

**NUTRITION AND DINING OUT:
POLICY OPTIONS TO INFORM CHOICE**

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Abstract

Through an analysis of consumer behaviour, this study examines effective ways to increase awareness of healthy eating when dining in casual restaurants in Greater Vancouver. The study takes a policy analysis approach to determine how the Province of British Columbia can help consumers make informed nutritional choices when dining out. A survey completed by 511 casual dining restaurant patrons reveals the central factors that influence meal selection, as well as attitudes towards healthy eating, when dining in restaurants. Elite interviews contributed by identifying critical areas of political and economic consideration, which ultimately narrowed the availability of policy options to the Province. The study proposes that because there is currently too little nutritional information provided to consumers when dining out, the Province can take a role to clarify and disseminate information. Policy therefore acts to bridge awareness and knowledge by providing nutritional information, for the betterment of the province's health.

Executive Summary

This study takes a policy analysis approach to explore nutrition and dining out. Specifically, the study aims to develop policy responses to inform consumer choice. The policy problem driving this study is that there is too little nutritional information provided to consumers to increase awareness of healthy choices when dining in casual restaurants in Greater Vancouver.

A diet of healthy food is the cornerstone of prevention of many diseases. Unfortunately, in British Columbia as well as several other jurisdictions in Canada, the majority of residents have too little knowledge and awareness of nutrition and healthy eating. This is leading to poor health outcomes and chronic diseases such as obesity, diabetes, cancer and heart disease. The costs associated with chronic disease pose an immense burden to an already strained health care system.

The Province of British Columbia has made increasing awareness of health a priority, aiming to make British Columbia the healthiest jurisdiction to host the Olympic Games. To achieve this goal, the government launched *ActNow BC* – a policy initiative designed to take an integrative approach to improve the health of the province through channels such as healthy eating. The study identifies and analyses policy options that help achieve the goals of *ActNow BC*.

The study uses a combination of quantitative and qualitative data. Data from a survey instrument of over 500 respondents in Greater Vancouver reveal the factors that influence food selection when dining out. Descriptive survey findings and a regression analysis highlight trends that contribute to understanding consumer behaviour when dining in restaurants. Some of the most important findings of the survey include:

- The taste of a dish is the most important factor determining meal selection.
- Magazines and newspapers are sources of nutritional information used by respondents.
- Valuing nutrition contributes to the selection of healthy meal choices.
- Females are more likely than males to make healthy choices.

- Respondents of higher income categories are more likely than lower income categories to make healthy choices.

A combination of the descriptive survey findings, regression analysis, a consideration of case studies, and a review of the academic literature, reveals where policy responses could help to fulfil the policy objective of increasing awareness of healthy eating when dining out. The alternatives identified in the study include developing:

- A *Media Awareness Campaign* on television and radio that highlights important nutritional information for consumers to use when dining out.
- *Informational Advertisement in Print* that shows the nutritional value of commonly consumed restaurant foods.
- A *Point of Purchase Method* that provides consumers with the nutrient content of menu items.
- A *Healthy Choice Network* that establishes a partnership between the government, the restaurant industry and a non-governmental organization and uses a menu logo to signify a healthy choice.

To assess the appropriateness of each policy alternative, a list of criteria and measurement are used. Criteria in the study include effectiveness, administrative operability, political feasibility, stakeholder acceptance and cost. Elite interviews with key stakeholders provide valuable information that contributes to evaluating the policy alternatives. This leads to the following policy recommendations:

- Take steps towards the development of a Healthy Choice Network, which involves pursuing a partnership with an NGO and the restaurant industry;
- Select one or two casual dining establishments as a case study; work with the restaurant's management and chefs to develop healthy dishes that meet agreed upon nutritional requirements;
- Maximize television, radio and media exposure by holding numerous press conferences to promote the healthy choice network and goal of the program;
- Incorporate the healthy choice network into the ActNow BC umbrella of initiatives to increase the health of the province and further promote healthy eating;

- Develop informational advertisements in print as a supplemental tool to use intermittently over the medium and long term.

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Glossary

Casual Dining Restaurant	An establishment that offers full-service, sit-down ordering and dining in an informal and often family-oriented atmosphere, with a diverse menu selection.
Health Promotion	Health promotion is the educational process of enabling people to increase control over and improve their health
Public Health	Public health is defined as the science and art of promoting health, prolonging life and improving the quality of life through the organized efforts of society.

1 Introduction

Good health is the bedrock on which social progress is built. A nation of healthy people can do those things that make life worthwhile, and as the level of health increases so does the potential for happiness. The Governments of the Provinces and of Canada have long recognized that good physical and mental health are necessary for the quality of life to which everyone aspires. (Lalonde, 1974)

A nutritious diet is essential for good health. A diet of healthy food is the cornerstone of prevention of many diseases. As fuel for the mind and body, food has a direct impact on physical and mental wellbeing. It is through a balanced diet of food rich in nutrients, vitamins and minerals that individuals achieve better health outcomes. The consumption of healthy food prevents illness, sustains strength and prolongs life.

British Columbians are typical of other Canadians in that the majority of residents simply have too little knowledge and awareness of health and nutrition.¹ Poor health outcomes and chronic diseases such as obesity, diabetes, cancer, and heart disease, are associated with diets that do not meet recommended nutritional guidelines, such as those outlined by *Canada's Food Guide to Healthy Eating*. The costs of chronic disease pose an immense burden to an already strained health care system.

The Province of British Columbia has acknowledged this burden. In March 2005, the Province introduced *ActNow BC* – a policy initiative with an agenda to reduce the common risk factors of chronic disease. A successful bid for the 2010 Winter Olympics combined with the current state of provincial health, prompted policy development to address central areas of public health concern by informing citizens and providing nutritional knowledge. Through an integrative approach that includes improving dietary intake and physical activity levels, *ActNow BC* has a primary objective of making “British Columbia one of the healthiest jurisdictions to ever host the Olympic Games” (Ministry of Health Services, 2005b, p.3). While the statement and objective of

¹ A study conducted by Health Canada (2003a) reveals that Canadians have limited knowledge and awareness of nutrition. Specifically, the study findings indicate that less than half of Canadians are knowledgeable about the appropriate amount of grain, dairy, and meat products that should be consumed for a healthy diet; similarly, just over half are aware of the appropriate amount of fruit and vegetable consumption (Health Canada, 2003a). Moreover, only four in ten are aware that diet plays a role in health (Health Canada, 2003a).

ActNow BC are an important start to creating and promoting an environment that supports health awareness, there are still many areas of opportunity for additional study. One avenue, for instance, is the popular pastime of dining in restaurants.

The intent of this study is to examine policy options that increase awareness and knowledge of nutrition, in order to help consumers make informed choices when dining out. British Columbians spend a significant portion of their food budget on dining in restaurants. Yet, when dining out, consumers do not have accurate knowledge of the nutritional value of meals. Restaurants therefore represent an essential component of the strategy to increase knowledge of healthy eating. The unique contribution of this study to the literature is the analysis of consumer behaviour, specifically as it pertains to the food choices individuals make when dining at casual restaurant establishments in Greater Vancouver. For the purposes of the study, casual restaurants are defined as establishments that offer full-service, sit-down ordering and dining in an informal and often family-oriented atmosphere, with a diverse menu selection.

Analyzing the nutritional behaviour and knowledge of consumers when dining out is fundamental to developing effective policies that further the health of the population. Furthermore, understanding the motivations behind food selection is a critical component that helps determine the Province's role in promoting consumer awareness of healthy eating when dining in casual restaurants. Through awareness and knowledge of healthy eating options, the residents of British Columbia (BC) have the potential to improve their state of health and wellbeing.

1.1 Defining the Policy Problem

The policy problem of focus in this study is that *there is too little nutritional information provided to consumers to increase awareness of healthy eating options when dining in casual restaurants in Greater Vancouver*. The development of effective policies that inform consumers of nutrition when dining in casual restaurants can reduce the information gap facing consumers. The study defines *nutritional information* as providing specifications of the nutrient content or nutritional value of a particular meal. The term *awareness* refers to the consumer's knowledge and understanding that the meal is a healthy choice. Nutrition is a complex field where the Province can take a role to clarify and disseminate information. Essentially, the complexity of nutrition opens a window for government to provide nutritional information to consumers for the betterment of the province's health.

1.2 Study Framework

The study is comprised of 12 sections, beginning in section 1 with the introduction to the policy problem. Following in section 2 is an exploration of the relationship between diet and health. Section 3 examines dining out trends and reveals dining out as a challenge to healthy eating. Section 4 explores the evolution of public policy and nutrition. Section 5 presents a consideration of case studies. Section 6 outlines the current study methodology. Sections 7 and 8 offer an analysis of the survey data, including a description of the survey findings and regression results. Sections 9 and 10 analyze the policy alternatives using criteria and measurement. Section 11 offers implications for policy as well as recommendations for the Province of British Columbia to consider in light of the analysis of alternatives. Finally, section 12 provides concluding remarks.

2 The Relationship between Diet and Health

This section sifts through the complexity of nutrition and frames healthy eating in a context that provides essential background for the reader. The relationship between diet and health is explored through an objective lens, where the relevant arguments from academic literature are presented to demonstrate the role that diet plays in health. Section 2.1 begins by outlining the scientific evidence of what makes a diet nutritious. Next, section 2.2 offers a perspective on changes in dietary intake and the trend of chronic diseases, while subsection 2.2.1 examines several diet-related chronic diseases. Section 2.3 concludes with a discussion of the economic burden of unhealthy eating, focussing specifically on the costly outcome of obesity.

Understanding the relationship between diet and health has led researchers through a continuously evolving labyrinth of human biology, genetics and nutritional science. Technological and scientific innovations in medicine during latter half of the twentieth century have furthered knowledge of the human body and contributed to a greater understanding of the connections between diet and health. The *science of nutrition* developed in the wake of a growing awareness that profound environmental changes – namely in dietetic and lifestyle conditions – are significant factors affecting the overall health of a population (Briefel & Johnson, 2004; Cordain et al., 2005). This contributes to the understanding that the relationship between diet and health is multi-factorial, and demonstrating direct or consistent relationships between trends in dietary intake and trends in health conditions is a challenging task (Briefel & Johnson, 2004). Nevertheless, dieticians, medical professionals, and academics alike now recognize that a nutritious diet is essential for the growth, development, health and wellbeing of society (Health Canada, 1997b; Rush, 1997; US Department of Health and Human Services, 2000).

2.1 What is a nutritious diet?

A nutritious diet is one that contains foods that are rich in essential macro- and micronutrients (Institute of Medicine, 2005). Micronutrients are vitamins and minerals, such as zinc and folic acid, which improve physical development and strengthen the human immune system (Ames, 1998; Walker & Black, 2004). Macronutrients, on the other hand, are vital for the normal functioning of the body's metabolic and physiological processes (Grundy, 1999).

Macronutrients are the fundamental components of food in the human diet: fat, carbohydrates and protein. Unlike micronutrients, macronutrients are essential sources of fuel and energy for the body (Institute of Medicine, 2005). Food sources vary in their content of particular micro- and macronutrients; therefore, eating food from a variety of sources is an effective approach to achieve a healthy diet and ensure the sufficient intake of all nutrients (Institute of Medicine, 2005). A diet that contains unacceptable levels of macronutrients has been deemed to have unfavourable consequences for both individual and population health (Bowen & Beresford, 2002; Briefel & Johnson, 2004).

2.2 Changes in Dietary Trends and the Incidence of Disease

Canada, along with other Western nations, is currently battling a wide range of preventable diseases such as obesity, cancer, heart disease and diabetes. In an attempt to understand the causes of chronic disease, academic and medical literature has turned to examining the evolution of dietary patterns and trends of Western populations. This section considers the approaches that nutritional literature has taken to understand dietary trends and the manifestation of chronic diseases.

Changes in the dietary trends of human civilization began with environmental changes and the introduction of agriculture and animal domestication approximately 10,000 years ago (Eaton et al., 1988). For millions of years prior to the development of agriculture, the human diet consisted mainly of minimally processed wild plants and animal foods (Cordain et al., 2005). However, the domestication of animals and plants, coupled with rapid industrialization in recent centuries, greatly changed the food production, supply and dietary characteristics of modern Western nations. The types of food and nutrients consumed in pre-agricultural societies did not include the “staple” foods – dairy and cereal products, and refined fats, sugars and oils – that make up a significant part of the contemporary Western diet (Cordain et al., 2005). From a genetic and evolutionary perspective, these dietary changes may have occurred too quickly for the human genome to adapt (Cordain et al., 2005). Simply put, when permanent changes are introduced into the environment of a population an evolutionary discordance occurs between the ancient, genetically determined human biology and the environment; this discordance manifests as disease, increased morbidity and mortality (Cordain et al., 2005).

Furthermore, the dietary patterns of individuals in Western developed nations have shifted in the last half century, thus introducing a new range of nutritional concerns. Lee and Paxman (1997) summarize the nutritional problems of the world fifty years ago as: (1) a lack of

adequate, safe, affordable supplies of food; (2) insufficient knowledge of the dietary needs of humans, and; (3) wide-scale ignorance among the public concerning the relationship of nutrition to health and disease. Similarly, Briefel and Johnson (2004) maintain that, historically, nutritional problems were centralized around food insecurity, nutrient adequacy and nutrient deficiencies.

Although food insecurity issues continue to be an area of concern for some disadvantaged groups, recently industrialized Western societies have moved to a trend characterized by an over-consumption of food as well as questionable diet quality (Briefel & Johnson, 2004). Specifically, this refers to an excessive consumption of calories relative to expenditures, coupled with an inadequate intake of fruits, vegetables and grains (Lee & Paxman, 1997). Despite the availability of nutrient-dense foods – namely fruits, vegetables and grains – many Western populations are increasingly consuming energy-dense foods that lack essential nutrients (Drewnowski, 2005).² The consequences of such a swing in dietary intake remains a contestable subject of debate, however many researchers contend that diet is a significant factor contributing to the string of preventable diseases that plague Western populations.

2.2.1 Diet-related Chronic Diseases

Diet is a contributing factor of chronic health problems and diseases (Briefel & Johnson, 2004; Cordain et al., 2005; Lee & Paxman, 1997; Lipkin et al., 1999; Schulze & Hu, 2005). Bowen and Beresford (2002) reveal that: “carefully conducted epidemiological observational studies, both prospective and case-control, show repeatedly that dietary factors are associated with several chronic diseases, including coronary heart disease, some types of cancer, stroke, and non-insulin dependent diabetes, and thereby contribute substantially to the burden of preventable illness” (p. 255). Research indicates that over 40 percent of chronic diseases are preventable, through lifestyle choices such as healthy eating (Select Standing Committee on Health, 2004). Specifically with respect to cancer, research maintains that differences in individual dietary intake account for more variation in the occurrence of cancer than any other factor, including cigarette smoking (Bowen & Beresford, 2002). In a study of colorectal cancer in Western societies, Lipkin et al. (1999) reveal compelling evidence that diet and nutrition are key factors in the development and progression of colorectal cancer.

Additionally, scientific evidence bolsters the claim that diet affects coronary heart disease. Research suggests that fat intake increases as societies become more urbanized and

² The terms *energy-dense* and *nutrient-poor* characterize foods that are perceived as unhealthy; these terms are used to distinguish from more nutritious, *nutrient-dense* and *nutrient-rich* food options (Drewnowski, 2005).

affluent, and the excessive intake of dietary fat is a factor in the causation of heart disease (Grundy, 1999). The intake of certain fatty acids, particularly saturated and trans fatty acids, raises serum cholesterol levels and thus increases the risk for coronary heart disease (Grundy, 1999). Recent studies also indicate that coronary heart disease results from the complex interaction of multiple nutritional factors directly linked to the excessive consumption of refined sugars, cereals, salt and fatty meats (Cordain et al., 2005).

The increased prevalence of obesity in Western populations is also tied to diet. Characterized by hazardously excessive weight gain, obesity contributes to chronic diseases, such as diabetes and hypertension; also, obesity has been progressively increasing in Canada and industrialized nations throughout recent decades (Vanasse et al., 2005). While genetic factors and physical activity affect weight gain and body composition, diet is a significant contributor to the incidence of obesity (Briefel & Johnson, 2004). Research reveals that a high intake of fat can add excess energy and thus contribute to obesity (Grundy, 1999). In addition, a diet that has a low frequency of fruit and vegetable intake is associated with contributing to overweight and obese populations (Vanasse et al., 2005).

Type II diabetes is an increasing health concern throughout Canada and other Western populations. It is widely accepted amongst academic and medical professionals that type II diabetes is the result of a complex interplay between genetic and environmental factors; however, persuasive evidence from scientific studies indicates that the current diabetes epidemic is largely due to changes in diet and lifestyle (Schulze & Hu, 2004). A growing body of evidence identifies that the quality of an individual's diet is a more significant factor in preventing type II diabetes, than the quantity. Specifically, dietary intake of saturated and trans fats, high-fat dairy products, as well as refined grain products and sweets are contributing risk factors for diabetes (Schulze & Hu, 2004).

The plethora of literature on the relationship between diet, health and the incidence of disease reveals the complexity underlying the science of nutrition. It is recognized that there is interplay between environmental factors, genetics and dietary intake that affect health outcomes. Ultimately, however, the realization that diet is a major contributor to the nutritional status and health of a population is incredibly significant. This awareness opens the door for timely changes that can help mitigate the extensive costs of preventable disease to the public health care system.

2.3 The Economic Burden of Obesity

The previous subsection identified that there are numerous diet-related diseases, such as cancer, coronary heart disease, obesity, and type II diabetes. Each of these diseases negatively affects the health care system. For instance, the estimated direct cost of coronary heart disease was nearly \$3 billion in 1993.³ While the significance of these preventable diseases to the health care system is relevant, this subsection focuses on the negative impact of one disease in particular: obesity. Obesity is the focus of this subsection largely because in recent years, this disease has garnered considerable attention for its particularly devastating effects to individual and population health. Moreover, the Canadian Institute for Health Information (CIHI) (2001) maintains that in Canada obesity is reaching epidemic proportions, and as such deserves particular consideration.

As a preventable disease, obesity is progressively becoming a concern for health services in Canada. Specifically, in 1994 – 95, an estimated 30 percent of Canadian adults were overweight (Health Canada, 1997a).⁴ By 2004, approximately 36 percent of Canadian adults were overweight, and an additional 23 percent classified as obese (Statistic Canada, 2004). The dramatic increase in obesity rates in recent years is alarming; thus, the study of obesity and its effects propelled to the forefront of academic and medical research (Drewnowski & Darmon, 2005). Moreover, because of the negative impact on other serious health problems, including diabetes and cardiovascular diseases, obesity is one of the principal public health problems of today (Starky, 2005; Visscher and Seidell, 2001).

A substantial portion of Canadian health care dollars is devoted to the treatment and management of obesity and obesity-related illness (Birmingham et al., 1999). In 1997, the estimated total direct economic burden of obesity in Canada was nearly \$2 billion; this corresponded to two percent of total direct health care expenditures for all diseases in Canada (Birmingham et al., 1999).⁵ For the year 2001, the cost of obesity was estimated at \$4 billion, representing two percent of total health care costs (Katzmarzyk & Janssen, 2004). In their review of public health expenditures, Katzmarzyk and Janssen (2004) approximate the cost of obesity to

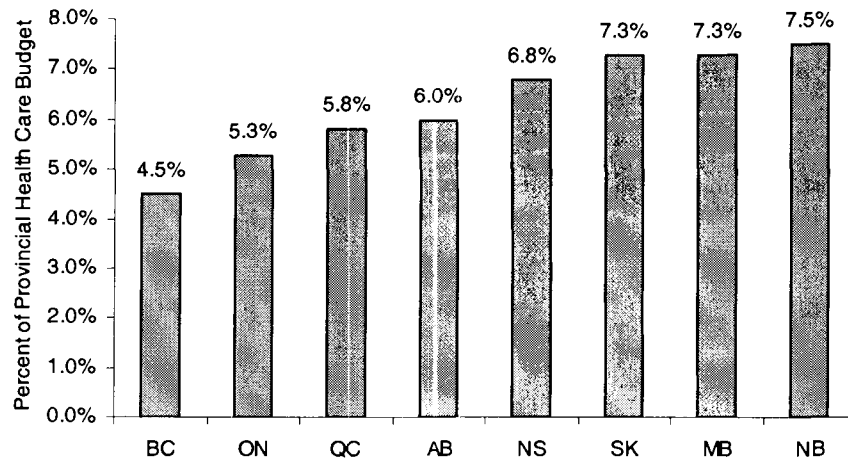
³ See http://www.wrongdiagnosis.com/c/coronary_heart_disease/basics.htm for more information.

⁴ Obesity, at the time of this 1994 – 1995 survey, was classified as having a Body Mass Index (BMI) of 27 or higher. Today obesity rates have changed to classify a BMI of 30 and above as obese (Health Canada, 2003a).

⁵ This study accounted only for direct costs (i.e. drugs, hospital, and physician care); the indirect health care costs of obesity, such as loss of work due to disability, are not included in this study (Katzmarzyk & Janssen, 2004).

be approaching \$2 billion in direct costs, such as hospital and physician care, and nearly \$3 billion in indirect costs, such as loss of work due to disability.

Figure 1: Direct Cost of Obesity as a Percentage of the Provincial Health Care Budget



Source: Starky, 2005

Figure 1 reveals the direct cost of obesity as a percentage of each province's total health care budget in 2001.⁶ In 2001, BC had the lowest direct cost of obesity as a percentage of the provincial health care budget when compared to the rest of Canada's provinces (see figure 1). There is a difference of three percentage points between BC and New Brunswick – the province with the largest direct expenditure on obesity as a percentage of the provincial health care budget. In addition, research on obesity in Canada maintains that British Columbia has the lowest rates of overweight individuals in the country; however, the rate of increase has been sharper than the national average (Colman, 2001). The annual cost of obesity-related illness to BC's health care system in 2001 was an estimated \$380 million, translating to nearly five percent of total direct provincial health care costs (Colman, 2001). This figure increases when productivity losses due to obesity, including premature death, absenteeism and disability, are included: the total cost of obesity to the provincial economy is estimated to be between \$730 million and \$830 million per year (Colman, 2001).

⁶ The figure does not include Prince Edward Island and Newfoundland because data are unavailable.

Although the total economic impact of obesity remains unknown, the costs to the health care system alone underscore the importance of developing public policy efforts to minimize the burden of obesity and preventable dietary-related illness in Canada.

3 Dining Out: A Challenge to Healthy Eating

There are numerous challenges complicating the development of nutrition policies that promote healthy eating, such as conflicting nutritional messages to consumers regarding diets, and the increased availability and convenience of unhealthy food products. Further compounding the establishment of a policy framework for healthy eating is the ever-increasing trend of dining out in restaurants. Through an examination of key literature and statistics, section 3.1 outlines the recent trends in dining out. Section 3.2 examines the nutritional effects of dining in restaurants, in terms of portion sizes and food consumption patterns. Following in section 3.3 is statistical information outlining the nutritional status of British Columbians.

3.1 Dining Out Trends in Canada

There has been an increasing prevalence of consumers dining in restaurants across Canada. The Canadian Restaurant and Foodservice Association (CFRA) estimates that the average Canadian household spends 30 percent of its total food dollar on restaurant dining; for comparison, an average household in the United States spends 42 percent of its food dollar on eating in restaurants (CFRA, 2005). In Canada during 2001, of every dollar spent on food, 30 cents went to restaurant meals; this grew from 25 cents in 1982 (Statistics Canada, 2003).⁷ British Columbian households spent 33 cents of every food dollar on dining out in 2001, whereas those in the Atlantic provinces allocated 25 cents of every food dollar to restaurant dining (Statistics Canada, 2003). Furthermore, during 2001 the average British Columbian household's weekly food expenditure budget was \$131.98, of that \$43.23 was spent dining in restaurants (Statistics Canada, 2005a). In terms of British Columbia's economy, the foodservice industry reached \$7.7 billion in 2004, representing over five percent of the province's gross domestic product (GDP) (CRFA, 2005).

