



BC HEALTHY LIVING ALLIANCE
HEALTHY EATING STRATEGY

17 MAY 2007



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PLANNING LEAD:

Canadian Diabetes Association, Pacific

PARTICIPANTS:

- BC Pediatric Society
- Dietitians of Canada, BC Region
- Heart and Stroke Foundation of BC and Yukon
- Public Health Association of BC

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DEFINITION OF ACRONYMS USED IN THIS REPORT

AS! BC	Action Schools! BC	BCCPAC	BC Confederation of Parent Advisory Councils	BCSTA	BC School Trustees Association
BCCA	BC Cancer Agency	CCS	Canadian Cancer Society	BCPVPA	BC Principals and Vice Principals Association
BCHLA	BC Healthy Living Alliance	CDA	Canadian Diabetes Association	BCTF	BC Teachers Federation
BCRPA	British Columbia Parks and Recreation Association	CFFF	Cooking Fun for Families	GFB	Good Food Box
BCSSA	BC School Superintendents Association	CFYL	Cooking For Your Life	HA	Health Authority
		DASH	Directorate of Agencies for School Health	HSF	Heart and Stroke Foundation

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EXECUTIVE SUMMARY

Introduction

The British Columbia Healthy Living Alliance (BCHLA) was formed in 2003, and is the largest health promotion team in the province. Their focus is on the risk factors and determinants that contribute to cancer, cardiovascular disease, chronic respiratory disease and diabetes. The BCHLA's commitment to reducing the burden of chronic disease is evident through a constant focus on advocacy, collaboration, and community capacity-building.

The BCHLA has set targets in risk factor reduction for 2010:

- 9 out of 10 British Columbians are non-smokers
- 7 out of 10 British Columbians eat at least 5 servings of vegetables and fruits
- 7 out of 10 British Columbians are physically active
- 7 out of 10 British Columbians are at a healthy weight

The targets and intentions of the BCHLA are in line with the goals of ActNow, the BC government's unifying framework that provides a cohesive platform for cross-government and cross-sectoral community-based approaches to address key risk factors for chronic disease. As a first step in contributing to the achievement of the ActNow and BCHLA targets, the BCHLA developed *The Winning Legacy* by identifying evidence-based interventions, and putting them forth as a set of 27 strategic recommendations. Implementation of some or all of these recommendations is now the objective of the BCHLA's three integrated strategies in physical activity, healthy eating, and tobacco reduction.

The importance of moving forward with *The Winning Legacy* recommendations was recognized by support, in the form of a \$25.2 million one-time grant, from the provincial government in 2006. Nearly a quarter of this grant, (\$6 million dollars), has been allotted to initiatives contained within the Healthy Eating Strategy. The process and initiatives described in this document show the work that took place between December 2006 and May 2007 to develop the BCHLA's Healthy Eating Strategy. This work was developed by the Healthy Eating Strategy Working Group, with leadership from the Canadian Diabetes Association, and composed of members representing the Dietitians of Canada, the Heart and Stroke Foundation of BC and Yukon, the BC Pediatrics Society, the Public Health Association of BC, and the BCHLA Secretariat.

Goal and Objectives of the Healthy Eating Strategy

The goal of the BCHLA Healthy Eating Strategy is to implement activities that lead to changes in the BC population that will assist in the achievement of the BCHLA Targets for 2010:

1. 7 out of 10 British Columbians will eat at least 5 servings of vegetables and fruits a day.
2. 7 out of 10 British Columbians will be at a healthy weight.

The objectives of the BCHLA Healthy Eating Strategy are three-fold:

1. To build skills and knowledge that will lead to greater consumption of vegetables and fruit in individuals in British Columbia.
2. To improve access to vegetables and fruit for all British Columbians.
3. To decrease British Columbians' access to, and consumption of, unhealthy food and beverage choices.

Target Audience of the Strategy

Based on an analysis of the existing evidence, it was estimated that targeting the initiatives at BC families would have the largest reach, and allow the maximum potential to reach vulnerable families, including those that are low income, food insecure, Aboriginal, and/or new immigrants. The initiatives contained within the strategy provide an integrated approach to increasing access to healthy choices for BC families, and increasing the skills and knowledge necessary to make healthy choices.

Four Initiatives of the Strategy

There are four initiatives contained within this strategy:

- **Initiative 1 – Support for Healthy Food and Beverage Sales:** By developing necessary tools and resources and offering direct support, this initiative will assist schools, recreation facilities, municipal buildings and public buildings in making changes to their food and beverage sale environments. The goal within this initiative is to make healthy choices widely (and predominantly) available for purchase in environments where families (or family members) learn, work and play. The focus, initially, will be on Lower Mainland recreation centres, given Vancouver is the host city of the Olympic Games.
- **Initiative 2 – Development and Implementation of a Sustainable Vegetable and Fruit Access Model:** This initiative will integrate and bring together partners across the province who are working within Good Food Box or Healthy Harvest Box programs, with a goal of developing a sustainable model for vegetable and fruit access. Partners will be engaged in networks and within a Summit to develop the model. The model will then be piloted (and supported) in two areas in BC. It is anticipated that families across the province will benefit from this improved model, and importantly, food insecure families will be the primary benefactors. This initiative will improve access to vegetables and fruit where families live.
- **Initiative 3 – Cooking and Food Skills for Families:** By developing and supporting a program that targets cooking and food skills in vulnerable BC families (including low income, food insecure, Aboriginal, and/or new immigrant), this initiative will increase their skills and knowledge to enable making healthy food and beverage choices. The goal within this initiative is to assist in over-coming some crucial barriers to healthy eating, including knowing how and where to access healthy foods on a budget, and how to prepare foods for maximum health benefits.
- **Initiative 4 – School-based Sugar-Sweetened Beverage Reduction Initiative:** This initiative will develop and support implementation of a program to increase skills around making healthy beverage choices, with goals of reducing consumption of sugar-sweetened beverages, and over time, positively influencing the maintenance of healthy weights in school children. Long term sustainability of this messaging within schools will be promoted through the development and testing of a module for SSB education that teachers can deliver over the long term.

The initiatives contained within this strategy will influence BC families' access to healthy food and beverage choices, while improving their skills in making those healthy choices.

Summary

The initiatives contained within this strategy will influence BC families' access to healthy food and beverage choices, while improving their skills in making those healthy choices. By targeting a variety of environments with a range of activities, the BCHLA's Healthy Eating Strategy has the potential to influence as many as 640,000 school-age children, 50,500 adults, and 1,142,750 families, including 1563 food insecure or low income families that would be specifically targeted. The estimated reach would be even greater with support provided to changing the food and beverage sale environment in public buildings.

1.0 INTRODUCTION

The British Columbia Healthy Living Alliance (BCHLA) was formed in 2003, and is the largest health promotion team in the province. The BCHLA is composed of organizations that aim to further a mission to "improve the health of British Columbians through leadership that enhances collaborative action to promote physical activity, healthy eating and living smoke-free". The BCHLA's focus is on the risk factors and determinants that contribute to

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cancer, cardiovascular disease, chronic respiratory disease and diabetes. The group has wide-spread reach across the province, engaging 40,000 volunteers, 4300 health and recreation professionals, and 184 local governments.

The BCHLA's commitment to reducing the burden of chronic disease is evident through a constant focus on advocacy (for health promoting policies, environments, programs and services), collaboration (among government, non-government and private sector organizations), and community capacity-building (to create and sustain health-promoting policies, environments, programs and services).

The BCHLA has set targets in risk factor reduction for 2010:

- 9 out of 10 British Columbians are non-smokers
- 7 out of 10 British Columbians eat at least 5 servings of vegetables and fruits
- 7 out of 10 British Columbians are physically active
- 7 out of 10 British Columbians are at a healthy weight

These targets translate to improvements in the health of the population such that:

- 225,000 fewer British Columbians would smoke
- an additional 948,000 British Columbians would eat five or more servings of vegetables and fruits per day
- an additional 351,000 British Columbians would become physically active
- a total of 349,000 more British Columbians would achieve a healthy weight

The targets and intentions of the BCHLA are in line with the goals of ActNow, which is the BC government's unifying framework that provides a cohesive platform for cross-government and cross-sectoral community-based approaches to address key risk factors which are major contributors to the burden of chronic diseases in BC. These include the same four risk factors targeted by BCHLA and in addition, misuse of alcohol with a specific focus on pregnancy. The work of the BCHLA is very much aligned with the key initiatives supported through ActNow, including Active Communities, Action Schools! BC, the School Fruit and Vegetable Program, and activities targeting at reducing tobacco in the highest usage groups.

As a first step in contributing to the achievement of the ActNow and BCHLA targets, the BCHLA developed The Winning Legacy by identifying evidence-based interventions, and putting them forth as a set of 27 strategic recommendations. Implementation of relevant recommendations is now the objective of the BCHLA's three integrated strategies in physical activity, healthy eating, and tobacco reduction.

The importance of moving forward with The Winning Legacy recommendations was recognized by support, in the form of a \$25.2 million one-time grant, from the provincial government through ActNow BC in 2006. To make the best use of these funds and design strategies true to the goals of the BCHLA, the development of plans to support activities, programs and initiatives in the province is guided by several assumptions, largely contained within the BCHLA's Conceptual Framework (2007). These guiding principles include:

The importance of moving forward with The Winning Legacy recommendations was recognized by support, in the form of a \$25.2 million one-time grant, from the provincial government through ActNow BC in 2006.

- Utilization of a population health approach, recognizing that many factors influence health (i.e., income, social status, education, social support networks, employment, physical environments, personal health practices, biology and genetic endowment, health services, and healthy child development);
- Addressing populations and geographic areas where need is high and readiness for change is evident;
- Fostering vertical and horizontal integration across risk factors, the three strategies, the prevention-management continuum and jurisdictions;
- Building upon existing programs, experiences, and networks where possible;
- Basing decisions and actions on the best available evidence;
- Focusing on a small number of initiatives, which will have significant impact;
- Respecting the unique strengths, experience, expertise, and various levels of participation of organizations and individuals that make up the Alliance.

These principles, along with recommendations contained within The Winning Legacy, have guided the development of the Healthy Eating Strategy.

2.0 THE HEALTHY EATING STRATEGY

The development of the Healthy Eating Strategy was guided by a lead BCHLA member from the Canadian Diabetes Association, along with four other members of the Healthy Eating Strategy Task Group who were affiliated with the Dietitians of Canada, The Heart and Stroke Foundation of BC and Yukon, the BC Pediatrics Society, and the Public Health Association of BC.

...Increase the number of British Columbians consuming 5 to 10 vegetables and fruits a day.
...Increase the number of British Columbians who are at a healthy weight, via decreasing consumption of unhealthy food and beverage choices.

The initiatives contained within this strategy have a dual focus. The first is directly related to the BCHLA's 2010 target to increase the number of British Columbians consuming 5 to 10 vegetables and fruits a day. The second supports the BCHLA's target to increase the number of British Columbians who are at a healthy weight, via decreasing consumption of unhealthy food and beverage choices.¹ The evidence to support each focus is sound.

