p=0.091
[d]Health risk according to WC based on the *Canadian Guidelines for Body Weight Classification* (Health Canada, 2003g). See Appendix H for details.
[e]χ^2=5.079, 1 df, p=0.024
[f]Health risk according to BMI and WC combined based on the *Canadian Guidelines for Body Weight Classification* (Health Canada, 2003g). See Appendix H for details.
[g]χ^2=2.641, 1 df, p=0.104

Table 19: Use of *Canada's Food Guide to Healthy Eating* by Choosing/Avoiding Foods to Maintain Health and Prevent Illness (n=1480)

Reason for Choosing/Avoiding Foods[a]	Use of CFGHE		Total n (%)[b]
	Use CFGHE n (%)[b]	Do Not Use CFGHE n (%)[b]	
Maintaining or improving health[c]			
Yes	469 (81.4%)	523 (53.9%)	992 (62.9%)
No	86 (18.6%)	402 (46.1%)	488 (37.1%)
Heart disease[d]			
Yes	344 (60.7%)	327 (31.4%)	671 (41.0%)
No	211 (39.3%)	598 (68.6%)	809 (59.0%)
Cancer[e]			
Yes	213 (38.8%)	189 (17.4%)	402 (24.4%)
No	342 (61.2%)	736 (82.6%)	1078 (75.6%)
Osteoporosis[f]			
Yes	232 (40.5%)	171 (17.3%)	403 (24.9%)
No	323 (59.5%)	754 (82.7%)	1077 (75.1%)
High blood pressure[g]			
Yes	296 (50.2%)	327 (33.4%)	623 (38.9%)
No	259 (49.8%)	598 (66.6%)	857 (61.1%)
Weight gain[h]			
Yes	378 (68.3%)	461 (47.6%)	839 (54.4%)
No	177 (31.7%)	464 (52.4%)	641 (45.6%)
OVERALL	**555 (100.0%)**	**925 (100.0%)**	**1480 (100.0%)**

[a]Respondents were asked "Are you choosing or avoiding foods or types of foods because you are concerned about: (1) maintaining or improving your health; (2) heart disease; (3) cancer; (4) osteoporosis; (5) high blood pressure; and (6) weight gain?".
[b]Data are presented as actual number responding and weighted percentage.
[c]χ^2=105.371, 1 df, p<0.0001
[d]χ^2=115.957, 1 df, p<0.0001
[e]χ^2=81.047, 1 df, p<0.0001
[f]χ^2=93.843, 1 df, p<0.0001
[g]χ^2=38.857, 1 df, p<0.0001
[h]χ^2=56.344, 1 df, p<0.0001

Table 20: Use of *Canada's Food Guide to Healthy Eating* by Choosing Foods Based on the Nutrient Content (n=1480)

Reason for Choosing Foods[a]	Use of CFGHE		Total n (%)[b]
	Use CFGHE n (%)[b]	Do Not Use CFGHE n (%)[b]	
The nutrients they contain[c]			
Yes	421 (77.4%)	397 (40.3%)	818 (52.4%)
No	134 (22.6%)	528 (59.7%)	662 (47.6%)
The unsaturated fat content[d]			
Yes	419 (72.5%)	428 (43.3%)	847 (52.8%)
No	136 (27.5%)	497 (56.7%)	633 (47.2%)
The fibre content[e]			
Yes	390 (67.4%)	353 (34.2%)	743 (45.0%)
No	165 (32.6%)	572 (65.8%)	737 (55.0.0%)
OVERALL	**555 (100.0%)**	**925 (100.0%)**	**1480 (100.0%)**

[a]Respondents were asked "Are you choosing to eat foods or types of foods because of: (1) the nutrients they contain; (2) the unsaturated fat content; (3) the fibre content?".
[b]Data are presented as actual number responding and weighted percentage.
[c]χ^2=179.749, 1 df, p<0.0001
[d]χ^2=111.842, 1 df, p<0.0001
[e]χ^2=144.858, 1 df, p<0.0001

Table 21: Use of *Canada's Food Guide to Healthy Eating* by Avoiding Foods Based on the Nutrient Content (n=1480)

Reason for Avoiding Foods[a]	Use of CFGHE		Total n (%)[b]
	Use CFGHE n (%)[b]	Do Not Use CFGHE n (%)[b]	
The fat content[c]			
Yes	482 (85.1%)	567 (57.7%)	1049 (66.7%)
No	73 (14.9%)	358 (42.3%)	431 (33.3%)
The salt content[d]			
Yes	404 (66.5%)	431 (42.5%)	835 (50.3%)
No	151 (33.5%)	494 (57.5%)	645 (49.7%)
The cholesterol content[e]			
Yes	373 (64.0%)	385 (39.8%)	758 (47.7%)
No	182 (36.0%)	540 (60.2%)	722 (52.3%)
The sugar content[f]			
Yes	332 (58.1%)	323 (32.8%)	655 (41.0%)
No	223 (41.9%)	602 (67.2%)	825 (59.0%)
The saturated fat content[g]			
Yes	446 (78.7%)	461 (46.7%)	907 (57.1%)
No	109 (21.3%)	464 (53.3%)	573 (42.9%)
OVERALL	**555 (100.0%)**	**925 (100.0%)**	**1480 (100.0%)**

[a]Respondents were asked "Are you avoiding foods or types of foods because of: (1) the fat content; (2) the salt content; (3) the cholesterol content; (4) the sugar content; (5) the saturated fat content?".
[b]Data are presented as actual number responding and weighted percentage.
[c]χ^2=109.863, 1 df, p<0.0001
[d]χ^2=75.464, 1 df, p<0.0001
[e]χ^2=76.182, 1 df, p<0.0001
[f]χ^2=86.093, 1 df, p<0.0001
[g]χ^2=135.872, 1 df, p<0.0001

Table 22: Use of *Canada's Food Guide to Healthy Eating* by Choice of Bread and Milk and Use of Vitamin/Mineral Supplements

Health Related Behaviour	Use of CFGHE		Total n (%)[a]
	Use CFGHE n (%)[a]	Do Not Use CFGHE n (%)[a]	
Choice of Bread[b,c]			
Whole wheat or multi-grain	167 (27.4%)	157 (13.9%)	324 (18.3%)
White	357 (72.6%)	737 (86.1%)	1094 (81.7%)
OVERALL	524 (100.0%)	894 (100.0%)	1418 (100.0%)
Choice of Milk[d,e]			
Lower fat (skim or 1%)	196 (42.5%)	177 (26.8%)	373 (33.2%)
Higher fat (2% or whole)	265 (57.5%)	484 (73.2%)	749 (66.8%)
OVERALL	461 (100.0)	661 (100.0%)	1122 (100.0%)
Use of Vitamin/ Mineral Supplements[f,g]			
Yes	161 (24.6%)	199 (18.2%)	360 (20.3%)
No	394 (75.4%)	725 (81.8%)	1119 (79.7%)
OVERALL	555 (100.0%)	924 (100.0%)	1479 (100.0%)

[a]Data are presented as actual number responding and weighted percentage.
[b]NNL participants were asked "what type of bread did you usually eat?". Respondents were asked to choose only one of the following: whole wheat; multigrain/cracked wheat; white bread; molasses raisin bread; other; and do not know. Respondents who chose molasses raisin bread, other or do not know were excluded from the analysis.
[c]χ^2=37.963, 1 df, p<0.0001
[d]NNL participants were asked "what type of milk did you usually use?". Respondents were asked to choose only one of the following: whole milk; 2% milk; 1% milk; skim milk; powdered skim milk; powdered whole milk; evaporated milk; other; do not know. Respondents who chose evaporated milk, other or do not know were excluded from the analysis.
[e]χ^2=34.724, 1 df, p<0.0001
[f]NNL participants were asked "During the past month, did you use a vitamin-mineral supplement?".
[g]χ^2=8.184, 1 df, p=0.004

Table 23: Use of *Canada's Food Guide to Healthy Eating* by Physical Activity and Smoking Status

Health Related Behaviour	Use of CFGHE		Total n (%)[a]
	Use CFGHE n (%)[a]	Do Not Use CFGHE n (%)[a]	
Participation in Lower Intensity Physical Activity[b,c]			
Participates	311 (60.8%)	468 (60.7%)	779 (60.7%)
Does not participate	195 (39.2%)	300 (39.3%)	495 (39.3%)
OVERALL	506 (100.0%)	768 (100.0%)	1274 (100.0%)
Participation in Higher Intensity Physical Activity[d,e]			
Participates	91 (47.4%)	135 (43.6%)	226 (44.9%)
Does not participate	139 (52.6%)	201 (56.4%)	304 (55.1%)
OVERALL	230 (100.0%)	336 (100.0%)	566 (100.0%)
Smoking Status[f,g]			
Daily Smoker	107 (23.8%)	298 (38.8%)	405 (33.9%)
Not a Daily Smoker	447 (76.2%)	627 (61.2%)	1074 (66.1%)
OVERALL	554 (100.0%)	925 (100.0%)	1479 (100.0%)

[a]Data are presented as actual number responding and weighted percentage.
[b]Respondent deemed to participate regularly in low intensity physical activity were those who participated in activities that did not make the heart beat rapidly ≥30 minutes, >3 times/week.
[c]χ^2=0.001, 1 df, p=0.982
[d]Respondent deemed to participate regularly in high intensity physical activity were those who participated in activities that made the heart beat rapidly ≥30 minutes, >3 times/week.
[e]χ^2=0.811, 1 df, p=0.368
[f]Respondent deemed to be a daily smoker were those that smoked at least one cigarette per day.
[g]χ^2=32.732, 1 df, p<0.0001

CHAPTER 5

DISCUSSION

5.1 Introduction

In this chapter, the results of the present study will be discussed. The first section will focus on the results of the survey of NL family physicians and the second section will examine the results of the secondary analysis of NNL. The chapter will conclude with a discussion of the major limitations of the study and future research.

5.2 Survey of Newfoundland and Labrador Family Physicians

To examine the delivery of nutrition information in family medicine, a self-administered survey was mailed to all eligible NL family physicians.

5.2.1 Response Rate

One of the major problems with mail surveys is the potential for non-response error. Despite a carefully planned survey, some potential participants do not respond to surveys (Cui, 2003). If those who respond differ from those who do not respond on the survey measures examined, non-response error becomes a problem (Cui, 2003). Response rate has become the accepted proxy for non-response error, with the general assumption being that the higher the response rate, the lower the potential of non-response error (Dillman, 1991).

Response rates of mailed surveys are quite variable. The response rates of postal surveys which examined nutrition/preventive medicine of physicians have ranged anywhere from 11% to 77% (Levine et al., 1993; Yeager et al., 1996). In the present study, almost half (47.3%) of potential respondents completed and returned the questionnaire. This was a higher response rate than was recorded in a recent survey examining prostate cancer screening among primary care physicians practicing in NL (30.9%), the same population surveyed in the present study (Curran et al., 2003).

The lower the response rate is, the less representative the results will be of the entire population (Roebothan, 2003). Since more than half of the potential respondents did not complete the questionnaire, the results may not be generalizable to NL family physicians as a whole. For the present study, data were not available to accurately compare responders to non-responders. Research indicates that people are more likely to respond to a survey if the topic is of interest to them (Groves et al., 2004). In the present study, survey respondents may have been more interested in nutrition or may feel that nutrition is a more important component of health as compared to non responders.

5.2.2 Demographic Characteristics and Nutrition Education Background of Survey Respondents

Given that the majority of family physicians in NL are male (73.7% male versus 26.3% female), it was no surprise that 62.9% of survey respondents were male (Table 1) (College of Family Physicians of Canada, Canadian Medical Association & Royal College of Physicians and Surgeons of Canada, 2004). It does appear that female family

physicians were more likely to respond to the present study. In NL, the ratio of male to female physicians is 2.8 (73.7% male versus 26.3% female), whereas in the present study, the ratio of male to female physicians was only 1.7 (62.9% male versus 37.1% female) (College of Family Physicians of Canada, Canadian Medical Association & Royal College of Physicians and Surgeons of Canada, 2004).

The results of the National Physician Survey (NPS) indicate that most (63%) of the survey respondents' patient care settings were organized as a group practice, which was similar to the results of the present study where more than half of the respondents (56.0%) practiced family medicine in a group practice setting (College of Family Physicians of Canada, Canadian Medical Association & Royal College of Physicians and Surgeons of Canada, 2004).

Of the respondents in the present study, 56.1% were practicing in an urban community. Curran and associates (2003) similarly found that 52.1% of NL family physician respondents reported that they were urban-based practitioners. In contrast, the results of the NPS indicated that there were more family physicians practicing in rural communities. Since geographic location was assessed differently in the two surveys, this comparison must be interpreted with caution. For the present survey, respondents were asked to indicate the population size of the community in which they practice, whereas the NPS asked respondents to indicate if the population they served was inner city, urban/suburban, small town, rural or geographically isolated (College of Family

Physicians of Canada, Canadian Medical Association & Royal College of Physicians and Surgeons of Canada, 2004).

In the present study, 86.1% of respondents reported that dietitians/nutritionists were easily accessible (Table 1). Although the NPS did assess family physicians' access to dietetics professionals, it is difficult to make comparisons between the results of the NPS and the present study. The present study asked generally if a dietitian/nutritionist was easily accessible in the respondent's practice community, whereas the NPS asked respondents to indicate the types of health care providers with whom they shared patient care within their patient care setting (College of Family Physicians of Canada, Canadian Medical Association & Royal College of Physicians and Surgeons of Canada, 2004). Only 36% of NL respondents to the NPS reported sharing patient care with a dietitian/nutritionist within their patient care setting (College of Family Physicians of Canada, Canadian Medical Association & Royal College of Physicians and Surgeons of Canada, 2004).

The results of the present study indicate that respondents had limited formal training in nutrition and how to provide dietary advice to patients. Almost one third of respondents were not sure how much nutrition training they received during their medical school training program. Consistent with previous reports, survey respondents received little instruction about nutrition during their undergraduate medical education (Rosser, 2003). Moreover, the majority of respondents had not received instruction about nutrition

outside of medical school. CME could potentially provide family physicians with up-to-date nutrition information, although the results of the present study indicate that CME is not reaching its potential given that only 27 respondents (11.9%) had participated in nutrition-related CME. From the present study, it is not possible to determine if this lack of participation in nutrition-related CME is the result of disinterest in this topic or if nutrition-related CME is not readily available. Male family physicians in the present study were more likely to have participated in nutrition-related CME (Table 3). Conversely, a study of family physicians in Calgary found that women were more likely to have participated in four or more short courses during the study period, though it is difficult to determine the applicability of these results given that the data were collected almost two decades ago (Lockyer et al., 1988). More recent results from the NPS indicate that female physicians in NL spent 4.3 hours per week on CME compared to 3.4 hours by male physicians (College of Family Physicians of Canada, Canadian Medical Association & Royal College of Physicians and Surgeons of Canada, 2004). Again, comparisons may not be appropriate, given that these are based on all NL physicians. It is possible that family physicians attend less CME sessions as compared to physicians of other specialties.

Differences in time spent on professional activities may provide a possible explanation for the gender differences in CME participation in the present study. Research has shown that female physicians practice about one-fifth less intensely than male physicians (Canadian Labour and Business Centre, 2003). Female family physicians have been

shown to provide fewer services and see fewer patients as compared to their male counterparts (Cohen et al., 1991; Woodward & Hurley, 1995). Recent results from the NPS indicate that female physicians in NL spent 2.4 hours less per week on direct patient care as compared to male physicians (College of Family Physicians of Canada, Canadian Medical Association & Royal College of Physicians and Surgeons of Canada, 2004). The gender differences in time spent on professional activities may be attributed to the time female physicians spend on domestic work. Female physicians have been shown to spend more time on household duties (Woodward et al., 1996). This is especially evident when there are children at home. On average, female physicians who have children at home spend 5.7 hours more hours per week on household maintenance, 28.3 more hours per week on child care and 12.8 hours less per week on professional activities as compared to male physicians with children at home (Woodward et al., 1996).

It is surprising that family physicians practicing in rural communities were more likely to have participated in nutrition-related CME as compared to those practicing in urban centres (Table 4). Research has suggested that geographic location is a barrier to CME with rural physicians experience difficulty participating in, and accessing CME (Curran et al., 2004). Travelling to attend CME poses challenges for rural physicians. Geographic difference contributes to the cost of attending CME activities and increases the time the physician will be away from his/her practice. Rural physicians also have less coverage for their practice, making it difficult for them to attend CME activities (Curran et al., 2004).

5.2.3 Nutrition Advising Attitudes and Practices

Respondents recognized the importance of nutrition to health and the importance of the family physician to the delivery of nutrition information to patients (Figures 1 and 2, respectively). Research has shown that physicians recognize that nutrition is important for health (Weschler et al., 1996). Further, physicians feel it is their responsibility to educate patients about lifestyle risk factors, including nutrition (Frank et al., 2002; Soltesz et al., 1995; Weschler et al., 1996).