⁷ Note: the data and statistics from Statistics Canada include all commercial restaurant establishments, from fast food to full-service (including casual and fine dining).

Table 1: Commercial foodservice establishments per 1000 people by province

Province	Number of Establishments	Establishments per 1000 people
BC	9,595	2.2
Alberta	6,996	2.1
Saskatchewan	1,837	1.8
Manitoba	1,929	1.6
Ontario	22,327	1.8
Quebec	16,042	2.1
Newfoundland	1,032	2.0
Nova Scotia	1,604	1.7
Prince Edward Island	299	2.1
New Brunswick	1,478	1.9

Source: CRFA (2005); Statistics Canada (2005); calculations by author

Table 1 reveals the number of commercial foodservice establishments per 1000 people in each province in 2005.⁸ British Columbia has 9,595 commercial foodservice establishments; this is third highest behind Ontario and Quebec, which have 22,327 and 16,042 foodservice establishments respectively. More importantly, BC has the largest number of commercial foodservice operations per 1000 people in the nation. For every 1000 people in BC, there are 2.2 restaurants. Quebec, Alberta, and Prince Edward Island are close behind with 2.1 restaurants per 1000 people. Although the difference is not large, it is significant that British Columbia has more commercial foodservice establishments per 1000 people than any other province. A greater availability of restaurants and commercial foodservice establishments means there is an increased convenience to dine out. In addition, there are currently over 63,000 commercial foodservice establishments throughout Canada's provinces, and over 28,000 of these are full-service restaurants (CRFA, 2005).

Statistics reveal that an average household in Canada visits a commercial foodservice establishment for a meal or snack 520 times per year; thus, meals and snacks sourced from commercial foodservice establishments account for approximately one in ten meal occasions (CRFA, 2005).⁹ Moreover, consumer spending in commercial foodservice establishments is increasing throughout Canada. The average check size per person in Canada climbed from \$6.05

⁸ A commercial foodservice establishment is defined as an operation whose primary business is food and beverage service (CRFA, 2005). This includes all commercial restaurant establishments, from fast food to full-service restaurants, as well as bar establishments (CRFA, 2005).

⁹ This statistic is not limited to full-service (i.e. casual or fine-dining restaurant) establishments, but also includes a wide range of commercial foodservice establishments, including fast food.

to \$6.22 during 2005, indicating almost a three percent increase from 2004 (CRFA, 2005). While the change in check size may be attributable to increases in restaurant meal prices, it may also indicate that restaurants patrons are buying and consuming more food in restaurants.

Ultimately, the statistics reveal that individuals are dining in commercial foodservice establishment increasingly more often. British Columbia is a notable case because not only does the province have the highest number of foodservice establishments per 1000 people, but individuals in this province are also spending a significant portion of their food expenditure budgets dining in restaurants.

3.2 Dining Out and Nutrition

Dining in restaurants has become a common part Canadian life. The growing popularity of food consumption in restaurants and the potential for adverse nutritional consequences has gradually increased the amount of published literature on the topic of dining out and nutrition. Recent studies indicate that numerous factors when dining out, including nutrient content and food preparation methods, and portion sizes and food intake patterns, are increasingly becoming areas of nutritional concern. In addition, analysis indicates that awareness of nutrition is significantly less for consumers when dining in restaurants, than when eating at home (Gilmore et al., 1997).

As food eaten away from home comprises an increasingly significant portion of total energy intake, the nutritional quality, particularly in terms of nutrient content and preparation methods, is becoming more of a concern (French et al., 2001). Although there is limited data analysis on food items in restaurants, research indicates that food sources away-from-home, such as in restaurants, are higher in energy and fat content compared to at-home foods (Kant & Graubard, 2004; Biing-Hwan et al., 1999; French et al., 2001). Indeed, studies indicate that the fat content of meals in restaurants exceeds nutritional guidelines; this may be a result of the particular food item, as well as the use of oils during cooking (Mertanen et al., 1998). Furthermore, an analysis of food preparation and cooking procedures reveals that less than 47 percent of poultry, 43 percent of seafood and 39 percent of fish are cooked using low-fat methods in restaurants (Neubauer & Hamouz, 1996). This may be the result of a belief amongst culinary professionals that optimal flavour and richness cannot be achieved without adding high-fat ingredients (Hamm et al., 1995).

Another area that presents challenges to healthy eating when dining out is the portion sizes in restaurants. Portion sizes have been increasing both in pre-packaged, ready-to-eat

products and, even more significantly, at restaurants (French et al., 2001). When dining at restaurants consumers may be underestimating their portion sizes, as well as food intake. Evidence suggests that people have trouble accurately estimating portion-size information, especially as the portion size increases (French et al., 2001). Similarly, portion size has an effect on food consumption. Studies reveal that when portions are doubled in size, the consumption of many foods, such as pasta, generally increases by 18 to 25 percent (Wansink, 1996).

Moreover, awareness of food intake is difficult when dining out. Environmental factors, such as plate shape, lighting, and socializing influence over-consumption of food when dining out (Wansink, 2004). Although such environmental factors appear unrelated, they generally influence consumption volume by inhibiting consumption monitoring and suggesting alternative consumption norms (Wansink, 2004). Put differently, environmental influences contribute to a lack of awareness of food intake, which leads to overeating.

Overall, the academic literature above reveals the hidden downfalls of restaurant dining. The food and commercial environment make it difficult for many Canadians to adopt healthy food habits when dining in restaurants (Beaudry et al., 2004). The lack of widespread consumer knowledge regarding nutrient content, increasing portion sizes, and ignorance surrounding food consumption, contribute to the difficulty of making healthy choices. In addition, by not providing nutritional information of healthy choices when dining out, the cycle of consumer unawareness will unfortunately continue.

3.3 The Nutritional Status of British Columbians

This subsection outlines the nutritional status of British Columbians. Findings from the province's most recent comprehensive nutrition survey, the *British Columbia Nutrition Survey*, are presented in order to provide a perspective of nutrition behaviours, food consumption patterns and nutrient intake of citizens throughout the province.¹⁰

The results of the 1999 BC Nutrition Survey reveal a growing trend in the province towards a nutritional position that compromises health (Ministry of Health Services, 2005a). For example, over half of British Columbian adults are considered either overweight or obese; specifically, 18 percent of British Columbians are obese, and 37 percent are overweight (Ministry

¹⁰ Over the last decade, various surveys have been conducted on the eating habits and physical activity of British Columbians. (For an example, see McCreary Centre Society for a survey conducted on healthy youth development in 2003). However, the 1999 BC Nutrition Survey provides the most comprehensive examination of the nutritional status of British Columbians; over 1800 adults throughout the province were surveyed. Prior to 1999, the last comprehensive nutrition survey completed in BC was during 1972.

of Health Services, 2004a). Moreover, the percentage of overweight and obese adults increased by 10 percent, from 44 to 55 percent, between 1989 and 1999 (Ministry of Health Services, 2004b).¹¹

There are several socio-demographic variables associated with the prevalence of overweight and obese individuals in British Columbia. For instance, the percentage of overweight and obese adult varies depending on geographic location in the province. Urban dwellers in the lower mainland exhibit lower levels of obesity, while those residing in the north and interior areas of the province exhibit higher levels of overweight and obesity (Ministry of Health Services, 2004b). Additionally, while obesity rates are similar among men and women, men are more likely to be overweight; furthermore, the prevalence of overweight and obesity increases with age (Ministry of Health Services, 2004b). Income status does not affect obesity rates for women; however, among males, findings indicate that men in higher income categories are more likely to be overweight, when compared to men who are in the low-income category (Ministry of Health Services, 2004b). There is a notable shift here, because previously nutrition literature identified that low-income individuals were among the most overweight and obese (Drewnowski and Specter, 2004). However, as the BC Nutrition Survey reveals, obesity is not a condition that concerns only lower income categories. This implies that policy initiatives targeting healthy eating in the casual dining restaurant industry are important, specifically because this environment is available to individuals from a variety of incomes, including middle and high-income categories.

In terms of healthy eating, the BC Nutrition Survey uses *Canada's Food Guide* as a benchmark to measure healthy food consumption. An overall picture of the findings reveals that many males, and even more females, did not consume an acceptable amount of nutrients from each food group. Specifically, the survey results indicate that 60 percent of men, and 75 percent of women failed to consume the recommended five to ten daily servings of fruit and vegetables, as outlined by *Canada's Food Guide* (Ministry of Health Services, 2004b). In this instance, both males and females in the 19 to 49 age group had a greater intake of fruits and vegetables than those in the 50 and above age category. Furthermore, the survey reveals an under-consumption of grain products by males and females, as well as an inadequate intake of low-fat dairy products (Ministry of Health Services, 2005a).

¹¹ Note: the BC Nutrition Survey uses the BMI measure to calculate obesity rates. Obesity rates are compared to the BC Heart Health Survey completed in 1989.

Additionally, many adults consumed an excess of calories from foods that contain mostly fat and sugar. The results indicate that one-quarter of one day's calories came from butter, margarine, oils, cookies, cakes, donuts, chocolate, alcohol, pop, fruit drinks, jams, candy and chips (Ministry of Health Services, 2004a). In other words, consumption of foods from the unhealthy 'other' category totalled almost 25 percent of total caloric intake (Ministry of Health Services, 2005a).

Overall, the dietary intake patterns of British Columbians is one characterized by over-consuming energy-dense foods, such as high-fat oils and cookies, while also under-consuming nutrient-rich foods, particularly fruits and vegetables. This nutritional trend raises concerns, particularly since the rates of overweight and obesity are increasing over time throughout the province. In addition, also worthy of note is the limited data on the nutritional status and trends of individuals in British Columbia. There have only been a handful of comprehensive nutritional studies conducted in the province in last three decades – this ultimately contributes to overall nutritional ignorance, effectively exacerbates the lack of dietary awareness, and hinders the progression of knowledge regarding the importance of diet and health.

4 The Evolution of Public Policy and Nutrition

This section examines the evolution of public policy and nutrition from a Canadian perspective. A historical look into the development of public policy undertakings that involve health enables a more comprehensive understanding of the federal and provincial governments' current role and position regarding nutrition policy. Section 4.1 defines and explores the concept of public health, which is the root of nutrition in public policy. Section 4.2 outlines the notion of public nutrition, which largely underscores the importance of improving the overall population's nutritional status. Section 4.3 describes health promotion and the idea that the health of a nation is dependent upon a large context of factors. Section 4.4 investigates the role of publicly provided health information, and describes two public policy approaches that promote nutritional knowledge.

4.1 Public Health

Public health is defined as the science and art of promoting health, prolonging life and improving the quality of life through the organized efforts of society (Ministry of Health Services, 2005b). The term public health has been widely used in Canada since the release of the Lalonde Report (1974), which identified that diet and lifestyle are significant factors contributing to the health of the population. Through various institutions, the public health system operates programs and offers services that emphasize the prevention of disease and the promotion of health; moreover, public health strives to enhance the nutritional status of the population as a whole (Institute of Population and Public Health, 2003).

The intent of public health is to promote a healthier population and reduce demand on the health care system; simultaneously, public health is expected to defer and potentially decrease medical costs to facilitate more appropriate and lower utilization of health care (Ministry of Health Services, 2005b). The burden of illness is forcing the health care system into a crisis-driven "sickness system" that is not sustainable in the long term (Select Standing Committee on Health, 2004). Thus, public health focuses on the prevention of chronic illness. In essence, the public health system of policies, programs and services parallels Canada's health care system. The public health and health care systems share the same goal of maximizing the health of

Canadians; therefore, Health Canada maintains that it is equally as important to have a well functioning public health system, as it is to have a viable health care system (Institute of Population and Public Health, 2003).

In British Columbia, as well as other provinces, public health is delivered through either regional health authorities or the provincial government. Each province enacts its own public health legislation, most of which focuses on the control of communicable diseases; however, changes are on the horizon since it is now recognized that most preventable disability and death is due to chronic disease and injury (Institute of Population and Public Health, 2003). Although the federal government's legislative role in public health is currently not defined, the Population and Public Health Branch (PPHB), acts as the primary public health entity within the government of Canada (Institute of Population and Public Health, 2003).

4.2 Public Nutrition

Public nutrition is a newly emerging field that has developed in the wake of public health. Public nutrition signifies the process of improving the nutritional status of large segments of the Canadian public, at the population level rather than the individual level (Beaudry et al., 2004). As is the case with public health, public nutrition aims to improve the health of the population and reduce costs to the health care system. Public nutrition targets research, training and intervention strategies that analyze not only the determinants of the nutritional problem, but also how a concerted effort from civil society, private organizations and government can work to solve it (Beaudry et al., 2004).

A central objective of public nutrition involves the development of policies and programs that target the environment and living conditions; this specifically concerns empowering large segments of individuals to adopt healthy food habits (Beaudry et al., 2004). Public nutrition's policy focus has grown in response to the drawbacks of approaches that are too empirical, technological and individualistic to address complex societal problems surrounding nutrition (Beaudry et al., 2004). Public nutrition seeks to enhance the dietary quality of the population through wide ranging and innovative policies.

Public nutrition falls within the larger field of population health; essentially, the former largely shapes the premises, objectives and key elements of the latter (Beaudry et al., 2004). Put differently, public nutrition is a specialized field of population health geared wholly at the nutrition of populations, whereas population health concentrates on the general health and health outcomes of populations. Population health is thus an approach that aims to improve the health of

the entire population by taking into account a broad range of environmental factors and conditions (Public Health Agency of Canada, 2005). Within this health domain there is a recognition that health is a capacity or resource rather than a state – a definition which corresponds to the notion of being able to pursue one's goals, to acquire skills and education, and to grow (Public Health Agency of Canada, 2005).

4.3 Health Promotion

Health promotion is the educational process of enabling people to increase control over and improve their health (World Health Organization, 2003). Health promotion draws on health sciences, programs, practices, and policies that relate to advocating the health of human populations. This extensive view of improving health forces policymakers out of the traditional boundaries of health institutions, with the recognition that much of what relates to the health of human populations happens in other sectors (Green, 1999). Rooted in public health, health promotion represents the changing direction of policy efforts away from a reactionary practice heavily reliant on the health care system, to a more preventive and pre-emptive approach to nutrition and health.

The release of Canada's policy statement *A New Perspective on the Health of Canadians* in 1974 marked the beginning of health promotion as a significant component of the national health policy (Green, 1999). Within this document, the Government of Canada solidified the position that medicine and the health care system play only a minor part in determining overall health status (Lalonde, 1974). The concept of health promotion thus emerged as the primary prevention and capacity building policy for community, family, and individual self-management of health problems and programs (Green, 1999). Currently, health promotion remains a widely used tool by government to promote nutritional consciousness.

4.4 Publicly Provided Health Information

Drawing on health promotion as the predominant policy strategy to encourage healthy eating, the Canadian government, as well as the province of British Columbia, has developed programs where the core objective involves educating the public on healthy food choices. This section outlines two central public health programs that focus on promoting healthy eating: (1) the federal government's policy *Canada's Food Guide to Health Eating*; and, (2) the provincial government's *ActNow BC* policy initiative. Essentially, these are policy options that provide nutritional information and facilitate nutritional awareness.

Health Canada (1996) defines a threefold rationale for government involvement in promoting nutritional awareness through informative policy: (1) a well nourished population contributes to a healthier, more productive population, lower health care and social costs, and better quality of life; (2) the eating patterns of many Canadians contribute to the high incidence of nutrition-related chronic diseases; and, (3) diet and activity patterns are second only to tobacco when considering non-genetic factors that contribute to mortality. These assertions identify nutrition as a catalyst to further individual and social well-being. Underlying the statements is the notion that the benefits of nutrition are subject to the knowledge, awareness and behaviour of the public.

4.4.1 *Canada's Food Guide to Healthy Eating*

Canada's Food Guide to Healthy Eating, or Canada's Food Guide (CFG) as it is more commonly known, is the face of Canada's national nutrition policy put forth by the federal government. To achieve the mandate of reaching a pan-Canadian audience, the food guide employs social marketing – the use of marketing to design and implement programs that promote socially beneficial behaviour change (Grier & Bryant, 2005). Currently designed and marketed in a “rainbow” format, CFG provides recommended daily intake information for each of the central food groups (i.e. fruits, vegetables, grains and meats).¹² The food guide does not reveal the scientific evidence behind the development of its principles, or the complex array of percentages and technical terms that characterize nutrient recommendations. Moreover, by presenting the recommended dietary guidelines in a range of suggested serving-sizes, the food guide is appropriate for use by various segments of the population.

The food guide has been in continual evolution since its inception in 1942. Originally introduced as food ‘rules’ for wartime rationing and nutrition, the food guide now emphasizes healthy eating based on modern knowledge of nutrient recommendations and the prevention of chronic diseases (Bush & Kirkpatrick, 2003). As new information surrounding nutrient recommendations and health develops, the food guide adapts to meet dietary guidance changes. For example, the *foundation diet* approach of early Canadian food guides simply outlined a minimum requirement of food intake needed to attain essential nutrients (Bush & Kirkpatrick,

¹² The federal government is currently in the process of developing and implementing an updated version of the 1992 *Canada's Food Guide to Healthy Eating*; the expected release of the updated version is late spring 2006 (Health Canada, 2005). See Appendix A for a visual of *Canada's Food Guide to Healthy Eating*.

2003). The modern food guide, in contrast, offers a *total diet* approach, which provides guidance to meet nutrient recommendations across a range of energy intakes (Bush & Kirkpatrick, 2003).¹³

During the 1980s, Health Canada developed a mass media campaign on television and in print to relay healthy eating messages from the food guide. Directed at Canadian adults, an evaluation of the media campaign reported an enhanced awareness of nutrition and healthy eating (Health Canada, 1990). Additionally, academic literature demonstrates that media awareness is a principal source of nutrition information for consumers (Axelson & Del Campo, 1978). Studies have identified that social marketing media campaigns succeed in increasing nutrition knowledge, and are primarily effective at the awareness stage of behaviour change (Flay et al., 1980).

Described by Health Canada (2005) as a high profile element of Canada's nutrition policy, the food guide is used by educators, health professionals, food marketers and consumers. In order to garner and maintain wide acceptance of the food guide, numerous stakeholders are included in its lengthy revisions and development. A cross-section of stakeholders, including provincial departments of health, professional associations, and voluntary agencies, as well as national organizations related to food industry, fitness, health, agriculture, and education, all participate in CFG revisions and updating (Bush & Kirkpatrick, 2003).

The intent of the food guide is to provide information regarding healthy eating habits. Recently, however, stakeholder sessions reveal the perception that the food guide is too vague and does not provide enough information on serving sizes, or the food groups (Health Canada, 2004). There also remains uncertainty as to whether or not CFG provides adequate guidelines for consumers to use when dining out. For instance, when dining in restaurants the food guide currently suggests that consumers "look for places that offer a variety of lower-fat choices from each of the food groups with lots of grain products, vegetables and fruit" (Health Canada, 2002). There is limited explanation regarding the concept of "low-fat", and there is no reference to serving size portions. Enhancing and expanding the food guide's nutritional messaging, and providing clarity on food group use, are viewed as important factors in continuing stakeholder support of CFG (Health Canada, 2002). More importantly, however, is the implication that the minimal amount of information provided contributes to a lack of awareness and knowledge among consumers.

¹³ In essence, the *total diet* approach takes into account the different physical characteristics, such as height, weight and age, that characterize the Canadian population; this essentially provides a "*total diet*" approach to food consumption, one that does not simply provide minimum intake requirements.

4.4.2 *ActNow BC*

ActNow BC is a comprehensive health promotion program put forth by the government of British Columbia. As stated in section 1, *ActNow BC* reflects the provincial government's goal to "make British Columbia one of the healthiest jurisdictions to ever host the Olympic Games" (Ministry of Health Services, 2005b, p. 3). Although *ActNow BC* is still in its infancy, the policy combines cross-governmental and community-based approaches to address common chronic disease risk factors through programs and initiatives that support a healthy living environment.

There are five main components to *ActNow BC*: (1) increase healthy eating; (2) increase physical activity; (3) reduce tobacco use; (4) reduce the population classified as overweight and obese; and, (5) increase access to information for women to make healthy choices during pregnancy.¹⁴ Through the promotion of healthy eating, living tobacco free and making healthy choices during pregnancy, the policy strives to promote achievable lifestyle changes that improve health by the year 2010. Specifically in terms of healthy eating, the projected goal is to increase the proportion of the adult population that consumes the recommended intake of fruits and vegetables from 40 percent to 48 percent (Ministry of Health Services, 2005a). There is also an aim to decrease the proportion of calories from high fat and sugar foods in the diets of the adult population from 25 to 20 percent (Ministry of Health Services, 2005a).

Initiatives currently being developed in regards to promoting healthy eating include fruit and vegetable programs and nutrition modules in BC schools, as well as a dial-a-dietician program that provides information on nutritional issues (Office of the Premier, 2005). Physical activity programs, such as *ActionBC*, are closely linked with healthy eating at local schools; for instance, the *ActionBC* school program helps schools create individualized plans to promote healthy eating (Office of the Premier, 2005).

In the years leading up to the 2010 Olympic Games, the *ActNow BC* policy is intended to remain the principle health promotion strategy to improve the health of BC citizens. The components of *ActNow BC* are not meant to work in isolation, but as a holistic and integrative approach to improving health. This all-encompassing position of health prevention is one that the

¹⁴ See <http://www.healthservices.gov.bc.ca/prevent/actnow.html> for additional information on *ActNow BC*.

provincial government deems necessary to increase the overall health status of British Columbians.¹⁵

4.5 Summary of Public Policy and Nutrition Literature Findings

In all, a summary of the findings from public policy and nutrition literature reveals that government initiatives involving nutrition focus on the role of providing information. Through public health, and the evolution of public nutrition and health promotion, government has taken the policy approach of providing knowledge and information in order to increase awareness of nutrition and healthy eating. Social marketing is a key tool used to provide information to broad segments of the population. The information focuses on relaying positive nutrition behaviour, and does not explicitly reveal the downsides of unhealthy eating. From *Canada's Food Guide to Healthy Eating*, to the recent inception of *ActNow BC*, the trend is clear: providing information is the primary role of government in the development of nutrition policy.

¹⁵ While it is acknowledged that each component of the *ActNow BC* strategy is important, it is beyond the scope of this analysis to address issues that are outside the realm of healthy eating. The healthy eating component itself is extremely large, and as such, this analysis has narrowed the focus to be concerned specifically with healthy eating when dining in casual restaurants, because this is an important component of consumers' eating patterns.

5 Consideration of Case Studies

This section presents an analysis of initiatives designed to increase awareness of healthy eating, when dining in restaurants. Since this is a relatively new area of research, data are not available on the outcomes of many of the programs. The purpose of this section is to review what other jurisdictions have implemented and distinguish between each program's central tenets, in order to develop an understanding of best practices.