2.1 EVIDENCE TO SUPPORT INCREASING VEGETABLE AND FRUIT CONSUMPTION

Epidemiological evidence suggests a protective effect of vegetables and fruit in the development of many chronic diseases. The equivalent of one serving per day increase in fruit and vegetable intake was associated with a 20% reduction in all-cause mortality independent of age, systolic blood pressure, blood cholesterol, cigarette smoking, diabetes and supplement use [1]. Yusuf et al. published a landmark study in Lancet [2], showing clearly that nine modifiable risk factors were related to myocardial infarction worldwide. One of these risk factors was daily consumption of vegetables and fruit – this was associated with an odds ratio of 0.7 for myocardial infarction (i.e., those who consumed vegetables and fruit daily were less likely to have a heart attack). Importantly, this relationship stands up across geographic locations, culture and ethnicity. Further, it was estimated that the addition of just half a serving of fruit or vegetables to the typical adult daily diet in New Zealand would prevent 21% of the deaths caused by ischaemic heart disease, ischaemic stroke and cancer that were related to low vegetable and fruit consumption [3].

Reviews suggest that the strongest evidence for a link between vegetable and fruit consumption and chronic disease may be for cancer, most notably, cancers of the lung, esophagus, mouth, stomach, colon and pancreas [4, 5], ovary (vegetables only), bladder (fruit only), and kidney [6]. The types of vegetables that appear to be most protective are raw vegetables, followed by allium vegetables (e.g., garlic and onions), carrots, green vegetables, cruciferous vegetables, and tomatoes [4, 7].

Epidemiological evidence suggests a protective effect of vegetables and fruit in the development of many chronic diseases.

The biological relationship between consumption of vegetables and fruit and onset of chronic disease is supported by existing literature [8],

and is likely multifactorial, involving a host of possible mechanisms: phytochemicals found in vegetables and fruit can have complementary and overlapping mechanisms of action, including modulation of detoxification enzymes, stimulation of the immune system, reduction of platelet aggregation, modulation of cholesterol synthesis and hormone metabolism, reduction of blood pressure, and antioxidant, antibacterial, and antiviral effects [8].

¹ A leading obesity researcher and advocate, Dr. Kelly Brownell from Yale University, has commented "It is difficult to imagine an environment that places people at greater risk for obesity. In the absence of a "toxic" food and physical activity environment, there would be virtually no obesity." Unhealthy choices therefore cannot be dismissed as based on a lack of information or skills - or simply as poor choices. The environmental context for nutritional choices must be given priority in any consideration of how to increase health-promoting behaviours.

In 1997, the World Cancer Research Fund and American Institute for Cancer Research reported on the relationship between fruit and vegetable consumption and cancer in 247 studies. This research supported the following recommendation [9]:

Eating 400–800 grams or five or more portions (servings) a day of a variety of vegetables and fruits (excluding pulses/legumes and starchy roots and plantains), all year round. This is calculated on the basis of a 2,000 kcal daily energy intake, 80 grams per portion.

In relation to cancer prevention, it is important to note recent discussions regarding the importance of consuming whole vegetables and fruits, where possible, due to the possibility that anticancer compounds can vary dramatically in foods because of growing and harvesting conditions, degree of maturity, processing, storage, and cooking [10]. Thus, simply eating more vegetables and fruit may not be a reliable way to reduce overall disease risk, however, combining increased consumption with a strategy to improve skills and knowledge around food preparation could have maximum benefit.

Vegetable and fruit consumption may be indirectly tied to the risk for various chronic diseases due to its links to risk factors (i.e., obesity and high blood pressure). Some studies show that low fruit and vegetable consumption and overweight are correlated, for example, low fruit and vegetable consumption was a good predictor of obesity across health regions in Canada [11]. However, since both factors are related to many lifestyle and demographic factors, it is difficult to show solid evidence of the relationship (or causality) between intake of either vegetables or fruit and weight gain or weight status. Typically, higher fruit and vegetable intake has been associated with being older, being Caucasian, being more educated, engaging in physical activity, not smoking, and having lower intakes of fat and red meat and higher intakes of wine, multivitamins, dairy products, and fiber [12].

The evidence is more convincing when dietary energy density is examined against weight or weight gain [13, 14], where diets low in energy density (which are typically high in vegetables and fruit) are associated with a lower body weight and a better quality diet. In these studies, people with a high fruit and vegetable intake had the lowest energy density values and the lowest obesity prevalence, despite the fact that they consumed more food (approximately 400 g more per day) [13]. Finally, it is important to note that a higher consumption of vegetables and fruit can cause displacement of less healthy foods, which is an additional indirect link to better health.

2.2 EVIDENCE TO SUPPORT DECREASING CONSUMPTION OF UNHEALTHY CHOICES

It is important to note that increasing consumption of, or access to, vegetables and fruit will not necessarily lead to a reduction in overweight or obesity. Laboratory studies [15, 16] showed that people do not compensate by eating less food at a meal if they have already consumed a large volume of calorically-dense beverage. This means that even if a person is encouraged to eat more vegetables and fruit (and achieves this goal), they will not necessarily have a diet that promotes a healthy weight, if they are in the habit of consuming high calorie beverages.

While there is convincing evidence that a diet high in vegetables and fruit is protective in obesity development, there is also evidence that high consumption of energy dense foods, sugar-sweetened soft drinks and fruit juices increase the risk for obesity.

Swinburn et al. [17] suggest this in their review of evidence around protective and high risk factors in relation to the development of obesity. While there is convincing evidence that a diet high in vegetables and fruit is protective in obesity development, there is also evidence that high consumption of energy dense foods (i.e., high in sugar and/or fat), sugar-sweetened soft drinks and fruit juices increase the risk for obesity. As there is accumulating evidence that the consumption of sugar-sweetened beverages (SSBs) is increasing [18, 19], a strategy targeted at decreasing their availability is an intuitive step to decreasing risk of obesity and Type 2 diabetes [20], that complements promotion of vegetable and fruit consumption [21]. Reducing availability and/or consumption of SSBs is important for all age groups, as observational studies in children have shown a link between increasing consumption of SSBs and increasing BMI, and controlled clinical trials in adults demonstrated a direct relationship between consumption of high-fructose corn syrup or sucrose and weight gain [22].

Strategies directed towards decreasing SSB consumption are warranted. As recognized in the Journal of the American Medical Association,

“Because of the large amount of calories in sugar-sweetened soft drinks and the relationship between consumption of these drinks and weight gain, reducing sugar-sweetened beverage consumption may be the best single opportunity to curb the obesity epidemic.” [23]

2.3 GOAL OF THE STRATEGY

The goal of the BCHLA Healthy Eating Strategy is to implement activities that lead to changes in the BC population that will assist in the achievement of the BCHLA Targets for 2010:

1. 7 out of 10 British Columbians will eat at least 5 servings of vegetables and fruits a day.
2. 7 out of 10 British Columbians will be at a healthy weight.

2.4 OBJECTIVES OF THE STRATEGY

The objectives of the BCHLA Healthy Eating Strategy are three-fold:

1. To build skills and knowledge that will lead to greater consumption of vegetables and fruit in individuals in British Columbia.
2. To improve access to vegetables and fruit for all British Columbians.
3. To decrease British Columbians’ access to, and consumption of, unhealthy food and beverage choices.

2.5 THE STRATEGY: HEALTHY CHOICES FOR FAMILIES IN BRITISH COLUMBIA

The research examined for the strategy development process demonstrated that targeting the family unit – composed of adults within the 35 – 54 age range and school children – would lead to a significant impact in healthy eating, focusing specifically on vegetable and fruit consumption and reduction of unhealthy choices. This target allows for a broad, population-based impact, while presenting the opportunity to specifically target families who are more vulnerable in terms of food security and their ability to make healthy choices.

The overarching strategy is one that provides healthy choices, and the skills to make healthy choices, in environments that families reside, that is, where they live, learn, work, and play

The overarching strategy is one that provides healthy choices, and the skills to make healthy choices, in environments that families reside, that is, where they live, learn, work, and play.

The next sections contain a summary of the research that led to the selection of both the proposed target group and proposed initiatives. Detailed implementation plans will follow acceptance of this strategy by the BCHLA, and will involve consultation at the community level to best characterize how the initiatives will be implemented.

3.0 APPROACH

The process for developing the Healthy Eating Strategy involved the following key steps:

Step 1 Research to identify:

- A Strategic Framework (functions, settings and target population, Appendix A);
- Effective practices for interventions or programs

Step 2 Analysis of the existing BC healthy eating environment by:

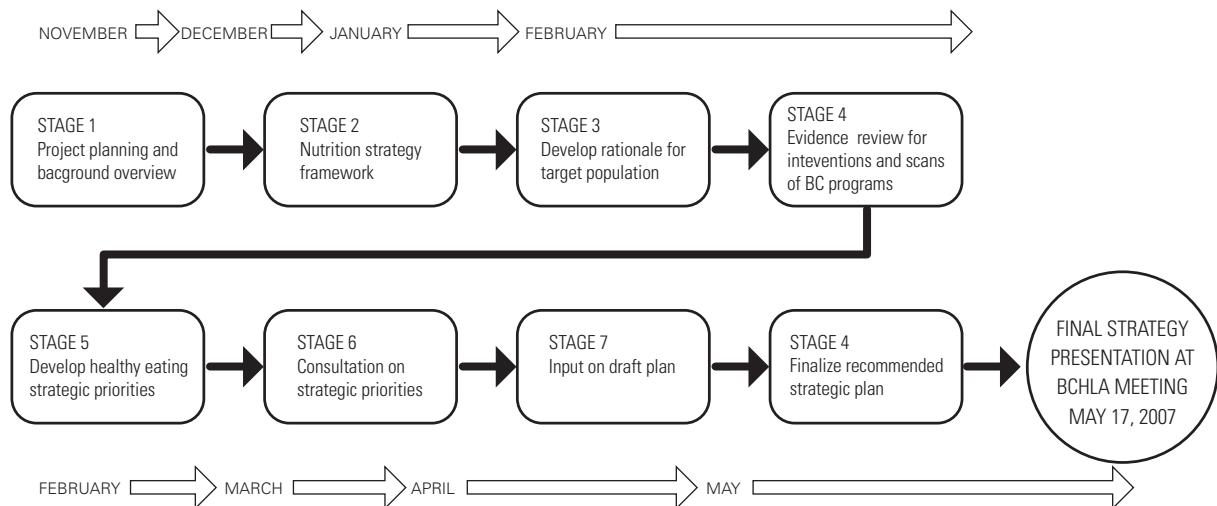
- Characterizing initiatives already in place;
- Identifying gaps in BC that relate to the strategy's objectives

Step 3 Review potential activities according to standardized criteria to develop a short list of activities

Step 4 Gather details and describe recommended activities

These key steps, and their outcomes, are described in Sections 4.0 – 8.0. The steps and timeline associated with the workplan for strategy development are shown (Figure 1).