Almost all of the respondents (95.5%) reported that they discuss nutrition with their patients (Figure 7). Though it is difficult to compare nutrition counselling prevalence across studies due to differences in methodologies, the prevalence of nutrition counselling reported in the present study appears to be much higher than results documented from previous studies.

Inconsistent with previous research, there was no difference between male and female physicians in their reported provision of nutrition information to patients, although female physicians were more likely than male physicians to discuss nutrition for weight loss/management (Table 5). Research has suggested that female physicians in North Carolina are more likely to provide preventive counselling as compared to male physicians (Centres for Disease Control and Prevention, 1992) and Danish female general practitioners provide dietary counselling more often than male general practitioners (Hølund et al., 1997).

Nutrition was usually discussed by respondents in the context of treatment; 96.4% of respondents discuss nutrition with patients to manage a specific disease/condition and 93.8% discuss nutrition as part of a weight loss/management regime. Given that research has consistently shown that physicians provide dietary advice to patients with chronic conditions more often than those without chronic conditions (Hunt et al., 1995), it is not surprising that only a little more than half of the respondents (57.3%) discuss nutrition with all patients as part of general health promotion (Figure 8).

Though respondents recognized that the family physician has a major role in the delivery of nutrition information to patients, most felt that dietitians/nutritionists were the most appropriate (80.7%) and most effective (71.4%) health care provider to discuss nutrition with patients (Figure 3). With only 123 registered dietitians serving the NL population (one dietitian for every 4,372 NL residents), it may be difficult for NL residents to receive reliable nutrition information in a timely manner (Newfoundland and Labrador Health Boards Association, 2003). Further, by 2007, a shortage of up to 10 dietitians is forecasted, with rural areas requiring special attention to avoid shortages (Newfoundland and Labrador Health Boards Association, 2003).

5.2.4 Challenges to the Provision of Nutrition Information to Patients

Respondents identified a number of challenges to the delivery of nutrition information to patients (Figure 5). Not surprising, lack of time during consultation visits was the most commonly cited barrier by respondents (94.7%). Lack of time has consistently been

identified by physicians as a major barrier to the delivery of nutrition information to patients in other jurisdictions (Ammerman et al., 1993; Guo et al., 2002; Hiddink et al., 1995; Hiddink et al., 1997b; Hølund et al., 1997; Kushner, 1995; Langner et al., 1989; Moore & Adamson, 2002; Nicholas et al., 2003; Tsui et al., 2004). Further, when preventive services are incorporated into illness visits, the duration of the visit is significantly longer (Stange et al., 1998).

Many respondents also identified insufficient training in nutrition as a major barrier to the delivery of nutrition information to patients (64.6%) (Figure 5). This was expected given that less than 10% of respondents received more than 20 hours of nutrition training during medical school and 77.0% had not received any nutrition training outside of medical school (Table 2). Physicians have consistently identified insufficient training in nutrition as a major barrier to discussing nutrition with patients (Hiddink et al. 1995; Hiddink et al., 1997b; Hølund et al., 1997; Kushner, 1995; Levine et al., 1993; Nicholas et al., 2003; Tsui et al., 2004).

Other barriers faced by respondents included difficulty in motivating patients to eat healthy (59.3%) and difficulty in discussing complex food and health information with patients (47.3%). Nevertheless, only 8.4% felt that discussing nutrition information with patients was not effective in producing positive health changes. This is quite surprising. Research has shown that many physicians do not feel they are successful in helping patients to achieve positive health changes (Brotons et al., 2003; Yeager et al., 1996). In

fact, Yeager and colleagues (1996) found that only 4-5% of physicians felt that they were very successful in their ability to help patients modify dietary behaviour. The highest ranked problem reported by Canadian physicians in managing patients with cardiovascular disease is compliance with lifestyle (85.3%) (Curran et al., 2002). Given the immense amount of literature documenting barriers physicians face in the delivery of nutrition information to patients, it is no surprise that no respondent felt that the family physician faced no challenges.

Respondents were asked what they thought would be most effective to overcome the challenges they faced with the delivery of nutrition information to patients. The majority of respondents felt that increasing the number of dietitians/nutritionists accessible to family physicians would help overcome the challenges they faced (75.6%) (Figure 6). Having more dietitians/nutritionists available would reduce the amount of time that family physicians would have to spend on nutrition during patient visits. Also, since dietitians are uniquely trained to advise on diet, food and nutrition, they would be able to provide sound nutritional advice to patients, and thus would be a great addition to the primary health care team (Dietitians of Canada, 2001). Given this, it is surprising that respondents felt that increasing the number of dietitians/nutritionists available to them would help overcome the challenges they face given that the majority of respondents reported that they had a dietitian/nutritionist easily accessible in their practice community (Table 1). It is possible that the question pertaining to accessibility to a dietitian/ nutritionist was interpreted differently than what it was intended to assess. The question

was intended to assess the presence of dietitian/nutritionist in the practice community, who patients could readily be referred to and not have a long wait time between the time of referral and the delivery of service. Respondents who indicated that a dietitian/nutritionist was easily accessible may mean that a dietitian/nutritionist is available in the community, but there may be a long wait time for nutrition services. From the present study, it was not possible to determine if respondents refer patients to dietitians for nutrition counselling.

5.2.5 *Canada's Food Guide to Healthy Eating* in Newfoundland and Labrador Family Medicine

CFGHE is a simple, reliable, nutrition education tool developed to provide a pattern of healthy eating for the general Canadian population. Awareness of CFGHE was extremely high among family physician respondents (Figure 9). Also, many respondents had a positive attitude regarding the usefulness of CFGHE when discussing nutrition with patients and most of the respondents (83.3%) claim to use the principles of CFGHE to discuss nutrition with patients (Figure 9). Since there was such a positive response by respondents regarding CFGHE, it is surprising that only a little more than half of the respondents (59.2%) had CFGHE available in their office/clinic (Figure 9). Further, given that Health Canada's review of CFGHE found that doctors' offices and health centres were among the most common places people had last seen CFGHE, it is unfortunate that less than half of the respondents (45.1%) had it posted (Figure 9) (Health Canada, 2003f). Analyses found that respondents practicing in rural communities were more likely to have CFGHE posted as compared to those practicing in urban

communities (56.7% vs. 36.4%; χ^2=8.595, 1 df, p=0.003) (Table 6). This could possibly be explained in part by rural family physicians higher participation rate in nutrition-related CME (Table 4).

5.3 Secondary Analysis of *Nutrition Newfoundland and Labrador*

A secondary analysis of NNL was conducted to determine if awareness and use of CFGHE are related to demographic and socioeconomic factors, nutrient intakes, body size and health related behaviours.

5.3.1 Response Rate of *Nutrition Newfoundland and Labrador*

NNL had an overall 51.4% data collection response rate (Roebothan, 2003) (Table 7). This was comparable to other recent provincial surveys, such as the BCNS, which had a 52% data collection response rate (Forster-Coull et al., 2004). In NNL, there was a lower response rate for males as compared to females (48.5% versus 54.5%). Again, this was consistent with the findings of the BCNS (Forster-Coull et al., 2004).

5.3.2 Awareness and Use of *Canada's Food Guide to Healthy Eating*

Consistent with the findings of the *New Brunswick Nutrition Survey* (NBNS) (Balram et al., 2005), the majority of NL residents were aware of CFGHE (Figure 12). Similarly, Health Canada's review of CFGHE also found that many Canadians were aware of CFGHE (Health Canada, 2003c). Unfortunately, only 32.7% of the NL residents who were aware of CFGHE stated that they use it (Figure 13). Results from the NBNS also

suggest that use of CFGHE was much lower than awareness (Balram et al., 2005). In contrast, Health Canada's review found that 68% of Canadians had used CFGHE (Health Canada, 2003c). With respect to use of CFGHE, caution must be exercised when comparing the present findings to the results of Health Canada's review, given that use of CFGHE was established differently. Respondents to Health Canada's consumer survey were asked if they had looked at or read CFGHE, whereas in NNL, participants were asked specifically if they used it (Health Canada, 2003c) (Roebothan, 2003). The fact that Health Canada's review is based on national data may also explain in part the difference in use of CFGHE. Even so, it is disappointing that although a simple and credible guide for healthy eating is available to Canadians, only a small percentage of the NL population take advantage of this tool. Given that CFGHE is currently being revised, it is important to determine why so few residents of NL use it, although these data are not available from NNL.

It is important to note that the percentage of NL residents who used CFGHE may have been lower than found in this study. Use of CFGHE in the present study was self-reported, and thereby may not be an accurate description of the percentage of NL residents who truly use CFGHE. Research has consistently shown that social desirability influences self-reported health behaviours, including an overreporting of physical activity (Adams et al., 2005) and underreporting of energy intake (Tooze et al., 2004). In addition, people may believe they are using CFGHE, but may be misinterpreting the information. In fact, when data from the BCNS's 24-hour recalls were broken down into

CFGHE servings, only 0.7-3.2% of women and 5.2-14.2% of men met the minimum suggested servings for all four food groups on a given day (Levy-Milne, 2004).

CFGHE can be used by consumers for many purposes. The results of the present study suggest that in NL, meal planning is the most common reason that people would use the Food Guide (Figures 14 and 15). In fact, only 9.2% gave a reason that did not include meal planning and almost half (43.6%) used CFGHE for meal planning alone (Figure 15). The NBNS similarly found that CFGHE was used most often for planning meals/choosing meals at home (Balram et al., 2005). On the contrary, Health Canada's review indicated that CFGHE was most commonly used by people to choose healthy foods (62%) and to assess their eating habits (57%), though 39% of respondents used CFGHE specifically to plan meals (Health Canada, 2003c). Again, it is difficult to compare the results from Health Canada's review with those of the present study given that different choices were offered to participants. For instance, NNL did not offer a choice pertaining to using CFGHE to choose healthy foods (Roebothan, 2003). Also, Health Canada's review is based on national data. It is possible that NL residents may in fact use CFGHE for different purposes than other Canadians. It also is possible that NNL participants may consider using CFGHE to choose healthy foods as part of planning meals.

5.3.3 Characteristics of the Study Population

The NNL study population (responders to awareness of the Food Guide question) appears to be similar with respect to sex (49.7% males versus 50.3% females). In addition, the majority of this group fell into the young or middle age group (35.4% and 44.0% respectively) as compared to the older age group (20.6%). Many of this group were married or living common-law (66.0%), and many had graduated from high school. Most of the study population had a total household income greater than $10,000, though there were 11.8% whose total household income was $10,000 or less.

NNL participants differed significantly from the NL population according to the 1996 Census with respect to marital status, educational level and total household income. They were more likely to be married (66.0% versus 55.7%) and more educated as compared to Census findings pertaining to the NL population. In addition, the NNL study population had a higher proportion of people with a total household income of $10,000 or less (11.8% versus 8.8%) as compared to the reference population (Table 8). Given that there were significant differences between NNL participants and the NL population, some may question the generalizability of the present data to all NL residents. Even so, one must consider that for marital status and education, the Census collected data on the population 15 years of age and older whereas NNL collected data on residents 18 years of age and older (Statistics Canada, 1999). As such, it would be expected for the Census to have more people who are single and more people who have less than a high school education given that the Census collected data on younger NL residents.

5.3.4 Factors Related to Awareness of *Canada's Food Guide to Healthy Eating*

Analyses indicate that a number of factors were related to awareness of CFGHE.

5.3.4.1 Demographic and Socioeconomic Factors

Awareness of CFGHE was significantly related to all demographic and socioeconomic factors studied (Tables 10, 11, and 12). Awareness of CFGHE appears to decrease as age increases (Table 9). In the present study, 91.3% of those in the youngest age group were aware of CFGHE whereas only 64.9% of those in the oldest age group were aware. The NBNS similarly found that awareness of CFGHE was more common among the youngest age groups (Balram et al., 2005). *Tracking Nutrition Trends* also found that younger adults are more familiar with CFGHE than older adults, although awareness of CFGHE was assessed in *Tracking Nutrition Trends* by the ability of respondents to correctly name food groups in CFGHE, whereas a person who has seen or heard about CFGHE were considered to be aware of CFGHE in NNL and the NBNS (Balram et al., 2005; Health Canada, 2002b; Roebothan, 2003). Conversely, Health Canada's review of the CFGHE found that awareness was highest among consumers 35 to 54 years of age (Health Canada, 2003c). It should be noted that the data from Health Canada's review are based on a representative sample of Canadians. It is possible that promotion of CFGHE is greater in younger Newfoundlanders and Labradorians as compared to the average young Canadian. In NL public schools, nutrition is a major component of the eighth grade health curriculum, of which CFGHE is the major focus (Government of Newfoundland and Labrador, 1994). It is also important to point out that the study population (those

who answered the question pertaining to awareness of CFGHE) were significantly different than the non-responders (those who did not answer the question pertaining to awareness of CFGHE), with respect to age (data not shown). Specifically, nonresponders were more likely to be 35 to 54 years of age as compared to the study population (61.3% versus 40.0%). Given that Health Canada's (2003c) review found that awareness was highest among people 35 to 54 years of age, and that this age group is underrepresented in the present study, the results of the present study may be slightly skewed in favour of a younger population.

Females were more likely to be aware of CFGHE as compared to males (87.4% versus 78.3%) (Table 9). Similarly, results from the NBNS and Health Canada's review suggest that awareness was higher among females (Balram et al., 2005; Health Canada, 2003c). Further, *Tracking Nutrition Trends* found that more women than men were able to name all four food groups in CFGHE (Health Canada, 2002b). This was expected given that females tend to be more knowledgeable about nutrition (Parmenter et al., 2000).

NL residents living in urban communities were also more likely to be aware of CFGHE as compared to those residing in rural communities (88.1% versus 79.2%) (Table 9). However, results from the survey of NL family physicians indicate that rural family physicians were more likely to have CFGHE posted in their practice setting (Table 7). Given that dietitians are more likely to be employed in urban centres (Dietitians of Canada, 2005), it is possible that NL residents living in urban communities have more

access to the nutrition services of a registered dietitian, who may use CFGHE when providing nutrition information.

Awareness also appeared to be positively associated with level of education, with awareness increasing substantially in those with at least a high school education as compared to those with less than high school education (Table 11). Health Canada (2003c) also found that awareness was highest among those with at least a high school education. In addition, awareness was higher in those who were single or married as compared to those who were separated, divorced or widowed (87.8%, 82.8% and 67.4%, respectively) (Table 10). Parmenter and colleagues (2000) have shown that nutrition knowledge increases with education level and is greater among those who are married or living common-law. One of the most common places Canadians report having seen CFGHE was when their child brought it home from school (Health Canada, 2003f). Thus, it is not surprising that those who had children living at home were also more likely to be aware of CFGHE as compared to those who did not have children living at home (90.1% versus 78.6%) (Table 10).

Awareness of CFGHE was also significantly associated with income (Table 11). As total household income level increased, awareness of CFGHE increased. In fact, 94.0% of NNL participants in the highest total household income category (>$60,000) were aware of CFGHE, compared to 59.4% in the lowest category (≤$10,000). Income adequacy

follows a similar trend with 92.7% of those in the high income adequacy group being aware of CFGHE, but only 74.3% of those in the low income adequacy group (Table 11).

Food sufficiency is a measure of how much food is available to eat in a household, and is related to the amount of money available to spend on food. NNL participants who always had enough food to eat (food sufficient) were more likely to be aware of CFGHE as compared to those who sometimes or always did not have enough food to eat (food insufficient) (84.5% versus 58.9%) (Table 11). Given that food insufficiency is strongly associated with income and that income and income adequacy were both positively associated with awareness of CFGHE, it is not surprising that awareness was higher among those who were food sufficient.

Even though each of the sociodemographic factors were examined separately, as alluded to in previous discussions, it is likely an interplay between various sociodemographic factors which influence awareness of CFGHE.

5.3.5 Factors Related to Use of *Canada's Food Guide to Healthy Eating*

Similar to awareness of CFGHE, analyses indicate that a number of factors were related to use of CFGHE.

5.3.5.1 Demographic and Socioeconomic Factors

Use of CFGHE was significantly related to all demographic and socioeconomic factors studied, with the exception of having children living at home and food sufficiency (Tables 12 to 14). Consistent with Health Canada's (2003c) review and the NBNS Balram et al., 2005), use of CFGHE appears to be highest among females (41.6% versus 22.6%) and those 35 years of age and older (Table 12). Given that the results of the present study indicate that the majority of NL residents use CFGHE for meal planning (Figures 14 and 15) and research has consistently shown that women play a much greater role in meal planning, shopping and preparation as compared to men, it is no surprise that women are more likely to use CFGHE as compared to men (Harnack et al., 1998; Wong et al., 2005). Beaudry and colleagues (1998) found that women in Quebec were more likely to have a 'health-conscious' dietary pattern.

Further, an epidemiological study examining the relationship between sociodemographic factors and dietary patterns found that age was positively associated with a healthier dietary pattern (Park et al., 2005). Research has also shown that age is positively related to increased fruit and vegetable consumption and decreased fat intake (Wardle et al., 2000; Billson et al., 1999).