5.1 Initiatives to Increase Awareness of Healthy Eating in Restaurants

Table 2: Restaurant Intervention Initiatives

Jurisdiction	Program Name	Key Features
Ontario	<i>Eat Smart!</i>	Administered by health units, with a central nutrition resource centre Menu items are not individually designated, but restaurant is required to have a variety of healthy items available
British Columbia, Saskatchewan, Manitoba, Ontario	<i>Heart Smart Restaurant Program</i>	Developed by the Heart and Stroke Foundation and ran from 1988 to 1998 Two levels: "plus" which required menu analysis (approved items receive a heart logo on menu) and "basic" which required restaurants to offer healthier alternatives (such as calorie-reduced dressing) upon request
California	<i>Healthy Dining Program</i>	Works with restaurants to identify, analyze and modify dishes to meet the program's nutritional standards Publishes and sells detailed guide to participating restaurants with nutritional analysis of menu items
Michigan	<i>M-Fit Healthy Dining Program</i>	Specific guidelines are used to determine which menu items qualify as M-Fit Healthy Dining Selections; these selections are marked with an M-Fit logo
Maine	<i>Diner's Choice</i>	Members commit to training serving staff to thoroughly know the menu, including nutritional content and portion sizes Emphasis on healthy alternative menu items, portion sizes, and alternative preparation methods
Illinois	<i>Coronary Heart Improvement Project (CHIP)</i>	Participating restaurants must have two heart-healthy entrees; CHIP approval on the door

Jurisdiction	Program Name	Key Features
North Carolina	<i>Winner's Circle</i>	Menu icon is displayed as promotional logo One menu item must meet criteria, and nutritional analysis required
Virginia	<i>Dine to your Heart's Content</i>	Program initiated by American Heart Association and is designed to promote nutritious menu options with a heart logo Focus is on the preparation of menu items with reduced calories and fat
Nevada	<i>Project LEAN</i>	A city of Las Vegas social marketing initiative challenged chefs to develop good-tasting meals that were low in fat Logo on menu beside healthy item

Table 1 provides a summary of initiatives that aim to increase awareness of healthy eating when dining in restaurants. The first two programs are Canadian ventures, while the remaining are healthy eating initiatives adopted in the United States (US). The brevity of the list above reveals that environmental intervention to promote healthy eating away from home is a relatively unexplored field of research. Indeed, Glanz and Hoelscher (2004) note that research is just beginning to describe health-behaviour environments, and there remain several important gaps in knowledge about dietary behaviour, and healthy food consumption in restaurants. Kant and Graubard (2004) reinforce these observations as they find there is surprisingly little published information on trends in frequency of eating away from home.

The *Eat Smart!* dining program in Ontario is designed to promote consumer awareness of healthy eating through three components: (1) nutrition; (2) food safety; and, (3) a smoke-free environment. Participating restaurants must meet all three requirements in order to receive a certificate from the local public health unit. Fulfilling the prerequisites enables a listing on the *Eat Smart!* website, as well as in the community's dining guide; thus, healthy menu items are not specifically targeted. A preliminary examination by the *Eat Smart!* program coordinators in 2003 revealed that the program required significant promotional improvements, due to large amounts of misunderstandings of how to qualify, as well as a low level of public awareness.¹⁶

The *Heart Smart Restaurant Program* was a program developed by the Heart and Stroke Foundation of Canada in 1988. This program ran in British Columbia, Manitoba, Saskatchewan and Ontario until 1998 and focused specifically on promoting healthy food choices in table-service restaurants. There were two tiers to the program: (1) the "plus" tier, which required a

¹⁶ See: <http://eatsmart.web.ca/english/> for more information on the Eat Smart! program.

menu analysis of recipes; and, (2) the “basic” tier, which set standards that restaurants must have “healthier” choices available for consumers upon request. Restaurants meeting the “plus” tier requirements received a heart logo beside their designated menu item. The “basic” tier entailed having restaurants provide substitutes for high-fat menu items, such as french fries, as well as providing low-fat milk and reduced calorie dressings for consumers upon request. A review of the *Heart Smart* program by Green et al. (1993) reveals that the program was widely recognized by consumers; however, the function of the program was often misunderstood. Confusion largely resulted from an issue in the “basic” tier restaurants, where healthier menu items were provided only *upon request*, and thus were not clearly indicated on the menu. Another review by Dwivedi and Harvey (1999) in Ontario indicates that 92 percent of consumers were aware of the program, and the menu logo was the most widely recognized promotional tool. While the program enjoyed overall success, a lack of extensive promotion and intensive resource requirement are cited as contributing to the program’s end.

The California *Healthy Dining Program* promotes awareness of healthy meal selections by providing a comprehensive dining guide to consumers. The program works with restaurants to identify, analyze and modify dishes that meet the US Surgeon General’s nutritional guidelines. The dining guide costs \$20 and contains nutrient analysis from approximately 70 restaurants in Southern California. The guide also provides recipes, information on fitness, and practical dining tips.¹⁷ Other than evaluations in the media, data on the outcome of this program are currently not available.

Michigan’s *M-Fit Healthy Dining Program* uses specific nutritional guidelines developed by dieticians to determine if menu items from participating restaurants qualify to have the M-fit logo beside their healthy menu selections. The nutrient content that is considered includes, fat, cholesterol, sodium and overall caloric content. The menu logo also contains a statement describing its significance, as well as the intent of program. There are no known studies on the outcomes and impacts of this initiative.¹⁸

The *Diner’s Choice* program in Maine was developed in concert with the Maine Restaurant Association to promote consumer health when dining in restaurants.¹⁹ The program focuses on promoting health when dining out by having its members commit to comprehensively training staff on nutritional knowledge of menu items. This explicitly entails server knowledge of the meal preparation and cooking practices, because the restaurant’s staff is expected to make

¹⁷ For more information see: <http://www.healthy-dining.com/books.htm>.

¹⁸ More information on M-fit is available at: <http://www.med.umich.edu/mfit/nutrition/hdp.htm>

¹⁹ See: <http://www.amatos.com/news5.html> for more information.

efforts to enlighten consumers on nutritional choices.²⁰ No review exists of the program's outcomes.

The *Coronary Heart Improvement Program* (CHIP) was developed in Illinois to promote menu items that are low in fat, cholesterol and salt. Participating restaurants receive a CHIP symbol of approval on the door of their establishments. Program stipulations include that participating restaurants must have at least two heart healthy items at each meal period, as determined by the CHIP nutritional guidelines. Previous initiatives to increase healthy eating have been put forth by CHIP; for instance, one was a price reduction incentive in school vending machines, which resulted in an increase in low-fat snack sales (Glanz & Hoelscher, 2004). However, there is no report in literature of price modification interventions in full-service restaurants (Glanz & Hoelscher, 2004).

The *Winner's Circle* initiative in North Carolina uses a menu icon as a promotional logo to increase consumer awareness of healthy eating. This program stipulates that it is necessary for participating restaurants to have at least one menu item that meets the pre-determined nutritional criteria. Only menu items that have undergone menu analysis are approved. In addition to menu logos, restaurants also have a door sticker, and posters that inform consumers about the program.²¹ Data on monitoring and enforcement costs are not available, nor are there studies on the program's outcomes.

The main tenets of the *Dine to Your Heart's Content* program in Virginia include: (1) preparing foods with less fat, cholesterol and sodium content; (2) distinguishing healthy menu items with a heart logo on the menu; (3) promoting targeted menu items to consumers (Glanz & Hoelscher, 2004). A baseline assessment conducted on the program found that 57 percent of restaurant patrons were aware of the program (Paul et al., 1989). The same study found that a major disadvantage of the program was the potential for negative attention to some menu items (Paul et al., 1989). On the other hand, a significant advantage of the program was the unanimous claim that the program provided a public service to the restaurant patrons, while simultaneously enhancing the image of the restaurant (Paul et al., 1989).

Project LEAN (Low-fat Eating for Americans Now) was an initiative introduced in Las Vegas, which had a primary objective of using social marketing to change the food environment by challenging chefs to cook excellent tasting low-fat meals (Glanz & Hoelscher, 2004). Chefs

²⁰ See: <http://www.mainerestaurant.com/displaycommon.cfm?an=1&subarticlenbr=35> for more information.

²¹ Visit: <http://www.winnerscirclehealthydining.com/> for more information.

took culinary classes to develop low-fat menu items. Social marketing was used extensively to promote nutritional changes and publicize the *Las Vegas LEAN* logo on television (Palmer & Leontos, 1995). The program concluded with positive responses from consumers, as well as shifts in knowledge and attitudes towards positive nutrition behaviour from both chefs and restaurant patrons (Palmer & Leontos, 1995).

5.2 Summary of Case Study Analysis

Five main conclusions follow from this study of the approaches to increase awareness of healthy eating: (1) consumer awareness of healthy menu items increases through different means, such as informed restaurant staff, and also promotional materials such as informational brochures, symbols of approval, social marketing, and television media; (2) programs involve the collaboration of numerous stakeholders; (3) the media is used to communicate messages of nutrition and health; (4) many of the programs have not had adequate follow-up research to determine the extent of success; (5) many of the programs are resource intensive.

The purpose of analyzing these cases is to draw out valuable information that contributes to the development of a consumer awareness program targeting nutrition and healthy eating when dining in casual restaurants. While each jurisdiction has differing characteristics, with a unique population and a diverse spectrum of restaurants, it is valuable to consider the strategies pursued elsewhere, in order to build a more effective program in BC.

6 Current Study Methodology

This section outlines the methodological approach of the study. This includes a description of the primary and secondary sources of data. The analytical framework of this study consists of using both quantitative and qualitative methods to analyze consumer behaviour when dining in casual restaurants. A survey instrument obtained information regarding consumers' nutritional patterns when dining out, and elite interviews followed the survey process to help in the evaluation of policy alternatives. Section 6.1 provides details of the primary data sources used in the study. Specifically, section 6.1.1 describes the survey instrument, and section 6.1.2 reviews the procedures of the elite interviews.

6.1 Data

6.1.1 Survey Instrument

The survey instrument is a questionnaire that combines a stated preference model format with knowledge, perception and attitudinal questions. A comprehensive literature review informs the survey questions and contributes to understanding the range of factors that influence consumer preferences, and awareness of nutrition, when dining in casual restaurants. Specific questions sought to determine demographic characteristics, consumer preferences and patterns of eating when dining in casual restaurants, and overall awareness and perception of nutrition and health.²² The stated preference model, also known as conjoint analysis in marketing literature, is a survey technique that asks individuals to state their choice among a set of hypothetical alternatives (Bouffieux, 2002). Rooted in discrete choice analysis, a stated preference model allows researchers to categorize the dependent variable based on the preferences of respondents (Bouffieux, 2002). Combining stated preference data with attitudinal data provides a more reliable estimate of consumer preferences and perceptions (Harris and Keane, 1999).

Information collected through a non-random street survey of men and women who dine in casual restaurants in Greater Vancouver provides data regarding consumer behaviour and preferences of food consumption. In order to obtain a representative sample of the population,

²² Refer to Appendix B for the survey instrument.

numerous districts throughout Greater Vancouver are included in the study. Specifically, the study targets a variety of individuals from distinctive areas such as the downtown core of Vancouver, Vancouver proper, Burnaby, Coquitlam, Surrey, Delta, Richmond and Langley. Individuals from these regions participated in the anonymous and voluntary survey from October 27, 2005 to December 5, 2005. A total of 511 individuals completed the survey.

There were two eligibility requirements outlined before individuals completed the survey. First, participants must be patrons of casual restaurants; and second, only individuals over the age of 19 were able to participate. The recruitment process entailed researchers approaching possible respondents to complete a brief questionnaire. Questionnaires were generally self-completed; however, a small proportion of elderly individuals completed the survey verbally. Willingness to complete the survey increased once eligible participants were made aware that the survey was purely for academic research, and not for the use of a particular restaurant establishment or marketing agency.

Multinomial logistic regression on data collected from the survey instrument determines which characteristics are useful in predicting consumer preferences, behavioural patterns and nutritional awareness when dining in casual restaurants. Consumer trends from the survey instrument were analyzed and used in the compilation of elite interview questions.

6.1.1.1 Dependent Variable

Using the stated preference model format, the dependent variable in the study is the meal that an individual is most likely to choose as a dinner entrée when dining in a casual restaurant. The survey offered respondents the choice of a variety of hypothetical meal alternatives. These meal options presented in the survey are based on actual menu items available in casual dining establishments.²³ Research on the menus across a broad spectrum of casual restaurants established an accurate reflection of meals in terms of portion size, food variety and accompaniment selection.²⁴ The most common menu items from casual restaurants made up five hypothetical dishes, each with differing features: steak, chicken, salmon, pasta and vegetarian stir-fry. As is similar to a dining out experience in casual restaurants across Greater Vancouver, the respondents

²³ The menu analysis portion of the study focuses on casual dining establishments in Greater Vancouver that have more than one restaurant location; these may be considered 'chain' casual restaurants. These restaurants are considered because the study is concerned with the Greater Vancouver area, not necessarily one particular region, and 'chain' casual restaurants are generally spread throughout Greater Vancouver. While over 10 different casual restaurant menus were researched, a list of specific casual dining restaurants is not provided because of permission concerns and copyright issues.

²⁴ Restaurants that specialize in ethnic cuisine are not considered in this analysis due to dish complexity and macronutrient analysis concerns.

do not have information about the nutritional content of the survey meals. The food item is listed with accompaniments, and the restaurant patron makes their food selection without knowledge of fat, protein and carbohydrate nutrients.

The dependent variable consists of five categories – one for each of the meal options. Each meal option (that is, each category of the dependent variable) is measured by separately calculating the macronutrient values of every food item in each of the meal options; the macronutrient values are then totalled for each meal. This allows for a comparison of the macronutrient content of the meals.²⁵ As mentioned in Section 2, macronutrients are the essential nutrients needed for a healthy diet: protein, fat and carbohydrates. Health Canada (2005) provides the appropriate macronutrient reference values for individuals in a range known as the Acceptable Macronutrient Distribution Range (AMDR).

Table 3: *Acceptable Macronutrient Distribution Ranges*

	Total Carbohydrate	Total Protein	Total Fat
	Percent of Energy (k/cal)	Percent of Energy (k/cal)	Percent of Energy (k/cal)
Males and Females 19 years and over	45 – 65 %	10 – 35 %	20 – 35 %

Source: Health Canada, 2005

Table 3 outlines the AMDR for both males and females aged 19 and older. The AMDR is a range of intake for a particular energy source (i.e., protein, fat or carbohydrate), expressed as a percentage of energy (k/cal) (Health Canada, 2005). These values are associated with a reduced risk of chronic disease, while providing adequate intakes of essential nutrients (Health Canada, 2005). The acceptable protein range is from 10 – 35 percent of energy, while the carbohydrate range is from 45 – 65 percent, and the fat range is from 20 – 35 percent of energy (see table 3). This measurement is selected because the macronutrient values can be applied as a percentage of the energy intake of a meal, rather than daily intake. For the purposes of the study, the ‘healthy’ meal is one that falls within all of the acceptable macronutrient ranges outlined by Health Canada.

The meal options are designed so that only one meal meets the required macronutrient range, one meal does not fall within any of the recommended ranges of macronutrients, and the remaining meals are each excessive in one macronutrient area (either in protein, fat or

²⁵ See Appendix C through G for the nutritional calculations of each meal.

carbohydrates). Specifically: the salmon meal falls within all macronutrient ranges; the vegetarian stir-fry meal fails to meet any; the steak meal contains excessive protein; the roasted chicken contains excessive fat; and, the pasta meal has an excess amount of carbohydrates. The meal choices are conservative measures, to not lead or bias the respondents' selection. For example, menu items that are explicitly high in fat, such as deep fried items, are not included as possible meal options. Moreover, since the focus of the study is nutritional content, and because the prices of dishes vary throughout casual restaurants, there is no price shown for each meal.²⁶ In sum, the meals align with typical meals offered in casual dining establishments, and are used in the analysis to understand consumer behaviour and healthy eating in Greater Vancouver.

6.1.1.2 Independent Variables

Currently, there is no distinct profile in the academic literature that defines people who make healthy choices when dining in casual restaurants (Sullivan et al., 1997). There are however a number of different factors that are identified as contributing to understanding food selection, as well as nutrition and health. For example, the food preferences and food choices of populations are linked to attitudinal, social, and demographic characteristics (Drewnowski, 1997). These various factors are the independent variables analyzed in the study.

There are three sets of independent variables considered in the analysis: (1) trends of behaviour; (2) attitudinal and perceptual variables; and, (3) demographic characteristics.²⁷ These variables are derived from a review of literature on food selection, nutrition and consumer behaviour. The study uses the independent variables in the regression analysis, as well as to uncover trends in behaviour in the descriptive findings section. Revealing trends in consumer behaviour is important because it contributes to understanding the motivations behind food selection when dining out. Essentially, in order to develop effective nutritional policies, it is integral to have knowledge of whether or not consumer preferences are aligned with behaviour when dining in casual restaurants. Moreover, knowledge of consumer attitudes and perceptions regarding food preferences and health awareness is central for evaluating the effective responsiveness of a nutritional message. It is recognized in academic literature that consumer knowledge and attitudes toward healthy eating influence food selection (French et al., 1999; French, 2003). In addition, research suggests that information pertaining to the demographic characteristics of consumers plays a significant role in determining effective nutritional education and intervention strategies (Drewnowski, 1997).

²⁶ In subsequent questions, the survey explores the impact of price as a factor determining meal selection.

²⁷ See Appendix H for a table of all independent variables.

6.1.2 Elite Interviews

After completing the survey analysis, elite interviews provided expert opinion to help evaluate the policy alternatives. The participants interviewed for this study offered valuable knowledge and assessments, and filled the information gaps left open by literature.

Individuals consulted during the elite interviews included senior-level key stakeholders from five areas fundamental to the study: (1) a senior manager of a casual dining establishment in the restaurant industry; (2) a non-governmental organization that promotes a healthy lifestyle through healthy eating; (3) a public sector ministry involved in restaurant-related industry coordination; (4) a public sector ministry involved in promoting the health of the province through nutrition; and (5) an editor from a magazine that promotes the restaurant industry and consumer health.

One of the interviewees expressed concern regarding confidentiality; therefore, all interviewees' names are confidential, and coded as Interviewee subjects A through E throughout the analysis. The questions asked during the elite interviews ranged from opinions on the importance of awareness of healthy eating when dining in casual restaurants, to expert opinion on ways to promote healthy eating when dining out, and questions regarding administrative and political feasibility of the proposed alternatives.

7 Descriptive Survey Analysis

This section provides a description and analysis of the survey findings. Section 7.1 outlines the central objectives of the survey, which frames the importance of the survey results to the study. Section 7.2 describes the characteristics of the study sample by providing a demographic profile of the survey respondents as a whole, and by meal choice. Section 7.3 compares the study sample demographics to Census data; this allows for an assessment of how representative the study sample is to the Greater Vancouver area. Section 7.4 presents the descriptive findings of the survey, particularly in terms of the reasons why people dine in casual restaurants, what influences meal choice, and overall nutritional knowledge. Section 7.5 offers an analysis of the descriptive findings of the survey; the objective is to provide policymakers with a summary of valuable information that help develop policy alternatives to increase awareness of healthy eating when dining in casual restaurants.

7.1 Survey Objectives

There are a number of objectives behind the survey. The primary objective of the survey is threefold: (1) gauge consumers' level of healthy eating when dining out; (2) reveal consumer awareness and perception of healthy eating in casual restaurants; and, (3) identify possible demographic characteristics that contribute to a consumer's meal selection. Another goal of the survey is to use consumer opinions to determine the effectiveness of different strategies that aim to increase awareness of healthy eating when dining out. A final intention of the survey is to contribute to a body of literature that lacks a significant amount of research and analysis.

7.2 Study Sample Characteristics

Table 4: Profile of Survey Respondents (percent of total respondents)²⁸

	Total Participants (%)	Salmon (%)	Steak (%)	Pasta (%)	Chicken (%)	Stir-fry (%)
All	511	197 (39)	95 (19)	82 (16)	93 (18)	44 (9)
Male	238 (47)	82 (16)	67 (13)	35 (7)	39 (8)	15 (3)
Female	273 (53)	115 (23)	28 (6)	47 (9)	54 (11)	29 (6)
Age Category						
19-24	54 (11)	14 (27)	14 (3)	9 (2)	10 (2)	7 (1)
25-34	149 (29)	51 (10)	28 (6)	32 (6)	25 (5)	13 (3)
35-44	111 (22)	42 (8)	20 (4)	16 (3)	22 (4)	11 (2)
45-54	113 (22)	53 (10)	17 (3)	13 (3)	22 (4)	8 (2)
55-64	62 (12)	27 (5)	12 (2)	9 (2)	12 (2)	2 (<1)
65 and older	22 (4)	10 (2)	4 (1)	3 (1)	2 (<1)	3 (1)
Household Income						
less than \$10000	30 (6)	12 (2)	5 (1)	3 (1)	6 (1)	4 (1)
\$10001 - \$30000	49 (10)	19 (4)	11 (2)	5 (1)	10 (2)	4 (1)
\$30001 - \$50000	138 (27)	46 (9)	34 (7)	27 (5)	21 (4)	10 (2)
\$50001 - \$70000	132 (26)	46 (9)	27 (5)	20 (4)	20 (4)	19 (4)
\$70001 +	162 (32)	74 (15)	18 (4)	27 (5)	36 (7)	7 (1)

Table 4 reveals the demographic profile of the study sample. A total of 511 individuals completed the survey. Of the survey respondents, 47 percent are males and 53 percent are females. Most survey respondents, 29 percent, fall into the 25-34 year old age category; the 45-54 and 35-44 age categories are close behind with 22 and 22 percents respectively. In terms of household income, 32 percent of the survey respondents indicate that they have an annual household income of \$70,001 or more, while the majority of respondents (53 percent) have household incomes ranging between \$30,001-70,000.

A total of 39 percent of survey respondents specify that the salmon meal is the meal they are most likely to order when dining in a casual restaurant. The steak meal is chosen by 19 percent of survey respondents, the chicken entrée by 18 percent, and the pasta meal is selected by 16 percent of the study sample. The stir-fry meal is the least selected entrée, with nine percent of respondents choosing this meal. The survey results indicate that 61 percent of respondents are choosing meals that are either excessive in one macronutrient value or outside the acceptable

²⁸ All percents are rounded to the nearest whole number.

range of macronutrients all together. The findings signify that there is an opportunity for information to play a role to inform consumer choice and improve consumer awareness of healthy meal selections when dining in casual restaurants in Greater Vancouver.

Respondents of the most popular selections, the salmon and steak meals, revealed some dissimilar results. Of respondents who chose the salmon meal, 58 percent are female, and 27 percent are between 45-54 years old. Moreover, 38 percent of respondents who chose this meal fall into the highest household income category; this is significantly greater than the rest of the income brackets. The salmon meal profile differs from respondents who selected the steak meal. For instance, the steak meal respondents are predominately male (71 percent), fall into the 25-34 age category (30 percent), and 36 percent maintain that their annual household income is \$30,001-\$50,000.²⁹

7.3 Demographic Comparisons to Census Data

One of the most important factors to consider when conducting a survey is ensuring that the study sample is representative of the larger population. A simple and effective method to test the representative nature of the sample population is to compare the demographic characteristics of the survey sample with Canada Census data. Reconciling the two reveals how close the survey results are in relation to the actual population.

Table 5: Demographic Comparisons of Survey Respondents with 2001 Census Data

	N	%	Census Data	Difference
Gender				
Male	238	47%	49%	-2%
Female	273	53%	51%	2%
Age				
19-24	54	11%	7%	4%
25-34	149	29%	15%	14%
35-44	111	22%	18%	4%
45-54	113	22%	15%	7%
55-64	62	12%	9%	3%
65 and older	22	4%	3%	1%
Household Income				
<\$10000	30	6%	5%	1%
\$10001-\$30000	49	10%	17%	-7%
\$30001-\$50000	138	27%	21%	7%

²⁹ See Appendix I through M for a synopsis of the demographic characteristics of survey respondents for each of the meal options.