Figure 1. Healthy Eating Strategy Workplan



4.0 RESEARCH TO DEVELOP THE STRATEGIC FRAMEWORK

4.1 TARGET POPULATION: THE FAMILY

Both the Canadian Community Health Survey (CCHS) and the BC Nutrition Survey (BCNS) show that there is no one segment of the population that, on average, is consuming the recommended five to ten daily servings of vegetables and fruits. However, some groups are further from the target of five servings/day than others. The factors indicated here are not meant to be an exhaustive review, rather they are population groups or factors for which we have reasonable data in British Columbia, and can therefore build a case for targeting them to improve vegetable and fruit consumption. Unfortunately, we do not have complimentary data for SSB consumption, and therefore, will characterize this more generally, where evidence is available.

The evidence available in British Columbia comes together to suggest population groups for which interventions to increase vegetable and fruit consumption and reduce exposure to unhealthy choices may have the most impact, both in terms of simply reaching the BCHLA targets for 2010 and in terms of reducing health risks.

School-age children

Sixty-one percent of British Columbian children ages 12 to 18 years do not eat the minimum recommendation of five servings of vegetables and fruit per day [24]. The Action Schools! BC pilot showed that no children (in their sample of 515, 8 to 12 year olds in Vancouver and Richmond) ate 5 vegetables and fruits a day [25].

Accumulating evidence shows that consumption of sugar-sweetened beverages (SSB) is increasing [18, 19] across population groups, and is related to the progression of obesity in youth [22]. We are currently lacking data for BC children, however, in a large US study, sugar-sweetened beverage intakes averaged 1.2 servings per day in middle school students [26]. Secular trends for an increased incidence of obesity and Type II diabetes (and possibly metabolic syndrome) are evident in North American children over the past two decades [27]. This supports the need to intervene with healthy eating strategies to curb the effects of the imminent rise in chronic diseases as British Columbian children grow into adults.

Adults, 35 – 54 years ²

The BCNS examined food group use of the BC adult population according to sex and the following age groups: 18-34 years, 35 – 49 years, 50 – 64 years, 65 – 74 years and 75 – 84 years. Unfortunately, within this report, fruit and vegetable consumption is not presented by income, geographic, education, or ethnic strata [28].

For vegetable and fruit intake, women in age categories anywhere from 18 to 49 years old were least likely to consume the recommended 5 servings per day (78 – 84% did not meet this recommendation). Men were also unlikely to meet the recommendation: in age categories encompassing 18 through 64 years, between 54 and 62% did not consume at least 5 servings per day. Adults tended to consume more servings of vegetables (mean=2.6) than fruit daily (mean=1.6). Older groups of both females and males had a greater proportion of the population meeting the recommended 5 – 10 servings/day [28].

Ten percent of the adult population would need to add three more servings of vegetables and fruit to their daily intake and anywhere from 40-50% of adults would need to consume two to three more servings per day to reach the minimum recommendation of five servings [28].

² This age category agrees with categories used in the Canadian Community Health Survey, and aligns with the target group for the BCHLA Physical Activity Strategy.

In terms of health risks, between 1994 and 2002 in Canada, the greatest change from normal weight to overweight occurred in 40 - 49 yr old men (43%) and women (33%) [29]. Thus, British Columbians in the middle adult years are among the lowest consumers of vegetables and fruit and are quickly acquiring a major risk factor for chronic disease (obesity). SSB consumption is certainly a healthy eating issue in adults as well: there is a direct relationship between consumption of high-fructose corn syrup or sucrose and weight gain [22], and women who consumed one or more sugar-sweetened soft drinks per day were nearly two times as likely to develop Type 2 diabetes as women who consumed one of these beverages per month [30].

Those with food insecurity

This encompasses those who aren't able to access vegetables and fruit at a level that would promote health, and yet are still exposed to (and have access to) a range of unhealthy food and beverage choices. It may include those with low income, Aboriginal groups, and new immigrants.

Studies suggest that income level is strongly related to vegetable and fruit consumption, where adults belonging to lower SES classes consume less vegetables and fruit, as they can't afford them. Higher income is associated with purchasing more of all food groups in general, but for households where the purchaser has a university degree, the effects are more pronounced for vegetables and fruit (significantly more purchased), while less meat and alternatives and 'other' foods are purchased, relative to households with the lowest education level [31]. In Canada, nearly 60% of adults in the lowest income households have fewer than the recommended five daily servings of vegetables and fruit compared to 41% in the highest income households [32]. This inability to purchase and/or consume the foods desired for optimal health is related to food security, which is defined as:

"[Having] access to food during the whole year, whether produced or bought, in [the] quantity, variety, safety and cultural acceptability necessary to maintain an active and healthy life, and not [being] subject to excessive risks of losing such access." [33].

In a cross-sectional study of households in inner city Vancouver, household food insecurity was associated with suboptimal health status of preschoolers. In addition, parents with less access to food of reasonable quality, fewer appliances and a lower rating of cooking skills were more likely to experience food insecurity [34]. In general, household and child food insecurity are associated with being at risk for overweight and overweight status among many demographic categories of children [35]. Data from the NHANES study in the US indicates that individual weight change among adults is associated with household food security status. For example, women in households that were marginally food insecure and food insecure without hunger were significantly more likely to be obese and more likely to gain weight over 12 months than women in food secure households (OR: 1.58 to 1.76) [36]. An association between low income and obesity may be mediated by the lower cost of energy dense foods (including sugar sweetened beverages), and perpetuated by the palatability of sugar and fat [37].

Cultural aspects play a role in vegetable and fruit consumption, however the evidence base for characterizing intakes in various cultural groups in BC is lacking.

... women in households that were marginally food insecure and food insecure without hunger were significantly more likely to be obese and more likely to gain weight over 12 months than women in food secure households.

Certainly, various studies indicate that vegetable and fruit³ intake is compromised in Aboriginal people both on and off-reserve [38], although this relationship can be somewhat confounded by socioeconomic status. On reserve, food insecurity in Aboriginals has been reported as high as 27% [38] (it is approximately 15% for the rest of British Columbia). In terms of health risk, the prevalence of Type II diabetes is 3.6 - 5.3 times higher among First Nations than among Canadian men and women for any given income level [29]. Aboriginal people had higher rates of risk factors and CVD than those of European origin [39]. Consumption of sugar-sweetened beverages has been reported as extremely high in some Canadian aboriginal communities [40], however, we are not aware of data for BC.

³ Communication with a community nutritionist in northwest British Columbia indicated that fruit intakes may not be as compromised in First Nations people in BC compared to vegetable intakes. Her observations of First Nations Community Meetings suggest that there is a preference for fruit over vegetables, and generally, a lack of vegetables altogether. She further indicated that lack of food knowledge and skills with respect to vegetable preparation and cooking is a barrier to increased consumption in this population.

The relationship between belonging to other cultural groups and intakes of vegetables and fruit or sugar-sweetened beverages is not well known in this province. However, new immigrants tend to be higher users of food banks than other Canadians (which is likely related to a lower consumption of vegetables and fruit); this would be intertwined with food insecurity and income factors [41]. In Canada, immigrants experience worse health status across most dimensions relative to non-immigrants [42].

Considering the Groups Together

Collectively, these groups often exist within a family unit, and interventions targeted at any one group would have larger impact, due to overall improved access to health choices, shared learning and accumulation of food skills, at the level of the family.

Advantages of Targeting Families:

1. Includes both children and those in middle adulthood, therefore influencing a maximum possible population.
2. Allows flexibility to improve vegetable and fruit consumption, and reduce exposure to unhealthy choices, in both vulnerable populations and the larger population, therefore leading to a larger collective impact.
3. A large body of research suggests that the family environment offers opportunities for:
 - promoting early exposure to nutritious foods, which increases enjoyment and consumption of vegetables and fruit;
 - collective meals, which is positively associated with intake of vegetables and fruit;
 - increasing the availability of vegetables and fruit and decreasing the availability of unhealthy choices;
 - modeling healthy behaviours and teaching food skills [43-46]
4. Allows for sharing of benefit of interventions among the family unit, instead of simply benefiting one person (therefore, larger collective impact).
5. Allows for the building of a comprehensive, multi-pronged strategy that has influence over many groups.
6. Allows for integration with the Physical Activity Strategy, as the target of 35-54 year old adults aligns.

New immigrants tend to be higher users of food banks than other Canadians which is likely related to a lower consumption of vegetables and fruit...

4.2 STRATEGIC FRAMEWORK AND SETTINGS

Nine strategies, largely focused on healthy eating (although some combined healthy eating with physical activity), were reviewed to extract goals, guiding principles, strategic functions/directions, and specific content or action areas. In addition, versions of the BCHLA's Physical Activity strategy were reviewed as they became available. The purpose of this review was to inform the development of the BCHLA's Healthy Eating Strategy Framework and ensure alignment, where possible, with existing strategies.

The Framework within which the strategy was developed included Guiding Principles, a consideration of Possible Strategic Functions, Review Criteria for Potential Activities, and Settings within which to deliver activities (Appendix A).

Nine strategies largely focused on healthy eating were reviewed to extract goals, guiding principles, strategic functions/directions, and specific content or action areas.

Guiding Principles:

Encompassed many of the principles contained within the BCHLA's Conceptual Framework, including:

- Comprehensive: across types of activities and settings.
- Integrated: across other strategies and within HE initiatives.
- Collaborative: among sectors, and across provincial, regional and community levels.
- Sustainable: over time, can run itself.
- Capacity-Building: building at the local, regional and provincial level for long term sustainability.
- Equity of Access: initiatives and activities are accessible to all.
- Based on best or promising practices: there is evidence to support recommending the activities.

Possible Strategic Functions:

These included Healthy Eating Interventions, Leadership and Systems Development, Environment or Infrastructure Changes, Policy Development, and Partnership Building, and were narrowed down by the eventual direction of the short-listed initiatives.

Settings:

To best reach the family, the workplace, school, community and home were considered as potential settings within which to deliver initiatives.

Review Criteria for Activities:

The initial review to short-list activities used criteria to rate and compare initiatives across:

1. ability of initiative to influence availability of healthy choices;
2. ability of initiative to influence skill development;
3. reaching the target population;
4. supporting evidence;
5. dose;
6. readiness for implementation.

These review criteria are described in more detail under Section 6.0 Review of Activities.

5.0 RESEARCH TO IDENTIFY EFFECTIVE PRACTICES

5.1 RESEARCH PROCESS

Published evidence from a number of sources was reviewed to extract interventions or components of interventions/ activities associated with one of increasing consumption of vegetables and fruit, increasing knowledge and skills around healthy food and beverage choices, or decreasing consumption of sugar-sweetened beverages. Publications were searched using PubMed, Google, reference lists from systematic reviews, and via reports presented on websites associated with various programs. There was a focus on those publications that included:

- parents, adults (35-54), school-age children, families;
- interventions or programs delivered in workplaces, schools, community, or home;
- determinants of vegetable and fruit consumption;
- interventions/programs that aim to influence vegetable and fruit consumption or skills, or SSB consumption
- interventions/programs that aim to influence SSB consumption

The results of this review are presented in table format in Appendix B, and highlights of this research are presented in the next section.

5.2 HIGHLIGHTS OF EFFECTIVE PRACTICES

A summary of effective practices to promote vegetable and fruit consumption, skill-building for healthy choices, and reduction of sugar-sweetened beverages in select settings that target the family is presented in this section. More detailed summary charts of the evidence reviewed is presented in Appendix B. It should be noted that these practices have been extracted from evaluations, and by nature, many programs that are delivered within a community development model (i.e., those targeted at improving food security) are not evaluated, and therefore we lack the evidence to know whether some types of programs are actually effective in meeting their goals.