People residing in urban communities were also more likely to use CFGHE as compared to those residing in rural communities (37.8% versus 28.7%) (Table 12). Research in Quebec showed living in a rural community was associated with poor diet quality (Huot

et al., 2004). This may be explained given that healthy foods may not be as readily available in rural areas as compared to urban areas. Remote and northern communities face challenges accessing nutritious foods, such as fruits and vegetables, given the increased cost, poor quality, lack of variety and lack of availability of perishable food items in rural communities (Willows, 2005). Also, previous analyses of NNL data suggests that NL residents residing in rural communities were more likely to have not completed high school education and more likely to have lower household incomes, although no statistical tests were performed on the data (Kettle, 2000). Given that education (Table 13) and income (Table 14) are positively associated with use of CFGHE, the lower education and income levels of rural NL residents may explain in part why they are less likely to use CFGHE.

Use of CFGHE also appeared to be positively associated with level of education (Table 13). Health Canada (2003c) also found that use was highest among those with at least a high school education, although as mentioned previously, comparisons between information pertaining to use of CFGHE in the present study and Health Canada's (2003c) review must be made cautiously, given the different meaning of the term 'use'. Education has previously been shown to positively influence dietary habits, nutrient intakes and food purchasing (Ghadirian, 1996; Ricciuto et al., 2006; Rogers et al., 1995; Roos et al., 1998; Turrell et al., 2003; Wardle et al., 2000). Wardle and colleagues (2000) have shown that nutrition knowledge was correlated with higher intakes of fruits and vegetables and lower intakes of fat.

Use was highest in those who were married as compared to those who were single or separated, divorced or widowed (37.7%, 21.6% and 29.9%, respectively) (Table 13). Research has previously shown that people who are married have healthier dietary patterns and increased consumption of fruits and vegetables (Billson et al., 1999; Roos et al., 1998). Although awareness of CFGHE was higher among NL residents who have children living at home, data from the present study does not suggest that those who have children at home are more likely to use CFGHE (Table 13).

Use of CFGHE was also significantly associated with income (Table 14). Use of CFGHE appeared to be higher among those with a total household income greater than $20,000 as compared to those with a total household income $20,000 or less (Table 14). Income adequacy follows a similar trend; 38.5% of those in the high income adequacy group used CFGHE, whereas only 25.7% of those in the low income adequacy group did (Table 14). Research has shown that those in higher socio-economic groups tend to have healthier diets than those in lower socio-economic groups (Power, 2005). Also, higher income has been shown to be associated with purchasing more healthy foods (Kirkpatrick & Tarasuk, 2003; Ricciuto et al., 2006; Turrell et al., 2003). Price is a major factor influencing food choice. A survey of grocery shoppers in London, Ontario found that the price/cost influenced food-buying practices for 84% of respondents (Piché & Garcia, 2001). Research in Canada has consistently shown that inadequate income is the most important barrier to healthy eating (Power, 2005). The discussion paper *The Cost of Eating in Newfoundland and Labrador-2003* concluded that "in light of the current data

on the cost of healthy eating in the province, it is clear that many Newfoundlanders and Labradorians with low income are unable to buy sufficient, nutritious food" (Dietitians of Newfoundland and Labrador, Newfoundland and Labrador Public Health Association & Newfoundland and Labrador Association of Social Workers, 2004). Despite the relationship between income and use of CFGHE, food sufficiency did not appear to be related to use of CFGHE (Table 14).

Similar to awareness of CFGHE, even though each of the sociodemographic factors were examined separately, it is likely that it is actually an interplay between these factors that influences use of CFGHE. For instance, people with higher levels of education are more likely to be employed, have higher incomes, have better access to healthy physical environments and thus have access to healthier foods (Public Health Agency of Canada, 2003).

5.3.5.2 Nutrient Intakes

Use of CFGHE appears to be significantly associated with energy and total fat intake (Table 15). Energy intakes of NL residents who use CFGHE are more likely to fall below the energy range suggested in Health Canada's (1992b) *Food Guide Facts: Background for Educators and Communicators*, whereas energy intakes of NL residents who do not use CFGHE are more likely to be above the suggested range. Similarly, NL residents who use CFGHE appear to have total fat intakes (as a proportion of kilocalories) within or less than the AMDR, whereas those who do not use CFGHE

appear to have total fat intakes (as a proportion of kilocalories) greater than the AMDR. Although it is optimal to fall within the nutrient range, given that people often underreport dietary intake, those who use CFGHE are probably not at increased risk of undernutrititon (Mertz et al., 1991; Howat et al., 1994; Trabulsi & Schoeller, 2001; Briefel et al., 1997). Health Canada's review (2003b) showed that 91% of diets that met the minimum number of servings from all four food groups and did not exceed the upper number of servings recommended by CFGHE fell within the range of 1650-3250 kilocalories. Despite the emphasis on whole grain choices in CFGHE, using CFGHE did not appear to influence dietary fibre intakes.

Of all the micronutrients considered, only vitamin C and potassium intakes appear to be related to use of CFGHE (Tables 16 and 17). Those who use CFGHE were more likely to have an intake of vitamin C at or above the recommended cut-point (59.8% versus 44.3%) (Table 16) and an intake of potassium below the recommended cut-point (3.9% versus 8.4%) (Table 17) as compared to those who did not use CFGHE. Findings for vitamin C are supported by Krebs-Smith and colleagues (1997) who found that food patterns that met recommendations for all four food groups in the US Food Guide Pyramid tended to have favourable micronutrient, fibre and fat intakes. Regarding potassium, although those who use CFGHE were more likely to have potassium intakes below the AI, only a small percentage of those who do not use CFGHE have potassium intakes above the AI (Table 16). Research has shown that dietary intake of potassium for all groups in Canada is below the AI (Institute of Medicine, 2004). It is surprising that

those who use CFGHE would be less likely to have intakes of potassium greater than the AI given that CFGHE recommends people consume five to ten servings of fruits and vegetables per day and fruits and vegetables tend to be significant sources of potassium.

5.3.5.3 Health Risk Associated with Body Size

Data from the present study suggest that health risk associated with body size is not related to use of CFGHE in NL residents. Unhealthy eating habits have been shown to be positively associated with both BMI and WC (Bhargava & Guthrie, 2002) and increase the risk of becoming overweight (Newby et al., 2003; Quatromoni et al., 2002). Although surprising, it is unlikely that these data are inaccurate given that only measured anthropometric data were used in the present study.

5.3.5.4 Health-Related Behaviours

Use of CFGHE was significantly associated with a number of health-related behaviours. Those who use CFGHE were more likely to be health conscious with respect to choice and/or avoidance of foods as compared to those who do not (Tables 19 to 21). Those who use the Food Guide were also more likely to choose whole wheat or multi-grain bread (27.4% versus 13.9%) and lower fat milk (42.5% versus 26.8%) as compared to those who do not use CFGHE (Table 22). This is not surprising as two of CFGHE's key directional statements are to 'choose whole grain and enriched products more often' and to 'choose lower-fat milk products more often' (Health Canada, 1992a). CFGHE users were also more likely to report using vitamin/mineral supplements (24.6% versus 18.2%)

as compared to those who do not use CFGHE (Table 22). Supplement use has been shown to be positively associated with dietary intake (Billson et al., 1999; Park et al., 2005). Park and colleagues (2005) found that people who have a healthy dietary pattern use dietary supplements more so than those who consume a diet high in fat and meat. The present study also found that those who use CFGHE were less likely to smoke daily (23.8% versus 38.8%) as compared to those who do not use CFGHE (Table 23). Previous research has shown that people who smoke tend to have unhealthy patterns of nutrient intake and fruit and vegetable consumption (Billson et al., 1999; Dallongeville et al., 1998). Physical activity did not appear to be related to use of CFGHE in the present study (Table 23).

5.4 Summary of Findings

From this research, a number of key themes emerged from the data.

5.4.1 Nutrition Promotion by Newfoundland and Labrador Family Physicians

One of the themes that emerged from the results of the physician survey was that family physicians recognize the importance of promoting nutrition to patients. The respondents recognized the importance of nutrition to health, felt they played an important role in promoting nutritional health to the residents of this province and do provide their patients with nutrition information.

Results from the present study suggest that although family physicians appreciate the importance of providing nutrition information to patients, they face a number of challenges including limited time during consultation visits and difficulty motivating patients to make positive dietary changes. Lack of training in nutrition and diet counselling was also cited by many as a barrier to the provision of nutrition information to patients, which is supported by the lack of nutrition education they receive during medical school. CME is an avenue for professional development, though very few of the respondents had participated in nutrition-focused CME. From the present study, it cannot be determined if physicians are not interested in participating in nutrition-focused CME or if it is not readily available.

Findings from the present study also suggest that NL family physicians recognize the importance of collaborating with other health care providers to meet the needs of their patients. Respondents appreciated the knowledge and expertise of the Registered Dietitian. In fact, the results of the present study suggest that family physicians would like to see a greater number of Registered Dietitians accessible by them for patient consults.

The final theme that emerged from the family physician survey was that NL family physicians feel that CFGHE is useful to discuss nutrition with patients though many are not using it. The majority of respondents were aware of CFGHE and many respondents had a positive attitude regarding the usefulness of CFGHE when discussing nutrition with

patients, but only a little more than half of the respondents had CFGHE available in their office/clinic and less than half had it posted.

5.4.2 Awareness and Use of *Canada's Food Guide to Healthy Eating*

One of the major themes that emerged from the secondary analysis of NNL was that overall awareness of CFGHE was high among NL residents but awareness varies greatly among different subgroups of the population. Data suggest that awareness of CFGHE tends to be lower among socioeconomically disadvantaged residents of NL.

These data also suggest that in general, use of CFGHE was low in the NL population. Further, use of CFGHE varies greatly among different subgroups of the population. As with awareness of CFGHE, use of CFGHE tends to be lower among socioeconomically disadvantaged residents of this province. Data from the present study indicate that CFGHE is widely recognized by NL residents.

In addition, use of CFGHE also appears to be favourably associated with dietary intake of some nutrients. The results of this analysis indicate that those who use CFGHE tend to have lower energy and fat intakes and higher vitamin C intakes.

The final theme that emerged from the secondary analysis of NNL was that NL residents who reported using CFGHE also report participating in other health-promoting behaviours. They are more likely to choose/avoid foods to maintain health/prevent

illness and because of the nutrients they contain. They are more likely to consume whole wheat or multi-grain bread and lower-fat milk, use supplements and refrain from smoking cigarettes.

5.5 Limitations of the Study

There are limitations to all studies, some of which are inevitable and some which are unforeseen. It is important to consider these limitations as they could potentially influence the results.

Though a number of measures were taken to improve the response rate for the physician survey, a major limitation of this portion of the study was that more than half of the potential participants did not respond. There are always issues with response rates of mail surveys.

Though the response rate was acceptable, the results are likely not representative of all family physicians practicing in NL. People tend to respond to questionnaires when they consider them relevant (Cui, 2003). It may be that family physicians who responded to the survey were more interested in nutrition or felt that nutrition was an integral part of health.

Given that the results are based on self-reported data, the data may not accurately capture practices of physician in NL. For instance, a study that compared patient and physician

reports of nutrition counselling found a low level of agreement between patient and physician reports, with the majority of nonagreeing cases involving a physician reporting they advised and the patient reporting that they were not advised (Krueter et al., 1997).

Finally, there were problems with the design, wording and interpretation of the some questions included on the survey instrument by respondents. These issues have been described in detail in Section 3.2.5. Also, it would have been helpful to collect data on non-responders. It would have also been useful to include a question or two to assess the age of the physician or the years in practice.

The major limitation to the results pertaining to the secondary analysis of NNL was that analyses did not take into account survey design. Though there are statistical packages available that can take into account complex survey designs, these programs were not accessible for the present study. NNL was a cross-sectional study, and thus there is no way of determining cause and effect. It is likely that demographic and socio-economic factors determine awareness and use of CFGHE, whereas awareness and use of CFGHE influence dietary intake and anthropometric measures, but the data for this study does not allow one to deduce this. With the exception of anthropometric variables, all data are based on self-report, and were collected for a different purpose. Participants may have also been more health-conscious as compared to those who decided not to participate. Given that the NL, NNL and study population did differ on some variables, these factors could have potentially influenced the findings as well. Finally, NNL was conducted in

1996 and findings for the present study are based on awareness and use of CFGHE at that time. It is possible that awareness and use of CFGHE have changed since 1996.

5.6 Future Research

Although the findings of the present study provide great insight into nutrition promotion in NL, there is much more work that needs to be done. The physician survey was a first-step to determine where NL family physicians are in terms of promoting nutrition to their patients. One major focus for future research would be to determine if family physicians would like to play a bigger role in the delivery of nutrition information to patients, or would they prefer that this be left to dietitians. Also, given that the results demonstrate that many family physicians discuss nutrition with patients, it would be beneficial to determine what family physicians find useful when giving nutrition advice to patients. Since the findings showed that although physicians find CFGHE useful when discussing nutrition with patients, many do not have copies on hand or posted in their practice setting. It would be useful to determine if family physicians know how to access copies of CFGHE for distribution. Future research should also include focus groups and/or one-on-one interviews with family physicians to learn more about the results of the present study. Similarly, it would be useful to conduct focus groups and/or one-on-one interviews with those subgroups of the population who were less likely to use CFGHE to learn more about why they are not using it. Also, since these data were collected ten years ago, more recent data focusing on awareness and use of CFGHE in NL would be useful.

CHAPTER 6

CONCLUSION AND RECOMMENDATIONS

6.1 Conclusion

Given that nutrition plays such an integral role in health promotion and disease prevention, the present study examined nutrition promotion in NL. It has been suggested that family physicians can play a pivotal role in the promotion of nutritional health. Results of the present study indicate that NL family physicians have positive attitudes regarding the importance of nutrition to health, as well as their role in the promotion of nutrition. However, family physicians face many challenges to the delivery of nutrition information to patients and identify the dietitian as the most appropriate and effective health professional to provide nutrition education. Despite the barriers identified by respondents, the majority report that they discuss nutrition with patients, although this is typically in the context of treatment, and not general health promotion. NL family physicians are aware of CFGHE and feel that it is a useful nutrition education tool. Despite this, many do not have copies on hand or posted in their practice setting.

Nutrition education tools such as CFGHE, if used correctly, can provide people with a pattern of eating that is conducive to health. Results from the present study illustrate that most NL residents use CFGHE for meal planning. It is important that people be aware of CFGHE, however it is apparent that awareness does not necessarily translate into use. The findings from the present study provide valuable information regarding the

population subgroups most likely to be aware of and use CFGHE. In light of Health Canada's decision to revise CFGHE, this information could not come at a better time.

6.2. Recommendations

Based on the results of the present study, the following recommendations are made:

- Given the important role nutrition plays in the promotion of health and prevention of disease, nutrition services should be readily accessible to all residents of NL in a timely manner. To ensure that the people of this province can access credible nutrition information, there should be an increase in the number of dietitians working in the acute care setting, but more importantly, an increased number working at the community level. Also, as suggested by the Newfoundland and Labrador Health Boards Association (2003), emphasis needs to be placed on recruitment and retention of dietetics professionals in rural communities to ensure the needs of the rural communities are being met. Furthermore, the structure of the proposed primary health care team should be revisited to include the Registered Dietitian. This would allow family physicians and patients more access to the expertise of these professionals. Since NL family physicians recognize the importance of dietitians, they should advocate to government for more dietitians.

- There should be a greater promotion of CFGHE to family physicians. Family physicians have access to almost all residents of NL. CFGHE promotes a pattern of healthy eating for the general population. If CFGHE was promoted

more to these professionals, they could potentially foster better nutrition habits among the residents of this province. Given that research has demonstrated that when physicians are involved in the development of educational materials they are more likely to use them, it may be beneficial to include family physicians in the revision of CFGHE, if they are not currently involved. Future research should determine the accessibility and usefulness of CFGHE for family physicians. The doctor's office is an ideal place to have CFGHE posted. Providing family physicians with ordering information for the large CFGHE poster may improve awareness that such a tool exists.

- To ensure that physicians are providing reliable nutrition information to patients, there should be increased emphasis on nutrition in the medical school curriculum. At present, medical students receive very little nutrition education during their medical school program. Interdisciplinary health training as part of medical school would allow physicians and dietitians both to learn how to best support one another. Further, nutrition-focused CME should be regularly available to family physicians.

- There should be more collaboration between family physicians and dietitians in the provision of nutrition advice to patients. Family physicians are perceived by patients as a credible source of health information and as a profession, family physicians have contact with the vast majority of NL residents. To ensure NL residents are receiving the most reliable nutrition information available, family

physicians could make patients aware of the importance of nutrition to health and to motivate them to make positive dietary changes. To provide patients with more detailed and practical nutrition counselling, family physicians could refer patients to dietitians (Verheijden et al., 2005).