	N	%	Census Data	Difference
\$50001-\$70000	132	26%	18%	8%
\$70001 +	162	32%	39%	-7%

Source: Statistics Canada 2001 Census Profile: Greater Vancouver Regional District

Table 5 reveals the demographic characteristics of the survey sample, in comparison to data from Statistics Canada's (2001) Census Profile of Greater Vancouver. The survey sample is largely representative in terms of gender, with a slight difference in this demographic statistic for both males and females of two percent. The age categories are each somewhat overrepresented in the survey sample, with the 25 to 34 year old age group over-sampled the most by 14 percent. The survey sample under-represents the highest annual household income category (\$70,001 plus), and the second lowest annual household income category (\$10,001-\$30,000), by seven percent each. The remaining income categories are slightly overrepresented. Nevertheless, there is only minor variation between the 2001 Census and the survey sample, therefore the survey population is representative of the region.³⁰

7.4 Descriptive Survey Findings

This subsection describes the main findings of the survey. There are three key aspects: (1) reasons why consumers dine in casual restaurants; (2) factors behind meal selection; and, (3) consumer knowledge and awareness of nutrition and healthy eating. Exploring these findings contributes to understanding consumer behaviour when dining in casual restaurants in Greater Vancouver. It also provides valuable information that contributes to the development of measures to improve awareness of healthy eating when dining out. An analysis of the survey findings follows this section to evaluate and interpret the results, and provide information for the development of effective policy.

³⁰ For a municipal breakdown of the survey sample and comparison to 2001 Census data, see Appendix N.

7.4.1 Why Do People Dine in Casual Restaurants in Greater Vancouver?

Figure 2: Reasons Why Respondents Dine in Casual Restaurants

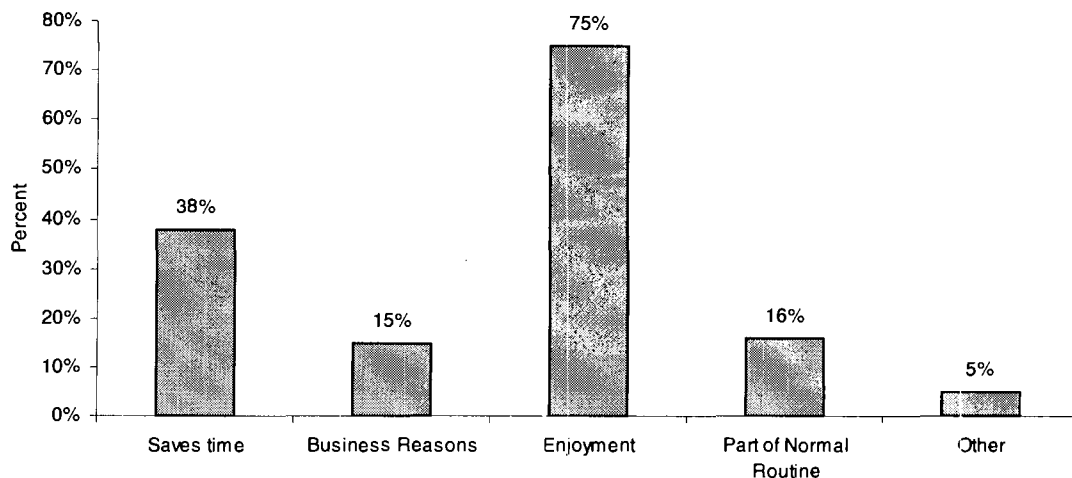


Figure 2 reveals the motivations behind why respondents' choose to dine in casual restaurants. The respondents could choose from a number of different alternatives and were able to select more than one option.³¹ While there is considerable variation, the predominant reason why respondents dine in casual restaurants is for enjoyment (75 percent). This survey finding reflects the logical conclusion that dining out is a popular pastime because respondents enjoy the experience. Moreover, there is a difference of 37 percentage points between enjoyment and pleasure and the second highest reason given – dining out because it saves time. The perception that dining out saves time is notable because it reflects the notion that respondents find commercially prepared food quick and convenient. In addition, the survey results indicate that consumers frequent casual restaurants for meals in Greater Vancouver at varying rates. A significant proportion of survey respondents (35 percent) indicate that they consume meals in casual restaurants one to three times per month. In comparison, 29 percent dine in casual restaurants four to six times per month, whereas four percent of respondents declare that they eat meals 15 times or more per month at casual restaurants.³²

³¹ Since respondents were able to select more than one reason, the total percentages exceed 100 percent.

³² See Appendix O for more information on the frequency of meals consumed in casual restaurants by survey respondents.

7.4.2 What Influences Meal Choice?

Figure 3: *The Most Important Factor in Determining Meal Selection in Casual Restaurants*

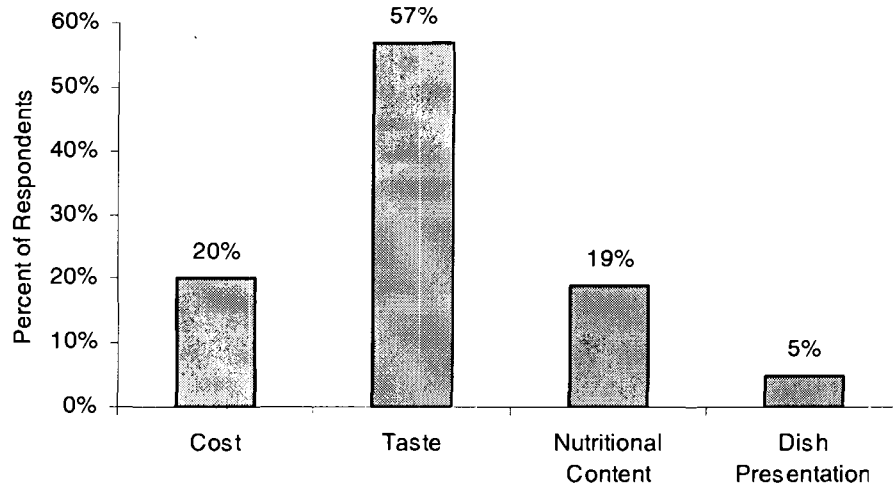


Figure 3 reveals that the most important factor in determining the survey respondents' meal selection is taste (57 percent).³³ Academic literature supports this finding: taste is repeatedly the greatest authority of food selection (Drewnowski, 1997). Unexpectedly, however, is the finding that a small percentage of respondents (20 percent), consider the cost of a menu item to be the most important factor behind meal selection. The survey results reveal that when selecting an entrée, the price of the dish is not as significant a factor as taste – this is indicated by the 38 percentage point difference between the price of a dish and its perceived taste. This finding is surprising because academic literature identifies cost as a significant factor influencing food selection, often as important as taste (Drewnowski, 1997; French, 2003; Glanz & Hoelscher, 2004).³⁴ The assertions in literature are not supported by the survey results, which indicate that the nutritional content of a dish is almost of equal importance to cost, yet taste stands alone as the main influence. Previous studies on price incentives did not consider dining in casual restaurant establishments, which may contribute to the difference in results.

³³ Survey respondents were asked to rank from one to four the factors that influence their meal selection when dining in casual restaurants. A rank of one indicates the most influential factor, and four is the least influential factor in determining the selection of a meal. A first place rank is deemed to be the most important factor in determining meal selection, therefore the percentages of first place rankings by the survey respondents are shown in figure 3.

³⁴ A comparison between income categories and survey respondents who ranked cost as the most important factor behind the selection of a meal, reveals that respondents in higher income brackets ranked cost first more often than respondents in the two lowest income brackets. See Appendix P for a more detailed account.

7.4.3 Does Nutritional Knowledge Influence Meal Selection?

In order to gauge an overall knowledge and awareness of nutrition, survey respondents were asked to identify if they were familiar with, or consult, *Canada's Food Guide to Healthy Eating*. Canada's food guide is cited as the benchmark for healthy eating throughout nutritional literature, and it is presented countrywide as the face of the national nutrition policy; therefore, familiarity with the food guide is considered a valid measure of general nutritional awareness.

The survey results reveal that 55 percent of respondents are aware of, or have consulted, Canada's food guide for information on healthy eating. Specifically, more female than male respondents have consulted the food guide for nutritional information: 34 percent are female and 20 percent are male.³⁵ Nutrition literature supports this finding by stating that women are more likely to have knowledge and awareness of healthy food and nutrition than men (Turrell, 1997).

Figure 4: Meal Choice and Nutritional Knowledge

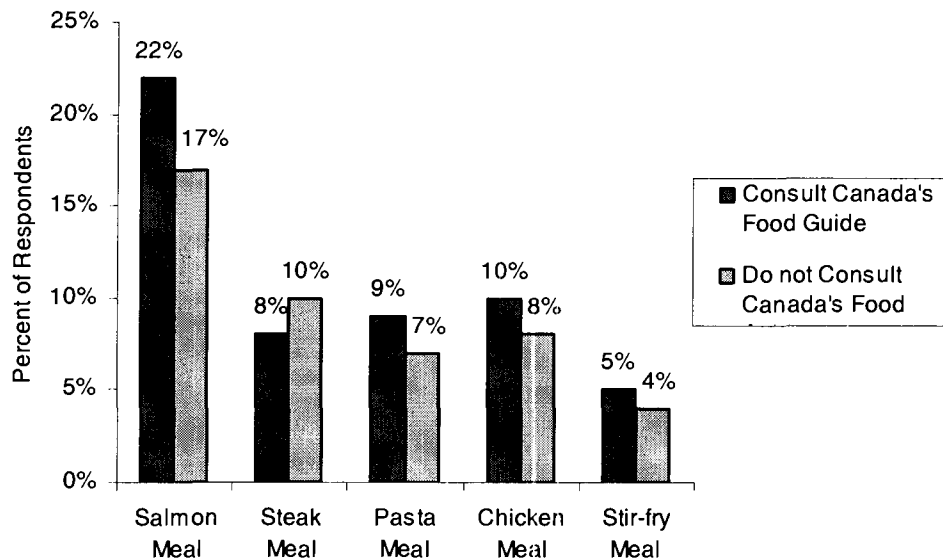


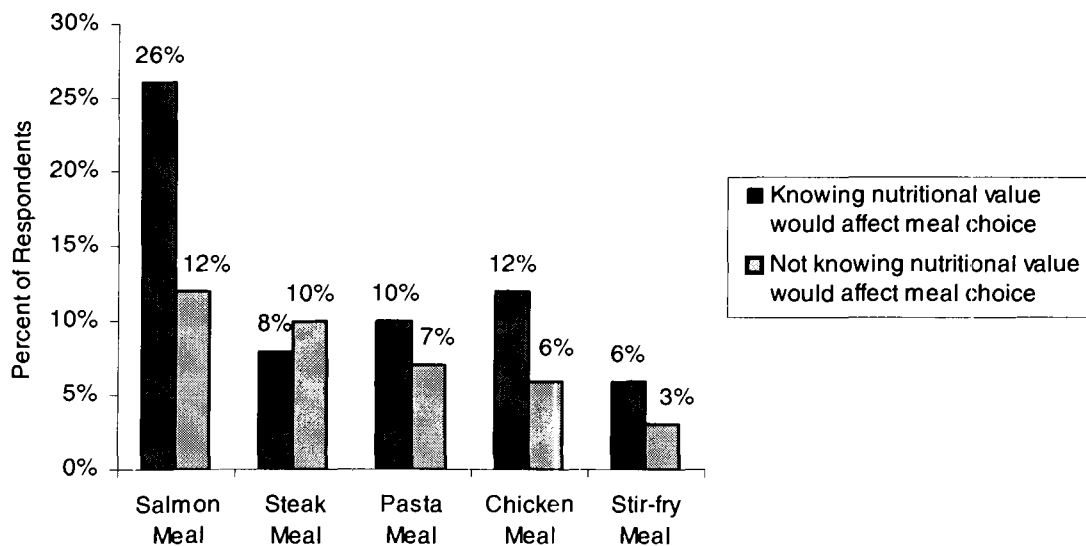
Figure 4 reveals the general nutritional knowledge of respondents by meal selection. The purpose of this figure is to explore if current nutritional knowledge influences meal choice when dining in casual restaurants. As the figure shows, there is only slight variation between respondents who do consult Canada's food guide – and therefore have a general knowledge of nutrition – and those that do not. This implies that general knowledge of nutrition, as defined through Canada's food guide, is not contributing to meal selection when dining in casual

³⁵ See Appendix Q for a synopsis of gender use of Canada's Food Guide for healthy eating.

restaurants. This is particularly the case for the steak meal, where only 8 percent of respondents have general nutritional knowledge, versus 10 who do not. The results indicate that Canada’s food guide is not an effective tool to increase awareness of healthy meal options when dining out.

Moreover, of the 279 respondents who have used the food guide for information on healthy eating, 56 percent indicate that the food guide affects their food purchases in grocery stores, while a smaller proportion of 32 percent use the guide’s principles when dining in casual restaurants. These percentages suggest that Canada’s food guide is not widely used among survey respondents, particularly when consumers dine in casual restaurants.

Figure 5: Knowledge of Nutritional Content Affecting Meal Selection



The survey findings reveal that a significant percentage of respondents (62 percent) would have their dinner entrée selection affected by knowing the nutritional content of the meal (see figure 5). Specifically, more often than not, respondents of the salmon, pasta, chicken and stir-fry meal would have their menu choice affected if they knew the nutritional value of the dish. The exception to this is respondents who chose the steak meal. Here, 10 percent of respondents indicate that knowing the nutritional content of menu items would not affect the choice of their meal, compared to 8 percent of respondents whose meal selection would be affected. These results suggest that, overall, nutritional information would play a part in not only increasing awareness of healthy choices, but also in increasing the selection of healthy choices and positive nutrition behaviour when dining out.

Also worthy of note is that 86 percent of survey respondents state that they would like to see more healthy meal options in casual restaurants; and moreover, 82 percent maintain they would order healthier meals if the option was available. Additionally, the survey results reveal that the majority of survey respondents (52 percent) are willing to pay more for a healthy dish when dining at a casual restaurant. These percentages demonstrate that there is consumer demand for healthy meal options when dining in casual restaurants in Greater Vancouver.

7.5 Discussion of Descriptive Survey Findings

This section provides an analysis of the survey findings. The analysis of the survey findings is essential because it contributes to the development of an effective nutritional policy when dining at casual restaurants. In order to develop effective measures to increase awareness of nutrition when dining out, policymakers should consider how consumers perceive the dining out experience. The survey results indicate that respondents dine in casual restaurant because it is an enjoyable activity. As a result, it may not be beneficial to proceed with policies that shine a negative light on dining out. The purpose of developing a nutrition policy for dining in casual restaurants is not to deter consumers from dining out, but rather to increase awareness of healthy eating when dining out. Putting a negative spin on casual restaurant dining will not necessarily achieve the desired outcome of increasing nutritional awareness. An effective policy to increase awareness of healthy eating requires emphasizing the notion that when dining in casual restaurants nutrition and enjoyment are not mutually exclusive.

In addition to how consumers perceive the dining out experience, the frequency of meals consumed in casual restaurants is an important consideration. The survey results specify that respondents consume meals in casual restaurants at varying rates. In the development of a healthy eating policy, the nutritional messaging requires a clear, easily understandable and identifiable message to consumers – one that is not dependent upon the frequency of meals consumed in casual restaurants. Essentially, whether a consumer eats a meal once per month or more than 15 times per month, there must be a clear message that achieves the objective of increasing awareness of healthy eating when dining out. Elite Interviewee C, who holds a senior position in a non-governmental organization that promotes awareness of a healthy lifestyle, supports the importance of delivering a clear message to consumers. Specifically, Elite Interviewee C maintains that a central challenge to the development of effective measures that increase nutritional awareness is being able to move above the “nutrition noise” that characterizes the food industry (Interviewee C, 2006, Interview). In other words, unclear nutritional messaging

contributes to confusion amongst consumers and limits the capacity to increase awareness of healthy eating.

Another important finding of the survey to consider in the development of policy alternatives is the role that taste plays in determining meal selection when dining out. Above all other factors, the results show that taste is the most significant contributor to the selection of a meal. Thus, the challenge is to incorporate the taste component into policy development. As is revealed in the *Project LEAN* case study, this is an achievable task. By working with restaurants and chefs, it is possible to develop healthy dishes that are delicious and appealing to restaurant patrons. Elite Interviewee C maintains that the taste of a dish is based on previous knowledge; therefore, a critical aspect to consider in addition to taste is making the dish visually appealing (Interviewee C, 2006, Interview). Although the survey findings indicate that presentation is the least considered factor behind meal selection, Elite Interviewee C stresses that taste and presentation need to work simultaneously to increase awareness of healthy eating.

Furthermore, although nutritional literature findings state that price incentives are an effective tool for positive nutrition behaviour in cafeterias and schools, the study's survey results indicate that price incentives may not be an effective method to increase awareness of healthy eating when dining in casual restaurants.³⁶ The cost of a dish was not a great influence compared to taste in the factors determining the selection of a meal. As such, the results suggest that it may not be necessary for policy initiatives to introduce price incentives to increase awareness of healthy eating at this time. Interviewee D, a senior public sector personnel who works closely with the restaurant industry, revealed an important consideration that there should not be a disincentive to eat healthy in casual restaurants (Interviewee D, 2006, Interview). Specifically, Interviewee D addressed the concern that charging more for a healthy item (such as a salad) to substitute for an unhealthy item (such as french fries), is a disincentive that does not work to promote awareness of healthy eating (Interviewee D, 2006, Interview).

In terms of nutritional considerations, the survey findings reveal that the nutritional content of a dish does factor into respondents' meal selection. However, this introduces an "information gap" because the actual nutritional value of a dish is not provided for consumers. Therefore, when deciding what meal to select respondents are making inferences about the nutritional value of a dish without precise knowledge. Since survey respondents do consider the

³⁶ See Drewnowski, 1997; French, 2003; Glanz & Hoelscher, 2004 for more information on the use of price incentives and food selection.

nutritional content of a dish in the process of selecting a meal, it is worthwhile for policy to take steps that provide accurate nutritional information to consumers.

Overall, the survey results demonstrate that *Canada's Food Guide to Healthy Eating* is not widely used among respondents, particularly when dining out. This implies that the food guide is not an effective tool to increase awareness of healthy eating when dining in casual restaurants. As a result, there is an opportunity to develop a nutrition policy that effectively promotes awareness of healthy meal choices when dining out. The survey results indicate that awareness of healthy eating is an important consideration, since respondents overwhelmingly indicate that they would like to see and would order more healthy options. In addition to this, the results support the notion that consumers would respond with positive nutrition behaviour to a policy initiative that increases awareness of healthy eating. More often than not, respondents indicate that they would have their meal selection affected by knowledge of the nutritional content of a dish. The objective of developing a nutritional policy is not to coerce consumers to eat certain meals, but rather to educate the public of healthy meal options. This appears to be in demand by restaurants patrons in Greater Vancouver.

8 Regression Analysis

In this section, the survey results are analyzed using regression techniques. Section 8.1 features an explanation of multinomial logistic regression, which provides essential background for the analysis and interpretation of the regression findings. Section 8.2 outlines the hypotheses summary and presents the variables used in the regression, as well as the rationale for their inclusion into the model. Section 8.3 presents the significant findings from the regression. Section 8.4 offers a discussion and analysis of the regression findings. Section 8.5 concludes with a consideration of survey limitations.

8.1 Multinomial Logistic Regression

Multinomial logistic regression is used when the dependent variable consists of more than one category, and the independent variables are metric or dichotomous. The purpose of using a multinomial regression is that it allows one to predict the probability of a survey respondent belonging to a category of the dependent variable. In terms of procedure, the multinomial logistic regression compares multiple groups of survey respondents through a combination of binary logistic regressions (Schwab, 2005). Multinomial logistic regression does not make any assumptions of normality, linearity, and homogeneity of variance for the independent variables; and as such, it is often preferred to discriminant analysis when the data does not satisfy these assumptions (Schwab, 2005). Put simply, multinomial logistic regression is not concerned with several of the problems that plague ordinary least squares regression techniques.

In order for the multinomial logistic regression to be accurate, three criteria need to be met: (1) the overall relationship must be statistically significant; (2) there must be no evidence of numerical problems, such as multicollinearity; and, (3) the classification accuracy rate must be substantially better than if obtained by chance alone (Schwab, 2005). The third criterion is important because while multinomial logistic regression does compute correlation measures to estimate the strength of the relationship (pseudo R square measures, such as the Nagelkerke R^2), these correlation measures do not provide adequate information regarding accuracy or errors associated with the model (Schwab, 2005). Data from the study sample are assessed using these criteria.

In the study, there is a statistically significant overall relationship between the combination of independent variables and the dependent variable. There is no evidence of numerical problems (i.e. multicollinearity) in the solution. Furthermore, the classification accuracy surpassed the “by chance” accuracy criteria, thus supporting the utility of the model.³⁷

8.2 Hypothesis Summary

Table 6: *Hypothesis Summary*³⁸

Variable	Hypothesis	Source
Order healthier menu items if available	People who would order more healthy items if available are more likely to make healthy choices	Glanz and Mullins, (1998)
Sources of Nutritional Information: Magazines and Newspapers	People who consult magazines and newspapers are more likely to make healthy choices than people who do not	Elite Interviewee A
Nutrition Not Ranked First	People who do not rank nutrition first when selecting a meal are less likely to make healthy choices	Elite Interviewee A through E; Sullivan et al., (1997)
Hours of exercise per week: < 1; 1-3; 4-6; 7-9; 10+	People who exercise more frequently are more likely to make healthy choices	Hendricks et al., (2004)
Gender: Male or Female	Females more likely to make healthy choices	Turrell (1997)
Income Category: <\$10,000; \$10-30,000; \$30-50,000; \$50-70,000; \$70001+	People with lower levels of income are less likely to make healthy choices	Darmon et al., (2003); Shahar et al. (2005)
Age Group: 19-24; 25-34; 35-44; 45-54; 55-64	People between ages 45-64 are more likely to make healthy choices	Shatenstein et al., (2005)

Before presenting the regression results, it is necessary to outline the variables used in the analysis. Table 6 provides a summary of the seven independent variables used in the study, the related hypotheses, and the source that provides the hypothesis. Each variable’s hypothesis is

³⁷ See Appendix R through T for a detailed summary.

³⁸ For clarification, the first three variables attempt to uncover the food selection preferences of respondents, as well as the sources that respondents use for nutritional information. Essentially, the variable “order healthier menu items if available” seeks to determine if the preference for the availability of healthy menu items influences respondents’ meal choice. The “sources of nutritional information: magazines and newspapers” variable reflects the popularity of print media as a source of nutritional information. The “nutrition not ranked first variable” refers to respondents who do not rank nutrition as the primary factor driving the selection of their meal.

from published academic literature findings on nutrition, healthy eating and food selection.³⁹ An exception is magazines and newspapers as sources of nutritional information – this variable’s hypothesis is from discussion points brought up during the elite interviews. Essentially, this variable is included because one or more interviewees deem that it is a critical component of consumer behaviour when dining in casual restaurants. Another variable, nutrition not ranked first, is from both academic literature and elite interviews.