Workplace

Multi-component initiatives, based on socio-ecological approaches that include such activities as employee advisory boards, individual screening and counseling, environmental supports and family supports are associated with success in increasing vegetable and fruit consumption in the workplace. Programs are more likely to be successful if they

Environmental changes are associated with both an increase in vegetable and fruit consumption, and a decrease in access to unhealthy choices.

attempt to address multiple risk factors together, instead of using a piecemeal approach (for example, targeting only nutrition within one campaign, and smoking within

another). Other factors that lead to success include training of intervention coordinators, involvement of workers in program or intervention design, and integration of the workers' wider social context (i.e., family, neighbourhood, community) in change programs. Environmental changes are associated with both an increase in vegetable and fruit consumption, and a decrease in access to unhealthy choices. These would include specific changes to vending machines and cafeterias, which are then promoted by point of purchase information and differential pricing for healthy vs. unhealthy choices [47-50].

School

A variety of approaches have been utilized in schools to promote vegetable and fruit consumption, improve food skills, and more recently, influence consumption of unhealthy choices. Approaches are generally more successful if they are multi-component, and combine classroom curriculum, parent and food service components [51]. 'Home' components of interventions should aim to involve parents in increasing the home availability and accessibility of vegetables and fruit, deliver repeated exposure to vegetables and fruit in positive contexts, and educate on vegetable and fruit preparation skills [51].

Interventions that influence the availability of healthy foods within the school environment are highly effective in encouraging children to consume more vegetables and fruit and/or make more healthy choices while at school.

Within the classroom, curriculum components should have a singular focus on diet alone, and have a long duration of classroom contact [47]. Teachers should be trained to deliver the nutrition curriculum appropriately and aim to integrate vegetable and fruit lessons into other aspects of the curriculum [52]. An education intervention targeted at reducing consumption of SSBs included several diverse classroom sessions that involved science, art and music, and elicited a significant decrease in consumption of carbonated drinks in intervention children [53].

Activities targeted to parents through the school (i.e., weekly newsletters with homework components), personalized weight and health report cards for families, or supplying interactive CDs to families can be effective [54-56]. Directly involving parents through weekly group sessions increases the likelihood of successful interventions [57].

Interventions that influence the availability of healthy foods within the school environment are highly effective in encouraging children to consume more vegetables and fruit and/or make more healthy choices while at school. These interventions include vegetable and fruit subscription (delivery) programs, where produce is directly supplied to schools for free consumption by students [58], increasing the variety of vegetables and fruit in vending machines and cafeterias and reducing availability of unhealthy choices, [47] and coupling this with price reduction for healthy choices [47, 59], point of sale promotions [47], and training for food service personnel on contract specifications and procurement practices [47]

Community and Home

A variety of approaches have been utilized to influence vegetable and fruit consumption at the level of the community, and few have been targeted directly at the home or family unit. Within the larger community, programs delivered to groups that have some degree of social cohesion/peer support (i.e., high risk groups, vulnerable/low income families) are associated with success. Effective components include serving more vegetables and fruit at functions and partnerships with community grocers [52, 60, 61]. These types of programs are most effective if they are multi-component, and employ such methods as peer education including brief nutrition messages with education and skill building sessions, combined with dissemination of printed materials and visual reminders, as well as direct mail [50, 62, 63]. The Canadian Diabetes Association's skill-building program, Cooking for Your Life, is an example of a program that aims to improve cooking and food skills in small groups that are often cohesive based on their mutual interest in preparing healthier meals and/or managing diabetes. The 2003 evaluation in 156 participants showed that intakes of vegetables and fruit increased significantly after the program (the percent of participants consuming 5 or more vegetables or fruits a day increased from 4.5% to 27.6%). As well, participants improved both cooking skills and confidence in their ability to prepare nutritious and appetizing meals.

In locations where food is sold, including restaurants and cafeterias/vending machines in community settings (i.e., community centres, pools, ice rinks), point of purchase information can be effective in influencing purchasing behaviour, and steers customers towards a number of items which might be deemed 'healthy choices'. In addition, simply increasing the number of healthy choices on a menu can increase the purchase of these select items [64]. However, little research has focused on vegetable and fruit consumption in these situations; programs tend to be geared towards promoting foods that have lower fat, sodium or calories.

Increased accessibility of supermarkets in neighborhoods improves the availability and consumption of vegetables and fruit. Within supermarkets, advertising space can influence the purchase of vegetables and fruit, where the provision of bonus space or 'power' advertising has been associated with increased purchasing [61].

Within the home, effective strategies to increase vegetable and fruit consumption have been delivered via telephone motivational interviewing in combination with culturally-sensitive, multi-component self-help materials [52]. As well, newsletters with specific strategies to increase consumption mailed directly to homes have been effective [47], as have computer-based individualized education programs (with weekly communication and computer-based counseling voice system) [52]. One intervention that specifically targeted availability of sugar-sweetened beverages in the home showed that decreasing the availability of SSBs (by specifically asking participating families

to abstain from serving SSBs in the home), while simultaneously increasing availability of non-SSBs through a delivery program caused a significant decrease in SSB consumption for children [65].

In locations where food is sold, point of purchase information can be effective in influencing purchasing behaviour, and steers customers towards a number of items which might be deemed 'healthy choices'.

There is a diversity of community development activities that aim to promote food security; few have been evaluated. The two types of initiatives that have the most evidence behind them in Canada are cooperative vegetable and fruit buying programs (i.e., Good Food Box, GFB) and community kitchens. In Toronto, the GFB has shown success

in increasing consumption of vegetables and fruit in their customers [66]. The GFB in Saskatoon [67], a program that has been running for 5 years, and distributes approximately 1500 boxes of vegetables and fruit per month, showed that, in low income households:

- 84% of participants noted an increase in both their own, and their children's intakes of vegetables and fruit;
- Many participants reported that access to vegetables and fruit was improved because the GFB was an economical way to increase the presence of vegetables and fruit in their homes (A related factor: a lack of grocery stores within walking distance of core neighborhoods means that those who do not have easy access to transportation will often go without food. The GFB promotes food access in these circumstances).
- The GFB increased the likelihood of trying new vegetables and fruit.

Participants within community kitchens (CK) benefit by partaking in the preparation of high quality, culturally acceptable foods, that are acquired in a way that maintains personal integrity [68]. Increasing food skills, and learning to feed one's family healthier foods are seen as a common benefit of CKs [69-71], while results from studies showing changes in consumption patterns are mixed: some qualitative work shows an increased variety of foods consumed, and increased fruit or vegetable consumption [69-71], while others show that these variables are marginally impacted [68, 72]. Evaluation of *Cooking Fun For Families* [73], a type of community kitchen program specifically targeted at parents with their children within inner-city schools, demonstrated significant benefits related to skills in food preparation on a budget, creative and appealing ways to prepare vegetables and fruit, and an increased desire on the children's part to consume healthier foods. Participating in this program led to more time cooking and eating together and/or eating a wider variety of foods and healthier meals and snacks at home. Parents often reported that they taught new information and skills to their children later at home.

6.0 THE HEALTHY EATING ENVIRONMENT IN BC: GAPS AND REVIEW OF ACTIVITIES

6.1 IDENTIFIED GAPS IN BC

Existing activities directed towards healthy eating in British Columbia were identified using the BCHLA's Environmental Scan [47], and updated/supplemented through information gathered through interviews with health authority staff, members of the working group, recently completed inventories (i.e., through PHSA (food security) and DASH (cooking skills)), as well as consultation with other groups (Appendix C contains a full consultation list). Several gaps in programming, specifically related to vegetable and fruit access and consumption, cooking and food skills, and consumption of sugar-sweetened beverages, were identified, and provided focus for the subsequent review of activities. Significant gap areas are described below.

- **Availability of healthy choices in environments frequented by families:** There is a lack of healthy choices available for purchase and/or consumption in multiple environments -- schools, recreation centres, workplaces, public buildings, and home.
- **Limited access to healthy choices – specifically, vegetables and fruit – for food insecure families:** For many reasons, approximately 14% of families in BC find themselves in situations where accessing enough healthy food is problematic. This may relate to both the cost of foods relative to income, and the availability of healthy foods in their local community.
- **Access to local foods – specifically, vegetables and fruit – for BC families:** There is no reliable system in place across the province that makes BC grown foods readily available to BC families. Not only is there a growing interest in feeling connected to one's food source, but a growing importance of a sustainable local food system.
- **Coordinated, sustainable approach to vegetable and fruit availability:** Although there are examples of single programs that strive to bring local vegetables and fruit to families at a reduced cost (i.e., through cooperative buying via 'Good Food Box' initiatives), these programs remain small, lack sustainability and are fraught with many challenges. Regional programs that increase the buying base and available resources by incorporating more partners may be more likely to succeed over the long term. A provincial network that allows for development of a sustainable model, and coordination across similar initiatives is necessary.
- **Availability of sustained/funded programming to develop cooking and food skills that reaches families and vulnerable populations:** Many families are limited in their food and cooking skills, which limits their ability to purchase, prepare and promote healthy food choices in the home. Different barriers exist for families, depending on their situation, and programs are needed to target various populations (i.e., new immigrants, ethnic/cultural groups, low income, etc.).
- **Large-scale initiative targeting sugar-sweetened beverage reduction:** Reducing consumption of sugar-sweetened beverages across the population may be the single best opportunity to curb the obesity epidemic and influence the rise in type 2 diabetes. Large-scale efforts to limit the environmental opportunities to access these beverages while educating around the health benefits of avoiding SSBs are warranted.

6.2 REVIEW OF ACTIVITIES

With a goal of addressing some or all of the identified gaps in the BC Healthy Eating environment, current and newly emerging programs and activities were reviewed according to several criteria. The initial list included approximately 50 programs and initiatives, that targeted either adults, children or the family unit, had an emphasis on promoting healthy eating in the community, home, school or workplace (this full list and description of the programs are tabled in Appendix D). These programs were largely identified through the BCHLA's environmental scan. Modifications to programs to bring them closer to meeting the review criteria and the strategy goals were considered during the review.

Criteria:

Major barriers, identified in the literature, to healthy eating (making healthy choices), and vegetable and fruit consumption in families include:

- availability of healthy choices in the home and other environments frequented by family members (1),
- palatability of healthy choices (2),
- lack of belief in the importance of consuming a healthy diet (2),
- lack of time (1 and 2),
- desire to consume unhealthy choices (2),
- price (1),
- effort (1 and 2),
- lack of knowledge (2),
- lack of cooking skills (2),
- parental influence (low level of strictness and involvement on the part of parents relates to high consumption of SSBs in adolescents) (2)

The barriers identified above funnel into two major criteria areas for strategy activities, identified in brackets beside the barrier: (1) Availability and access; (2) Food skills and knowledge. These form the two first basic review criteria for all strategy activities.

Availability (includes affordability): Will the intervention or activity significantly impact the ease of accessibility of vegetables and fruit (more) or SSBs (less) in the home, community, workplace or school?