- Given that CFGHE is a simple and reliable source of nutrition information, a greater promotion of CFGHE should be encouraged to increase awareness and use. Since there are differences in awareness and use of CFGHE among different subgroups of the population, there needs to be a special focus on the subgroups of the population that are not currently being reached. These subgroups would include men, those living in rural communities, and those who have a lower socioeconomic status. To effectively promote use of CFGHE, the barriers to use need to be addressed. To achieve this, education, income and food security issues in vulnerable populations need to be dealt with.

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APPENDIX A:
CANADA'S FOOD GUIDE TO HEALTHY EATING

(Health Canada, 1992a)

Health Canada Santé Canada

CANADA'S Food Guide

TO HEALTHY EATING

FOR PEOPLE FOUR YEARS AND OVER

Enjoy a variety of foods from each group every day.

Choose lower-fat foods more often.

Grain Products
Choose whole grain and enriched products more often.

Vegetables and Fruit
Choose dark green and orange vegetables and orange fruit more often.

Milk Products
Choose lower-fat milk products more often.

Meat and Alternatives
Choose leaner meats, poultry and fish, as well as dried peas, beans and lentils more often.

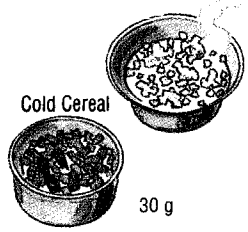
Canada

Grain Products

5–12
SERVINGS PER DAY

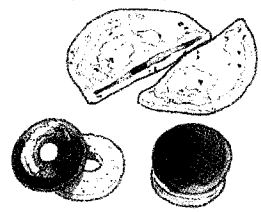
1 Serving

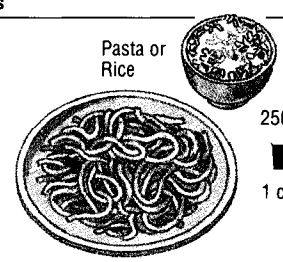

1 Slice


Cold Cereal
30 g

Hot Cereal
175 mL
3/4 cup

2 Servings

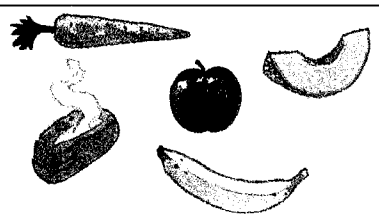

1 Bagel, Pita or Bun


Pasta or Rice
250 mL
1 cup

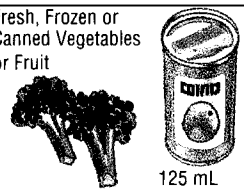
Vegetables and Fruit

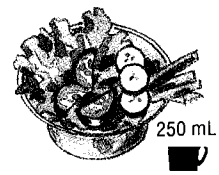
5–10
SERVINGS PER DAY

1 Serving


1 Medium Size Vegetable or Fruit

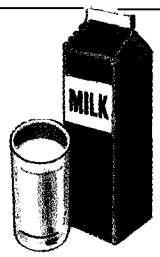
Fresh, Frozen or Canned Vegetables or Fruit


125 mL
1/2 cup


Salad
250 mL
1 cup


Juice
125 mL
1/2 cup

1 Servings


250 mL
1 cup


3"x1"x1"
50 g

Cheese


2 Slices
50 g


175 g
3/4 cup

Meat and Alternatives

2–3
SERVINGS PER DAY

1 Serving


Meat, Poultry or Fish
50-100 g


Fish
1/3–2/3 Can
50–100 g


1-2 Eggs


Beans
125-250 mL


100 g
1/3 cup

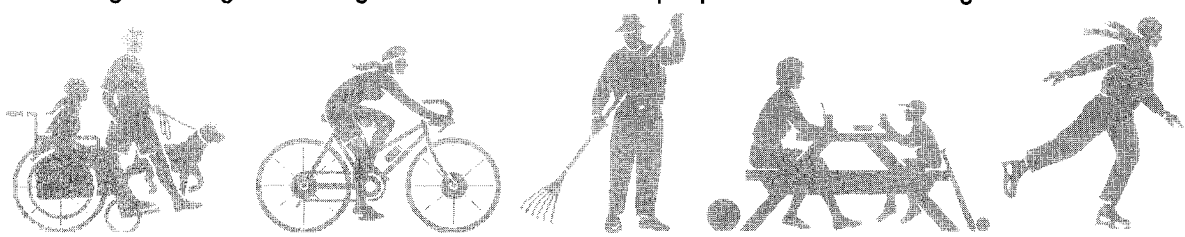

Peanut Butter
30 mL 2 tbsp

Other Foods

Taste and enjoyment can also come from other foods and beverages that are not part of the 4 food groups. Some of these foods are higher in fat or Calories, so use these foods in moderation.

Different People Need Different Amounts of Food

The amount of food you need every day from the 4 food groups and other foods depends on your age, body size, activity level, whether you are male or female and if you are pregnant or breast-feeding. That's why the Food Guide gives a lower and higher number of servings for each food group. For example, young children can choose the lower number of servings, while male teenagers can go to the higher number. Most other people can choose servings somewhere in between.



Consult *Canada's Physical Activity Guide to Healthy Active Living* to help you build physical activity into your daily life.

Enjoy eating well, being active and feeling good about yourself. That's VITALITÉ

Cat. No. H39-252/1992E ISBN 0-662-19648-1

APPENDIX B:

NUTRITION NEWFOUNDLAND AND LABRADOR QUESTIONNAIRES

(Roebothan, 2003)

FORM A-2

NON-RESPONSE QUESTIONS

Identifier #☐☐☐☐☐

Non-response questions completed ☐ Yes ☐ No

If you face a refusal: At the first phone contact, if an eligible person refuses to participate, tell the person that you have a few short questions to ask. Remind them that these questions refer to them personally, not the household. Ask all four questions below.

If the person accepts: Ask questions 1 and 2 only after completing the Demographic Profile (Form E) but before doing the height and weight measurements.

1. During the past month, did you eat bread?

   ☐ Yes ☐ No

   If yes, what type of bread did you usually eat? (Check only one) **DO NOT READ**

   ☐ Whole wheat (100%, 75%, 60%)
   ☐ Multigrain/Cracked Wheat
   ☐ Do Not Know
   ☐ White Bread
   ☐ Molasses Raisin Bread
   ☐ Other _____

2. During the past month, did you use milk?

   ☐ Yes ☐ No

   If yes, what type of milk did you usually use? (Check only one) **DO NOT READ**

   ☐ Whole milk
   ☐ 2% milk
   ☐ 1% milk
   ☐ Skim milk
   ☐ Powdered Skim milk
   ☐ Powdered whole milk
   ☐ Evaporated milk
   ☐ Other _____
   ☐ Do not know

---

3. During the past month, did you use any vitamin-mineral supplement?

   ☐ Yes ☐ No

4. Have you ever smoked cigarettes?

☐ Yes ☐ No → END ☐ Refused to answer → END.

↓

At the present time do you smoke cigarettes?

☐ Yes ☐ No → END ☐ Refused to answer → END.

↓

Do you usually smoke cigarettes every day?

☐ Yes ☐ No → END ☐ Refused to answer → END.

↓

How many cigarettes do you smoke a day?

☐☐☐ Number ☐ Refused to answer

FORM B

NEWFOUNDLAND AND LABRADOR NUTRITION SURVEY

FACILITATOR # ☐☐ **24 HOUR RECALL FORM** **Identifier Number ☐☐☐☐☐☐**

Time 00:01 23:59	Rest/ Cafe. *	Meal/ Snack **	Home Prep. ***	Food Description	Salt	# of Portions	Model	Thick-ness

* Restaurant/Cafeteria
C = cafeteria
F = fast food
R = restaurant (table service)
T = take-out outlet, deli
V = vending machine, snack bar

** Meal/Snack
BK = breakfast
L = lunch
D = dinner (supper)
BC = brunch
S = snack, in-between meals

*** Homemade
H = home made baked products made from scratch or a mix in your own home.
E = home made baked products made from scratch or a mix elsewhere than in your own home.

Did you prepare most of the foods you ate yesterday? Yes __ No __ (1)

FOR INTERVIEWER ONLY:

In the interview, was the respondent assisted by the person who prepared the meals? Yes__ No __ N/A __ (2)

Did the respondent have prior knowledge that a 24 hour recall would be taken? Yes __ No __ (3)

RECIPE FORM #1

Blank sheet provided for hand written recipe

RECIPE FORM #2

Name of the Recipe:_____

Cooking Time: _____

Temperature: _____

DESCRIPTION OF THE RECIPE AND COOKING PROCEDURES	QUANTITY

(For Health Canada to complete) TOTAL YIELD: _____

Name of Recipe:_____

Cooking Time: _____

Temperature: _____

DESCRIPTION OF THE RECIPE AND COOKING PROCEDURES	QUANTITY

(For Health Canada to complete) TOTAL YIELD:_____

NUTRIENT SUPPLEMENT FORM

1. Did you take any vitamin or mineral supplements in the last month? ☐ Yes ☐ No
2. Please tell me all vitamin or mineral supplements with their DIN (when available) that you took during the last month.
3. How often was **each** of these supplements taken during the last month? [Number of times per day, per week or per month]
4. How many pills (capsules, etc.) were usually taken on each occasion?
5. Yesterday, how many pills were taken?

SUPPLEMENT NAME	DIN	DURING THE LAST MONTH				YESTERDAY	COMMENTS
		HOW OFTEN			HOW MUCH	HOW MUCH	
		DAY	WEEK	MONTH	# PILLS/TAB/ CAP/TSP, etc.	# PILLS/TAB/ CAP/TSP, etc.	

FORM C

Identifier #: □□□□□□

NEWFOUNDLAND & LABRADOR NUTRITION SURVEY
FOOD FREQUENCY QUESTIONNAIRE

PART I. This section deals with the frequency of consumption of specific foods during the **past month.**

FOOD	FREQUENCY			PORTION SIZE		COMMENTS
	FURTHER FOOD DESCRIPTION (S)	#	DAY/D WEEK/W MONTH/M	REFERENCE PORTION SIZE OR MODEL	HOW MUCH/ HOW MANY?	
HOW OFTEN DID YOU CONSUME: 01 Broccoli				MO-M		
02 Carrots or mixed vegetables & carrots				MO-M		
03 Cabbage, coleslaw, and sauerkraut				MO-M		
04 Cauliflower				MO-M		
05 Spinach - cooked				MO-M		
06 Spinach - raw				MO-M		
07 Squash (dark yellow)				MO-M		
08 Turnip				MO-M or 2 CR-L, T-4		
09 Green peas				MO-S		
10 Greens				MO-M		
11 Fish (excluding shellfish) - fried				PC-S		
12 - cooked other ways				PC-S		
13 All shellfish -dipped in butter/ margarine/ mayonnaise -fried				10 units or 1/2 cup (w/o shell)		

FOOD	FREQUENCY			PORTION SIZE		COMMENTS
	FURTHER FOOD DESCRIPTION (S)	#	DAY/D WEEK/W MONTH/M	REFERENCE PORTION SIZE OR MODEL	HOW MUCH/ HOW MANY?	
14 - cooked other ways				10 units or MO-M (w/o shell)		
15 Poultry - fried				PC-S		
16 - cooked other ways				PC-S		
17 Beef and Veal - steaks, roasts, stews and other cuts				PC-S		
18 - hamburgers				PC-S		
19 - other ground beef				PC-S		
20 Liver (all types)				PC-S		
21 Lamb and Mutton - roasts, chops and other cuts				PC-S		
22 Pork and Ham - roasts, chops and other cuts				PC-S		
23 - bacon				1 STRIP		
24 Wild game - large animals				PC-S		
25 - small animals				PC-S		
26 - wild birds				PC-S		
27 Seal or whale				PC-S		
28 Beans - boiled or baked				MO-M		
29 Weiners (includes hot dogs) or Sausages				1 UNIT		
30 Bologna				1 CR-L, T-1		
31 Luncheon meats				1 SLICE		
32 Salt meat, riblets				PC-S		
33 Pizza				1 SLICE		
34 Cheese (more than 24% b.f.)				1 SLICE or 1/3 PC-S		

FOOD	FREQUENCY			PORTION SIZE		COMMENTS
	FURTHER FOOD DESCRIPTION (S)	#	DAY/D WEEK/W MONTH/M	REFERENCE PORTION SIZE OR MODEL	HOW MUCH/ HOW MANY?	
35 Light Cheese (10-24% b.f.)				1 SLICE or 2 TBL		
36 Cottage cheese or any cheese (less than 10% b.f.)				MO-S		
37 Eggs or egg dishes				1 EGG		
38 Potatoes - french fries or pan fried				MO-L		
39 - baked or boiled				BA-L 1 medium		
40 - scalloped, mashed, potato salad, or potatoes in stews and casseroles				MO-L		
41 Potato chips or tortilla chips				1 BO-L		
42 Rich gravy or pan drippings				1/4 CUP		
43 Scrunchions				2 TBL		
44 Cream or cheese sauce				1/4 CUP		
45 Yogourt (more than 1% b.f.)				1/2 CUP 175 G		
46 Light Yogourt (1% or less b.f.)				1/2 CUP 175 G		
47 Ice cream, regular or rich				1/2 CUP		
48 Low fat ice cream, frozen yogourt, ice milk or sherbet				1/2 CUP		
49 Bread, white				1 SLICE		
50 Bread, whole wheat				1 SLICE		
51 Crackers				1 CRACKER		
52 Cookies				1 COOKIE		
53 Donuts, cakes, pies, muffins or croissants				1 UNIT		
54 Beer				1 BOTTLE		
55 Wine				4 FOZ		
56 Sprits				1 FOZ		

FOOD	FREQUENCY			PORTION SIZE		COMMENTS
	FURTHER FOOD DESCRIPTION (S)	#	DAY/D WEEK/W MONTH/ M	REFERENCE PORTION SIZE OR MODEL	HOW MUCH/ HOW MANY?	
IN TEA AND COFFEE, WHAT KIND OF MILK DID YOU USE? [DO NOT READ LIST]						
57 whole milk				1 TBL		
58 2% milk				1 TBL		
59 1% milk				1 TBL		
60 skim milk				1 TBL		
61 dry skim milk powder				1 TSP		
62 whole milk powder				1 TSP		
63 cream or creamers				1 TBL		
64 evaporated milk, regular (whole) - undiluted				1 TBL		
65 evaporated milk,light - undiluted				1 TBL		
66 evaporated milk, 2% - undiluted				1 TBL		
67 evaporated milk, skim - undiluted				1 TBL		
68 evaporated milk, regular (whole) - diluted				1 TBL		
69 evaporated milk, light - diluted				1 TBL		
70 evaporated milk, 2% - diluted				1 TBL		
71 other types of milk (please specify) _____						
72 did not use milk or cream (please check) _____						
73 used coffee whitener (please check) _____						
74 did not drink tea or coffee (please check) _____						

FOOD	FREQUENCY			PORTION SIZE		COMMENTS
	FURTHER FOOD DESCRIPTION (S)	#	DAY/D WEEK/W MONTH/M	REFERENCE PORTION SIZE OR MODEL	HOW MUCH/ HOW MANY?	
ON CEREALS WHAT KIND OF MILK DID YOU USE? [DO NOT READ LIST] 75 whole milk				1/2 CUP		
76 2% milk				1/2 CUP		
77 1% milk				1/2 CUP		
78 skim milk				1/2 CUP		
79 cream				1/2 CUP		
80 evaporated milk, regular (whole) - undiluted				1/2 CUP		
81 evaporated milk, light - undiluted				1/2 CUP		
82 evaporated milk, 2% - undiluted				1/2 CUP		
83 evaporated milk, skim - undiluted				1/2 CUP		
84 evaporated milk, regular (whole) - diluted				1/2 CUP		
85 evaporated milk, light - diluted				1/2 CUP		
86 evaporated milk, 2% - diluted				1/2 CUP		
87 other types of milk (please specify) _____						
88 ate cereals dry (please check) _____						
89 did not eat cereals (please check) _____						

FOOD	FREQUENCY			PORTION SIZE		COMMENTS
	FURTHER FOOD DESCRIPTION (S)	#	DAY/D WEEK/W MONTH/M	REFERENCE PORTION SIZE OR MODEL	HOW MUCH/ HOW MANY?	
AS A BEVERAGE, WHAT KIND OF MILK DID YOU DRINK? [DO NOT READ LIST] 90 whole milk				1 CUP		
91 2% milk (white or chocolate)				1 CUP		
92 1% milk				1 CUP		
93 buttermilk				1 CUP		
94 skim milk				1 CUP		
95 evaporated milk*, regular (whole) - undiluted				1 CUP		
96 evaporated milk*, light - undiluted				1 CUP		
97 evaporated milk*, 2% - undiluted				1 CUP		
98 evaporated milk*, skim - undiluted				1 CUP		
* If the evaporated milk was diluted, please print "DILUTED" in the appropriate "COMMENTS" column						
99 other types of milk (please specify) _____						
100 did not drink milk (please check) _____						

HOW FREQUENTLY IN THE LAST MONTH DID YOU HAVE MEALS FROM?