8.3 Regression Findings

Table 7: Regression Output of Significant Variables in the Model

Meal Choice	Variable	B	Sig.	Exp (B)
Steak Meal				
	Would order healthier items if available	-1.032	.003***	.356
	Consult magazines and newspapers as sources of nutrition information	-.598	.040**	.550
	Nutrition not ranked 1 st	1.401	.002***	4.059
	Gender: Male	1.022	.001***	2.780
	Household Income: \$30,000-\$50,000	.829	.035**	2.292
	\$50,001-\$70,000	.643	.099*	1.903
	Age: 19-24	1.339	.092*	3.813
Pasta Meal				
	Nutrition not ranked 1 st	1.286	.004***	3.620
	Household Income: <\$10,000	-1.269	.092*	.281
Stir-fry Meal				
	Consult magazines and newspapers as sources of nutrition information	-1.092	.003***	.335
	Household Income: \$50,001-\$70,000	1.191	.017**	3.291

Notes: * = significant at the 90 percent level; ** = significant at the 95 percent level; *** = significant at the 99 percent level

Multinomial logistic regression was performed using SPSS software to determine the predictive power of categorizing survey respondents into one of the five categories of the dependent variable. Table 7 provides a summary of only the statistically significant findings from

³⁹ While the academic literature does not focus specifically on nutrition, healthy eating, and food selection when dining in casual restaurants, the logical hypotheses from the findings in the literature is applied to this study.

the regression.⁴⁰ Recall that the dependent variable is categorical; therefore, each meal type – salmon, steak, pasta, chicken and stir-fry – is represented as a category of the dependent variable. The salmon meal, which is the most balanced and healthy meal of the available options, is the reference category of the dependent variable in the regression. This means that all of the other categories (i.e. all other meal options) are interpreted against this category. The expected beta coefficient (Exp (B)) interprets the likelihood of a respondent belonging to a particular category, given certain independent variables.⁴¹ The significance level indicates the probability of falsely rejecting the null hypothesis. Specifically, a significance level of 95 percent means that the result is due to chance only five out of 100 times. This analysis considers significance levels of 90 percent confidence or greater.

The regression tested the seven independent categorical variables and demonstrated that it is difficult to predict the likelihood of respondents belonging to a particular meal group on most of the parameters tested.⁴² Unexpectedly, aside from the 19-24 age group in the steak meal category, neither hours of exercise, nor the age of respondents, prove to be significant factors in predicting meal selection when dining in casual restaurants. These findings contradict the results of previous literature perhaps because prior research did not examine consumer behaviour and food selection when dining in casual restaurant establishments. Although healthful behaviours such as physical activity and nutritious food selection may occur together on a general basis, as indicated by Hendricks et al., (2004), this is evidently not the case when consumers dine in casual restaurants in Greater Vancouver. Similarly, the age of a respondent lacks extensive predictive power in determining which meal an individual is likely to select when dining out. These results indicate that understanding consumer behaviour when dining out is a complex process that necessitates extremely sensitive measures and further examination.

Five variables in the model have a significance level of 99 percent, whereas three variables in the model have a significance level of 95 percent or higher. An additional three

⁴⁰ See Appendix U for a detailed summary of all variables included in the model.

⁴¹ In multinomial logistic regression, whether in the dependent variable subcategory or independent variable categories, the reference category performs the same role that it does in the dummy-coding of a nominal variable: it is the category coded with zeros for all of the dummy-coded variables that all other categories are interpreted against (Schwab, 2005). The difference in multinomial logistic regression is that it is possible to have multiple interpretations for an independent variable in relation to different subcategories of the dependent (Schwab, 2005). The odds of being in a category are calculated by subtracting 1 from the Exp(B) value and then multiplying this number by 100 to get the percent. However, this is only when the Exp(B) value is less than 1; when the value is higher than 1, there is no subtraction.

⁴² Initially, a stepwise regression was run for exploratory purposes only. Following this, the forward entry method was used to develop the model and test theories presented in literature. The Nagelkerke R² was .265 (or 26.5 percent).

variables are significant at the 90 percent confidence level. There are significant variables in each of the dependent variable categories except one: the chicken meal. The chicken entrée is the meal that contains an excessive amount of fat. Essentially, the model indicates that it is not possible to predict respondents who fit into this category.⁴³ Further research is needed to understand the factors that drive meal selection to high-fat items.⁴⁴

Due to the complicated nature of interpreting multinomial regression, the significant variables are discussed using a specific framework: (1) each statistically significant independent variable is interpreted in terms its significance to that independent variable's reference category; (2) this significance is described within the context of the particular category of the dependent variable at hand (i.e. the meal choice); and finally, (3) these are all implicitly understood to be interpreted within the context of the larger dependent variable's reference category: the salmon meal.⁴⁵ Essentially, it is necessary to understand that there are two reference categories to contend with: (1) the reference category of the independent variable in consideration; and, (2) the dependent variable's reference category, which always remains consistent (i.e. the healthy salmon meal). For clarity and simplicity, the significant variable interpretations below are each described in terms of the relation to the independent variable's reference category, within the category of the dependent variable; nevertheless, it is necessary to understand that although it is not explicitly stated, the entire situation is compared to the larger reference category of the salmon meal.

8.3.1 The Steak Meal

In terms of the steak meal, which is the meal containing excessive amounts of protein, the regression reveals it is possible to predict the likelihood of a respondent belonging to this group on several indicators at the 95 percent confidence level. For instance, it is revealed that survey respondents who would choose healthier menu items if they were available in causal restaurants are 64 percent less likely to order the steak meal, than respondents who would not choose healthier items if available. This implies that a respondent's desire for the availability of

⁴³ Put differently, this meal has no significant findings; therefore, an analysis cannot occur.

⁴⁴ A binary logistic regression conducted for investigative purposes revealed minute variation from the multinomial regression. The significant variables in the multinomial regression model continued to be statistically relevant in the binary logistic; in addition, there was no change in the direction of the relationship of the statistically significant variables. Similarly, the insignificant variables in the multinomial remained insignificant. The exception was the income categories and gender, which revealed less predictive power in the binary regression; this may be the case because binary logistic regression does not allow for the sensitive measures that are present when the dependent variable is categorical, as it is in multinomial logistic regression.

⁴⁵ Thus, a discussion of the salmon meal findings does not take place because it is the reference category.

nutritious food items influences food selection towards healthy food items. In this case, the findings support the abovementioned hypothesis.

Consulting magazines and newspapers as sources of nutritional information also appears to be significant in predicting whether respondents will order the steak meal. Survey respondents who use magazines and newspapers as sources of nutritional information are 45 percent less likely to order the steak meal than respondents who do not consult magazines and newspapers sources for nutritional information. This supports the hypothesis that consulting magazines and newspapers as sources of nutritional information contributes to healthy meal selections when dining out.

Furthermore, not valuing the nutritional content of a menu item proves to be a significant predictor for the steak meal. Respondents who do not deem the nutritional value of a dish to be the most important factor that they consider when selecting a meal item are four times more likely to order steak for dinner than those that do consider nutrition as the primary factor behind meal selection. This signifies that concern for nutrition plays a substantial role in making healthy menu selections, thus supporting the related hypothesis. Gender also appears to be a significant factor in predicting the respondents that are likely to order the steak meal. Male respondents are nearly three times more likely to order the excessive protein meal than females. This hypothesis is supported by literature, which maintains that females are more likely than male respondents to be inclined to make healthy meal choices.

Income also emerges as a significant player in the ability to predict which respondent is likely to choose the steak meal. With 95 percent confidence it is revealed that respondents whose annual household income is between \$30,001 and \$50,000 are two times more likely to choose the steak meal than respondents whose annual income exceeds \$70,001. Moreover, at the 90 percent significance level, respondents with an annual income between \$50,001 and \$70,000 are two times more likely to order steak than respondents with an annual income greater than \$70,001. Thus, the hypothesis is supported to the extent that respondents of *lower* income levels are less likely to select a healthy meal; however, an annual income of \$50,001 or even \$30,001 is not necessarily a low income.

The steak meal contains the only incident where the age of a respondent contributes to the predictive power of selecting a meal option. Specifically, with 90 percent confidence it is discovered that respondents aged 19-24 are nearly four times more likely to order steak than respondents ages 65 and over. This finding does not confirm the related hypothesis, but it does reveal a compelling result that younger aged individuals are more likely than seniors to order the

macronutrient unbalanced steak meal when dining in casual restaurants. Previous research on age and food selection did not account for variation in dining out behaviour, which may be a contributing factor to this result.

8.3.2 The Pasta Meal

There are two variables that prove to be significant in predicting whether or not a respondent is likely to choose the pasta meal (i.e. the meal that contains excessive proportions of carbohydrates). Specifically, respondents who do not rank nutrition as their main concern when selecting a dinner entrée are nearly four times more likely to choose the pasta meal than respondents that do consider nutritional value to be the most important factor when selecting a dish. This aligns with the related hypothesis that respondents who do not value nutrition are less likely to select healthy meal choices. Put differently, respondents who value the nutritional content of a dish are more likely to choose healthy options. In addition, income is a factor that contributes to predicting the selection of the pasta meal. Respondents whose annual income is below \$10,000 are 72 percent less likely to order the pasta meal than respondents whose income exceeds \$70,001. This is an unanticipated result because it contradicts the hypothesis that lower income individuals are less likely to choose healthy meal items.

8.3.3 The Stir-fry Meal

Recall that the stir-fry entrée is the meal that does not meet any of the macronutrient ranges, meaning that it is the most unbalanced meal of the available options. For this category, there are two significant variables. The first involves respondents who consult magazines and newspapers for nutritional information. Here, respondents who consult magazines and newspapers for nutritional information are 67 percent less likely to choose the stir-fry meal, than those who do not use magazines and newspapers as sources of nutritional information. This supports the hypothesis that consulting magazines and newspapers for nutritional information contributes to healthy eating practices. The second significant variable in the stir-fry category involves income. This variable produces a result supporting the related hypothesis that respondents with lower levels of income are less likely to make healthy meal choices. It is revealed that respondents with an annual household income between \$50,001 and \$70,000 are three times more likely to order the stir-fry meal than respondents with an income greater than \$70,001.

8.4 Discussion of Regression Findings

This section presents an analysis of the regression findings. The purpose of analyzing the regression is to develop an understanding of the factors that influence healthy eating, which ultimately contributes to the development of effective policy alternatives that promote awareness of healthy eating when dining in casual restaurants.

There are several clear trends drawn from the regression that can contribute to the development of effective policy alternatives to promote awareness of healthy eating. The first is that food selection when dining out requires specialized study and analysis. The regression analysis findings reveal that previous academic studies on food selection cannot be generalized across all food environments. The study exposes unique findings not examined in previous nutrition literature studies, and reveals that food selection patterns are not consistent across different food environments, such as cafeterias, schools and restaurants. Essentially, the results of the regression underscore the importance of conducting research on consumer behaviour when dining in casual restaurants.

A second conclusion drawn from the regression is that valuing nutrition is an important contributor to the selection of healthy meal choices. Tied in with this is the result that having a desire for the availability of healthy meal selections in restaurants increases positive nutrition behaviour when dining out. Therefore, effective policy development to increase awareness of healthy eating requires framing the positive aspects of healthy eating and nutrition. Disseminating information that outlines specific values and benefits of selecting healthy choices creates the incentive to eat healthy. Elite Interviewee A, the editor of a magazine that focuses on the restaurant industry and positive nutrition behaviour, maintains that the appropriate framing of healthy eating messages is important to create an environment that supports awareness of nutrition.

A third piece of information drawn from the regression analysis is that magazines and newspapers are sources of information that influence the selection of healthy choices when dining out. This represents an opportunity for government to use these sources as delivery vehicles for nutritional messaging. Elite Interviewee A supports the notion that easily accessible sources of nutrition information, such as magazines and newspapers, are useful tools to increase awareness of healthy eating (Elite Interviewee A, 2006, Interview). However, the interviewee qualified this statement with a word of caution that the success depends on the particular type of magazine or newspaper. For instance, having an advertisement in a magazine strictly designed to promote exercise or health may lead to “preaching to the converted” who are already nutritional aware,

which may not increase awareness of healthy eating when dining out (Elite Interviewee A, 2006, Interview).

A fourth factor to consider from the regression results is that respondents with lower levels of income are less likely to make healthy choices than respondents with higher income levels. This requires that policy alternatives not be more accessible to higher income individuals than lower income individuals. The financial component removes the availability of incorporating some elements from the consideration of case studies. Specifically, aspects of California's *Healthy Dining Program* cannot be used because this program charges the consumer for nutritional information. Attaching a cost has the potential to isolate individuals with lower levels of income, and as a result does not increase awareness of healthy eating when dining out. In addition, while the findings reveal that females are more likely than males to make healthy choices, gender specific targeting is not necessarily an effective measure to increase the general awareness of healthy eating when dining out. There still are many females not making healthy choices when dining out.

In sum, the regression analysis identifies factors that can be used to predict the selection of healthy menu items when dining in casual restaurants. According to the findings in this dataset, there is as much variation between the dependent variable categories as there is within. An overall assessment of the regression analysis reveals that valuing nutrition, having a desire for the availability of healthy meal selections in restaurants, and the use of magazines and newspapers as sources of nutritional information, are all valuable factors that contribute to understanding the selection of healthy menu items in casual restaurants. Ultimately, the regression analysis reveals that determining meal selection when dining in casual restaurants is a complex process that fundamentally demands more research.

8.5 Survey Limitations

Unfortunately, no research instrument is without limitations, and this survey is no exception. The first limitation involves the questionnaire itself. The questions and content were limited due to the nature of the data collection (i.e. standing outside on the street). For instance, it would have been interesting to test additional variables, such as more personal characteristics of weight and height, the foods consumed at other meals, education level, or hours per day spent at work. It also would be beneficial to include additional segments into the income variable, as well as specific magazine and newspaper sources, to see if it is possible to tease out results that are more precise. Moreover, it would be useful to explore further if the price of a dish affects meal

choice, perhaps by including a separate section with hypothetical prices next to different meal selections.

The regression analysis reveals that it is not possible to predict respondents who are likely to select the chicken meal, the meal containing excessive amounts of fat. This may be a result of the design of the survey instrument. Since the survey was not overtly clear that this meal contained excessive fat, it may have not drawn respondents who would normally select a high fat option when dining out. Future research may consider including a more explicit high fat option, however the question remains as to whether or not respondents would be truthful in their responses.

The second limitation involves the survey method, since it relies on non-random, self-reported data. The non-random method makes it difficult to generalize results to the larger population; this is why the study uses Census data to test how representative the survey sample is. Moreover, misunderstandings of questions and intentional deception can contribute to inaccuracies in data. A third limitation is that an individual's meal choice may change depending on the type of casual restaurant the patron visits; yet, due to complexity issues, the survey does not account for this variation. The survey also does not consider the reasons why certain meals were not selected; for example, some individuals may not eat a specific food for religious reasons, while others may simply not enjoy the taste of a particular food item. Additionally, one regression tested the impact of food allergies and food-related diseases on meal selection; however, these issues were not significant predictors of meal selection when dining out.

Another limitation is the limited degree of meal selection on the survey's hypothetical menu. Casual restaurants offer a considerably larger selection of menu items, which the survey does not consider due to the complexity of the macronutrient analysis. As well, the survey does not account for the variation of cooking practices between casual restaurants. A laboratory food analysis was not conducted on menu items from casual dining establishments; consequently, it was impossible to obtain the exact proportions of macronutrients for each dish. Nevertheless, the nutrient files provided by Health Canada are considered the most effective and reliable source of available data. Future research could conduct a nutrient analysis of complete meals from a variety of casual restaurants, in order to obtain a more exact measurement of the macronutrient content of dishes.

Given the challenges associated with predicting complex behaviour, such as when consumers dine in casual restaurants, and considering that this is a relatively unexplored research field, it is necessary to consider this study a significant step for future research.

9 Policy Alternatives

This section of the study presents the policy alternatives that the Province of British Columbia may consider to promote consumer awareness of healthy eating when dining in casual restaurants in Greater Vancouver. Section 9.1 outlines the objectives of the policy. Sections 9.2 to 9.6 present the central tenets and key issues of each policy alternative. The different policy alternatives to achieve awareness of healthy eating originate from the consideration of literature, the information from key stakeholders during the elite interviews, and the results of the survey analysis.

9.1 Objectives of Policy Alternatives

The policy alternatives have as their primary objective increasing consumer awareness of healthy eating when dining in casual restaurants. The crux of the policy issue is that consumers currently do not have accurate information of nutritious food items to make informed choices when dining in casual restaurants. Knowledge and awareness are identified as essential initial steps to inducing positive changes in behaviour towards the consumption of healthy foods (Vaandrager and Koelen, 1997; Van Assema et al., 2001; Glanz & Hoelscher, 2004). Another objective of the policy alternatives is to create an environment that supports awareness of healthy eating when dining out, while simultaneously remaining within the scope of the policy issue and the capacities of government. Although this limits the range of possible alternatives, there are still several initiatives, some of which utilize social marketing, that achieve the goal of public education and increasing awareness of healthy eating. An additional objective of policy is to target the population as a whole, since healthy eating is a concern of population health and health promotion. The survey reveals that although females are more likely to make healthy choices, policy should not explicitly exclude particular segment of the population. The dissemination of knowledge should be equally available to a broad audience.

Certain alternatives do not align with the outlined objectives; thus, these are not considered. For example, although developing a strategy that incorporates numerous aspects of a healthy lifestyle – such as focusing on physical activity and eating healthy at home – are important to population health and an overall health strategy, they remain outside the scope of the

analysis. A concern expressed by Elite Interviewee B that the promotion of healthy eating in restaurants is only one piece of the overall context, therefore other strategies need to be adopted to “work synergistically” with healthy eating in restaurants (Interviewee B, 2006, Interview). This statement is a valid reflection of the need for an overall strategy to achieve population health, however it is not within the scope of the study.

A second alternative not considered in the analysis is mandatory governmental legislation requiring restaurants to implement nutrition labelling of all menu items. This policy option was proposed in the House of Commons as Bill C-398, and involved amending Canada’s Food and Drug Act. The bill was withdrawn in March of 2004 because its compulsory nature was viewed as an unworkable, one-size-fits-all solution to a diverse and dynamic industry.⁴⁶ The complications associated with this policy initiative have made it an unviable option, and therefore it is not considered in the analysis.

Another proposal that is not included in the alternatives is the use of price incentives to increase awareness of healthy eating when dining out. In the initial stages of policy option formulation, the study recognized that there are two channels to influence positive nutrition behaviour: (1) by increasing knowledge and awareness through the dissemination of information; and, (2) through incentives, such as price changes. Price incentives were not immediately discounted as an option to increase awareness of healthy choices; however, the survey findings, elite interviews, and unreceptive environment, signal that this is currently not a viable option.

The survey results indicate that overall, respondents are not greatly influenced by the cost of a dish when dining in casual restaurants. Moreover, concern was expressed throughout the elite interviews that government and the restaurant environment are currently not at a state to introduce and implement price incentives. Elite Interviewee C made the point that it is necessary first to establish awareness of what a healthy dish is when dining out – introducing price incentives makes a leap that may be unnecessary (Elite Interviewee C, 2006, Interview). While food items in grocery stores and packaged items in vending machines have nutritional labelling that provides consumers with necessary nutrient information, menu items in casual restaurants do not. This suggests the importance of first instilling awareness as a driver of change, so that needless steps are not taken.

In addition, Elite Interviewee E, a senior manager in a casual dining establishment, voiced concern that legislating price incentives will not be supported by restaurant establishments

⁴⁶ For more information on Bill C-398 see:
http://www.parl.gc.ca/37/2/parlbus/chambus/house/bills/private/C-398/C-398_1/C-398_cover-E.html

(Elite Interviewee E, 2006, Interview). Additionally, this interviewee maintained that price incentives on particular meals would be difficult to implement and enforce, specifically because of menu variability, and the differences in cooking practices and mix of food components in each meal (Elite Interviewee E, 2006, Interview). The issue here is that there is no standardized definition of what actually constitutes an ‘unhealthy’ meal. As a result, it would be difficult to justify the implementation price incentives for one meal over another when there is currently no benchmark. Elite Interviewee D stated that government is reluctant to proceed with policy that causes backlash from a key stakeholder, such as the restaurant industry (Elite Interviewee D, 2006, Interview). For these reasons, policy that involves introducing legislation for price incentives in casual restaurants is not considered. The alternatives below focus specifically on the first method – awareness as the means to change behaviour – for the reason that there is a fundamental lack of nutritional awareness and knowledge among consumers when dining in casual restaurants. Knowledge acts a primary driver of change, which thereby sets the stage for further action.

9.2 Status Quo

Although it is clear that the status quo is not a viable option to increase awareness of healthy eating when dining in casual restaurants, because there is no nutritional information provided to consumers, its consideration is necessary for comparative analysis purposes. Essentially, because the status quo is in effect, it is necessary to compare its central features to other possible alternatives; this ensures that an objective evaluation occurs. In the status quo, the provincial government does not have a role in providing information or informing consumers of nutritional food choices when dining in casual restaurants. In turn, this implies that the restaurant environment, where consumers are increasingly spending their food dollars, has minimal capacity to support positive nutrition behaviour. As a result, the status quo does not take an initiative to increase healthy eating or reduce the incidence of obesity and chronic disease in British Columbia. The key issues outlined below expose the shortcomings of the status quo and demonstrate that this is not a viable option to achieve increased nutritional awareness when dining out.

9.2.1 Key Issues

- Menu items in casual restaurants will not have nutritional information.
- Consumers will be uninformed of the nutritional value of menu items.

- *ActNow BC* will be missing a key component of the strategy to make British Columbia the healthiest jurisdiction to host the 2010 Olympic games.
- Health risks associated with the unhealthy eating, such as obesity and chronic diseases, will not improve.
- There is no opportunity to gain the support industry stakeholders, or stakeholders with a stake in promoting health.

9.3 Alternative 1: Media Awareness Campaign

The first alternative involves developing a social marketing media awareness campaign geared specifically towards the consumption of healthy foods when dining in casual restaurants. This specifically refers to commercial advertisements. Nutritional education through mass media can influence the diet of whole populations; however, the precise formula for success remains elusive (BC Healthy Living Alliance, 2005). Although there is no prescribed formula, information from the regression and survey results can help develop effective media awareness campaigns through two prominent outlets: television or radio. As indicated by the regression analysis, respondents who value nutrition are more likely to make healthy choices; and as such, promoting the benefits of nutrition through a media awareness campaign appears to be a logical way to help consumers make nutritionally informed choices. In this sense, the media focus will be on the benefits of healthy eating when dining out, with the goal of instilling an appreciation of healthy eating. The regression findings are complemented by academic literature stating that positive nutrition messages help limit consumer confusion when nutritional messages seem to be in disagreement (Freeland-Graves & Nitzke, 2003). Moreover, Randolf and Viswanath (2004) identify that mass media ventures, such as the stop-smoking campaign, have proven to be effective tools to improve the health of the public.

This alternative incorporates elements from Nevada's *Project LEAN* program of increasing awareness of healthy eating in restaurants. *Project LEAN* incorporated a television component to highlight nutritional consciousness when dining in restaurants, and ultimately draw attention to the program as a whole. Palmer and Leontos (1995) reported positive results from the media outlet portion of the campaign, including increased awareness from consumers and changes towards positive nutrition behaviour. Television media campaigns from Health Canada in the 1980s, directed at promoting healthy eating through the principles of the food guide, also demonstrated an enhanced awareness of nutrition (Health Canada, 1990). Moreover, Elite

Interviewee C maintains that educating the public as a whole is one of the central focuses of his organization (Elite Interviewee C, 2006, Interview).