Skills/Knowledge: Will the intervention or activity significantly impact skills and knowledge associated with acquiring, preparing and understanding the health benefits (or detriments) of consuming vegetables and fruit or SSBs in the home, community, workplace or school?

Target population reached: Estimated numbers of British Columbians (or family groups) who could be affected by the intervention or activity, and special population groups potentially affected.

Extent to which evidence is addressed: Is the intervention or activity (or its component factors) supported by existing evidence or identified promising practices?

Dose: Extent to which the intervention or activity offers the opportunity to consume 5-10 VF/day or decrease SSB consumption. For example, is the exposure repeated, sustained or a one-time offering? This will be rated as high, medium or low.

State of readiness: Extent to which there is partnership potential for the intervention or activity, infrastructure available, and can deliver impact in two years (or less).

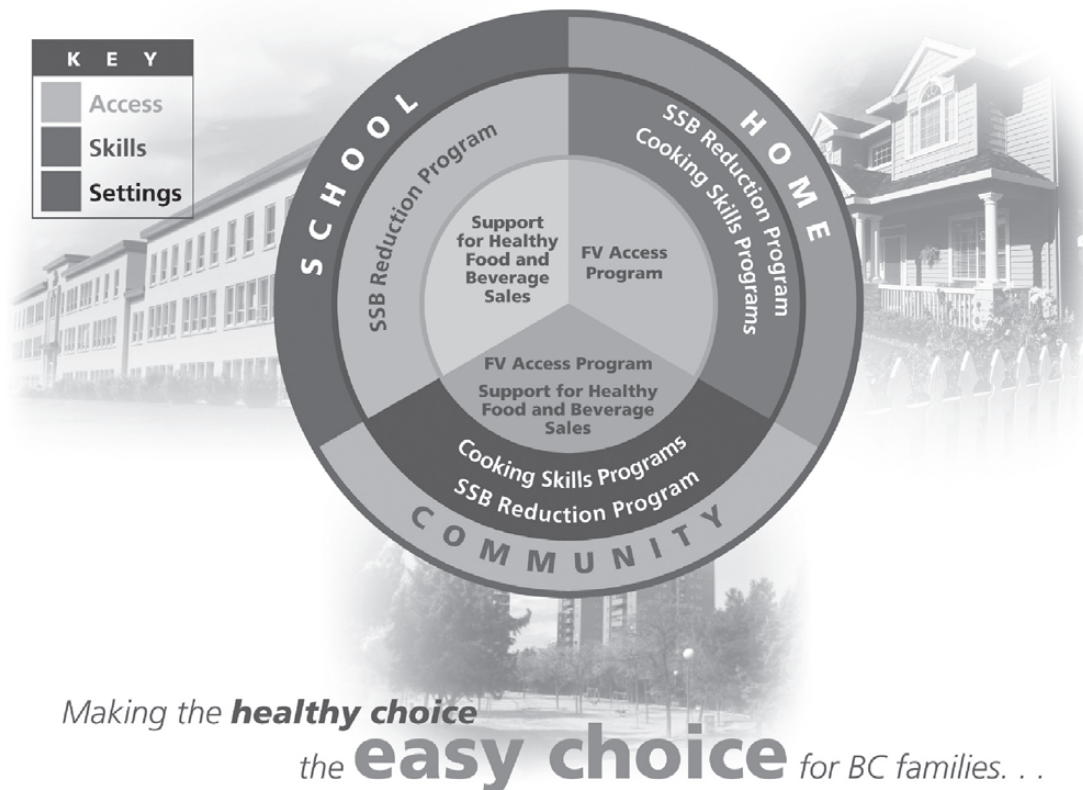
7.0 STRATEGIC INITIATIVES

7.1 OVERVIEW

This strategy contains four major initiatives targeted at increasing the availability of healthy choices, consumption of healthy choices, and skills related to making healthy choices in environments where families live, learn, work and play:

- Initiative #1: Support for Healthy Food and Beverage Sales
- Initiative #2: Development and Implementation of a Sustainable Vegetable and Fruit Access Model (VF Access Program)
- Initiative #3: Development of Cooking and Food Skills for Families (Cooking Skills Programs)
- Initiative #4: School-based Sugar-Sweetened Beverage Reduction Initiative (SSB Reduction Program)

The integrated nature of the strategy initiatives are diagrammed below, in Figure 2.



The initiatives described here meet the review criteria outlined in the previous section, and provide significant opportunities to address either access to healthy choices, or the building of skills and knowledge around making healthy choices.

In addition, to ensure that all initiatives are consistent in terms of the healthy eating messaging provided, a portion of funds and efforts within each initiative will be designated for work to develop materials that can be used across all initiatives to both promote strategy programming and raise awareness of the importance of making healthy food and beverage choices.

7.2 INITIATIVE #1: SUPPORT FOR HEALTHY FOOD AND BEVERAGE SALES WHERE FAMILIES LEARN, PLAY AND WORK

Description

There is much evidence to suggest that the environments in which British Columbian families live, learn, work and play offer repeated and sustained exposure to unhealthy food choices (energy dense foods with low nutritious value), which contributes to the secular trends in obesity that are now being observed. On the positive side, there is also evidence to show that when healthy changes are made to the food environment within certain contained situations (a good example is the school environment), significant changes are achieved in food purchasing and consumption behaviour.

Availability	P (more VF, less SSB)
Skills	× (limited)
Target	Large (children, adults, families)
Evidence	P
Dose	High
Readiness	P
Strategic Functions	Leadership and Systems Development, Environment Changes, Policy Development, Partnership Building

Schools, recreation centres, other municipal buildings and public buildings are rational targets for interventions that seek to change the food environment for families or children. The reach to families is potentially large as illustrated by the following statistics:

- roughly 600,000 children attend school in British Columbia and 43,000 teachers and principals work in BC schools;
- 12 million programs run out of the 800 BC recreation facilities (including recreation centres, pools, and ice rinks) each year, with about 20 million 'drop-in' and 8 million spectator visits to recreation facilities annually in BC and many of these visits occur as a family outing;
- various other public (including, for example, hospitals, health centres, ferry terminals), and municipal buildings are frequented by thousands of families each year; and finally,
- thousands of adults and youth are employed in recreation centres and public buildings, and have daily exposure to the associated food environment.

Certainly, supporting environmental changes to the food environment in schools, recreation facilities, and municipal and public buildings is a reasonable way to expose large numbers of families and family members to healthy food and beverage choices. Further, an important leveraging opportunity exists to work with the 2010 goal to make Vancouver the 'healthiest host city', and makes Vancouver a great place to start with support for healthy food and beverage sales in all its municipal and public buildings.

There are two components to this initiative: the first was previously approved by the BCHLA and supports schools in their implementation of the Guidelines for Food and Beverage Sales in BC Schools, and the second component parallels the first by developing and offering support to recreation facilities and other municipal and public buildings as they initiate changes in their food and beverage sale environments.

The BC Ministry of Education and Ministry of Health released the Guidelines for Food and Beverage Sales in BC Schools in November 2005. These guidelines were developed with input from community nutritionists, parents, teachers, school trustees, administrators, doctors, dietitians, dental hygienists and school food and beverage suppliers. The Guidelines apply to foods and beverages sold to students in all school locations (vending machines, school stores, cafeterias), and at fundraisers and special events. They support broader policies around school nutrition by categorizing foods and beverages typically sold in schools into four categories-- Choose Most, Choose Sometimes, Choose Least, and Not Recommended—and placing limits on the percent of sales attributable to each category. The Guidelines are to be fully implemented by 2009.

The BCHLA made a decision to support 'faster and happier' implementation of the school guidelines in October 2006, and, led by Dietitians of Canada, engaged in a consultation process with school stakeholders and health authorities to better understand the most appropriate way to support schools in the change process. The resultant \$1 million implementation plan, approved by the BCHLA in March 2007, forms one part of this strategy initiative.

Specific activities for this component (support for schools) of the initiative include:

- Creation of a centralized resource (e.g. 1-800 line, resource expert, access to inventory of local supports, resources/tools) that is targeted and promoted to schools and responsive to their needs
- Providing school districts and schools with customized support that enables them to move ahead in achieving the guidelines, while recognizing differences in capacity and readiness
- Raising school community awareness about the Guidelines and the general and customized supports that are available to schools and school districts
- Providing easy access to a current brand name list that details which foods fit in the Choose Most, Choose Sometimes, Choose Least and Not Recommended categories
- Providing vendors with training and support to encourage the provision of Choose Most food choices
- Evaluation of the success of the School Guidelines Support Initiative

Along similar lines, the University of Victoria and the BCRPA initiated an audit of the food environment in British Columbia recreation centres in 2006, and discovered both significant shortcomings in terms of sales of healthy choices in facilities, and a significant desire to improve food options and promote health. Implementation of guidelines around food sales (or food provision) in recreation centres suffers from similar barriers that face the schools, and realizing this, a plan for assisting recreation centers in making changes to their food environment emerged under the direction of a provincial advisory committee (see Potential Partners, below). The resultant plan of action has major funding needs in order to be effective, including funding for a 'roadshow' of food and beverage sale guidelines to create awareness and interest in making changes at recreation centres (for example, the initiative could be profiled at the annual BCRPA conference), a provincial roll-out of food guidelines to recreation centres (which would include technical support (via phone or web), and direct assistance for communities/recreation centre staff/purchasing departments), physical production of toolkits and resources for recreation centres, and ongoing maintenance of a website to house implementation tools.

Further opportunities exist to link supports across multiple environments, including public buildings, which have already been targeted by the provincial government to improve their food and beverage sales environments. Strategically, it makes sense to link and offer supports in as many types of venues or facilities as possible, and for this reason, it is expected that supports developed for recreation centres or municipal buildings would be shared to public buildings. The Support For Healthy Food and Beverage Sales Initiative as a whole will be integrated in that this component would draw on and expand upon resources developed within the schools' component, assist in supporting provincial dissemination and implementation, and provide support through a designated team.

Specific activities for this component (support for recreation facilities, municipal and public buildings) of the initiative include:

- Building awareness and marketing the Guidelines and available supports
- Tailoring resources and supports (i.e., toolkits, website/web-tools, 1-800 support line, posters, point-of-decision prompts) as necessary to environments and making them easily available on a widespread basis
- Working with vendors/suppliers to improve their awareness of healthy choices and helping them make healthy choices available to multiple facilities/buildings
- Identifying champions and directly supporting them at the facility level and purchasing level
- Making grants available to municipalities to support the change process (integrates with the Built Environment Initiative within the Physical Activity Strategy)
- Working with local governments to assist in policy development that would support Guidelines implementation across all municipal buildings

Target Populations

The components within this initiative target all school-age children through their schools, staff who work at BC schools, and the children, youth, adults and families who use and work at recreation facilities, municipal buildings and public buildings in British Columbia.

Supporting Evidence

It is clear that children are more likely to consume unhealthy choices if they are surrounded by them in their immediate environments, be it their school, recreation centre, or home. Research has demonstrated a negative correlation between the existence of 'snack' vending machines and fruit consumption in middle school students [74]. In a large study of middle school students in the US who had vending machines at their schools, nearly half reported regularly making purchases, and 30% reported regularly purchasing SSBs [26]. Furthermore, among purchasers, more reported buying SSBs than any other product category examined.