	FURTHER DESCRIPTION(S)	#	DAY/D WEEK/W MONTH/M	COMMENTS		FURTHER DESCRIPTION (S)
101 restaurants (table service)						
102 take out, fast food restaurants or delis						
103 cafeterias (tray service)						

PART II. This section deals only with **homemade foods** and **uses of fat** over the past month. *Please check (√) the main source(s) of fat used. (If more than one source is checked, then all checks will be calculated as equal proportions).*

	MAIN SOURCE	
		IF YOU ATE HOME DEEP-FAT FRIED FOODS AT LEAST TWICE THIS PAST MONTH, WHAT WAS THE MAIN KIND OF FAT OR OIL USED? [DO NOT READ LIST]
104		a) Vegetable oil
105		b) Lard, bacon, or animal fat
106		c) Shortening
107		d) Do not know
108		e) Did not eat home deep-fried foods this past month
		IF YOU ATE HOME PAN-FRIED FOODS AT LEAST TWICE THIS PAST MONTH, WHAT WAS THE MAIN KIND OF FAT OR OIL USED? [DO NOT READ LIST]
109		a) Butter
110		d) Soft margarine
111		e) Hard margarine
112		f) Lard, bacon, animal fat, or scrunchions
113		g) Shortening
114		h) Oil
115		i) Pam or no oil
116		j) Do not know
117		k) Did not eat home pan-fried foods this past month

	MAIN SOURCE	
		IF YOU ATE HOME-BAKED FOODS AT LEAST TWICE THIS PAST MONTH, WHAT WAS THE MAIN KIND OF FAT OR OIL USED? [DO NOT READ LIST]
118		a) Butter
119		d) Soft margarine
120		e) Hard margarine
121		f) Shortening
122		g) Oil
123		h) Lard, bacon, or animal fat
124		i) Do not know
125		j) Did not eat home-made baked goods that contained fat this past month
		WHAT WAS THE MAIN KIND OF "FAT SPREAD" YOU USED ON BREAD, BUNS, MUFFINS, ETC. THIS PAST MONTH? [DO NOT READ LIST]
126		a) Butter
127		d) Soft margarine
128		e) Hard margarine
129		f) Low calorie margarine
130		g) Lard, bacon or pork fat
131		h) None or none of these
132		i) Did not eat bread, buns, muffins, etc. this past month
		WHAT WAS THE MAIN KIND OF "FAT SPREAD" YOU PUT ON POTATOES OR VEGETABLES THIS PAST MONTH? [DO NOT READ LIST]
133		a) Butter
134		d) Soft margarine
135		e) Hard margarine
136		f) Low calorie margarine
137		g) Sour cream
138		h) Lard, bacon fat, or animal fat
139		i) None or none of these
140		j) Did not eat potatoes and vegetables this past month

PART III. This section deals with your food habits during the past month. Please check (√) one or more when relevant.

	MOST OFTEN	[If the person did not eat meat or poultry or fish in Part I, then check (√) "Did not eat meat/poultry/fish cooked by these methods this past month" below where appropriate (instead of asking questions #139 to 183)].
		OF THE MEAT YOU ATE LAST MONTH, WHAT WAS THE MOST COMMON METHOD OF COOKING IT? [DO NOT READ LIST]
141		a) Broiled
142		b) Pan-fried with fat
143		c) Pan-fried without fat or with pan spray
144		d) Deep-fat fried
145		e) Oven-roasted (Baked)
146		f) Boiled/stewed/pot-roasted
147		g) Microwaved
148		h) Barbecued
149		i) Steamed/Poached
150		j) Did not eat meat cooked by these methods this past month
		OF THE POULTRY YOU ATE LAST MONTH, WHAT WAS THE MOST COMMON METHOD OF COOKING IT? [DO NOT READ LIST]
151		a) Broiled
152		b) Pan-fried with fat
153		c) Pan-fried without fat or with pan spray
154		d) Deep-fat fried
155		e) Oven-roasted (Baked)
156		f) Boiled/stewed
157		g) Microwaved
158		h) Barbecued
159		i) Steamed/Poached
160		j) Did not eat poultry cooked by these methods this past month

	MOST OFTEN	[If the person did not eat meat or poultry or fish in Part I, then check (√) "Did not eat meat/poultry/fish cooked by these methods this past month" below where appropriate (instead of asking questions #139 to 183)].
		OF THE FISH YOU ATE LAST MONTH, WHAT WAS THE MOST COMMON METHOD OF COOKING IT? THIS DOES NOT INCLUDE CANNED FISH. [DO NOT READ LIST]
161		a) Broiled
162		b) Pan-fried with fat
163		c) Pan-fried without fat or with pan spray
164		d) Deep-fat fried
165		e) Oven-roasted (Baked)
166		f) Boiled/stewed
167		g) Microwaved
168		h) Barbecued
169		i) Steamed/Poached
170		j) Did not eat fish cooked by these methods this past month
		[If the person did not eat meat or poultry in part I, then check (√) "Did not eat meat/poultry this past month" below where appropriate.
		OF THE MEAT YOU ATE LAST MONTH, DID YOU EAT THE VISIBLE FAT OF THE MEAT?
171		a) Always
172		b) Sometimes
173		c) Never
174		d) Did not eat meat this past month
		OF THE POULTRY YOU ATE LAST MONTH, DID YOU EAT THE SKIN ON THE POULTRY?
175		a) Always
176		b) Sometimes
177		c) Never
178		d) Did not eat poultry this past month

	MOST OFTEN	[If the person did not eat meat or poultry or fish in Part I, then check (√) "Did not eat meat/poultry/fish cooked by these methods this past month" below where appropriate (instead of asking questions #139 to 183)].
		OF THE MEAT OR POULTRY YOU ATE LAST MONTH, DID YOU EAT GRAVY WITH YOUR MEAT OR POULTRY?
179		a) Always
180		b) Sometimes
181		c) Never
182		d) Did not eat meat or poultry this past month
		OF THE FISH YOU ATE LAST MONTH, DID YOU EAT GRAVY WITH YOUR FISH?
183		a) Always
184		b) Sometimes
185		c) Never
186		d) Did not eat fish this past month
		IN THE PAST MONTH, WHAT WAS THE MAIN KIND OF DRESSING YOU ADDED TO YOUR SALADS? [DO NOT READ LIST]
187		a) mayonnaise
188		b) mayonnaise-type and regular salad dressing
189		c) low calorie and calorie reduced salad dressing
190		d) other (i.e. yogourt, vinegar only, tomato juice, etc.)
191		e) Did not add dressing
192		f) Did not eat salad this past month

PART IV. This section deals with WHY you choose the foods that you eat. *(Briefly probe to confirm some action is being taken). Please check (√) one or more when relevant.*

ARE YOU CHOOSING OR AVOIDING FOODS OR TYPES OF FOODS BECAUSE YOU ARE CONCERNED ABOUT:		
193		Maintaining or improving your health?
194		Heart disease?
195		Cancer?
196		Osteoporosis (brittle bones)?
197		High Blood Pressure?
198		Weight gain?
ARE YOU CHOOSING TO EAT FOODS OR TYPES OF FOODS BECAUSE OF:		
199		the nutrients they contain?
200		the unsaturated fat content?
201		the fibre content?
ARE YOU AVOIDING FOODS OR TYPES OR FOODS BECAUSE OF:		
202		the fat content?
203		the salt content?
204		the cholesterol content?
205		the sugar content?
206		the saturated fat content?
ASK ONLY IF SUBJECT HAS NOT MENTIONED MEAT:		
207		Are you a vegetarian?

ARE YOU FOLLOWING ANY SPECIAL DIET?	
208	☐ Yes (Specify)_____ ☐ No (Go to Question # 210)
WAS THIS SPECIAL DIET PRESCRIBED BY A DOCTOR, DIETITIAN OR OTHER HEALTH PROFESSIONALS?	
209	Doctor: ☐ Yes ☐ No ☐ Refused
210	Dietitian: ☐ Yes ☐ No ☐ Refused
211	Other health professionals: ☐ Yes (Specify)_____ ☐ No ☐ Refused
[IF THE PERSON HAS A SECOND INTERVIEW ASSIGNED, THEN GO TO FORM D, QUESTION #1]	
212	HAVE YOU EVER SEEN OR HEARD ABOUT THE "CANADA'S FOOD GUIDE TO HEALTHY EATING"? (Show Food Guide) ☐ Yes ☐ No (Go to Form D, Question #1)
213	Do you use it? ☐ Yes ☐ No (Go to Form D, Question #1)
214	How do you use it? (Check one or more when relevant) ☐ for shopping e.g. to help prepare my shopping list ☐ for planning/choosing meals (at home) ☐ for choosing foods in restaurants ☐ other (specify) _____

FORM D

Identifier #: □□□□□□

NEWFOUNDLAND AND LABRADOR NUTRITION SURVEY

NUTRITION AND HEALTH QUESTIONNAIRE

I would like to ask you some questions about your health.

PART I

I am going to read you a list of actions people might take to prevent heart disease or heart attacks. For each one, please tell me if you think it would have little or no effect, a moderate effect, or a large effect? **(READ LIST)**

		Little or No Effect	Moderate Effect	Large Effect	Not Sure
1	First, losing weight. If one is overweight, would weight reduction have little or no effect, a moderate effect, or a large effect in preventing heart disease?	1	2	3	9
2	How about reducing cigarette smoking? Would that have little or no effect, a moderate effect, or a large effect in preventing heart disease?	1	2	3	9
3	Lowering high blood pressure?	1	2	3	9
4	Lowering high blood cholesterol?	1	2	3	9
5	Eating fewer high-fat foods?	1	2	3	9

6	Eating fewer high cholesterol foods?	1	2	3	9
7	Eating fewer high-salt foods?	1	2	3	9
8	Eating more high-fibre foods?	1	2	3	9

PART II

The next few questions are about physical exercise.

9 How do you describe your work? By work I mean paid and non-paid work. Which of the following best describes how you spend most of your work time. **(Check one only).**

- ☐ My work is mainly sitting. I do not walk much during work, e.g. telephone operator, secretary.
- ☐ In my work I walk or move quite a lot, but I do not have to lift or carry heavy things, e.g. shop assistant, light housework.
- ☐ In my work I have to walk and carry a lot, climb staircases often or go uphill, e.g. carpentry, farm work, heavy housework.
- ☐ My work is heavy physical labour where I usually have to carry, lift heavy things, dig or shovel, e.g. forestry work, heavy farm work, warehouse work.

10 In your spare time, do you do any sport, physical activity, or work in which you are moving a lot, but your heart does not beat rapidly such as walking, house cleaning, or gardening?

Y☐ N☐
(go to 13)

11 How many times during the average week do you do such activities?

DO NOT READ
☐ < 3 x per week
☐ 3 x per week
☐ >3 x per week

12 For each time that you do these activities on average how many minutes do you spend at it (or them)?

DO NOT READ

☐ < 20 minutes

☐ between 20 & 29 minutes

☐ 30 minutes or more

13 In your spare time, do you do any sport, physical activity, or hard work that would make your heart beat rapidly such as hockey, soccer, swimming, jogging or aerobics?

Y☐ N☐
(go to 16)

14 How many times during the average week do you do such activities?

DO NOT READ

☐ < 3 x per week

☐ 3 x per week

☐ >3 x per week

15 For each time that you do these activities, on average how many minutes do you spend at it (or them)?

DO NOT READ

☐ < 20 minutes

☐ between 20 & 29 minutes

☐ 30 minutes or more

The next few questions are about smoking.

16 Have you ever smoked cigarettes? Y☐ N☐
(go to 20)

17 At the present time do you smoke cigarettes? Y☐ N☐
(go to 20)

18 Do you usually smoke cigarettes every day? Y☐ N☐
(go to 20)

19 How many cigarettes do you smoke a day? ☐☐cigarettes

20 Were you ever told by a doctor or other health care worker that your blood cholesterol was high?

Y☐ N☐
(go to 23)

21 Are you now doing anything to lower your blood cholesterol?

Y☐ N☐
(go to 23)

22 What are you doing to lower your blood cholesterol? **(DO <u>NOT</u> READ LIST. Check all that apply)**

☐diet

☐medications

☐exercise program

☐other (describe) _____

23 Were you ever told by your doctor or other health care worker that you had high blood pressure (except during pregnancy)?

Y☐ N☐
(go to 26)

24 Are you now doing anything for your blood pressure?

Y☐ N☐
(go to 26)

25 What are you doing for your high blood pressure? **(DO NOT READ LIST. Check all that apply).**

☐diet

☐medications

☐exercise program

☐other (describe) _____

26 Have you ever been told by your doctor or other health care worker that you have diabetes, or high blood sugar (except during pregnancy)?

Y☐ N☐
(go to 29)

27 Are you now doing anything for your diabetes, or high blood sugar?

Y☐ N☐
(go to 29)

28 What are you doing for your diabetes, or high blood sugar? **(DO NOT READ LIST. Check all that apply).**

☐diet

☐medications

☐exercise program

☐other (describe) _____

PART III
Now I would like to talk a little about foods eaten in Newfoundland and Labrador.

29 During the past year, did you eat berries grown in Newfoundland and Labrador? (This includes berries in jams, preserves and pies)

Y☐ N☐
(go to 32)

30 What type or types of berries did you eat?

blueberries ☐
raspberries ☐
bakeapples ☐
partridge berries ☐
strawberries ☐
others ☐
(specify) _____
_____

31 Last year, approximately how many gallons/litres of berries did your family eat?

_____ Gallons
_____ Litres

32 Do you or your family grow your own fruits and/or vegetables?

Y☐ N☐
(go to 34)

33 If you wanted to grow fruits/vegetables, would you have an appropriate piece of land available to you?

Y☐ N☐

34 During an average week, how often do you eat pickled foods (including pickled vegetables and relishes, pickled meats and fishes, but excluding salt beef and salt pork)?

DO NOT READ

☐< 1 x per week

☐1-2 x per week

☐3-4 x per week

☐> 4 x per week

35 Since May of 1995, have you eaten any of the following game meats?

Moose or caribou	Y☐	N☐
Rabbit	Y☐	N☐
Wild birds	Y☐	N☐
Seal or whale	Y☐	N☐
Bear	Y☐	N☐

(If No to all go to 38)

36 Did you eat more, about the same, or less game meat this year as compared to five years ago?

☐More

☐Same **(go to 38)**

☐Less

37 If you eat more or less game meat can you tell me why?

_____

_____

_____

38 Did you eat more, about the same, or less fresh water fish, such as Trout, this year as compared to five years ago?

☐More

☐Same **(go to 40)**

☐Less

39 If you eat more or less fresh water fish, can you tell me why?

_____
_____
_____

40 Did you eat more, about the same, or less salt water fish, such as Cod, this year as compared to five years ago?

☐More

☐Same **(go to 42)**

☐Less

41 If you eat more or less salt water fish, can you tell me why?

_____
_____
_____

PART IV

42 During the last 30 days, which of the following statements best describes the amount of food available to be eaten by you and your family?

Always enough food to eat	☐ (Go to Form E)
Sometimes not enough food to eat	☐ (Go to 43)
Often not enough food to eat	☐ (Go to 43)

43 To what extent did each of the following reasons contribute to this lack of food?

a. Problems with transportation.

Not at all ☐
A Little ☐
A Lot ☐

b. Not having working appliances (such as a refrigerator or a stove) for storing or preparing foods.

Not at all ☐
A Little ☐
A Lot ☐

c. Not having enough money to buy food or beverages.

Not at all ☐
A Little ☐
A Lot ☐

d. Not having an adequate choice of foods available to you.

Not at all ☐
A Little ☐
A Lot ☐

44 During the last month, did you or your family skip any meals because there was not enough food or money to buy food?

Y☐ N☐

Acknowledgements: Nova Scotia Nutrition Survey
Saskatchewan Nutrition Survey
Alberta Nutrition Survey
Prince Edward Island Nutrition Survey

FORM E

Identifier #: □□□□□□

NEWFOUNDLAND & LABRADOR NUTRITION SURVEY

DEMOGRAPHIC PROFILE

In order to compare your answers with people from similar backgrounds we would like to ask you a few questions about yourself.

1. How many people, including yourself, live in this household?

   □□

2. Of that total number, how many persons are under 18 years old and are your dependents?

   □□

3. What is the highest grade or level of education you have ever attended or ever completed? (Mark only one)

01 □ No Schooling
02 □ Some Elementary
03 □ Completed Elementary
04 □ Some Secondary
05 □ Completed Secondary
06 □ Some Community College, Technical College, or Nurse's training
07 □ Completed Community College, Technical College, or Nurse's training
08 □ Some University (e.g. B.A M.A. PhD) or techers college
09 □ Completed University (e.g. B.A. M.A. PhD) or teachers college
10 □ Other education or training (Specify _____)

4. What is your current marital status? Are you...

01 □ Single (Never Married)?
02 □ Married (and not separated), or living common law?
03 □ Separated?
04 □ Divorced?
05 □ Widowed?

5. For statistical purposes only, we need to know your best estimate of the total income, before taxes, of all household members last year (1995). Could you please tell me from the card which letter applies to your total household income?