The role of the provincial government in this alternative involves being an *informational marketer*, where the overarching goal is to ‘sell’ nutritional awareness to consumers. The Province would effectively be working with a marketing and media production firm to develop a campaign through commercial advertisements, with an emphasis that the message is from the provincial government. The government is thus disseminating nutritional information regarding dining out, through media outlets such as television and radio. This could be done under the *ActNow BC* umbrella, which is currently airing commercials on stopping tobacco use and promoting healthy care for infants.

9.3.1 Key Issues

- Purpose of media awareness campaign: (1) reveal the nutritional content of commonly consumed restaurant foods; (2) highlight the benefits of selecting meals that contain balanced proportions of macronutrients, as well as fruits and vegetables; and, (3) minimally caution consumers about excessive intake of macronutrients, such as fat.
- Cooperation and interests of industry stakeholders is not a fundamental component of this policy.
- Cost of developing and marketing a media awareness campaign is extensive.
- It may be difficult to develop a campaign targeting the broad population, and not one specific segment.

9.4 Alternative 2: Informational Advertisements in Print

This policy alternative involves the development of print advertisements to increase consumer awareness of healthy eating when dining in casual restaurants. The basis of this alternative stems from the regression findings. As the regression analysis demonstrates, magazines and newspapers are sources that respondents use to get nutritional information. Particularly, the results indicate that respondents who consult magazines and newspapers for nutritional information are more likely to make healthy choices when dining in casual restaurants. The regression results therefore imply that print media is an important outlet of nutritional information for casual dining restaurant patrons in Greater Vancouver. Along this line, the Province could create a one or two-page informational advertisement that promotes nutritional

awareness by listing important facts to take into account when dining in casual restaurants. One aspect to consider involves revealing the positive features of balanced macronutrient consumption, particularly since the survey findings indicate that positive messaging increases the selection of healthy choices. Additionally, the advertisements could tie in concerns that nutritional literature highlights, such as awareness of increased portion sizes and alternate food consumption norms, such as overeating, when dining out (French et al., 2001; Wansink, 1996). The informational advertisements would likely be most effective if placed throughout a variety of popular newspapers and magazines in Greater Vancouver.

Essentially, the role for government is to act as a primary deliverer of information. In order to reach a broad proportion of the population, it is important to have the nutritional advertisement in magazines and newspapers that are free, as well as ones that charge. Creating a foundation of knowledge that values nutrition is a central part of this approach.

9.4.1 Key Issues

- Basic information and knowledge of healthy eating helps equip the public and inform healthy selections when dining in casual restaurants.
- Advertisements should be strategically placed throughout numerous magazines and newspapers (free and ones that charge) in order to achieve a broad audience, and limit possibilities of “preaching to the converted”.
- Messages underscoring the benefits of nutritional food consumption are necessary.

9.5 Alternative 3: Point of Purchase Method

This alternative proposes to increase consumer awareness of healthy eating by having casual dining establishments *voluntarily* display the nutritional content of menu items at the point of purchase. The point of purchase method involves revealing the fat, protein, carbohydrate and other nutrient values of a dish. Essentially, this is analogous to the labelling of food products in grocery stores; however, it would be for the ingredients of the restaurant meal. Currently, food items in grocery stores have nutrient labelling directly on the packaging of the product; also, some fast-food outlets use a point of purchase method by posting the nutrition content on a wall

near the place where consumers order food.⁴⁷ In terms of casual restaurants, the point of purchase method could be displayed either near the front of the restaurant, on a separate sheet, or upon consumer request.

The role of government in this alternative involves being the facilitator of accurate nutrient information. Specifically, a government agency would play an active regulatory role in the coordination and analysis of restaurant menu items. This creates a standardized evaluation of menu items and ensures legitimacy of the nutrient analysis to the consumer. Elite Interviewee A expresses some concern with this alternative because nutritional numbers cause paranoia among consumers (Elite Interviewee A, 2006, Interview). In addition, Elite Interviewee A maintains that this approach is only effective if there is already an understanding of what the nutrient values mean (Elite Interviewee A, 2006, Interview).

9.5.1 Key Issues

- Numbers and percentages detailing caloric intake, or saturated fat alone may not provide enough of a guideline to help consumers' awareness of nutrition.
- May be "preaching to the converted".
- Requires standardized nutritional analysis and also consideration of the number of menu items that should display nutritional value.
- Concern regarding ability to maintain consistency of meal preparation, and therefore accuracy of the nutrition label.
- Issue of backlash from industry, even though this is a voluntary program.
- Difficulty regarding monitoring and enforcement of policy.

9.6 Alternative 4: Healthy Choice Network

This alternative involves creating a partnership between restaurant establishments, a non-governmental organization (NGO), and the government, to raise awareness of healthy eating in casual restaurants. The role of government in the Healthy Choice Network involves coordination of stakeholders from the restaurant industry and an NGO. Having an option that directly incorporates the casual restaurant industry ensures that the message reaches the target audience of

⁴⁷ In January 2003, the Government of Canada introduced regulations making the nutrient labelling of food products mandatory. See http://www.hc-sc.gc.ca/fn-an/label-etiquet/nutrition/index_e.html for more information.

restaurant patrons. The purpose of using an NGO, such as the Heart and Stroke Foundation, is that this type of organization already has an established reputation for promoting health. A symbol of approval from an NGO would be next to a menu item, clearly designating the healthy choice. For simplicity, it may be best for the government to work with only one NGO, so that menus do not have numerous symbols and logos on them, as this may confuse customers. Participation from a restaurant would be voluntary, and numerous restaurants could effectively participate in the healthy choice network. In this sense, developing a partnership between the three stakeholders utilizes the strengths of each organization, in order to increase awareness of healthy eating and help consumers make informed choices when dining out.

This policy option incorporates different elements presented in the case studies. One such element is the notion of a logo directly on the menu designating the healthy choice; this is similar to the approach used in Michigan's *M-Fit Healthy Dining Program*, North Carolina's *Winner's Circle*, Virginia's *Dine to Your Heart's Content*, Nevada's *Project LEAN*, and Canada's *Heart Smart Restaurant Program*. Another element incorporated into this alternative is the training of chefs to develop healthy meals that are also delicious, as was done in Nevada's *Project LEAN*. The importance of this element is supported by the survey results, which indicate that taste is the most important factor determining meal selection. In terms of the training of chefs, the criteria for a healthy meal would need to address the portion size and high-fat content concerns outlined by Kant & Graubard, (2004), Biing-Hwan et al., (1999) and French et al., (2001). In addition, restaurant staff requires training of the program and meal choices as well. The nutritional standards would be based on the principles of *Canada's Food Guide to Healthy Eating*.

Elite Interviewee E indicated the preference for not individually labelling each menu item, but rather having the restaurant itself qualify by meeting a predetermined percentage of healthy choices on the menu (Elite Interviewee E, 2006, Interview). Proceeding in this manner is similar to the Ontario *Eat Smart!* program. However, this elite interviewee was the only participant who believed this manner is more effective to promote nutritional awareness than individually designating the options; as a result, the healthy choice network alternative proposes individually labelling the menu items.

9.6.1 Key Issues

- Development of a workable criteria and framework that satisfies the definition of a healthy meal (through principles established by Health Canada).

- Program should be voluntary, where participating restaurants highlight menu items that meet the healthy requirement; numerous restaurants may participate.
- Eligibility for the program should be based on whether or not particular entrée meets the requirements, as opposed to a certain proportion of the menu items.
- The healthy choice would be signified by a logo from a reputable source that promotes a healthy lifestyle, such as the Heart and Stroke Foundation.
- Train and encourage chefs to develop healthy foods that emphasize taste, and have knowledgeable serving staff to inform the consumer.

10 Evaluation of Policy Alternatives

This section outlines the study’s criteria and measurements, as well as presents an overall evaluation of the policy alternatives. Section 10.1 provides a description of the criteria and measurements. Section 10.2 offers an assessment of the alternatives utilizing the criteria. Section 10.3 delineates a summary of the evaluation matrix, and outlines the scores each alternative receives. Sections 10.4 through 10.8 provide an evaluation and analysis of each policy alternative.

10.1 Criteria and Measurements

Criteria are an essential component of the study because they provide the basis for the evaluation of policy alternatives. The Province of British Columbia should consider the following criteria listed below when evaluating the policy alternatives.

Table 8: Criteria, Definitions and Measurements

Criteria	Definition	Measurement
Effectiveness	To what extent does the alternative achieve the objective of increasing awareness of healthy eating?	Low/Medium/High
Stakeholder Acceptance	To what extent does the alternative have the support of the stakeholders?	Low/Medium/High
Political Feasibility	Will the proposed alternative be accepted by the government as an appropriate course of action?	Low/Medium/High
Administrative Operability	How complex is the alternative to implement?	Low/Medium/High
Cost	Relative to the other policy options, what is the cost of implementing the alternative?	Low/Medium/High

The criteria in Table 8 are an exhaustive list of all possible criteria for the Province to consider when assessing each alternative. Rather, the criteria above represent the most imperative and significant matters that should be considered in the decision making process. The measurement provides an essential ‘best guess’ of possible outcomes, without actually testing and implementing each alternative; the purpose of this is to assist in the consideration of trade-offs. By assessing each alternative against the criteria, the Province may engage in a process that

determines the overall viability of each alternative. The alternatives are analyzed in terms of the criteria in the section below.

10.2 Evaluation Matrix

Table 9: Evaluation Matrix of Policy Alternatives

Criteria	Alternatives				
	Status Quo	Alternative 1: Media Awareness Campaign (TV and Radio)	Alternative 2: Informational Print Advertisements	Alternative 3: Point of Purchase Method	Alternative 4: Healthy Choice Network
Effectiveness	Low - alternative does not increase consumer awareness	Medium - may not reach broad segments of population, but would clearly show healthy choices	Medium - may not reach broad segments of population, but would clearly show healthy choices	Medium - restaurant population would have access to information, but may not understand what it means	High - restaurant patrons would have direct access, and healthy choices would be clearly displayed
Stakeholder Acceptance	Medium - private sector, restaurant patrons and establishments support this option	Medium - restaurant patrons, private sector and NGO support this alternative	Medium - private sector, government and NGO support this alternative	Low - only restaurant patrons support this alternative	High - all stakeholders support this alternative
Political Feasibility	Low - the goals of <i>ActNow BC</i> would not be realized	Low - not politically feasible, and industry expected to take a lead role	Medium - print ads have been done in the past, but industry expected to take a lead role	Low - concern regarding backlash from industry	High - government works with neutral third party and industry to achieve objective
Administrative Operability	High - restaurants do not have to change their current practices	Low - marketing campaign development, production and implementation on television is difficult	Medium - some difficulty with marketing campaign development	Medium - menu analysis and printing of nutritional sheet required	Low - requires coordination of numerous stakeholders to meet standards outlined by program (menu analysis, nutrition and program standards)
Cost	High - no additional costs because no implementation required	Low - extensive costs associated with marketing development and air time (estimates exceed \$350,000)	Medium - lower costs than television and radio, but still marketing and development costs	Medium - relatively not expensive to print sheets in restaurants (estimates less than \$2.50/menu)	Medium - reprinting menus with logos relatively not expensive

Table 9 provides an evaluation of the policy alternatives. For each alternative, the criteria is assessed from the responses of the key stakeholders that were obtained through the survey instrument and elite interview process, as well as information provided by academic literature. The key stakeholders are: (1) provincial government actor that works with industry (via elite interview); (2) restaurant patrons (via the survey instrument); (3) health professional in the public sector (via elite interview); (4) non-governmental health organization (via elite interview); (5) private sector restaurant magazine editor (via elite interview) and, (6) casual dining restaurant establishments (via elite interview).

Effectiveness is graded according to the extent that stakeholders and literature assess that an alternative is able to reach the segment of the population that dine in casual restaurants, as well as the alternative's ability to portray a clear message that a dish is healthy. Attaining both of these targets earns a high score, whereas achieving one earns a medium score and, meeting neither earns a low score.⁴⁸ Stakeholder acceptance is scored using the following formula: (1) acceptance from one stakeholder or less earns a score of low; (2) acceptance from two or three stakeholders earns a medium score; (3) acceptance from four or more stakeholders achieves a high score.⁴⁹ Political feasibility is determined by evaluating whether or not government actors consider the alternative as a viable option that is pursuable by government. Administrative operability is determined through the opinion of casual restaurant operators and government actors, as well as the complexity of the given alternative. Cost is assessed by considering the approximate dollar amount of each alternative and weighting this relative to each of the other options. In terms of the cost criteria, a high score is given to alternatives with less cost; therefore, the reverse is true for high costs.

⁴⁸ This definition of effectiveness is not meant to judge whether or not the alternative changes behaviour, but rather achieve the goals of increasing awareness, as stated above.

⁴⁹ See Appendix U for a detailed summary of stakeholder scores for the acceptance criteria. Also, see Appendix V for a detailed summary of survey responses regarding some of the alternatives.

10.3 Summary of Evaluation

Table 10: Summary of Evaluation Matrix (criteria are equally weighted)

Criteria	Alternatives				
	Status Quo	Alternative 1: Media Awareness Campaign (TV and Radio)	Alternative 2: Informational Print Ads	Alternative 3: Point of Purchase Method	Alternative 4: Healthy Choice Network
Effectiveness	1	2	2	2	3
Stakeholder Acceptance	2	2	2	1	3
Political Feasibility	1	1	2	1	3
Administrative Operability	3	1	2	2	1
Cost	3	1	2	2	2
TOTAL SCORE	10	7	10	8	12

Table 10 presents a summary of the policy alternative evaluation matrix. Essentially, this is a quantitative calculation that allows a comparative analysis of the alternatives. The low, medium and high scores of each criterion are assigned a point value. A low score merits one point, a medium score earns two points, and a high score is worth three points. While the values of one, two and three are arbitrary, increasing the point value for each score consecutively by one is necessary to differentiate between alternatives. This is particularly important because the criteria are weighted equally in the evaluation matrix.

An overview of the summary matrix reveals that alternative 4: the healthy choice network, achieves the highest score with 12 points. Moreover, the healthy choice network is the only option to receive high scores for effectiveness, stakeholder acceptance, and political feasibility. The Status Quo and Alternative 2: informational print advertisements both earn ten points and tie for second place. The status quo scored high on the administrative operability and cost criteria, while the informational print advertisements receives equal scores of medium on all criteria. Alternative 3: point of purchase method earns eight points, with low scores on

stakeholder acceptance and political feasibility. Alternative 1: media awareness campaign scored the lowest of all of the options, receiving low scores on cost, political feasibility and administrative operability.

10.4 Evaluation of Status Quo

The status quo is not a viable alternative to reach the goal of increasing awareness of healthy eating when dining in casual restaurants in Greater Vancouver. An overview of the status quo shows that there would be no increased awareness of healthy eating when dining out, and consumers would therefore not be making informed choices when selecting a meal. The areas where this alternative receives a high score – economic cost and administrative operability – are understandable because there would be no change to the current system. On the other hand, low scores on effectiveness and political feasibility are important hindrances that deserve further consideration. As is noted by Elite Interviewee D, the status quo is not politically feasible because the Premier has blatantly stated that British Columbia is to be the healthiest jurisdiction to host the Olympic Games in 2010 (Elite Interviewee A, 2006, Interview). In this sense, it would be politically irresponsible not to take measures to increase the health awareness of the province. Similarly, Elite Interviewee B notes that maintaining the current situation in restaurants is not communicating a message that supports an increased awareness of nutritional options (Elite Interviewee B, 2006, Interview). Essentially, the high scoring areas of the status quo are a result of the equally weighted criteria, which is effectively inflating the score of the status quo; however, to achieve the stated objectives of *ActNow BC*, the status quo is not a viable alternative.

10.5 Evaluation of Alternative 1: Media Awareness Campaign

Implementing a media awareness campaign receives the lowest score of the four alternatives, mainly due to high cost and complex operability, as well as being politically unattractive. Although Palmer and Leontos (1995) note that television and media spots on Nevada's *Project LEAN* guaranteed that many residents were aware of the program, the elite interviews conducted for this study reveal important considerations that hinder this alternative from achieving a higher score. Elite Interviewee D reports that in terms of promoting healthy eating in restaurants, using media marketing through television and radio is currently not a realistic option for government (Elite Interviewee D, 2006, Interview). The central reason stated is that although television and radio media play central roles in communication messages, the

concern surrounds the extensive costs needed to develop and bring this alternative to fruition (Elite Interviewee D, 2006, Interview).

Similarly, Elite Interviewee C recognizes the value of broad based media in parlaying nutritional messages, but this interviewee also identified a key challenge that cannot be underestimated (Elite Interviewee C, 2006, Interview). Developing an effective healthy eating campaign through mass media is difficult because the nutritional message has to compete with the multi-million dollar advertisements of other high profile companies; these advertisements are often for food products that have little nutritional value, but immense visual appeal to consumers (Elite Interviewee C, 2006, Interview).⁵⁰ Essentially, there is the danger that the purpose of using media awareness campaigns to instill value for nutrition may in fact be lost among the marketing of trendy food products that are unhealthy, but have a solid financial backing.

10.6 Evaluation of Alternative 2: Informational Advertisements in Print

The informational advertisement in print alternative is a moderately effective means to increase nutritional awareness when dining in casual restaurants, receiving the second highest score out of the alternatives. Where this alternative lacks is in its overall “allure” as a provocative option in the eyes of the elite interviewees, particularly when compared to the other alternatives. During the interviews, very little discussion ensued over using magazine and newspapers advertisements as a key source to promote nutritional messaging when dining in casual restaurants. Focus constantly returned to centralizing on the positive and negative aspects of pursuing other options. Essentially, with respect to the elite interviews, the print option did not seem to stand out as an effective means to achieve the objectives much as the other alternatives. Indeed, Elite Interviewee B maintains that there are other ways to increase awareness of healthy eating than through print media (Elite Interviewee B, 2006, Interview). Elite Interviewee C expressed concern that messaging can be an issue because there must be key terms such as “minimize this” and “eat more that” incorporated, but at the same time this might not provide enough information (Elite Interviewee C, 2006, Interview). Elite Interviewee C addresses another aspect, which is that this alternative involves little involvement from industry, which weakens the desirability of this option (Elite Interviewee C, 2006, Interview).

⁵⁰ For example, each year the fast-food industry (which is noted for its energy dense unhealthy food products) spends \$1 billion on television advertising to entice consumers to enjoy their products (Stein, 2006).

Despite the shortcomings of this alternative as perceived by the elite interviewees, an informational advertisement in print is still a viable alternative, as indicated by the survey findings. A positive feature of this alternative, which is important to note is that it can work in tandem to enhance the capacity of other strategies to increase healthy eating.

10.7 Evaluation of Alternative 3: Point of Purchase Method

The Point of Purchase method to increase nutritional awareness through labelling the nutrient value of restaurant meals did not achieve any high scores, and received low scores on effectiveness and political feasibility. Elite Interviewee B comments that the ineffectiveness of this alternative results from the inaccurate assumption that consumers have knowledge to understand what the nutrient numbers mean (Elite Interviewee B, 2006, Interview). Additionally, Elite Interviewee A states that this method only reaches segments of the population that have knowledge, and therefore it does little to actually increase overall nutritional knowledge when dining out (Elite Interviewee A , 2006, Interview). Elite Interviewee D adds to the discussion by stating that although this is a voluntary option, it may still cause backlash from industry (Elite Interviewee D, 2006, Interview). Indeed, the stakeholder from the restaurant industry expressed concern with this alternative. Elite Interviewee E claims that labelling the nutrient content has the potential to highlight only the negative features of a menu item, and as such, this interviewee does not support the implementation of this alternative (Elite Interviewee E, 2006, Interview). In other words, this option garners little stakeholder support. Furthermore, nutrition literature maintains there are substantive effectiveness issues and operational burdens with nutrient labelling of restaurant meals (Almanza et al., 1997).

10.8 Evaluation of Alternative 4: Healthy Choice Network

The highest scoring alternative is establishing a healthy choice network. This alternative combines the efforts of government, a non-governmental organization, and the restaurant industry to promote awareness of healthy eating when dining out. It receives the highest scores on effectiveness, political feasibility, and stakeholder acceptance. Elite Interviewee C views the incorporation of an NGO imperative because there is an established reputation of trust with the public (Elite Interviewee C, 2006, Interview). Similarly, Elite Interviewee E notes that having a neutral third party to work with in addition to government is an important feature because, as a business, restaurants do not want to be attached to a government agency (Elite Interviewee E, 2006, Interview). The government also perceives the positive aspects of establishing this

partnership; specifically, Elite Interviewee D maintains that government prefers to provide the seed, through funding and collaboration, but in long term, the goal is for industry to fund programs and become self-sustaining (Elite Interviewee D, 2006, Interview). The survey findings complement the elite interviewee sentiments, indicating that respondents are supportive of a healthy eating initiative that involves an NGO, and not just a government agency. Specifically, the survey findings indicate that 76 percent of respondents maintain that a symbol from an NGO would help them identify healthy meal choices, compared to 56 percent of respondents who indicate that a symbol from a government agency would be useful to identify healthy meal choices. Essentially, the survey results and elite interviewees support the central involvement of an NGO and not just a government agency.

The elite interviewees note that the consultation process for this alternate would be extensive, and there are sometimes complications that can arise when stakeholders with different agendas work together (Elite Interviewee C, 2006, Interview; Elite Interviewee D, 2006, Interview). However, Elite Interviewee C maintained that collaboration with different stakeholders overall is not a difficult task (Elite Interviewee C, 2006). A word of caution from Interviewee A is that the logo and statement of purpose on the menu may overload the consumer and cause confusion; nevertheless, this interviewee maintains that a symbol of approval is an appealing approach (Elite Interviewee A, 2006, Interview).

This alternative also incorporates the restaurant staff to become involved in the process to increase awareness of healthy eating. Elite Interviewee D maintains that servers need to be able to communicate that restaurant has healthy, delicious food option (Elite Interviewee D, 2006, Interview). A challenge with this is that high staff turnover in the restaurant industry may make it difficult to ensure commitment to awareness by servers (Dwivedi & Harvey, 1999). This alternative also poses a difficulty regarding enforcement; however, this is where the development and implementation of a monitoring strategy could help ensure the program is meeting its objectives.

In terms of implementation matters, some issues require consideration during the development of the healthy choice network. The first involves the allocation of funds – specifically, which stakeholder is responsible for funding which area of the program. For example, how much funding is required from the government in relation to the NGO? In addition, how much should the participating restaurant pay to be involved in the program? Another issue that requires deliberation is the duration of the pilot, as well as defining the objectives of the program overall. Furthermore, the responsibility of monitoring and enforcing the program

requires attention; while this may be costly, it is an important element that helps maintain the integrity of the healthy choice network. The discussion of these issues during the development of the healthy choice network is vital. In all, the healthy choice network earns the highest score of the alternatives and appears to be a promising approach to increase consumer awareness of healthy eating when dining out.

11 Policy Implications

This section presents an analysis of the policy implications. The objective of this section is to contribute to the discussion of how the Province can inform consumers of healthy eating when dining out, by further analyzing the trade-offs associated with the alternatives. The policy implications lead into section 11.1 and the recommendation of next steps that the Province may consider to increase nutritional awareness in casual dining establishments.

The criteria and evaluation outlined in the previous section provides a useful approach to measure each alternative objectively. However, policy analysis does not occur in a vacuum, away from the pressures of political reality. Indeed, in a discussion of the assessment of policy alternatives, Howlett and Ramesh (2003) state that, “policy evaluation... like other stages of the policy cycle, is an inherently political exercise and must be recognized explicitly as such” (p. 224). This implies that in policy analysis some objectives and criteria may take priority over others depending on the political climate. To recap, there are three central objectives involved in the development of a nutritional framework for casual dining establishments: (1) increase consumer awareness of healthy eating when dining out; (2) foster the creation of an environment that supports awareness of healthy eating; and, (3) target a broad audience. While broadly defined, these objectives are critical tenets of an effective nutrition policy. The following paragraphs assess the trade-offs of each alternative, while giving particular focus to the current political environment in British Columbia.