There is evidence to show that changes to the food and beverage sales environment can be effective in a number of ways in a range of settings. Simply increasing the 'healthy choice' offerings (i.e., vegetables, fruit, salads, milk, juice, water, low fat/low sugar options) increases the purchases of these types of foods, and competitive pricing (where the healthy choice is priced lower than the unhealthy choice) and point of purchase information complements these sales [75, 76].

Expected Outcomes and Estimated Reach

Expected Outcomes: By providing supports to change the food and beverage sales environment in many types of family-oriented locations, awareness and acceptance of healthy choices (and their associated health benefits) will be augmented, and changes will be streamlined, with 100% of BC schools achieving the Ministry of Education's specification of adoption by 2009. BC schools will provide healthy eating options through vending machines, cafeterias, fundraising and special events. Recreation facilities, municipal buildings and public buildings throughout BC will have the support they need to initiate changes in their food environment. Changes within these environments will promote opportunities for BC families to make healthy eating choices where they learn, work and play.

Year 1 estimated reach: By Fall 2007, this initiative will begin enabling 100% of BC schools to implement the Guidelines for Food and Beverage Sales, and act as a catalyst for the development of healthy eating environments at the district and school levels across the province. The expected reach within schools is 650,000 children, teachers and principals. Within recreation centres, the estimated reach includes those families and individuals who utilize recreation centres, as well those who are employed in these facilities. By targeting 30 municipalities with grants to assist in changes, and assuming that the assistance results in changes in just five recreation facilities per municipality (5 facilities x 30 municipalities = 150 facilities = approx. 20% of all recreation facilities in BC), a conservative estimate of reach for the first year would be:

- 20% of annual drop-ins = 4 million drop-in visits at supported facilities; 20% of annual spectators = 1,600,000 spectators at targeted centres. If just one in ten of these visits (or people) are positively impacted by a change in the food and beverage environment, this is equal to a reach of 560,000 people/families in a year.
- The reach will be further enhanced by the benefits incurred by the thousands of municipal employees, and by integrating supports to public buildings, although it is difficult to estimate the impact at this time.

Year 2 estimated reach: The lasting legacy of supporting implementation of changes to the food and beverage sales environment in schools will be that this is a sustained effect: once implemented, the environment is likely permanently changed in a positive way. Over time, schools and students will be encouraged to promote creative ways to facilitate healthy eating. In recreation, municipal and public facilities/buildings, the 'early adopters' from the first two years of implementation support will showcase positive results and the ability to overcome barriers to those that are more reluctant to change. This will promote ongoing adoption of changes in other locations. An additional 30 municipalities will be directly assisted in making their changes in this subsequent year of the strategy, and using the estimates above, this would have an additional reach of 560,000 people/families.

Potential Partners

Many partners for supporting implementation of the school guidelines were identified through the consultation process that took place in October 2006. Involved partners included the Ministries of Education and Health, the BC Principals and Vice Principals Association, the BC School Superintendents Association, BC Teachers Federation, 2010 Legacies Now and Action Schools! BC, BC Confederation of PACs, DASH, and the BC School Trustees Association.

BCRPA is supportive of action to assist with implementation of food and beverage sale guidelines in recreation centres. Researchers at the University of Victoria have already been heavily involved in the design of an action plan and pilot projects to move this initiative forward. As well, the Ministry of Health is funding a co-op student to develop the necessary resources for recreation centres. Other potential partners include the Union of BC Municipalities, Act Now's Healthy Communities initiative, VANOC, Vancouver Parks and Recreation Board, and other groups that have already been involved as members of the advisory committee for the original audit of recreation centres (Canadian Cancer Society - BC and Yukon Division (CCSBCY), representatives from all health authorities, UBC, the Childhood Obesity Foundation of BC, Sun Valley Vending). Within public buildings, supportive partners, including PHSA, Vancouver Coastal Health Authority, the Ministry of Health and the Ministry of Labour and Citizens' Services, are already acting to make environmental changes to support healthy food and beverage choices.

Many partners for supporting implementation of the school guidelines were identified through the consultation process that took place in October 2006.

Leveraging Opportunities

The BC government’s announcement in November 2004 of an action plan aimed at making BC students the healthiest and most physically active in Canada supports both components of this initiative and demonstrates the ministries’ commitment to providing opportunities for British Columbians to make healthy choices in multiple environments. Further, the Premier’s 2007 announcement to make significant changes to vending in all publicly-owned buildings speaks to this as well.

This initiative can leverage off the goal to make Vancouver the 'healthiest host city for the Olympics', and utilize this target to convince municipalities, starting with Vancouver, that healthy options need to be the ones that are prominently available in municipal environments that sell food. BCRPA is currently lobbying UBCM to pass a resolution to encourage all municipalities to rid their buildings of junk food.

Sustainability and Capacity Building

After the two- to three-year support provided to support implementation of guidelines within school and recreation environments, changes should be self-sustaining. Healthy eating policies and priorities that are developed as part of implementation will contribute to building the capacity to sustain momentum in this important area of school and community health (for example, the hiring of community nutritionists by districts wishing to be guided in making substantial changes in nutrition).

Fit With The ‘Winning Legacy’

The Winning Legacy specifically identified a focus on 'environmental approaches to risk factor interventions, including options for promoting healthy foods and curtailing access to unhealthy foods'. As well, the Winning Legacy encouraged the use of point-of-decision prompts to encourage healthy behaviours, which is a natural component promoting the successful implementation of food and beverage sale guidelines.

State of Readiness

For school implementation, there is a high state of readiness in some schools, and others have already moved forward on this issue (see five district examples profiled in the final report for 'Supporting the Implementation of the Guidelines for Food and Beverage Sales in BC Schools' December 2006). With partners identified and involved, funding approved, and a process of support planned, this component of the initiative is underway.

The recreation centre component is in a medium state of readiness, with an audit complete, some pilot sites decided and engaged, partners identified and an advisory committee already formed. In their action plan, the group has set out a timeline for provincial roll-out and identified areas where specific funding is needed. For public buildings, the readiness for change will be enhanced following the Premier’s pending announcement on what types of public buildings will be targeted and included in the Province’s policy to remove 'junk food'.

The BC government’s announcement in November 2004 of an action plan aimed at making BC students the healthiest and most physically active in Canada supports both components of this initiative...

7.3 INITIATIVE #2: ACCESS TO VEGETABLES AND FRUIT FOR FOOD INSECURE FAMILIES

Description

Families experiencing food insecurity tend to have more difficulty in accessing vegetables and fruit than food secure families. This may relate to the cost of purchase relative to income, the geographic accessibility of places to purchase vegetables and fruit in relation to where a family lives (and related transportation issues), a lack of time to travel to grocery stores and make a purchase, or a poor understanding of where to access quality vegetables and fruit and why they are important in a families' diet (due to various language, ethnic or cultural barriers). As a result, families that are food insecure tend not to eat enough vegetables and fruit.

Availability	P
Skills	x
Target	Medium (families, and those with food insecurity)
Evidence	P
Dose	High
Readiness	P
Strategic Functions	Leadership and Systems Development, Environment Changes, Partnership Building

This initiative would increase access to vegetables and fruit, and knowledge about vegetables and fruit for food insecure families by:

- developing and piloting a sustainable vegetable and fruit access model, that is designed and implemented in a regionally-specific manner;
- connecting families to the source of their food and promoting links to local produce;
- bringing produce closer to families at a reduced cost;
- promoting community development and the opportunity to share experiences with similar families in the community.

The Access Initiative is directed towards the development of an optimal model to increase the ease of access to vegetables and fruit for food insecure families throughout the whole year. The Good Food Box (GFB, also called the Healthy Harvest Box or Harvest Box), which operates like a food-buying cooperative to bring wholesale vegetables and fruit directly from the supplier to communities, is the most prevalent type of program promoting access to local vegetables and fruit to food-insecure families at a reduced cost. An added benefit of this type of program is that the larger the buying group, the stronger the program, meaning that this program should be made available to everyone, regardless of income. However, the model, as it currently exists, has been fraught with challenges throughout many communities in BC: in the past year alone, seven GFB programs have folded. As the defining trait of the GFB is to provide vegetables and fruit to families at a reduced cost, the model, in isolation of supports and relationships to the larger business community, is destined to never be fully self-sustaining. Key challenges relate to a lack of secured funding to fund coordinators and transportation costs. As well, a lack of centralization in purchasing and packing of produce results in multiple small programs in many communities that scrape by in the face of constant funding stress.

The gap identified here is in providing a sustainable, and possibly provincial or regional, model of vegetable and fruit access for both food insecure families and the larger population. There is a great deal of energy and interest around the idea of collaboration across the province to generate and test a sustainable model. On Vancouver Island, two years of work has already been dedicated to the development of a regional model for the GFB, that integrates it with other components of a larger food strategy, utilizing major partners in the food market (farmers, transportation, packers, workers, co-packing businesses, alternative food distributors, community organizations) by the Vancouver Island GFB Collective and Edible Strategies Enterprises. The model is developing in the form of a comprehensive food business - a 'community shared agriculture' project. Further, the South Okanagan and Fraser regions are directing efforts at developing sustainability for their programs. Drawing on this significant work, this initiative would be directed at bringing together the partners who are working in this area along with leaders from other provinces, to validate, apply and test the model in other regions in British Columbia. This component of the Access Initiative would then include a Vegetable and Fruit Access Model Development Summit, further work to develop the model, and application and implementation of the sustainable model within two pilot regions.

Specific activities within the Access Initiative include:

- Formation of a provincial network of partners for the development of a sustainable vegetable and fruit access model
- Production and maintenance of provincial website (an existing organization may serve as the host)
- Organizing and hosting a Summit to bring together provincial partners and experts from across Canada to design a model for vegetable and fruit access that will be flexible to the various regions of BC, and will integrate resources to promote sustainability over time
- Development of the model
- Application of the resultant model within two pilot regions that show readiness, interest and diversity in the types of populations reached (allows for targeting of high need areas)
- Promotion of networks and integration of programs and initiatives aimed at food security and sustainability of local food systems

Target Populations

The broad target is British Columbian families, with a specific target on those that have food insecurity and/or access issues related to vegetables and fruit. There will also be a specific target focused on those who provide the GFB and other food security programs in regions throughout BC, who will participate in testing a more coordinated and sustainable system.

Supporting Evidence

Evaluation of the GFB in Toronto and Saskatoon showed that it is a good way to get vegetables and fruit to families at low cost, and that families consume more and a greater variety of vegetables and fruit than they did prior to participating [66, 67]. However, these two particular programs are successful and have achieved longevity based on their continued sources of funding. The outcomes of these programs speak to what is possible through this community-based approach when funding is sustained.