A. $5,000 or less
B $5,001 - $10,000
C $10,001 - $20,000
D $20,001 - $30,000
E $30,001 - $40,000
F $40,001 - $50,000
G $50,001 - $60,000
H $60,001 or more
I Do not know

6. Weight used for calibration ☐☐☐.☐ Kg

Weight on scale of calibration weight ☐☐☐.☐ Kg

Weight ☐☐☐.☐ Kg or ☐☐☐ lb.

Measured ☐

Self-reported ☐ ...Reason _____

Refusal ☐

7. Height ☐☐☐.☐ or ☐ feet ☐☐ inches

Measured ☐

Self-reported ☐ ...Reason _____

Refusal ☐

8. Waist ☐☐☐.☐ cm ☐☐☐.☐cm ☐☐☐.☐cm

Refusal ☐

9. Hips ☐☐☐.☐ cm ☐☐☐.☐cm ☐☐☐.☐cm

Refusal ☐

Acknowledgements: Canada's Health Promotion Survey
Alberta Nutrition Survey
Nova Scotia Nutrition Survey
P.E.I. Nutrition Survey

APPENDIX C:
QUESTIONNAIRE FOR FAMILY PHYSICIAN SURVEY

Nutrition in Newfoundland and Labrador Family Medicine

Instructions: Except where indicated, please check the box that corresponds to your choice of response.

BACKGROUND INFORMATION

1. **Sex:** Female ☐ Male ☐

2. **Please indicate the response that most closely describes your practice setting:**
   - ☐ Solo practice
   - ☐ Group practice
   - ☐ Hospital-based clinic
   - ☐ Other(s) *(Please specify)*_____
   - ☐ I do not currently practice family medicine in NL *(Please go to Question 4)*

3. **What is the population of the community in which you currently practice family medicine?**
   - ☐ < 2,500
   - ☐ 2,500 – 4,999
   - ☐ 5,000 – 9,999
   - ☐ 10,000 – 19,999
   - ☐ ≥ 20,000

4. **Approximately how much specific nutrition training did you have AS PART OF your medical school training program (undergraduate medical school and/or residency)?**
   - ☐ < 1 hour
   - ☐ 1-10 hours
   - ☐ 11-20 hours
   - ☐ > 20 hours
   - ☐ Not sure
   - ☐ Did not have any specific nutrition training as part of my medical school training program
   - ☐ Other *(Please specify):* _____

5. **Did you have any formal training in nutrition OUTSIDE of your medical school training program (undergraduate medical school and/or residency)?**
   - ☐ Yes
   - ☐ No

   If YES, please check ALL that apply:
   - ☐ Bachelor's Degree in Nutrition or Dietetics
   - ☐ University Course(s)
   - ☐ Continuing Medical Education
   - ☐ Other(s) *(Please specify)*_____

ADVISING ON NUTRITION

1. **How important do you think nutrition is to health?**
   - ☐ Very Important
   - ☐ Important
   - ☐ Moderately Important
   - ☐ Of Little Importance
   - ☐ Unimportant

2. **Ideally, which member of the primary health care team do you think is MOST APPROPRIATE to discuss nutrition with patients?** *Please check ONLY ONE.*
   - ☐ Family Physician
   - ☐ Dietitian/Nutritionist
   - ☐ Nurse/Nurse Practitioner
   - ☐ Other *(Please specify)*_____

3. **Which member of the primary health care team do you think would be MOST EFFECTIVE in discussing nutrition with patients?** *Please check ONLY ONE.*
   - ☐ Family Physician
   - ☐ Dietitian/Nutritionist
   - ☐ Nurse/Nurse Practitioner
   - ☐ Other *(Please specify)*_____
   - ***Why do you think this member would be most effective?*** _____
   - _____

4. **How important do you think a family physician's role is in promoting nutrition?**
   - ☐ Very Important
   - ☐ Important
   - ☐ Moderately Important
   - ☐ Of Little Importance
   - ☐ Unimportant

5. **What do you think a family physician's role in discussing nutrition should include?** *Please check ALL that apply.*
   - ☐ Disease Management
   - ☐ Weight Management
   - ☐ General Health Promotion
   - ☐ Motivate patients to seriously consider nutrition
   - ☐ Discuss nutrition for a healthy pregnancy
   - ☐ Discuss breastfeeding
   - ☐ A family physician does not play a significant role in discussing nutrition
   - ☐ Other(s) *(Please specify):* _____

6. **What challenges do you think family physicians face when discussing nutrition with patients?** *Please check ALL that apply.*
   - ☐ Lack of time during consultation visits
   - ☐ Insufficient training to provide good nutritional advice
   - ☐ Difficulty in motivating patients to eat healthy
   - ☐ Difficulty in discussing complex food and health information to patients
   - ☐ Discussing nutrition with patients is not effective in producing positive health changes
   - ☐ Family physicians face no challenge to providing nutrition advice to patients
   - ☐ Other(s) *(Please specify):* _____

7. **Which of the following do you think would be MOST EFFECTIVE in overcoming the challenges associated with discussing nutrition with patients?** *Please check ONLY ONE.*
   - ☐ Increase in the number of dietitians/nutritionists accessible by family physicians
   - ☐ Increase in the number of nurses/nurse practitioners accessible by family physicians
   - ☐ Increase nutrition education in nursing training program
   - ☐ Increase nutrition education in medical school training program (undergraduate and/or residency)
   - ☐ Other *(Please specify)*_____

8. **Do you discuss nutrition with patients as part of your practice?**

☐ Yes *(Please go to Question 9)*

☐ No

☐ I do not currently practice family medicine in NL *(Please go to Section III, Question 1)*

If NO, do you refer the patient to another member of the primary health care team?

☐ Yes

☐ No

If YES, to what member(s) of the primary health care team do you refer the patient? Please check ALL that apply.

☐ Dietitan/Nutritionist

☐ Nurse/Nurse Practitioner

☐ Other(s) *(Please specify)*_____

Why do you refer patients to this member of the primary health care team? _____

_____

_____

Normally how long is the patient's wait between the time of your referral to the patient meeting with the health care provider?

☐ < 1 month

☐ 1-2 months

☐ 3-4 months

☐ ≥ 5 months

☐ Not sure

9. **Which of the following primary health care providers are EASILY ACCESSIBLE in your community?** *Please check ALL that apply.*

☐ Dietitian/Nutritionist

☐ Nurse/Nurse Practitioner

10. **On what occasion(s) would you discuss nutrition with a patient?** *Please check ALL that apply.*

☐ Discuss nutrition with a patient when he/she brings it up

☐ Discuss nutrition with a patient to manage a specific disease/condition

☐ Discuss nutrition with a patient as part of a weight loss/management regime

☐ Discuss nutrition with all patients as part of my health promotion practice

☐ I do not generally discuss nutrition with my patients

☐ Other(s) *(Please specify)*_____

CANADA'S FOOD GUIDE TO HEALTHY EATING

1. **Are you aware of *Canada's Food Guide to Healthy Eating*?**

☐ Yes

☐ No *(If NO, please go to Question 7)*

2. **Do you have copies of the *Canada's Food Guide to Healthy Eating* tearsheet on hand in your office/clinic?**

☐ Yes

☐ No *(If NO, please go to Question 4)*

☐ I do not currently practice family medicine in NL *(Please go to Question 7)*

3. **Do you ever provide patients with a copy of the *Canada's Food Guide to Healthy Eating* tearsheet?**

☐ Yes

☐ No *(Please specify)*:_____

4. **Do you have a copy of the *Canada's Food Guide to Healthy Eating* poster and/or tearsheet posted anywhere in your office/clinic?**
   - ☐ Yes
   - ☐ No

   If YES, where is Canada's Food Guide to Healthy Eating posted in your office/clinic. Please check ALL that apply.
   - ☐ Reception waiting area
   - ☐ Examining room
   - ☐ Other(s) *(Please specify):*_____

5. **Do you use the PRINCIPLES of *Canada's Food Guide to Healthy Eating* to discuss nutrition with patients?**
   - ☐ Yes
   - ☐ No
   - ☐ Unaware of the principles of *Canada's Food Guide to Healthy Eating (Please go to Question 7)*

   If YES, do you specifically mention that the information is from Canada's Food Guide to Healthy Eating?
   - ☐ Yes
   - ☐ No

6. **Do you find *Canada's Food Guide to Healthy Eating* useful when discussing nutrition with patients?**
   - ☐ Yes
   - ☐ No *(Please specify):* _____
   - ☐ Do not use *Canada's food Guide to Healthy Eating* to discuss nutrition with to patients

7. **There is a copy of *Canada's Food Guide to Healthy Eating* provided with this questionnaire. What, if anything, would you change?** *Please check ALL that apply.*
   - ☐ Visual appearance *(Please specify)* _____
   - ☐ Directional statements *(Please specify)* _____
   - ☐ Serving size information *(Please specify)* _____
   - ☐ 'Other Foods' group *(Please specify)* _____
   - ☐ Other(s) *(Please specify)* _____

ADDITIONAL QUESTION

1. **If given the option, which of the following would you prefer to complete?** *Please check ONLY ONE.*
   - ☐ Postal survey
   - ☐ Online survey
   - ☐ No preference

Any other comments? _____
_____
_____

Please put the questionnaire in the self-addressed stamped envelope provided and mail back to me before **Monday, January 31, 2005.

**Additional copies of the "Canada's Food Guide to Healthy Eating" tearsheet can be ordered from Health Canada Publications by email (publications@hc-sc.gc.ca) or by phone (1-866-225-0709).

☺ Thank-You for Your Time ☺

APPENDIX D:
COVER LETTER FOR FAMILY PHYSICIAN SURVEY

January 25, 2005

Dr. John Doe
{Address}

Dear Dr. Doe:

Nutrition is a key factor in health promotion and disease prevention. The office of the family physician is viewed by many as the place to access nutrition information.

You, as a Newfoundland and Labrador family physician, are invited to take part in a brief nutrition survey. The objectives of this research are to determine:

- NL family physicians' nutrition advising attitudes and behaviours in their practice setting
- The challenges in providing nutritional advice
- The use of *Canada's Food Guide to Healthy Eating*, by NL family physicians.

You are asked to complete the attached survey, put it in the self-addressed stamped envelope and drop it in the mail by ***Monday, January 31, 2005***. You will be asked questions about your awareness and use of *Canada's Food Guide to Healthy Eating,* your discussions of nutrition in practice and the challenges faced by family physicians to discussing nutrition. You will also be asked to provide some background information. The survey will take less than 10 minutes to complete.

Participation is voluntary and you have the option to skip questions if you choose to do so. The information gathered is completely confidential. The survey will be coded with a study number which will be used only to follow-up those who have not responded. Once the follow-up is complete, the file linking the study number and the contact information will be destroyed. Consent to participate in this project will be assumed by the return of the survey. The results will be posted on the Newfoundland and Labrador Medical Association's website.

If you have any questions concerning participating in this study, feel free to contact me via e-mail at tracyweir@hotmail.com. If you wish to speak with someone who is not involved with this study, but can advise you on your rights as a research participant, you can contact the Human Investigations Committee, Memorial University of Newfoundland's research ethics board at (709) 777-6974.

Thank you for your time,

Tracy Weir, B.Sc.(Hons.)
Master's Candidate, Faculty of Medicine, Division of Community Health
Memorial University of Newfoundland

APPENDIX E:
ADVERTISEMENTS FOR FAMILY PHYSICIAN SURVEY

President's Letter

December 8, 2004

Andrew Major
MD, FRCPC
President

Deadline January 31 to finalize priority items for new agreement

Dear Colleagues:

As part of our preparations for a new agreement with government, the NLMA has been engaged in an extensive consultation process with members. Our efforts have been very successful to date. As a direct result of your involvement and input in this process, a comprehensive list of priority issues is being developed.

This preliminary list of priority issues for the new agreement will be distributed to members in the new year and your input will be invited. We hope to finalize the issues for our mandate document, and the guiding principles which will support our efforts, by the end of January. Therefore, we have set January 31, 2005 as the deadline for issue submissions from members.

Our province-wide teleconference on December 4 was the latest in a series of consultation processes that have included the President's Tour, which will conclude in the new year with meetings with physicians in Bonavista, Burin, Carbonear and Labrador; regional meetings of salaried physicians conducted by the Salaried Physicians Committee; consultation with the NLMA's GP Section that included a GP retreat at NLMA house in November; meetings with physician representatives from all the specialty groups; and, submissions from individual members and groups on various issues.

Your input has provided direction to senior staff and the NLMA's most senior committees, the Physician Services Liaison Committee and the Physician Services and Compensation Committee, who are now engaged in developing the mandate document that will guide us toward a new agreement with government.

We will continue to consult with you as we refine our plans and positions in anticipation of negotiations with government in the coming months.

In addition, we will keep you up to date and informed on all issues pertaining to our preparations for the new agreement through communications such as the President's Letter, Negotiations Bulletins and the NLMA website. Watch for a new Negotiations section on our website in 2005.

Meetings with members will also be held regularly throughout the coming months and, as we approach the spring, we hope to re-establish the Physician Telephone Tree to assist us in keeping members informed of important developments in a timely manner.

As always, feel free to comment on any issue you believe should be addressed by using the issues submission form on our website or by contacting NLMA senior staff directly.

AGM format revised

At its December 4 meeting, the NLMA Board of Directors approved the recommendation of the Communications Committee, endorsed by the Executive Committee, to revise the format of our annual general meeting, further streamlining the meeting and holding all business and social events in one day.

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Fax: (709) 726-7525
or 726-7456
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president@nlma.nf.ca

.../2

NLMA Newfoundland and Labrador Medical Association

e-Update | March 11, 2005

e-Update

e-Update is a regular electronic publication of the NLMA that notifies members of new and important items on the NLMA website.

Note

e-Update replaces electronic delivery of all NLMA publications such as the President's Letter and various bulletins (except for Nexus).

Subscriptions

Manage your subscriptions to all NLMA publications.

Calendar

Alcoholics Anonymous Information Session Meet and Greet (PDF)

April 8, 2005 This invitation comes to you as an offer of AA through you to your patients who may have a drinking problem. We will answer all questions and concerns on how AA works and how we can be contacted.

Physician Manager Institute

April 10-15, 2005 The CMA Office for Leadership in Medicine will hold Physician Manager Institute sessions in Halifax in April. The five-level credit program is a professional development experience designed to foster superior leadership and management skills for physicians. Sessions will be held at the Delta Barrington Halifax on April 10-12 (Level I) and April 13-15 (Level II).

2005 NLMA AGM

June 4, 2005 Plan now to attend the 2005 NLMA Annual General Meeting (AGM), to be held on June 4 in the Main Auditorium of the Health Sciences Centre in St. John's. Join the exhibitors for a continental breakfast, nutrition break and informal lunch.

Awards

Membership Notes

Renew

Your 2005 membership in the Newfoundland and Labrador Medical Association (NLMA) and Canadian Medical Association (CMA), if applicable, was due February 15. IF YOU HAVE NOT ALREADY DONE SO, PLEASE RENEW NOW.

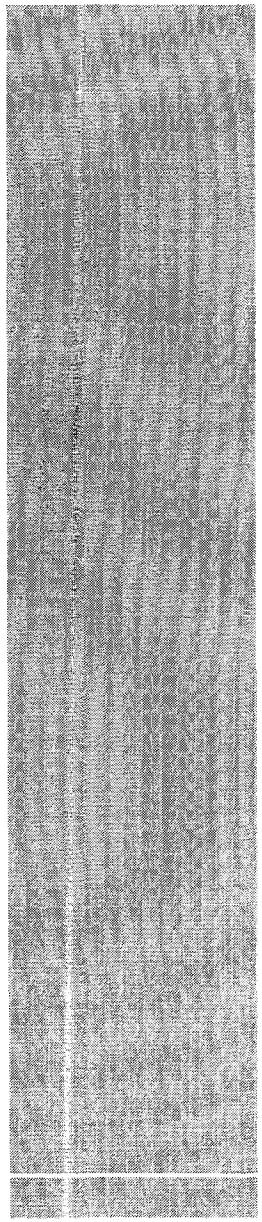
Issue Submission

Properly submit your member issue to the NLMA.

Calendar Notes

March

14 NLMA House Closed (St. Patrick's Day observed)
15 MCP Claim Deadline
21 MCP Payment



Awards

MUN Tribute Awards: Nominate an Alumnus
The 2005 Tribute Awards are scheduled for the week of *Celebrate Memo*rial in October. This special event honours the leaders among Memorial alumni. A key part of this event is the nomination process.

Surveys

Leaving to Practice Elsewhere?

If you are leaving Newfoundland and Labrador, and the NLMA, to practice medicine elsewhere, please complete the NLMA Membership Exit Survey. This survey requires LESS THAN 1 MINUTE to complete and provides invaluable data to the NLMA in the formulation of future strategy.

Nutrition Advice in NL Family Medicine

In January, a brief nutrition survey was mailed to all family physicians. The purpose of this survey was to determine family physicians' nutrition advising attitudes and behaviours in their practice setting, challenges in providing nutritional advice in family medicine, and use of Canada's Food Guide to Healthy Eating. Tracy Weir of the Division of Community Health, Faculty of Medicine would like to thank all who completed her survey and encourages those who have not yet responded to do so (a second copy has been sent by mail).