Addressing the political climate of the current government leads to varying implications for policy. The *ActNow BC* initiative is a critical feature that underscores the intentions of the current provincial government. The Premier announced that the administration is driven to bring a culture of fitness and healthy living to British Columbia, with the goal of making the province the healthiest jurisdiction to host the Olympic Winter Games.⁵¹ *ActNow BC* even received its own calendar designation, with March 19, 2005 signified as the first *ActNow BC* day. The Province’s emphasis on establishing a healthy culture has implications for policy, specifically regarding criteria. Given the Province’s objective of establishing a healthy culture, the effectiveness criteria

⁵¹ This refers to the inauguration of *ActNow BC* day; see <http://www.bcliberals.com/309/2782> for more information.

might be weighted more heavily. This ultimately lends to the acceptance of some alternatives more than others. As a result, it is likely that the government would forego the status quo as a possible option. Not only is this alternative ineffective, it is politically unattractive for the Province to continue to maintain the current situation. Additionally, the healthy choice network may become a more positive alternative, because interaction and coordination with a health promoting NGO showcases the government's commitment to creating a healthy culture.

Another implication of emphasizing the effectiveness criteria is that the government may also focus more intently on cost. Achieving effectiveness, in this sense, does not mean that all alternatives may be developed simultaneously, because there is a cost associated with each option. Essentially, this implies that effectiveness and cost work in complement. The budget of the Province is always an important factor, because resources to carry out policies are always scarce (Elite Interviewee D, 2006, Interviewee). This limits the capacity for the implementation of alternative 1: media awareness campaign, because of the extensive costs associated with bringing a marketing campaign to fruition. However, there is a capacity to garner media attention through other, less expensive means, than the development of a costly marketing and media campaign. The Province may hold press conferences, which essentially provides free media exposure for the policy.

By drawing attention to effectiveness and cost, the implication that may result is a diminished focus on administrative operability. To keep costs down, there may be more complexity and creativity needed to implement an alternative. Here, the healthy choice network again shows its positive features. It is an innovative idea to bring to casual dining, and it fulfils the second policy objective of fostering the creation of an environment that supports awareness of healthy eating. Essentially, the healthy choice network is the only alternative that actually impacts the physical restaurant environment, because it has the logo directly on the menu. Other alternatives – such as the media awareness campaign and the informational advertisements in print – create an environment that supports health by instilling a value for nutrition among consumers. This is an important contribution, however, there is no tangible component that relates directly to the dining experience.

The third criterion is the capacity to reach a broad audience, specifically targeting consumers who dine in casual restaurants. The implication here is that some alternatives are less likely to reach the target audience of restaurant patrons. Specifically, while the informational advertisements in print are a valuable tool, there is uncertainty regarding their capacity to influence casual dining restaurant patrons. Elite Interviewee C claims that from previous

experience, intermittent messaging in print is most effective to increase awareness (Elite Interviewee C, 2006, Interview). Along this line, the Province could use the informational advertisements in print as a supplement to a more effective alternative. Using the information advertisements in print as a supplemental tool intermittently is also a more cost effective option than continuously running advertisements. In addition, while the point of purchase method may be a valuable tool for nutritionally knowledgeable restaurant patrons, it does little to inform consumers who do not have nutrient knowledge. This is one reason why stakeholders do not support this alternative. Another reason is the possible backlash from industry (Elite Interviewee D, 2006, Interviewee). The healthy choice network, on the other hand, does have the capacity to reach the target population and it is supported by the elite interviewees.

11.1 Next Steps

After assessing the policy implications, the healthy choice network continues to remain the strongest option to increase awareness of healthy eating when dining in casual restaurants. The status quo is no longer an option that can remain on the provincial agenda. As a result, following below is a list of recommendations to the Province of British Columbia:

- Immediately take steps to work towards the development of a Healthy Choice Network, which involves pursuing a partnership with an NGO and the restaurant industry;
- Select one or two casual dining establishments as a case study; work with the restaurant's management and chefs to develop healthy dishes that meet agreed upon nutritional requirements;
- Maximize television, radio and media exposure by holding numerous press conferences to promote the healthy choice network and goal of the program;
- Incorporate the healthy choice network into the *ActNow BC* umbrella of initiatives to increase the health of the province and further promote healthy eating;
- Develop informational advertisements in print as a supplemental tool to use intermittently over the medium and long term;
- For the benefit of future research, it is also recommended that two focus groups (one of industry personnel – i.e. restaurant managers, servers and chefs; and,

another of consumers and restaurant patrons) take place before and after the implementation of the alternative. The objective of holding a focus group is to develop performance measures to gauge the success of the healthy choice network.

12 Conclusion

Through survey data, elite interviews, and best practices in literature, this study has examined one aspect of how the Province of British Columbia can attain the objective of being the healthiest jurisdiction to host the Winter Olympic Games. A review of literature indicates that healthy eating is an important part of achieving a healthy lifestyle, and is a necessary component of mitigating the costs associated with preventable disease. Trends in consumer behaviour reveal that British Columbians, like the rest of Canadians, spend significant portions of their food budget on dining out. Thus, the restaurant industry is increasingly becoming an important arena to encourage awareness of food, nutrition and health. The case study considerations reviewed strategies implemented by other jurisdictions to draw attention to healthy eating when dining in restaurants. The results of the survey analyses confirm that healthy eating is important for many consumers when dining in casual restaurants. For instance, a large majority of consumers indicate that they would order healthier menu items if they were available. The analysis of alternatives reveals that an effective approach to increase awareness of healthy eating is to develop a Healthy Choice Network between restaurants, a non-governmental organization, and the government.

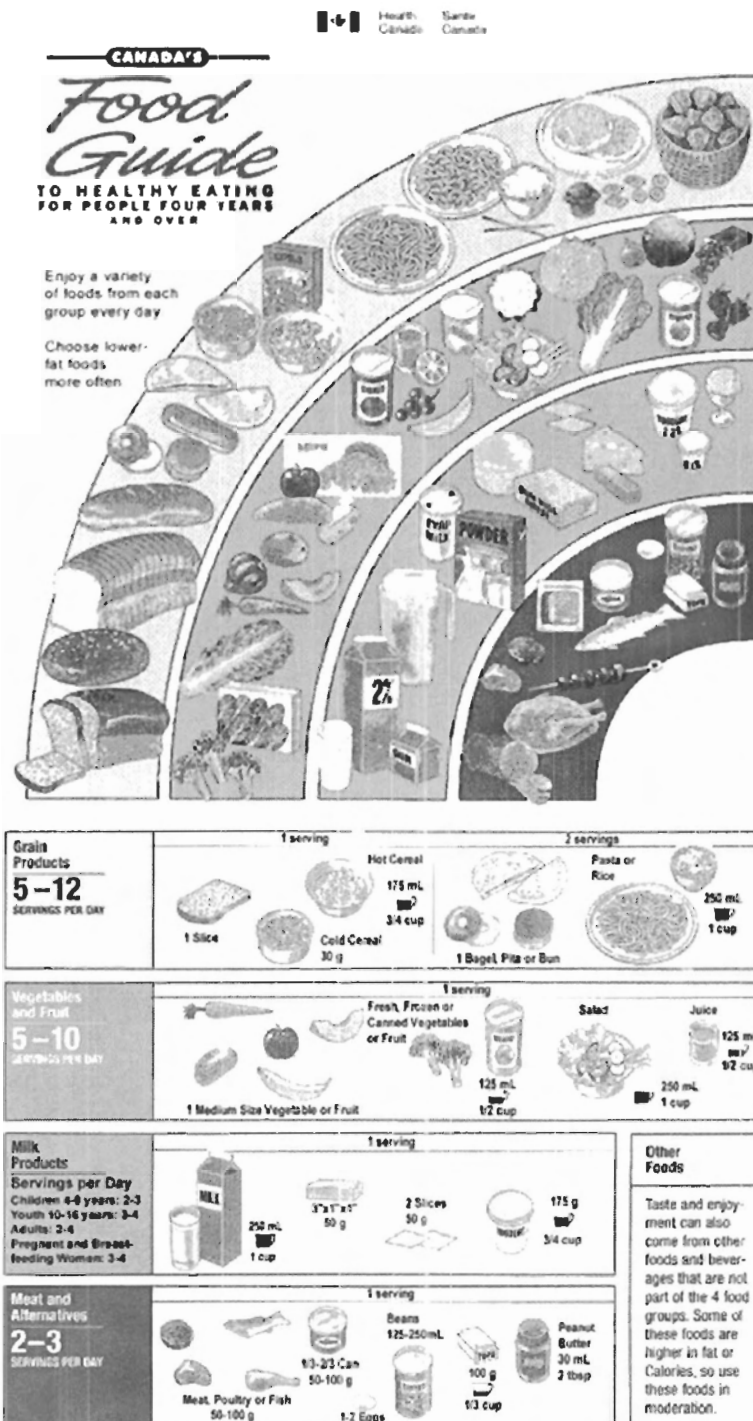
When dining in casual restaurants in greater Vancouver the experience can be characterized by two terms: enjoyment and irony. Enjoyment extends to the fact that dining out is a pleasurable experience. Food is the central part of dining out, and as such, meals are designed to enhance the atmosphere and satisfy the consumer. Irony comes into play because many consumers think they are selecting a nutritious meal, when in fact they may not be. Currently, in casual restaurants there is too little nutritional information provided to increase awareness of healthy eating. This is where the Province can take a lead role to help consumers make informed choices.

Clearly, becoming a healthy jurisdiction cannot occur in isolation -- there are interconnected layers, such as physical activity and eating well, which combine to create health. Given this, implementing a program that promotes nutritional awareness when dining out is an important step to increasing the overall health of the province. *ActNow BC* provides an opportunity to increase consumer awareness of healthy eating by empowering consumers with information that gives the nutritional knowledge to make informed choices when dining out.

Knowledge provides the people of British Columbia with the capacity to improve their lives, and further their health. Although the Olympic Games are years away, the health of the province is an issue that cannot wait.

Appendices

Appendix A – Canada’s Food Guide to Healthy Eating



Appendix B – Survey Instrument

Definition of a casual restaurant: a 'casual restaurant' is an establishment that offers table service, sit-down ordering and dining, in an informal atmosphere. This includes both chain and independently owned/operated restaurants. Examples of chain restaurants include: Earls, White Spot, The Keg, Cactus Club, Swiss Chalet, Milestones, Kelsey's.

Part I

1. Which meal from the examples below would you be *most likely to choose as a dinner entrée* when you dine at a casual restaurant? Please **check one meal** from the selection below.

- | | | | | |
|---|---|---|---|---|
| <input type="checkbox"/> Meal #1 | <input type="checkbox"/> Meal #2 | <input type="checkbox"/> Meal #3 | <input type="checkbox"/> Meal #4 | <input type="checkbox"/> Meal #5 |
| • 9 oz steak | • Wild Salmon | • Linguine (pasta) | • Roasted chicken breast | • Stir-fry with Tofu |
| • Mashed potatoes with butter | • Side of Rice | • Sauce (tomato base) | • Baked potato with butter | • Broccoli, Peppers, Carrots |
| • Mushrooms | • Asparagus and Carrots with butter | • Parmesan cheese | • Grilled Vegetable Medley | • Rice noodles |

Part II

2. In a typical **month**, how often do you eat meals in a casual restaurant such as those listed above?

- | | |
|---|---|
| <input type="checkbox"/> less than once a month | <input type="checkbox"/> 7 to 10 times per month |
| <input type="checkbox"/> 1 to 3 times per month | <input type="checkbox"/> 11 to 14 times per month |
| <input type="checkbox"/> 4 to 6 times per month | <input type="checkbox"/> 15 times or more per month |

3. What best describes the reason(s) why you eat in these establishments? **Please check all that apply.**

- | | |
|---|--|
| <input type="checkbox"/> saves time/don't have time to cook | <input type="checkbox"/> part of my normal routine |
| <input type="checkbox"/> business/work related reasons | <input type="checkbox"/> other: (please specify) _____ |
| <input type="checkbox"/> enjoyment/pleasure | |

4. How satisfied are you with the selection of healthy options in casual restaurants? **Please check one box.**

- Extremely satisfied Satisfied Neutral Unsatisfied Extremely Unsatisfied

5. **Please rank from 1 to 4** the factors that influence your selection of a menu item when eating in a casual restaurant. 1 is most influence and 4 is least influence.

___ Cost/Price of entrée ___ Nutritional value of the dish ___ Taste ___ Presentation of dish

6. **Please rank from 1 to 3** when you most often eat meals in casual restaurants. 1 is most often and 3 is least often.

___ Breakfast ___ Lunch ___ Dinner

7. Would you like to see more healthy food options on menus in casual restaurants? ___ Yes ___ No

8. Would you order healthier items if they were available in casual restaurants? ___ Yes ___ No

9. Would knowing the nutritional content of a menu item affect your food selection? ___ Yes ___ No

10. Would you be willing to pay more for a healthier meal choice in casual restaurants? ___ Yes ___ No

11. Do you think healthier menu items are more expensive than less healthy items in casual restaurants? ___ Yes ___ No ___ I don't know

12. Are you currently diagnosed with a disease or condition that affects food choices whether eating at home or dining out? ___ Yes ___ No

13. If yes, please indicate the condition(s):
- | |
|--|
| <input type="checkbox"/> food allergies/metabolic restrictions |
| <input type="checkbox"/> heart disease |
| <input type="checkbox"/> diabetes |
| <input type="checkbox"/> high blood pressure |
| <input type="checkbox"/> trying to lose weight |
| <input type="checkbox"/> other: (please specify) _____ |

Please Turn Over →

Part III

14. In the last year, what sources have you regularly used for information regarding health, food and nutrition?

Please check up to 5 sources.

- television/radio
- magazine/newspapers
- books/journals
- internet
- family/friends/colleagues
- organization materials (i.e. Canadian Diabetes Association)
- government materials/awareness campaign
- gyms, community or recreational facilities
- dietician/nutritionist
- I don't know/none

15. Have you ever read health and nutrition information from any of the following sources? Check all that apply.

- Canadian Diabetes Association
- Heart and Stroke Foundation
- Canadian Cancer Society
- Canadian Association for School Health
- Health Canada
- None/Other (if other please specify) _____

16. Have you ever consulted Canada's Food Guide for nutritional information? ____ Yes ____ No

If no, why not? _____ **(please proceed to Part IV)**

If yes, please answer questions 17 and 18.

17. How do you use the nutritional guidelines and information from Canada's Food Guide? Check all that apply.

- affects what I buy in grocery stores
- affects the meals I make at home
- affects what I eat in casual restaurants
- I don't remember the nutritional guidelines
- I strictly follow its portion and nutritional guidelines
- I sometimes follow its guidelines
- I rarely or never follow its guidelines

18. What is your perception of Canada's Food Guide? Please check all that apply.

- Nutritional information is too confusing/complicated to follow
- Serving/portion sizes are unrealistic
- I think the Canada Food Guide is useful and informative
- I rarely see the Canada Food Guide
- It doesn't give me enough information

Part IV Please check one box for each question.	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
19. Displaying the nutritional content of menu items would help you identify healthy meal choices.					
20. A symbol of approval from a well-known organization that promotes a healthy lifestyle (i.e. Heart and Stroke Foundation) would help you identify nutritional meal choices.					
21. A symbol of approval from a provincial government agency (i.e. Ministry of Health) would help you identify nutritional meal choices.					
22. It's important for consumers to be aware of the nutritional content of menu items when dining at casual restaurants.					
23. I would benefit from a pamphlet delivered to my house that gives the nutritional information of many foods.					
24. I would benefit from media awareness campaigns that offer nutritional information.					
25. It should be the responsibility of the restaurant to advise consumers of the nutritional information of menu items.					

Part V

- 26. What is your age?
 - 19 - 24 years old
 - 25 - 34 years old
 - 35 - 44 years old
 - 45 - 54 years old
 - 55 - 64 years old
 - 65 or older
- 27. Estimated Household Income:
 - less than \$10,000
 - \$10,001 - \$30,000
 - \$30,001 - \$50,000
 - \$50,001 - \$70,000
 - \$70,001 +
- 28. On average, how many **hours per week** do you exercise? _____
- 29. What municipality do you live in? _____
- 30. Gender: Male / Female
- Additional Comments: _____

Thank you for completing the survey.

Appendix C – Steak Meal Calculation

9oz STEAK	Nutrient	Units	Convert 100g to portion size		Conversion (g to k/cal)	Result for AMDR	
			Value per 100 grams	(9oz)			
	ENERGY	kcal	212.0	540.9			
	PROTEIN	g	29.3	74.8	4.0	299.3	55.3%
	FAT	g	9.7	24.7	9.0	222.1	41.1%
	CARB	g	0.0	0.0	4.0	0.0	0.0%

MASHED POTATOES	Nutrient	Units	Convert 100g to portion size		Conversion (g to k/cal)	Result for AMDR	
			Value per 100 grams	(105 y.5cup)			
	ENERGY	kcal	113	119			
	PROTEIN	g	1.87	1.96	4.0	7.84	6.6%
	FAT	g	4.22	4.43	9.0	39.87	33.5%
	CARB	g	16.77	17.61	4.0	70.44	59.2%

VEGETABLES	Nutrient	Units	Convert 100g to portion size		Conversion (g to k/cal)	Result for AMDR	
			Value per 100 grams	(100 grams)			
	ENERGY	kcal	48	48			
	PROTEIN	g	3.45	3.45	4.0	13.8	28.8%
	FAT	g	0.36	0.36	9.0	3.15	6.6%
	CARB	g	7.68	7.68	4.0	30.72	64.0%

MEAL TOTALS	Units	Meal Totals		Conversion (g to k/cal)	Result for AMDR		
	ENERGY	kcal		707.9			
	PROTEIN	g		80.2	4.0	320.98	45.3%
	FAT	g		29.5	9.0	265.08	37.4%
	CARB	g		25.3	4.0	101.16	14.3%

Appendix D – Salmon Meal Calculation

Nutrient	Units	Convert 100g to portion size		Conversion (g to k/cal)	Result for AMDR	
		Value per 100 grams	(3.5oz)			
7oz Coho Salmon						
ENERGY	kcal	126.0	126.0			
PROTEIN	g	23.5	23.5	4.0	94.0	74.6%
FAT	g	3.5	3.5	9.0	31.5	25.0%
CARB	g	0.0	0.0	4.0	0.0	0.0%
Carrots						
Nutrient	Units	Value per 100 grams	Convert 100g to portion size (100g)	Conversion (g to k/cal)	Result for AMDR	
ENERGY	kcal	35	35			
PROTEIN	g	0.76	0.76	4.0	3.04	8.7%
FAT	g	0.18	0.18	9.0	1.62	4.6%
CARB	g	8.22	8.22	4.0	32.88	83.9%
Asparagus						
Nutrient	Units	Value per 100 grams	Convert 100g to portion size (6 stalks)	Conversion (g to k/cal)	Result for AMDR	
ENERGY	kcal	22	20			
PROTEIN	g	2.4	2.16	4.0	8.64	43.2%
FAT	g	0.22	0.2	9.0	1.8	9.0%
CARB	g	4.11	3.7	4.0	14.8	74.0%
Butter						
Nutrient	Units	Value per 100 grams	Convert 100g to portion size (2 tbsp)	Conversion (g to k/cal)	Result for AMDR	
ENERGY	kcal	717	102			
PROTEIN	g	0.85	0.12	4.0	0.48	0.5%
FAT	g	81.11	11.25	9.0	101.25	89.3%
CARB	g	0.06	0.01	4.0	0.04	0.0%
Brown Rice						
Nutrient	Units	Value per 100 grams	Convert 100g to portion size (1 cup)	Conversion (g to k/cal)	Result for AMDR	
ENERGY	kcal	111	229			
PROTEIN	g	2.58	5.33	4.0	21.32	9.3%
FAT	g	0.9	1.86	9.0	16.74	7.3%
CARB	g	22.96	47.4	4.0	189.6	82.8%
Meal Totals						
	Units	Meal Totals		Conversion (g to k/cal)	Result for AMDR	
ENERGY	kcal	512.0				
PROTEIN	g	31.9		4.0	127.48	24.9%
FAT	g	17.0		9.0	152.91	29.9%
CARB	g	59.3		4.0	237.32	46.4%

Appendix E – Pasta Meal Calculation

Nutrient	Units	Value per 100 grams	Convert 100g to portion size	Conversion (g to k/cal)		Result for AMDR
			(420g/3cups)			
ENERGY	kcal	141.0	659.0			
PROTEIN	g	4.8	24.4	4.0	97.4	14.8%
FAT	g	0.7	3.9	9.0	35.2	5.3%
CARB	g	28.3	128.5	4.0	513.9	78.0%

Nutrient	Units	Value per 100 grams	Convert 100g to portion size	Conversion (g to k/cal)		Result for AMDR
			(1 cup/250 g)			
ENERGY	kcal	n/a	102			
PROTEIN	g	n/a	2.35	4.0	9.4	9.2%
FAT	g	n/a	1.85	9.0	16.65	16.3%
CARB	g	n/a	21.93	4.0	87.72	86.0%

Nutrient	Units	Value per 100 grams	Convert 100g to portion size	Conversion (g to k/cal)		Result for AMDR
			(59 grams)			
ENERGY	kcal	17	10			
PROTEIN	g	1.23	0.73	4.0	2.92	29.2%
FAT	g	0.3	0.18	9.0	1.62	16.2%
CARB	g	3.29	1.95	4.0	7.8	78.0%

Nutrient	Units	Value per 100 grams	Convert 100g to portion size	Conversion (g to k/cal)		Result for AMDR
			(15 ml / 1 tbsp)			
ENERGY	kcal	n/a	17			
PROTEIN	g	n/a	0.05	4.0	0.2	1.2%
FAT	g	n/a	0.67	9.0	6.03	35.5%
CARB	g	n/a	2.83	4.0	11.32	36.6%

Nutrient	Units	Value per 100 grams	Convert 100g to portion size	Conversion (g to k/cal)		Result for AMDR
			(15 ml / 1 tbsp)			
ENERGY	kcal	n/a	27			
PROTEIN	g	n/a	2.44	4.0	9.76	36.1%
FAT	g	n/a	1.81	9.0	16.29	60.3%
CARB	g	n/a	0.26	4.0	1.04	3.9%

	Units	Meal Totals	Conversion (g to k/cal)		Result for AMDR
ENERGY	kcal	815.0			
PROTEIN	g	29.9	4.0	119.72	14.7%
FAT	g	8.4	9.0	75.78	9.3%
CARB	g	155.5	4.0	621.80	76.3%

Appendix F – Chicken Meal Calculation

Nutrient	Units	Convert 100g to portion size (full breast 172g)		Conversion (g to k/cal)	Result for AMDR	
		Value per 100 grams	Value per 100g			
ENERGY	kcal	n/a	284.0			
PROTEIN	g	n/a	53.4	4.0	213.4	75.1%
FAT	g	n/a	6.1	9.0	55.3	19.5%
CARB	g	n/a	0.0	4.0	0.0	0.0%

Nutrient	Units	Convert 100g to portion size (100g)		Conversion (g to k/cal)	Result for AMDR	
		Value per 100 grams	Value per 100g			
ENERGY	kcal	n/a	127			
PROTEIN	g	n/a	0.78	4.0	3.12	2.5%
FAT	g	n/a	11.85	9.0	106.65	84.0%
CARB	g	n/a	4.22	4.0	16.88	13.3%