Expected Outcomes and Estimated Reach

Expected Outcomes: By supporting networking across the province, it is expected that a short-term outcome would be the existence of an integrated group of partners who can share experiences to contribute to developing regionally-based sustainable models. It is anticipated that this will allow greater coordination and sharing of resources of not only GFB programming, but other initiatives targeting food security. The outcome of the summit and further development work would be a model that can be piloted in five regions, as well as identification of the pilot regions. The outcome of the pilots will be sustainable vegetable and fruit access programs in two areas of BC, and greater consumption of and access to local vegetables and fruit for thousands of BC families.

Year 1 estimated reach: Formation of networks and completion of the summit and model will occur within the first year. As well, pilot area will be in the initial stages of implementing their regional model and developing the necessary partnerships for sustainability.

Year 2 estimated reach: Access to local vegetables and fruit at a reduced cost for 1000 families (approximately 500 low income families) per pilot area, with a total of 2000 families reached (1000 low income families). Reach will be further enhanced by application of sustainable models in areas outside the supported pilots. There are currently 26 GFB programs, of various size, running in BC, that benefit approximately 2500 families. It is expected that these existing programs and their associated families would benefit from a model that offers improved sustainability.

Potential Partners

The key partners include Edible Strategies Enterprises Limited, Vancouver Island GFB Collective, health authorities, BC Food Systems Network Society, existing GFB program partners in BC, and the Ministry of Agriculture and Lands. Experts who could contribute to the development of the model include representatives from successful programs in Toronto (FoodShare) and Saskatoon (the Child Hunger and Education Program, Saskatoon Good Food Box).

Leveraging Opportunities

This initiative addresses the government's and larger population's current concern over healthy eating and food security, as well as the growing interest in supporting local food production. The intervention is one possible way to address these issues in a comprehensive and collaborative manner, while furthering the goals of ActNow, the Select Standing Committee on Health, and the Provincial Health Officer (as recommended in the Report on Food, Health and Wellbeing, 2005).

The goals of a sustainable vegetable and fruit access program are in line with the goals of Act Now (healthy eating and sustainable food systems). The program benefits farmers, low income families,

This initiative addresses the government's and larger population's current concern over healthy eating and food security, as well as the growing interest in supporting local food production.

and promotes consumption of VF in all members of the population, all factors that suggest this initiative would be something that government would be supportive of to meet the goals of 2010. "A strategic effort bringing together all [similar] programs in the province to consider how to reposition the program ... could lead to some major gains for the GFB and for those concerned with the health of the population" [77].

This initiative can leverage off work already supported by the Vancouver Island Good Food Box Collective, the South Okanagan/Similkameen Sustainability Plan for the Healthy Harvest Box (IHA is supporting this work with a small planning grant), and the Whiterock-Surrey-Delta-Langley Healthy Harvest Box. These groups, and others, are interested in collaborating and sharing ideas across the province to build sustainable models. Further, the Ministry of Agriculture and Lands is exploring work in this area, and would be a good link for development and testing of a new model.

Sustainability and Capacity Building

This initiative will contribute to long term sustainability of the local food systems by connecting families directly with those who grow and supply their food, and by indirectly supporting farmers. This initiative is inherently built around the concept of sustainability, and efforts at all stages will be directed this way.

Fit With The 'Winning Legacy'

This initiative fits with the Winning Legacy recommendation to 'focus on environmental approaches to risk factor interventions, including options for promoting healthy foods'. The approach within this initiative promotes access to and consumption of healthy foods in the home and community.

State of Readiness

The state of readiness is high; many regions are already thinking through issues of sustainability and would be receptive to participating in an organized forum to bring testable models forward.

7.4 INITIATIVE #3: DEVELOPMENT OF FOOD SKILLS FOR FAMILIES

Description

Deficiencies in cooking and food skills is related to lower consumption of vegetables and fruit, as well as the propensity towards unhealthy food choices in general (for example, consumption of SSBs). Lack of skills to choose and prepare healthy foods is rampant in families, and may be more evident in low income families, where education, money, time, and social isolation are significant barriers.

Many programs that aim to improve cooking and food skills exist in BC, and there are various programs that target low income families and other vulnerable populations (139 programs were inventoried by DASH through the MEIA project, October 2006). Although it appears that there is a willingness to deliver these types of programs, and many venues to do this in, many programs are small and experience chronic problems related to funding and inadequacy of cooking facilities. One program that aims to target cooking and food skills within the family unit is Cooking Fun for Families, a program classified by the Community Nutritionists Council of BC as a 'participation/transition' program. So far, it has been an "inner-city-school-based health promotion program focused on food and nutrition" [73], run out of 10 locations, largely in Vancouver. The many benefits of the program are identified under 'Supporting Evidence', below. An advisory group for CFFF has developed a case for provincial roll-out of the program, and has identified a process of initiating new programs and common supports that would be required across all locations.

Availability	x
Skills	P
Target	Low-Medium (families, food insecurity, ethnic groups)
Evidence	P
Dose	Medium (multiple exposures over time)
Readiness	P
Strategic Functions	Healthy Eating Interventions, Partnership Building

Many programs that aim to improve cooking and food skills exist in BC, and there are various programs that target low income families and other vulnerable populations.

This group has already completed substantial background work which elevates the readiness to implement this program, or an adaptation of it, on a more widespread basis.

Cooking for Your Life (CFYL), a Canadian Diabetes Association program, is a hands-on cooking and nutrition class taught by a registered dietitian and a cooking instructor. Since 2004, well over 100 programs have been delivered, with over 2000 participants. The program currently runs in English and Cantonese, and has been held in South Asian and Aboriginal communities in its mainstream English version. Participants learn to prepare and cook delicious, nutritious meals, read food labels, modify recipes and plan menus, balance fat, fibre and flavour in meals, and manage or decrease the risk of diabetes or heart disease. The CDA has an interest in adapting this program to better address vulnerable families, and well as adaptations for specific populations, including South Asian, Aboriginal, new immigrant and low income populations.

This initiative would draw on the strengths of both Cooking Fun for Families and Cooking for Your Life to adapt and formulate a Cooking and Skills Building Program that best meets the needs of vulnerable families in BC. This would also include offering new programming at no cost to attract new participants, and promoting and marketing the program in new venues and regions to reach specific populations. Identifying target populations and communities will be done in consultation with the health authorities to ensure program coordination and, where possible, activity integration.

Specific activities within the Cooking and Food Skills Initiative include:

- Conducting an environmental scan to identify locations of target populations, community resources and venues for programs and demonstrations
- Identifying community leaders and opportunities in high risk population groups
- Program design and adaptations for targeting vulnerable populations/families
- Obtaining community input on program expansion
- Development of marketing tools and necessary resources to introduce programs to new participants/communities
- Marketing the program to communities and schools
- Working with health authorities, school districts, and municipalities to identify areas most in need/ most receptive to initiating a new program
- Supporting implementation of new programs in 75 communities/schools
- Ongoing development of relationships with community partners who may support the new programs over the long term
- Program evaluation

Target Populations

The Cooking and Food Skills Initiative will target Aboriginal, South Asian, new immigrant, and food insecure or low income families.

Supporting Evidence

Cooking and food skills programming that aims to change eating behaviour are more likely to be successful if the participants feel some degree of social cohesion (i.e., new immigrant, low income, shared community) [52, 60, 61].

An evaluation of CFFF was conducted in 8 independently-run programs, all considered inner-city, in Vancouver, and involved 27 parents, 14 staff and 13 administrators [73]. Six programs were located at schools, and 2 were at community centres. The first type of benefit, described by the majority of parents, staff and administrators, was educational and motivational, related to preparing and consuming healthy meals and snacks on a tight budget. Many parents reported learning about "healthy eating," with the most common area identified being the importance of, and preparation of vegetables and fruit in ways that their children would eat them. Respondents of all types thought the skills developed by the participants in creating healthy and balanced meals were the most important benefit of the program. Many parents noted that for their children, the desire and motivation for eating healthier foods was an important outcome of either the children's or the parents' participation in CFF. Many parents reported that their families were spending more time cooking and eating together and/or were eating a wider variety of foods and healthier meals and snacks at home. Parents often reported that they taught new information and skills to their children later at home. A third area of benefit related to food insecurity and hunger. All participants were able to eat the food they prepared in conjunction with the program.

The 2003 evaluation in 156 Cooking for Your Life participants showed that intakes of vegetables and fruit increased significantly after the program (the percent of participants consuming 5 or more vegetables or fruits a day increased from 4.5% to 27.6%). As well, participants improved both cooking skills and confidence in their ability to prepare nutritious and appetizing meals.

Expected Outcomes and Estimated Reach

Expected Outcomes: By supporting a greater reach for an adapted Cooking and Food Skills Program that targets vulnerable BC families, it is anticipated that a greater number of families will develop skills that will enable them to make healthy choices about foods, and prepare vegetables and fruit for consumption by the whole family. Vulnerable or 'at-risk' families, including those that are low income, new immigrant, South Asian and Aboriginal, will benefit from the development of these skills through programming that is specifically targeted at these groups. A further benefit (within the traditional CFFF model) is the provision of healthy meals once a week to vulnerable families.

Year 1 estimated reach: Up to 150 families (up to 15 new programs x 10 participants) will benefit from participation in new programs by the end of year 1. The number of programs will depend on the final cost to implement each program, which will be determined once the program adaptations have been made (the budget estimates have been made using a higher end of the estimate from CFFF. CFYL, as it currently exists, is less expensive to run, due to a lower number of sessions delivered)).

Year 2 estimated reach: New programming within years 2 and 3 of the strategy will reach up to 600 families. New programs will benefit from efforts made over the 3 years to develop partnerships and explore continued funding sources for long term sustainability. Programming associated with the CDA will have long-term benefit from work done in year 1 to develop programming specifically targeted at 'at-risk' populations.

Potential Partners

Partners include the CDA, DASH, Dietitians of Canada, CFAI, the Community Kitchen Project (and its leaders), health authorities and their community nutritionists, school districts, community centres, and schools.

Leveraging Opportunities

The development of new programs can leverage off the significant groundwork that the CFFF advisory group (through the Community Kitchens Project) has already accomplished to quicken the pace of initiating new programs. Supporting adapted versions of CFYL leverages off the significant work of the CDA, and utilizes the strength of this organization to promote and continue this program long-term.

Sustainability and Capacity Building

Part of the process of supporting the initiation of new programs will be an emphasis on cultivating community partnerships to promote sustainability of new programs. Sustainability of programs developed by the CDA is promoted by association with this strong nonprofit, and new programs developed through this initiative will become integrated with offerings over the long-term and supported in the future by the CDA.

Fit With The 'Winning Legacy'

This initiative fits with the Winning Legacy, which recommended supporting "health promotion programs for specific populations, including low income populations, ... First Nations People, and new Canadians".

State of Readiness

The substantial work already completed in making a provincial business case for CFFF indicates a high degree of readiness for more widespread implementation of this type of program. The years spent developing the program in Vancouver provide a strong foundation to expand the program. The CDA has already shown much interest in developing the CFYL program to address the needs of vulnerable populations, and is supportive of further work in this area. The CFYL program is already popular in many communities, and has been well-received in the over 2000 participants it has already reached.