(PDF)
30 MCP Claim Deadline

April
1 New Regional Integrated Health Authorities Effective
5 MCP Payment
8 Alcoholics Anonymous Information Session Meet and Greet (PDF)
9 Treading Carefully in a Healthcare Minefield
10-12 Physician Manager Institute (Level I)
12 MCP Claim Deadline
13-15 Physician Manager Institute (Level II)
16 NLMA Board of Directors Meeting
19 MCP Payment
25 NLMA House Closed (St. George's Day observed)
26 MCP Claim Deadline
27 Administrative Professionals' Day
30-3 e-Health 2005

APPENDIX F:
INCOME ADEQUACY CLASSIFICATION TABLE

(Adapted from Segovia et al., 1996)

HOUSEHOLD INCOME GROUP	HOUSEHOLD SIZE				
	1	2	3	4	5 or more
Low	Less than $20,000	Less than $20,000	Less than $20,000	Less than $30,000	Less than $30,000
Middle	$20,001 - $30,000	$20,001 - $40,000	$20,001 - $40,000	$30,001 - $50,000	$30,001 - $60,000
High	$30,001 or more	$40,001 or more	$40,001 or more	$50,001 or more	$60,001 or more

APPENDIX G:
CUT-OFF POINTS FOR SELECTED NUTRIENTS

(Adapted from Health Canada, 1992b; Institute of Medicine, 1997; Institute of Medicine, 1998; Institute of Medicine, 2000a; Institute of Medicine, 2001; Institute of Medicine, 2004; Institute of Medicine, 2005)

Nutrient	Type of Cut-Point Used	Age-Specific Cut-Point (Male)	Age-Specific Cut-Point (Female)
Macronutrients and Dietary Fibre			
Energy	Range specified in Health Canada, 1992b	1800-3500 kcal/day	
Fat	AMDR	14-18 years: 25-35% of energy >18 years: 20-35% of energy	
Fibre	AI	14-50 years: 38g/day >50 years: 30g/day	14-18 years: 26g/day 19-50 years: 25g/day >50 years: 21g/day
Vitamins			
Folacin	EAR	14-18 years: 330µg/day >18 years: 320µg/day	
Vitamin B12	EAR	2µg/day	
Vitamin C	EAR	14-18 years: 63mg/day >18 years: 75mg/day	14-18 years: 56mg/day >18 years: 60mg/day
Minerals			
Calcium	AI	14-18 years: 1300mg/day 19-50 years: 1000mg/day >50 years: 1200mg/day	
Iron	EAR	14-18 years: 7.7mg/day >18 years: 6mg/day	14-18 years: 7.9mg/day 19-50 years: 8.1mg/day >50 years: 5mg/day
Zinc	EAR	14-18 years: 8.5mg/day >19 years: 9.4mg/day	14-18 years: 7.3mg/day >19 years: 6.8mg/day
Electrolytes			
Sodium	AI	14-50 years: 1.5g/day 51-70 years: 1.3g/day >70 years: 1.2g/day	
Potassium	AI	4.7g/day	

APPENDIX H:
CANADIAN GUIDELINES FOR BODY WEIGHT CLASSIFICATION

(Adapted from Health Canada, 2003g)

Health Risk Classification According to Body Mass Index (BMI)[a,b,c]		
Classification	**BMI Category (kg/m^2)**	**Risk of developing health problems**
Underweight	<18.5	Increased
Normal Weight	18.5 – 24.9	Least
Overweight	25.0 – 29.9	Increased
Obese		
Class I	30.0 – 34.9	High
Class II	35.0 – 39.9	Very high
Class III	≥40.0	Extremely high

[a]Taken from: Health Canada. (2003g). *Canadian Guidelines for Body Weight Classification in Adults.* Ottawa, ON: Health Canada Publications Centre.
[b]For use with adults age 18 and older. Not for use with pregnant and lactating women.
[c]For persons 65 years and older the 'normal' range may being slightly above BMI 18.5 and extend into the 'overweight' range.

Health Risk Classification According to Waist Circumference (WC)[a,b,c]	
WC Cut-Off Points	**Health Risk (relative to WC below cut-off point**
Men ≥102 cm (40 in.) Women ≥ 88 cm (35 in.)	Increased risk of developing health problems[d]

[a]Taken from: Health Canada. (2003g). *Canadian Guidelines for Body Weight Classification in Adults.* Ottawa, ON: Health Canada Publications Centre.
[b]For use with adults age 18 and older. Not for use with pregnant and lactating women.
[c]For BMIs in the 18.5 – 34.9 range, use WC as an additional indicator of health risk. For BMIs ≥35, WC measurement does nto provide additional information regarding level of risk.
[d]Risk for type 2 diabetes, coronary heart disease, hypertension.

Health Risk Classification According to Body Mass Index (BMI) and Waist Circumference (WC)[a,b,c]			
WAIST CIRCUMFERENCE (WC)	**BODY MASS INDEX (BMI)**		
	Normal	**Overweight**	**Obese Class I**
<102 cm (Males) <88 cm (Females)	Least risk	Increased risk	High risk
≥102 cm (Males) ≥88 cm (Females)	Increased risk	High risk	Very high risk

[a]Taken from: Health Canada. (2003g). *Canadian Guidelines for Body Weight Classification in Adults.* Ottawa, ON: Health Canada Publications Centre.
[b]For use with adults age 18 and older. Not for use with pregnant and lactating women.
[c]Risk is relative to normal BMI and a WC of <102 cm for males and < 88 cm for females.

APPENDIX I:
PHYSICAL ACTIVITY CLASSIFICATIONS

(Adapted from Forster-Coull et al., 2004)

FREQUENCY OF PARTICIPATION IN PHYSICAL ACTIVITY OR EXERCISE	AMOUNT OF TIME SPENT AT PHYSICAL ACTIVITY OR EXERCISE	
	< 30 minutes	**≥ 30 minutes**
≤ 3 times/week	Not active on a regular basis	Not active on a regular basis
> 3 times/week	Not active on a regular basis	Active on a regular basis

APPENDIX J:
HUMAN INVESTIGATION COMMITTEE ETHICS APPROVAL LETTERS

APPENDIX K:
LETTER APPROVING ACCESS TO *NUTRITION NEWFOUNDLAND AND LABRADOR* DATA

APPENDIX L:
CONFIDENTIALITY STATEMENTS

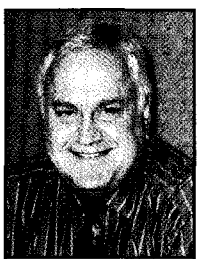
Volume 23, Number 4, Winter 2004

NEWFOUNDLAND AND LABRADOR MEDICAL ASSOCIATION
NEWSLETTER N·E·X·U·S

www.nlma.nf.ca

Message from the Executive Director

Doctors, demographics and deficits

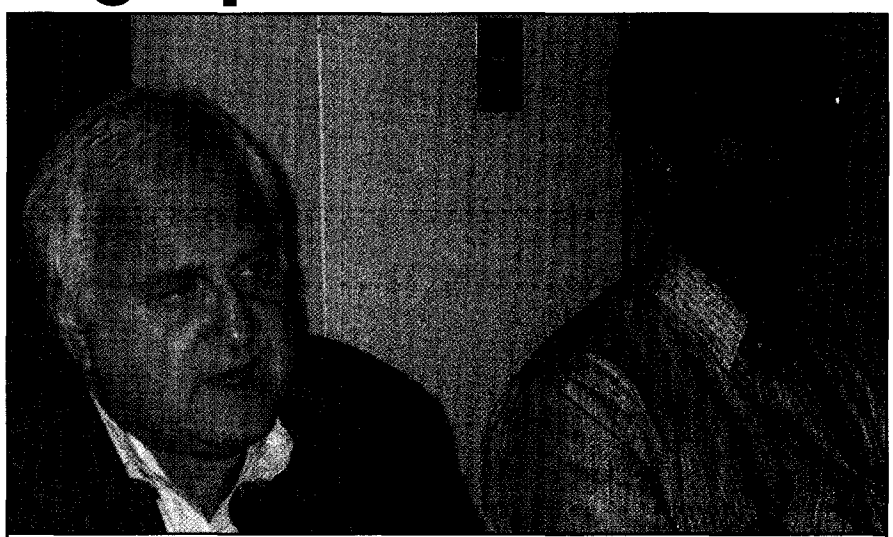


Rob Ritter
Executive Director

The fiscal challenges facing the people of Newfoundland and Labrador are formidable. Indeed, many residents of this province have already had to swallow some of the bitter medicine associated with spending restraint measures which the government has imposed over the last year. Even if Premier Danny Williams' campaign to secure the full and rightful entitlements of the province's offshore resources is entirely successful, the road to economic security will not be without its trials and tribulations, both for the government and the people.

Unfortunately, both the problem and the solution are more complicated than merely harnessing more resource revenue and tightening public expenditures. The road to economic recovery requires the conquering of a different kind of liability, one that I would refer to as the "demographic deficit". There is an urgent need to reverse the long-standing population hemorrhage that has been plaguing this province. Current trends indicate a growth of public services consumption reflected by an aging population and a corresponding decline in young people who would normally be fuelling the public system. This province must attract a critical mass of working age people over the next decade if we are to achieve economic stability and prosperity.

As a relative newcomer to Newfoundland and Labrador (having moved to St. John's three years ago from Ontario), I can bear witness to the many advantages of living in this great province. But most prospective residents, as I did, want to be sure that certain fundamental needs will be met. Highest on the list is timely, quality medical care. In this context, the preservation of a medical system that is and is seen to be on par with the rest of Canada will be an essential prerequisite to achieving the province's economic aspirations. Although the current situation is good, the future prospects in this sector are uncertain.



On the line *NLMA Executive Director Robert Ritter and President Dr. Andrew Major participate in a province-wide teleconference meeting to discuss preparations for the Association's new agreement with government.*

Approximately 25 per cent of the current 1,008 practicing physicians in the province are over 55 and will need to be replaced over the next decade. This comes at a time when the global doctor shortage is severe and the replacement capacity of the system is limited. Because the market forces that emerge from a low-supply high-demand dynamic do not distinguish between "have" and "have not" provinces, we will need to remain in step with the world around us to ensure a relatively stable medical care system. This means that compensation must remain competitive and that the working environment and quality of life for doctors in this province are comparable to those in other parts of the country.

Premier Williams' efforts to achieve economic stability and security for Newfoundland and Labrador must succeed because the very viability of the province is at stake. All residents of the province have an inherent obligation to contribute to the effort and physicians are not exempt from this responsibility. The NLMA and all its members intend to assist government in meaningful ways that will make a difference. Indeed, we have already launched a number of important initiatives.

continued on page 3

Inserts with this issue
- NLMA 2005 wall calendar
- NLPDP bulletin
- OMA Insurance Newsletter

NEXUS defined: A connected group or series; a bond, a connection

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Editor: Lynn Barter
Assistant Editor: Dawn Mason

2004 - 2005 Board of Directors

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Layout: Dawn Mason

ISSN 1497-0872

Doctors, demographics and deficits

continued from page 1

Over the last year, the NLMA has been vigorously involved in developing an electronic medical records system under the brand name "Nell". Our business arm "SmoothWater" is working in partnership with Unisys Canada in developing the only open source ASP system in the country. Our strategy is based on a consolidated provincial system that will not be subject to multiple vendors or proprietary licensing. This is the only initiative of its kind in Canada (estimated to cost in excess of $12 million), that is not being heavily underwritten by provincial government funding. The system being designed will facilitate better operational control and enhance cost-effectiveness of services. This undertaking is being coordinated with the Newfoundland and Labrador Centre for Health Information (NLCHI) and, if successful, will create many new jobs in the IT sector.

Our Association is collaborating closely with the government's provincial drug program to explore new ways and means of containing spiraling drug costs. This partnership effort will be successful if there is continued meaningful consultation between the government and physicians, and as long as quality of patient care is not compromised. Similarly, the NLMA is open to further exploring innovations in health care delivery arrangements as long as the process continues to be transparent and progressive.

In the coming months, the NLMA and the Government of Newfoundland and Labrador will once again be engaged in negotiations to renew the agreement that expires on September 30, 2005. As we approach these discussions, we will remain mindful of the many competing priorities which the government must contend with and the need to be flexible and creative in finding the best solutions for our common problems. We are hopeful that the government will approach us with the same spirit and that the people of the province will be the beneficiaries of this goodwill.

Government commits to smoke-free province

A complete ban on smoking in all indoor public places and workplaces, including bars and bingo halls, will become a reality, Health and Community Services Minister John Ottenheimer announced recently in a ministerial statement to the House of Assembly.

"The time has come to launch a more aggressive attack against tobacco use in our province - the leading cause of preventable illness and death," said Minister Ottenheimer. "Our government is committed to shutting the last door on second-hand smoke and endorse a smoking ban in bars and bingo halls, the last remaining indoor public smoking places."

Minister Ottenheimer confirmed government's intention to proceed with legislation as early as spring 2005 to create a 100 per cent smoke-free environment in all indoor public places and workplaces, following province-wide consultations set to begin this January. The consultations will assist government in determining target dates for implementation and allow individuals and organizations to offer their perspective and provide input on the best approach to achieve our goal.

"Clearly we are moving forward with a smoking ban and the public consultations will allow individuals and organizations to give us input as to how best to achieve a smoke-free environment," added Minister Ottenheimer.

Hon. John Ottenheimer
Minister, Health & Community Services

Newfoundland and Labrador Medical Association President Dr. Andrew Major congratulated the provincial government on moving forward with a total ban on smoking in all public places. "Tobacco is the most significant public health issue facing our population today. Implementing a complete ban on smoking in all public places and workplaces demonstrates government's commitment to protecting the health of Newfoundlanders and Labradorians. The physicians of the province commend Minister Ottenheimer for his leadership on the issue and we look forward to the implementation of 100 per cent smoke-free public and workplaces at the earliest possible date."

Kevin Coady, executive director of the Newfoundland and Labrador Alliance for the Control of Tobacco (ACT), is delighted with news of the impending legislation. "ACT and its partners have been anxiously awaiting legislation that will fully protect all people from the devastating effects of second-hand smoke. We are looking forward to working with the Department of Health and Community Services to ensure a speedy implementation of this legislation."

In Newfoundland and Labrador, 112 deaths will be attributed to the effects of second-hand smoke this year. Annually, second-hand smoke exposure results in an estimated 784 hospitalizations, 8,400 hospital days and $11.9 million expenditures in our health care system.

As part of a growing trend across the country to move toward a healthier, smoke-free environment, Newfoundland and Labrador is the second province this fall to commit to further smoke-free legislation. Provincial jurisdictions including New Brunswick, Saskatchewan, Manitoba and the Northwest Territories have adopted provincial smoking bans.

A copy of Minister Ottenheimer's complete ministerial statement is available at ***www.gov.nf.ca/releases/statements/default.htm.***

Province leading the way in Canada

Physician referrals to Smokers' Helpline continue to climb

Almost 20 per cent of doctors in the province are referring patients to the Newfoundland and Labrador Lung Association's Smokers' Helpline for smoking cessation counseling.

Niki George, the Smokers' Helpline coordinator, said more than 150 physicians are referring an average of nine patients a day to the program and the number of participating physicians continues to grow.

Physician participation in the program already exceeds participation rates in other, well-established referral programs in the United States. "We modeled our physician fax referral program on similar programs in the U.S., which report participation rates of 15 to 17 per cent of practicing physicians. If we use that as a measurement of success, our program is on track to out-perform those U.S. programs in its first year."

Newfoundland and Labrador has the only physician referral program in place in the country, although Ontario is in the process of developing a similar program. "However, the Ontario program has some important differences from ours," said George. Most notably, physicians who may participate are not registered with the program. Referrals are anonymous and physicians do not receive any feedback or follow-up reports on patients referred to the program.

"In our program, physicians are given regular updates on how their patients are doing in the program and we hope to provide an annual report to physicians that will give them the total number of referrals made and information on patient progress over the past year," said George.

George said evaluation of the program is ongoing and the Helpline is now working with the Centre for Behavioral Research and Evaluation at the University of Waterloo to develop an evaluation framework.

George is also developing a new kit for physicians that will include the fax referral form and a sticker for patient charts to indicate a referral has been made.

"Physician referrals account for 30 per cent of our caller volume, by far most significant contributor to new callers to the Helpline," said George. In the eight months since the program was launched with the NLMA, the Helpline has more than doubled the number of new callers from 1,256 in all of 2003 to 2,895 as of November 17, 2004.

"Physicians are the backbone of the CARE program, the Community Action and Referral Effort," said George. "CARE was launched with the physician referral program and we hope to expand CARE to include other health and education professionals in the coming months."

Physician fax referral pads are available by calling the Smokers' Helpline 1-800-263-5864 and online at www.nlma.nf.ca.