Nutrient	Units	Convert 100g to portion size (100 grams)		Conversion (g to k/cal)	Result for AMDR	
		Value per 100 grams	Value per 100g			
ENERGY	kcal	116	145			
PROTEIN	g	1.49	1.04	4.0	4.16	2.9%
FAT	g	0.14	12.75	9.0	114.75	79.1%
CARB	g	27.58	6.57	4.0	26.28	18.1%

Nutrient	Units	Convert 100g to portion size (138g)		Conversion (g to k/cal)	Result for AMDR	
		Value per 100 grams	Value per 100g			
ENERGY	kcal	n/a	128			
PROTEIN	g	n/a	3.45	4.0	13.8	10.8%
FAT	g	n/a	0.18	9.0	1.62	1.3%
CARB	g	n/a	29.9	4.0	119.6	93.4%

Nutrient	Units	Convert 100g to portion size (2bsp)		Conversion (g to k/cal)	Result for AMDR	
		Value per 100 grams	Value per 100g			
ENERGY	kcal	717	102			
PROTEIN	g	0.85	0.12	4.0	0.48	0.5%
FAT	g	31.11	11.25	9.0	101.25	99.3%
CARB	g	0.06	0.01	4.0	0.04	0.0%

	Units	Meal Totals		Conversion (g to k/cal)		Result for AMDR
ENERGY	kcal		786.0			
PROTEIN	g		58.7	4.0	234.96	29.9%
FAT	g		42.2	9.0	379.53	48.3%
CARB	g		40.7	4.0	162.80	20.7%

Appendix G – Stir-fry Meal Calculation

Nutrient	Units	Value per 100 grams	Convert 100g to	Conversion (g to k/cal)	Result for	AMDR
			portion size (30g)			
Tofu						
ENERGY	kcal	91.0	27.0			
PROTEIN	g	9.9	3.0	4.0	12.0	44.4%
FAT	g	5.8	1.8	9.0	16.2	60.0%
CARB	g	2.0	0.6	4.0	2.4	8.9%
Broccoli						
Nutrient	Units	Value per 100 grams	Convert 100g to portion size (156g/1cup)	Conversion (g to k/cal)	Result for	AMDR
ENERGY	kcal	n/a	55			
PROTEIN	g	n/a	3.71	4.0	14.84	27.0%
FAT	g	n/a	0.64	9.0	5.76	10.5%
CARB	g	n/a	11.2	4.0	44.8	81.5%
Red Pepper						
Nutrient	Units	Value per 100 grams	Convert 100g to portion size (14.5g/1cup)	Conversion (g to k/cal)	Result for	AMDR
ENERGY	kcal	n/a	39			
PROTEIN	g	n/a	1.48	4.0	5.92	15.2%
FAT	g	n/a	0.45	9.0	4.05	10.4%
CARB	g	n/a	8.98	4.0	35.92	92.1%
Rice Noodles						
Nutrient	Units	Value per 100 grams	Convert 100g to portion size (3 cups/528g)	Conversion (g to k/cal)	Result for	AMDR
ENERGY	kcal	111	576			
PROTEIN	g	2.58	4.8	4.0	19.2	3.3%
FAT	g	0.9	1.06	9.0	9.54	1.7%
CARB	g	22.96	131.47	4.0	525.88	91.3%
Carrots						
Nutrient	Units	Value per 100 grams	Convert 100g to portion size (351g/2.5cup)	Conversion (g to k/cal)	Result for	AMDR
ENERGY	kcal	n/a	123			
PROTEIN	g	n/a	2.67	4.0	10.68	8.7%
FAT	g	n/a	0.63	9.0	5.67	4.6%
CARB	g	n/a	28.85	4.0	115.4	93.8%
TOTAL MEAL						
	Units		Meal Totals	Conversion (g to k/cal)	Result for	AMDR
ENERGY	kcal		820.0			
PROTEIN	g		15.7	4.0	62.64	7.6%
FAT	g		4.6	9.0	41.22	5.0%
CARB	g		181.1	4.0	724.40	88.3%

Appendix H – Independent Variable Summary and Related Hypothesis

INDEPENDENT VARIABLES
Trends of Behaviour
Times per month meals are eaten in a casual restaurant
Reasons why an individual eats out: saves time, business related reasons, enjoyment/pleasure, part of normal routine
Factors that influence selection of a meal: taste, nutrition, presentation, cost
When most often eat meals in casual restaurants: breakfast, lunch, dinner
Sources of health and nutrition information: friends, dietician, magazines/newspapers, books/journals, internet
Consult Canada's Food Guide: yes/no
Attitudinal Variables
Satisfaction with selection of healthy options
Would order healthier menu items: yes/no
Knowing nutritional content affect menu selection: yes/no
Willing to pay more for a healthier menu item: yes/no
Consumer awareness of meal nutritional content is important
Demographic Variables
Age Group: 19-24; 25-34; 35-44; 45-54; 55-64
Income Category: <\$10,000; \$10-30,000; \$30-50,000; \$50-70,000; \$70,001+
Hours of exercise/week: < 1; 1-3; 4-6; 7-9; 10+
Male/Female
Diagnosed with disease or condition

Appendix I – Demographic Profile of Salmon Meal Respondents

Salmon Meal	N	Percent
	197	
Gender		
Male	82	41.6%
Female	115	58.4%
Age		
19-24	14	7.1%
25-34	51	25.9%
35-44	42	21.3%
45-54	53	26.9%
55-64	27	13.7%
65 and older	10	5.1%
Household Income		
<\$10000	12	6.1%
\$10001-\$30000	19	9.6%
\$30001-\$50000	46	23.4%
\$50001-\$70000	46	23.4%
\$70001 +	74	37.6%

Appendix J – Demographic Profile of Steak Meal Respondents

Steak Meal	N	Percent
	95	
Gender		
Male	67	70.5%
Female	28	29.5%
Age		
19-24	14	14.7%
25-34	28	29.5%
35-44	20	21.1%
45-54	17	17.9%
55-64	12	12.6%
65 and older	4	4.2%
Household Income		
<\$10000	5	5.3%
\$10001-\$30000	11	11.6%
\$30001-\$50000	34	35.8%
\$50001-\$70000	27	28.4%
\$70001 +	18	18.9%

Appendix K – Demographic Profile of Pasta Meal Respondents

Pasta Meal	N	Percent
	82	
Gender		
Male	35	42.7%
Female	47	57.3%
Age		
19-24	9	11.0%
25-34	32	39.0%
35-44	16	19.5%
45-54	13	15.9%
55-64	9	11.0%
65 and older	3	3.7%
Household Income		
<\$10000	3	3.6%
\$10001-\$30000	5	6.1%
\$30001-\$50000	27	32.9%
\$50001-\$70000	20	24.4%
\$70001 +	27	32.9%

Appendix L – Demographic Profile of Chicken Meal Respondents

Chicken Meal	N	Percent
	93	
Gender		
Male	39	41.9%
Female	54	58.1%
Age		
19-24	10	10.8%
25-34	25	26.9%
35-44	22	23.7%
45-54	22	23.7%
55-64	12	12.9%
65 and older	2	2.1%
Household Income		
<\$10000	6	6.5%
\$10001-\$30000	10	10.8%
\$30001-\$50000	21	22.6%
\$50001-\$70000	20	21.5%
\$70001 +	36	38.7%

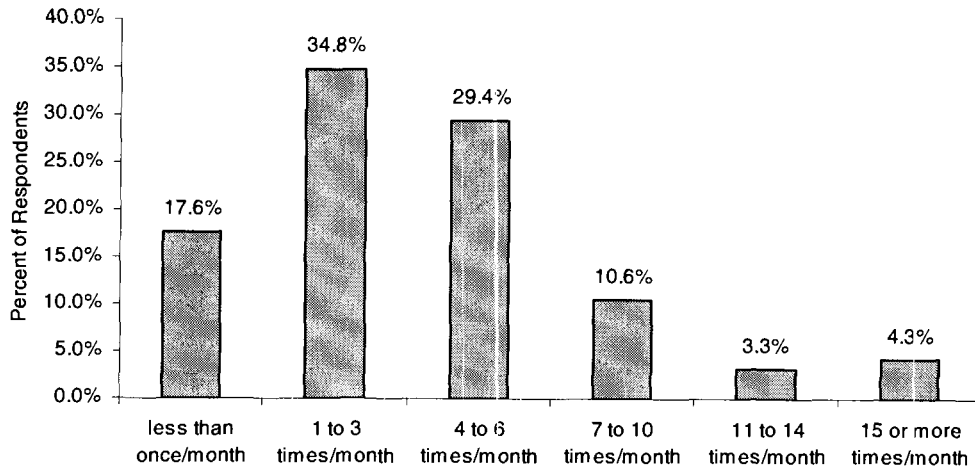
Appendix M – Demographic Profile of Stir-fry Meal Respondents

Stir-fry Meal	N	Percent
	44	
Gender		
Male	15	34.1%
Female	29	65.9%
Age		
19-24	7	15.9%
25-34	13	29.5%
35-44	11	25.0%
45-54	8	18.2%
55-64	2	4.5%
65 and older	3	6.8%
Household Income		
<\$10000	4	9.1%
\$10001-\$30000	4	9.1%
\$30001-\$50000	10	22.7%
\$50001-\$70000	19	43.2%
\$70001 +	7	15.9%

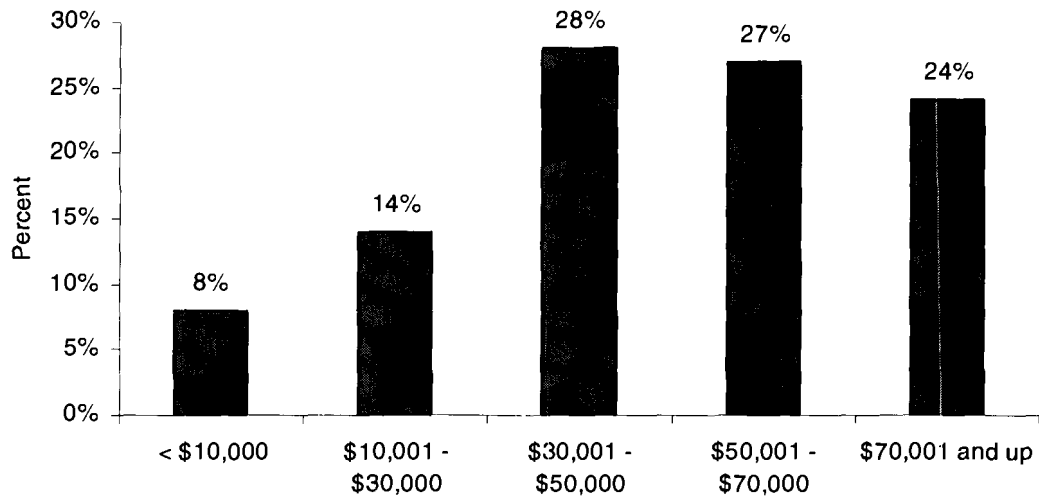
Appendix N – Municipal Breakdown of Sample Population compared to 2001 Census

Municipality Population Breakdown				
	N	%	Census Data	Difference
Greater Vancouver				
Anmore	0	0.0%	0.7%	-0.7%
Belcarra	0	0.0%	0.3%	-0.3%
Bowen Island	0	0.0%	0.2%	-0.2%
Burnaby	29	5.7%	9.7%	-4.0%
Coquitlam	11	2.2%	5.6%	-3.4%
Delta	55	10.8%	4.9%	5.9%
Lions Bay	0	0.0%	0.7%	-0.7%
Langley	24	4.7%	5.6%	-0.9%
Maple Ridge	4	0.8%	3.1%	-2.3%
New West	8	1.6%	2.7%	-1.1%
North Vancouver	18	3.5%	5.9%	-2.4%
Pitt Meadows	2	0.4%	0.7%	-0.3%
Port Coquitlam	6	1.2%	2.5%	-1.3%
Port Moody	5	1.0%	1.2%	-0.2%
Richmond	24	4.7%	8.2%	-3.5%
Surrey	89	17.4%	17.5%	-0.1%
Vancouver	160	31.3%	27.5%	3.8%
West Vancouver	4	0.8%	2.0%	-1.2%
White Rock	7	1.4%	0.9%	0.5%
Fraser Valley				
Abbotsford	29	5.7%	48.60%	-42.9%
Chilliwack	13	2.5%	26.49%	-24.0%
Undeclared	23	4.5%		
Total	511	100.0%		

Appendix O – Respondent Frequency of Dining in Casual Restaurants

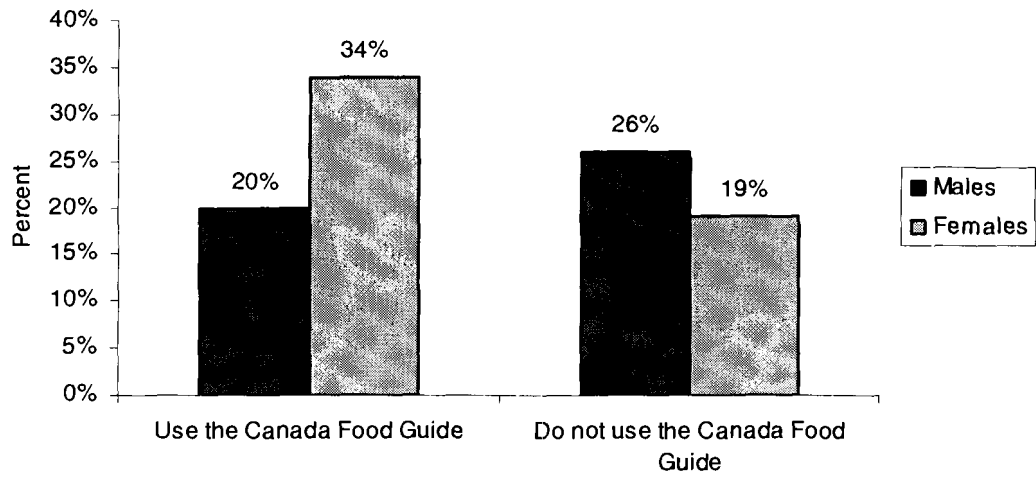


Appendix P – Comparison Crosstab of Cost (Ranked First) and Income



The crosstab reveals that of the survey respondents who rank cost as the number one factor determining meal selection, the majority (78 percent) are in the middle to upper level income categories. Interestingly, only 8 percent of respondents who rank cost first are in the lowest income category (less than \$10,000); and, 14 percent of respondents who rank cost first are in the second lowest income category (\$10,001-30,000). This paradoxical result implies that the cost of a dish is more of a function of income for respondents in higher income categories, than it is for respondents in lower income categories. To understand the reason behind this finding, a crosstab was run between the age categories and income categories. The results indicate that 50 percent of respondents in the less than \$10,000 income category are 19-24 years old, and 47 percent of respondents in the less than \$10,000 are 25-34 years old. These findings suggest that perhaps respondents of younger age groups are students, or live with someone who supports them, or have some sort of income assistance, which makes the cost of a dish less of a factor in the meal selection process.

Appendix Q – Gender Comparisons of respondents who use the Canada Food Guide



Appendix R – Testing the presence of a relationship between the dependent and independent variables

Model Fitting Information

Model	Model Fitting Criteria	Likelihood Ratio Tests		
	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	1290.926			
Final	1142.486	148.440	68	.000

The presence of a relationship between the dependent and independent variables is based on the statistical significance of the final model chi-square, in the model fitting information (Schwab, 2005). The probability of the model chi-square (148.440) is .000, which is less than the significance level of .05. Therefore, the null hypothesis that there was no difference between the model without independent variables and the model with independent variables is rejected; and as such, this signifies that a relationship between the independent variables and the dependent variable is supported (Schwab, 2005).

Appendix S – Multicollinearity Diagnostic

Coefficients (a)

Model		Collinearity Statistics	
		Tolerance	VIF
1	Would you order more healthy options if they were available in casual restaurants?	.897	1.115
	Do you consult magazines or newspapers for nutritional information?	.927	1.079
	What is your age?	.893	1.120
	What is your annual household income?	.875	1.142
	How many hours per week do you exercise?	.956	1.046
	What is your gender?	.919	1.088
	Nutrition Rank first	.958	1.044

Multicollinearity is a concern in logistic regression if the Tolerance value is less than .1 and the VIF value is above 10 (Field, 2000.). It is also possible to test for multicollinearity in multinomial logistic regression by evaluating the standard error scores in the Parameter Estimates; any variable, except the intercept, with a standard error greater than two indicates that there is multicollinearity (Schwab, 2005). By both assessments, the study has no evidence of multicollinearity.

Appendix T – Evaluating the Usefulness of the Model

Case Processing Summary

		N	Marginal Percentage
Dependent Variable	salmon (#2) balanced	197	38.6%
	steak meal (#1) excessive protein	95	18.6%
	pasta (#3) excessive carbohydrate	82	16.0%
	chicken (#4) excessive fat	93	18.2%
	stir-fry (#5) outside all macronutrient	44	8.6%

Classification

Observed	Predicted					Percent Correct
	Salmon Meal	Steak Meal	Pasta Meal	Chicken Meal	Stir-fry Meal	
Salmon Meal	164	20	8	1	4	83.2%
Steak Meal	45	40	5	5	0	42.1%
Pasta Meal	57	14	7	4	0	8.5%
Chicken Meal	69	14	3	5	2	5.4%
Stir-fry Meal	32	5	0	3	4	9.1%
Overall Percentage	71.8%	18.2%	4.5%	3.5%	2.0%	43.1%

The proportional by chance accuracy rate is computed by calculating the proportion of cases for each group based on the number of cases in each group in the *Case Processing Summary* table, and then squaring and summing the proportion of cases in each group (Schwab, 2005). The benchmark for classifying a multinomial regression as useful is 25 percent over the rate of accuracy by chance alone; therefore, the summed numbers are multiplied by 1.25 (Schwab, 2005). For example: $0.386^2 + 0.186^2 + 0.160^2 + 0.182^2 + 0.086^2 = 0.249712$; $24.9 \times 1.25 = 31.2$ percent; the proportional by chance accuracy is 31.2 percent. To characterize this model as useful, the final percentage in the *Classification* table needs to be equal to or greater than the percentage calculated from the proportional chance (Schwab, 2005). The final percent in the classification table is 43.1 percent, which is greater than 32.1 percent. Thus, the criteria for classification accuracy are satisfied.

Appendix U – Regression Output of all Variables in the Model

Meal Choice		B	Sig.	Exp (B)	
Steak Meal	Intercept	-2.183	.023		
	Would order healthier items if available	-1.032	.003	.356	
	Consults magazines and newspapers as sources of nutrition information	-.598	.040	.550	
	Nutrition not ranked 1 st	1.401	.002	4.059	
	Hours exercise per week: <1 hour	.907	.155	2.477	
	1-3 hours	-.187	.658	.830	
	4-6 hours	-.010	.982	.990	
	7-9 hours	-.157	.801	.855	
	Gender: Male	1.022	.001	2.780	
	Household Income: <\$10,000	-.578	.411	.561	
	\$10,001-\$30,000	.557	.298	1.745	
	\$30,000-\$50,000	.829	.035	2.292	
	\$50,001-\$70,000	.643	.099	1.903	
	Age: 19-24	1.339	.092	3.813	
	25-34	.517	.461	1.678	
	35-44	.281	.696	1.325	
	45-54	.049	.947	1.050	
	55-64	.414	.591	1.513	
	Pasta Meal	Intercept	-2.003	.043	
		Would order healthier items if available	-.535	.168	.586
Consults magazines and newspapers as sources of nutrition information		.044	.885	1.045	
Nutrition not ranked 1 st		1.286	.004	3.620	
Hours exercise per week: <1 hour		.947	.190	2.579	
1-3 hours		.046	.920	1.048	
4-6 hours		.342	.466	1.407	
7-9 hours		.882	.133	2.416	
Gender: Male		.016	.955	1.016	
Household Income: <\$10,000		-1.269	.092	.281	
\$10,001-\$30,000		-.786	.183	.456	
\$30,000-\$50,000		.211	.557	1.235	
\$50,001-\$70,000		.033	.928	1.034	
Age: 19-24		1.050	.209	2.858	
25-34		.704	.333	2.022	
35-44		.060	.936	1.062	
45-54	-.359	.641	.698		

Meal Choice		B	Sig.	Exp (B)
	55-64	.023	.977	1.024
Chicken Meal	Intercept	-.869	.382	
	Would order healthier items if available	-.390	.313	.677
	Consults magazines and newspapers as sources of nutrition information	-.353	.206	.703
	Nutrition not ranked 1 st	.182	.561	1.200
	Hours exercise per week: <1 hour	.481	.464	1.618
	1-3 hours	-.352	.364	.703
	4-6 hours	-.557	.175	.573
	7-9 hours	.535	.296	1.707
	Gender: Male	-.151	.578	.860
	Household Income: <\$10,000	-.474	.442	.622
	\$10,001-\$30,000	-.102	.831	.903
	\$30,000-\$50,000	-.256	.472	.774
	\$50,001-\$70,000	-.275	.434	.760
	Age: 19-24	1.507	.100	4.513
	25-34	1.020	.217	2.774
	35-44	1.131	.175	3.098
	45-54	.812	.335	2.253
	55-64	.962	.267	2.617
Stir-fry Meal	Intercept	-1.205	.285	
	Would order healthier items if available	.196	.729	1.216
	Consults magazines and newspapers as sources of nutrition information	-1.092	.003	.335
	Nutrition not ranked 1 st	.020	.962	1.020
	Hours exercise per week: <1 hour	.058	.952	1.060
	1-3 hours	-.247	.651	.781
	4-6 hours	-.219	.690	.803
	7-9 hours	.678	.296	1.970
	Gender: Male	-.468	.223	.626
	Household Income: <\$10,000	.350	.662	1.419
	\$10,001-\$30,000	.218	.765	1.243
	\$30,000-\$50,000	.415	.457	1.514
	\$50,001-\$70,000	1.191	.017	3.291
	Age: 19-24	.814	.355	2.258
	25-34	-.048	.950	.953
	35-44	.021	.978	1.021
	45-54	-.633	.437	.531
	55-64	-1.079	.288	.340

Appendix V – Stakeholder Scores for Acceptance Criteria

	Status Quo	Alternative 1- Media Awareness Campaign	Alternative 2 - Informational Print Advertisements	Alternative 3 - Point of Purchase Methods	Alternative 4 - Healthy Choice Network
Stakeholders					
Restaurant Patrons ⁵²	✓	✓	✓	✓	✓
NGO	x	✓	✓	x	✓
Government	x	x	✓	x	✓
Restaurants	✓	?	?	x	✓
Private Sector	✓	✓	✓	x	✓
Health Professionals	x	?	x	x	✓
TOTAL	2/5	2/5	3/5	0/5	5/5

⁵² Note: According to the survey instrument, the majority (i.e. 50 percent or more) of restaurant patrons agree, or strongly agree, that each alternative is an effective means to increase awareness; therefore, the restaurant patrons' score is not included in the final tally. The scores are out of five, with the restaurant patrons representing a 'bonus' score for each alternative.

Appendix W – Summary of Survey Responses Regarding Alternatives

	Consumer Responses				
	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Point of Purchase Method	34.8%	46.3%	14.2%	3.3%	1.2%
Symbol from NGO would help you identify nutritional meal choices.	25.2%	51.1%	18.2%	4.3%	1.2%
Media Awareness Campaigns	16.8%	43.1%	27.6%	11.0%	1.6%

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