Tax implications of capital gains and losses

by Tammy Osborne


Tammy Osborne

When I sell my mutual fund investment I will earn a capital gain. Am I being double taxed?

Many mutual fund investors worry that they are being double taxed on the income, since they will also realize a capital gain when they eventually sell their units of the mutual fund.

The reinvestment income distribution increases the adjusted cost base of the investment, however, reducing the taxable capital gain when an investor eventually disposes of his holdings in the fund. For example, if an individual invests $1,000 and receives a $215 capital gains distribution, the adjusted cost base of the investment, after the capital gain distribution is $1,215. If the investor were to sell his units the day after the capital gain distribution at a fair market value of $1,215, he would realize neither a capital gain, nor a capital loss for tax purposes. The taxable capital gain distribution has reduced the capital gain he would normally have earned upon the sale of his investment.

How are capital gains taxed and reported?

Half of a capital gain on the redemption or transfer of mutual fund shares or units is taxable at the regular rates. For taxpayers in the top tax bracket, a $100 capital gain will result in about $25 of tax.

The redemption amount is reported by the mutual fund in a variety of ways, depending on the policy of the mutual fund company.

What about capital losses?

When an investor redeems or transfers his mutual fund shares or units for less than their ACB, a capital loss will generally be incurred. Capital losses are usually deductible only against capital gains.

Capital losses that cannot be used in the year can be carried back for application against capital gains in the three years before the loss and can be carried forward indefinitely.

What are the tax implications of a transfer of mutual fund shares or units to another person?

A transfer is fundamentally different from redemption, although in both cases a disposition results for tax purposes. Redemption involves the purchase of an investor's units by the mutual fund itself, while a transfer to another person is essentially a sale or a gift to that person. Although transfers are considered dispositions for tax purposes, certain transfers, such as those to a spouse or closely held corporation, can generally be achieved without a capital gain being realized on the transaction. The capital gain is deferred until such time as the spouse or corporation redeems or sells the shares or units.

(Tammy Osborne is a financial consultant with MD Management's Newfoundland and Labrador regional office.)

Physicians encouraged to use WHSCC's direct deposit service

With your busy schedule, it makes sense to use the Workplace Health, Safety and Compensation Commission's direct deposit service. You will save valuable time and your payments will be safely deposited into your account — guaranteed.

This easy-to-use service offers increased efficiency and, most importantly, peace of mind. You will always receive your payments on a timely basis. It will also eliminate the need to deposit payments, avoid delivery disruptions or lost mailings and decrease the threat of fraud or lost and stolen cheques.

Simply authorize the Commission to deposit your payments directly to your bank account by providing the following:

- The vendor's (physician's) name, the vendor number (physician billing number) and address
- The physician's bank name, address, transit number and bank account number
- A copy of a voided cheque

A Direct Deposit Request form may also be used. Visit the Commission's website at www.whscc.nf.ca; select the Forms option and choose Direct Deposit Enrollment Request Form — Vendor.

For more information contact Madonna Buckley, the Commission's vendor liaison, at (709) 778-1355, toll free 1-800-563-9000, or mbuckley@whscc.nf.ca.

Why use direct deposit? Why not? It SIMPLY makes sense.

Perspectives

Meeting with colleagues offers up useful tips and advice

by Dr. Susan King

Dr. Susan King

Board meetings are always an opportunity to pick the brains of a few colleagues. At a recemt one I cornered a couple of docs and here's what they gave me:

Although it has not been studied long term, **Dr. Terry O'Grady** tells us that it is considered acceptable for women to be on continuous, low-dose oral contraceptives, whether for treatment of persistent dysmenorrhea or for patient preference. Spotting is a side effect. Taking the traditional one week off every three months may help this.

Dr. Jody Woolfrey uses a sterile glove to create a sterile field when using a hyphercator. He takes a full intact sterile glove and has an assistant drop the handle of the hyphercator (all but the disposable sterile tip) into one finger. He then applies the tip directly on the handle and it's ready to use. No need to pierce the glove first. The other fingers of the glove are redundant and idle but this doesn't interfere with the function.

Ever wish you had an unbiased scientific review of the literature regarding various diagnostic or therapeutic treatments? At that same board meeting we had a presentation from the Canadian Coordinating Office for Health Technology Assessment (CCOHTA). The word technology is misleading, as it is an independent agency that reviews all forms of therapeutic interventions – medications, diagnostics and devices. Fabulous resource -lots of information online (www.ccohta.ca) and we have a local liaison officer - Ms. Sheila Tucker, phone (709) 777-8740 or email her at sheilat@cchohta.ca. Keep it in mind next time you find yourself in wonder (about something medical anyway!).

Hope the winter is going well for you. Remember to look after yourself at least as well as you do your patients. And finally, I know you've all got loads of your own tricks of the trade — any you'd like to pass along? Send 'em in!

(Dr. Susan King is a family physician in St. John's.)

Nutrition advice in family medicine: A survey of family physicians

The importance of nutrition as a key factor in health promotion and disease prevention has long been recognized. Family physicians have the potential to promote favourable nutritional health and are viewed by many as a great place for people to access nutrition information. However, research indicates that the family physician may not be the most appropriate member of the primary health care team to deal with nutrition.

In mid-January 2005, a brief nutrition survey will be mailed to all family physicians licensed to practice in Newfoundland and Labrador. The purpose of this survey is:

- To determine Newfoundland and Labrador family physicians' nutrition advising attitudes and behaviours in their practice setting.
- To determine challenges in providing nutritional advice in family medicine.
- To determine the use of Canada's Food Guide to Healthy Eating by Newfoundland and Labrador family physicians, as research indicates that doctors' offices and health centres are common places for people to have seen Canada's Food Guide.

The survey is being conducted by Master's student Tracy Weir, B.Sc (Hons.) with the Faculty of Medicine, Division of Community Health at Memorial University, and will become part of Ms. Weir's Master's thesis. The project has been approved by the Human Investigations Committee, Memorial University of Newfoundland's Research Ethics Board.

Please help us keep NLMA's membership database up to date...

If you have a new address, phone number, fax number, email address (home or office) or have changed your practice status from salaried to fee for service or vice versa, please let us know.

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Twillingate doctor named family physician of the year

Doctors in the News

Dr. Mohamed-Iqbal Ravalia, a family physician in Twillingate, was honored in November by the College of Family Physicians of Canada as one of 10 national recipients of the Family Physicians of the Year award for 2004, a year which also marks the College's 50th anniversary.

"The CFPC's 50th anniversary makes this year's awards extra special," said Dr. Rob Wedel, president of the College of Family Physicians of Canada. "Throughout its history, the College has worked hard to promote the highest standards of medical education and care in family practice. So, as we take this time to look back at how far we have come as family doctors in Canada, it's quite appropriate that we honor the work of 10 exceptional family physicians from across the country who exemplify so well all the College has stood for since its inception."

Recipients are chosen by their peers for providing exceptional care to their patients, making great contributions to the health and well being of their community, and dedicating themselves to the education for future generations of family doctors.

Dr. Ravalia graduated from the Godfrey Higgins School of Medicine in Harare, Zimbabwe (formerly Rhodesia) in 1980. He immigrated to Canada in 1984. After a short stop in Arcola, Saskatchewan, he moved to Twillingate, where he is a hospital-based family physician and an associate professor of Family Medicine at Memorial University. Teaching medical students and Family Medicine residents is his passion. His areas of interest include primary care reform, care of the elderly and chronic disease management.

He married Dianne Collins in 1992 and they have two sons, Adam and Mikhail. His hobbies include traveling, reading and golf.

Dr. Anthony Rockel was recently named to the St. John's Telegram Community Editorial Board. Dr. Rockel, a family physician who practices in Placentia, was born and educated in New Zealand, and his elementary school years were spent in a rural setting - an environment, he says, he still prefers.

He came to Newfoundland in the late 1970s to work in the cottage hospital system, eventually moving into family practice. Having watched - and experienced first hand - the decline of our health-care system, he said he felt obliged to become politically active. His increasing cynicism in that regard has prompted him to adopt a satirical approach when writing about it. Dr. Rockel is a frequent Letters to the Editor writer and is a member of the NLMA's Communications Committee.

Dr. Thomas Maxwell Barbour of Traytown was among 23 recipients of the Governor General's Caring Canadian Awards, announced in November. The award is presented to individuals and groups whose unpaid, voluntary contributions provide extraordinary help or care to people in the community.

The Caring Canadian Award recognizes Dr. Barbour's 28 years of dedicated service to the people of Musgravetown and area, where he was much more than the family physician. Serving 22 rural communities, he saw patients night and day, and gave compassionate care to elderly and dying residents. Concerned about the development of young people, he has sponsored local sport teams and has personally coached, trained managed and sometimes covered expenses for young athletes. An active member of the Bloomfield/Musgravetown Lions Club since 1974, he has chaired several committees, undertaken fundraising, raised money to purchase rescue equipment for victims of traffic accidents and established a science scholarship at the local school. The Musgravetown community is forever grateful for his total and generous involvement.

A New Life: Series of booklets for parents revised

The Department of Health and Community Services announces the release of the newly revised A New Life booklets for parents.

The booklets offer advice on a range of topics and titles include:

- A Healthy Start
- Nine Months of Changes
- Becoming A Father
- Breastfeeding: A Healthy Start for Life
- Healthy Eating
- Healthy Activity
- Healthy Birthing
- Healthy Family

This resource is intended for women and their families as they prepare for pregnancy, birth and early parenting.

The revised booklets are available through Health and Community Services offices and hospitals providing maternity services throughout the province. All prospective parents should have access to these booklets as early as possible in their pregnancy.

Physicians are encouraged to promote these booklets to parents at routine prenatal contacts. Early referral of pregnant women to Health and Community Services for education and support programs contributes to healthy pregnancy and birth outcomes.

For more information about this resource, contact your local Health and Community Services office.

Supporting a culture of evidence

CCOHTA provides relevant, evidence-based health information

by Sheila Tucker

While physicians in our province recognize the importance of using evidence-based information to make decisions about drugs, devices and systems for the care of their patients, accessing the right kind of evidence-based information can be a challenge.

The Canadian Coordinating Office for Health Technology Assessment (CCOHTA) is addressing this issue by establishing a liaison office in Newfoundland and Labrador. CCOHTA supports informed health-care decision-making by providing unbiased, reliable information about health technologies. An independent, not-for-profit organization, CCOHTA is funded by Canadian federal, provincial and territorial governments.

As the CCOHTA liaison officer for Newfoundland and Labrador, it is my role to facilitate two-way communications between CCOHTA and our province. My job involves daily communication with clients who require evidence on drugs, medical devices and health systems. CCOHTA conducts systematic reviews of evidence on a variety of topics in these areas. A key part of my job is bringing this information closer to the people who need it.

Board presentation *Sheila Tucker, CCOHTA's liaison officer for Newfoundland and Labrador, presenting to the NLMA Board of Directors.*

I am also a local point of contact for all of CCOHTA's programs, such as the Health Technology Assessment Capacity Building Grants Program, which enhances the capacity to undertake and apply health technology assessments, along with the Canadian Optimal Medication Prescribing and Utilization Service (COMPUS), which facilitates best practices in drug prescribing and use.

Physicians are key points of influence on decisions to purchase, use and apply various types of health technologies. Physicians are an important client group for CCOHTA's programs. We believe that CCOHTA can provide relevant, quality services to support the work of physicians in this province. To achieve this, we need to understand your needs for evidence-based information on drugs, medical devices and systems. This requires ongoing dialogue and strong lines of communication between physicians and CCOHTA in Newfoundland and Labrador.

Our publications are available free of charge at www.ccohta.ca and you can subscribe to our e-mail notification service online.

Your questions and comments on CCOHTA's products and services are important to us.

The CCOHTA Liaison Office is based at the Newfoundland and Labrador Centre for Applied Health Research, Memorial University, 300-95 Bonaventure Avenue, in St. John's.

(Sheila Tucker is CCHOTA's liaison officer for Newfoundland and Labrador. She can be reached at (709) 777-8740 or sheilat@ccohta.ca.)

Enteric illness fact sheets now available

The Department of Health and Community Services is releasing a series of six fact sheets which may be used when discussing enteric illness and food-borne disease with patients and their families. The fact sheets include:

- "Bacillus cereus Food Intoxication"
- "Campylobacter Food-borne Illness"
- "Clostridium perfringens Food Intoxication"
- "Hamburger Disease (E. coli O157:H7)"
- "Listeriosis - Food-borne Illness"
- "Salmonellosis - Food-borne Illness"

Each sheet features information about the bacteria responsible for the illness.

Questions answered include:

- "What are the symptoms?" - Provides a list of symptoms commonly associated with the illness.
- "How do I know if I have this illness?" - Encourages any symptomatic readers to seek medical attention and to submit a stool sample.
- "How does it spread?" - Provides a summary of common causes of the illness.
- "How is it treated?" - Discusses the relative merits of antibiotic use in the treatment of the illness, and encourages fluid consumption to prevent dehydration.
- "How can I keep from getting this illness?" - Gives a list of food safety tips to help prevent the particular food-borne illness from occurring.
- "How soon can I return to work after being sick?" - Explains the need for food handlers, health care workers, and child care providers to be cleared by the Medical Officer of Health before returning to work.

You can preview the PDF versions of the fact sheets at www.gov.nl.ca/health/publications/ehp/. To order multiple copies, contact the nearest Health and Community Services office.

Waiting for better wait time management

by Roger Chafe

Wait times are often seen as one of the biggest problems facing our health care system. Even though they get a lot of attention, and even though there has been some progress, we still do not manage medical wait times as effectively as we should in this province.

Wait times can occur in any service area, from shopping to providing MRIs. The reason they occur is that the capacity to supply a service does not meet the immediate demand for that service. If there is only one lane open at your local supermarket which can only serve two people a minute, and more than two people come every minute, you will have to wait to pay for your groceries. It is the same thing with an MRI. Too many people want the service at the same time to serve everyone immediately and a queue forms.

The optimal arrangement is when demand equals supply so that neither patients nor providers have to wait. Yet there are a number of reasons why achieving this optimal arrangement is nearly impossible for health care. The pattern of morbidity is not constant. It is hard to quickly change either the supply or the demand for most medical services over the short term. Long-term planning for medical services is no easy feat, especially when we consider the uncertain impact of new technologies. Furthermore, the demand for medical services often increases when the supply of those services increase.

There are advantages to having excess demand, at least from the point of view of the health care system as a whole. Queues make the system more efficient. If specialists had to wait around most of the day for patients to show up, this would be a problem. We should not worry that there are wait times. Rather what we need to worry about is when waits become excessive, in the sense that they adversely affect a patient's likelihood of recovery or leaves them in discomfort for a long period of time.

In order to ensure waits are not excessive, we need a coordinated wait management policy. An effective wait management policy must focus on improving patient outcomes, using the system efficiently, allocating services fairly, being transparent, communicating effectively with the public and providing better customer service to patients. It should also be sensitive to the fact that there is a big difference between how long of a wait is acceptable from a medical perspective and how long of a wait is acceptable when it is a person's family member. This is no easy task. There is, however, hope for better management of wait times. There are a number of programs across the country, e.g., Saskatchewan Surgical Care Network, which have given some order to wait time management.

Excessive wait times result in poorer care for patients and are a public relations nightmare for our public health system. Managing them on a system-wide basis is key to the sustainability of a health care system that provides high quality and timely care to Newfoundlanders and Labradoreans.

(Roger Chafe is a graduate student in health policy in the Atlantic Regional Training Centre program at Memorial University's Faculty of Medicine.)

Huge wave of MD retirements nearing: survey

Canadians' problems gaining access to medical care appear set to worsen as an unprecedented wave of physicians prepares for retirement.

Data extrapolated from the largest census survey of physicians ever conducted in Canada indicate that up to 3,800 doctors will retire in the next two years, which is more than double the existing rate.

At the same time, the mostly male physicians who will be retiring are being replaced by a growing number of female doctors who, often because of family commitments, work seven fewer hours per week than their male colleagues. (In 2004, 31% of Canada's physicians are women. In the under-35 category, however, that rises to 52% of doctors under age 35.)

Results from the National Physician Survey of more than 21,000 physicians, also indicate that 26% of doctors intend to reduce the number of hours they work.

CMA President Dr. Albert Schumacher says the results must not be ignored. "Opinion surveys have already told us that Canadians have a problem gaining access to care," he said. "Now we have the quantitative data telling us that this problem will likely get worse."

The survey findings include:

- One in five family physicians is taking no new patients, and two in five have partially closed their practices, which helps explain why 3.6 million Canadians have no family doctor.
- Patient access to specialist care (59% judged it good or better) is considered far better than access to family physicians (36% good or better).

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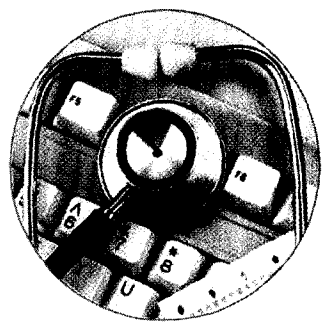

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