7.5 INITIATIVE #4: REDUCTION OF SUGAR-SWEETENED BEVERAGES IN SCHOOLS

Description

This initiative targets skill-building, with a focus on supporting students in making healthy choices. It complements the environmental changes described in Initiative #1. Reduction of SSB consumption has been identified as possibly “the best single opportunity to curb the obesity epidemic” [23]. By first developing an approach (that utilizes education and various challenges to reduce SSB consumption) that was effective in Britain [53], the initiative will then draw on the strength of Action Schools! BC Healthy Eating to reach the elementary school population over the next 2 years. Following initial development work and training of external school supports, the program can then be rolled out with the menu of options for AS! BC, targeting K-7 schools. Due to the program’s more demanding nature in terms of teacher-time and resource development, funding is required to ensure adequate school support is provided in implementing the initiative.

Availability	x
Skills	P
Target	High (many school children, with spill-over to families, can target specific populations)
Evidence	P
Dose	Medium
Readiness	P
Strategic Functions	Healthy Eating Interventions, Partnership Building

Concurrently, this initiative will support the development, testing and production of a resource that can be used long-term by teachers, which will reduce the need for external school supports, and promote sustainability of the intervention beyond 2010. This component will draw on the leadership of the Heart and Stroke Foundation in developing and testing teacher-friendly resources through its Heart Smart Kids school program.

Specific activities of the Sugar-Sweetened Beverage Reduction Initiative include:

- Development of SSB reduction resource materials
- Training of external school supports
- Roll-out of program via Action Schools! BC roll-out, with external school supports for program delivery made available to schools on request over two school years
- Development, testing and production of an SSB reduction module to be integrated into Heart Smart Kids, for teachers’ use over the long term

Target Populations

This initiative targets school-children in kindergarten to grade 7, as these students will be the recipients of the AS! BC Healthy Eating options. However, the original intervention was designed for children ages 7 through 11 (grades 2 through 6), therefore, further development is required. As well, previous initiatives that have aimed at reducing SSB consumption in children via an education program – for example, ‘Drop the Pop’ in Nunavut - - reported a significant spillover effect to the rest of their family [40]. The large reach of AS! BC as a vehicle for program dissemination allows the opportunity to specifically target and support schools with higher percentages of vulnerable populations and/or those schools located in more remote communities.

Supporting Evidence

In a large US study, sugar-sweetened beverage intakes averaged 1.2 servings per day in middle school students [26]. Children and youth tend to access sugar-sweetened beverages both at school (via vending machines) and outside of school (via fast food restaurants, convenience stores, recreation centres and home), and therefore, efforts to reduce SSB consumption must focus on helping young people build the skills to make healthy beverage choices, as removing SSBs from schools will only partially address the problem [78].

The 'Ditch the Fizz' intervention, originally implemented in British elementary schools met with success in both reducing SSB consumption and decreasing the number of children classified as overweight in the intervention group relative to the control group

The 'Ditch the Fizz' intervention, originally implemented in British elementary schools met with success in both reducing SSB consumption (-0.6 cups/3 day vs. an increase in controls), and decreasing the number of children

classified as overweight in the intervention group relative to the control group [53]. The main objective was to discourage the consumption of "fizzy" drinks with positive affirmation of a balanced healthy diet via one-hour interactive sessions, 4 times per school year. Sessions focused on the balance of good health and promotion of drinking water, tasting fruit to learn about the sweetness of natural products, effects of sugar and carbonation on dental health, and music competitions to produce a song or a rap with a healthy message.

Expected Outcomes and Estimated Reach

Expected Outcomes: This initiative will develop a program for a SSB reduction education that is suited to BC students and teachers. It is anticipated that the roll-out of the program will reach a significant number of BC elementary students, increase their skills around making healthy beverage choices, reduce the consumption of sugar-sweetened beverages, and favourably impact the achievement and maintenance of healthy body weights.

Year 1 estimated reach: It is anticipated that up to 20% of BC elementary students will be exposed to the AS! BC roll-out and the SSB reduction option in each school year. Assuming one-third of those teachers call for the external support to deliver the program, this translates to 20,000 students. With a spill-over effect to half of the involved families, this initiative could reach 10,000 family units.

Year 2 estimated reach: An additional 20,000 BC elementary school students could potentially be exposed, bringing the total to 40,000 students, and potentially 20,000 families.

Potential Partners

Partners include Action Schools! BC, Legacies Now, Canadian Cancer Society/BC Cancer Agency/HSF/community nutritionists (supports to schools), Ministry of Health, PHSA (evaluation), HSFBC&Y (Heart Smart Kids), BC Pediatrics Society, and the Childhood Obesity Foundation.

Leveraging Opportunities

This initiative leverages off both a previously successful initiative (Ditch the Fizz) and the strength of Action Schools! BC and Heart Smart Kids to reach a large number of BC students with healthy eating programming and messaging by 2010. The Aboriginal Diabetes Strategy could offer important leveraging opportunities for targeting specific populations, communities or schools for intervention. The external supports offered to schools are a natural link to the Community Engagement Strategy, currently under development by the BCHLA.

There are several potential opportunities to leverage funding for evaluation of this initiative. Quantifiable, positive outcomes would strengthen the case for continuing to support the program over time. The first possibility is through PHSA's 'proof of principal' evaluation, which would take place in a small number of schools (~4-8) and will assess height, weight and utilize the SHAPE survey (which has a nutrition component). Schools involved in PHSA's evaluation could be specifically targeted for uptake of the SSB Campaign. The second evaluation possibility is through a new opportunity through CIHR's Institutes for Nutrition, Metabolism and Diabetes/Population and Public Health/Aboriginal Peoples' Health in partnership with the Heart and Stroke Foundation for intervention trials that utilize real-world partners and programs (\$100,000). The operating grants available through this new opportunity can be applied for at any time, and it is expected that proposals will be invited each year. A third

possibility partners with the SMILE project through BC Children's Hospital in which aboriginal children in remote, northern BC locations are being targeted with initiatives to address the escalating incidence of diabetes. Targeting this population would be a good way to implement the SSB campaign in a population that needs the intervention and is already being measured for other initiatives. Exploring and acting on appropriate evaluation opportunities will form part of the work of developing the implementation plan for this initiative.

Sustainability and Capacity Building

Development of resources is a one-time cost. Over time, the support teams that deliver the program may be able to integrate the campaign as a natural part of their work in schools, and continue to offer it beyond 2010. The Heart and Stroke Foundation's Heart Smart teachers will be trained during the roll-out phase to deliver the program over the long term.

Fit With The 'Winning Legacy'

The Winning Legacy specifically recommends '[expanding the] Action Schools! BC program and [encouraging] a more rapid implementation of some of its recommendations'.

State of Readiness

There is a high state of readiness for linking this initiative with AS! BC Healthy Eating (and the necessary partners are on board). AS! BC is estimated to start rolling out to all K-7 schools starting September 2007. Using a similar plan to encourage schools to sign up for Healthy Eating as was used for Physical Activity should result in a high participation rate: 1216 elementary schools were signed up for AS! BC Physical Activity by March 2007. There are resource people in place who can assist with developing the necessary tools/resources for this particular campaign. Supports for program delivery could be available to schools via the community capacity coordinators or Community Action Coordinators (CCS) or Prevention Coordinators (BCCA) who are already working in schools (with appropriate funding).

There is a high state of readiness for linking this initiative with AS! BC Healthy Eating). Active Schools! BC is estimated to start rolling out to all K-7 schools starting September 2007.

8.0 IMPLEMENTATION

8.1 ESTIMATED REACH

The following statistics estimate the potentially large reach of targeting families with the Healthy Eating Strategy [79]:

- There are 1,100,000 children living at home in British Columbia.
- The population of 35-54 year olds in BC is 1,256,000.
- There are 657,000 families in BC (including married couples with children in the home, common-law couples with children at home, and single-parent families).
- Approximately 400,000 British Columbians live with food insecurity.
- 700,000 people living in private dwellings are classified as 'low income'

A summary of the estimated reach of each of the initiatives is provided in the following table. "Reach" is defined as the number of people or families within the target audience who may be affected by the interventions proposed. It is expected that there is overlap among some initiatives, for example, interventions within schools may reach a similar population as interventions within recreation centres. BCHLA identified \$6 million to be directed toward the province-wide Healthy Eating Strategy over a three-year period, which is summarized in the table below. The allocation of the budget and the estimates indicated earlier in this document will be further refined in the implementation planning stage.

Potential Reach to:	Children	Adults	Families (or family members)	Vulnerable Families
Support for Food and Beverage Sales Guidelines	600,000 public school children	50,500 (teachers and principals, other school staff, recreation centre employees)	Up to 1,120,000 within recreation facilities/municipal buildings (although there is significant overlap)	
Development and Implementation of a Sustainable Vegetable and Fruit Access Model			1000 families per pilot x 2 regional pilots = 2000 families	Assuming half of participating families are vulnerable (food insecure): 1000 vulnerable families
Cooking and Food Skills for Families			750	Assuming 75% of participating families are vulnerable populations: 563 vulnerable families
School-based Sugar-Sweetened Beverage Reduction Campaign	40,000		20,000	
Total	640,000 (maximum), with overlap between initiatives where some students will benefit from both.	50,500 + more from support to public buildings	1,142,750 + more from support to public buildings	1,563

There is potential for the Healthy Eating Strategy to influence as many as 640,000 school-age children, 50,500 adults, and 1,142,750 families, including 1563 food insecure or low income families that would be specifically targeted. These estimates do not include the substantial reach of providing support to changing the food and beverage sale environment in public buildings.

8.2 IMPLEMENTATION PLANS

The Healthy Eating Strategy provides a high level plan to guide development of an implementation plan that will further define specific activities and resource requirements for each initiative. Implementation plans will be developed by the lead agency for each intervention and will build on work that has already begun. Plans will be developed through consultation with health authority staff working in food security and healthy eating, NGOs and community groups and organizations.

The Healthy Eating Strategy provides a high level plan to guide development of an implementation plan that will further define specific activities and resource requirements for each initiative.

Development of the implementation strategy for each initiative will adhere to the Healthy Eating Strategy framework that includes the strategy target, objectives and planning assumptions. Implementation will include integration with both the Physical Activity and Tobacco strategies, as well as the Community Engagement Strategy, to identify opportunities for maximizing the use of resources and the impact of initiatives on the target populations.

8.3 EVALUATION

The BCHLA has developed an extensive evaluation framework which will provide an arms-length evaluation of all elements of the BCHLA's work. In addition to the overall evaluation, for initiatives that involve program implementation (i.e., within Cooking and Food Skills, and SSB Reduction), there will be plans developed for program and/or process evaluation. The objective of the Healthy Eating Strategy is to help achieve the BCHLA targets of 948,000 more British Columbians who consume 5 or more servings of vegetables and fruits a day, and helping 349,000 British Columbians achieve a healthy weight. Achieving these targets will require the combined, significant efforts of all levels of government, NGOs and community organizations and advocates.

9.0 CONCLUSION

The goal of this strategy is to address vegetable and fruit consumption as well as consumption of healthy choices in general, while influencing the skills necessary to bring healthy food and beverage choices to BC families. The initiatives contained within this strategy, once fully developed and implemented, will assist in the achievement of the Winning Legacy's aggressive target to increase the number of British Columbians who consume 5 to 10 vegetables and fruits a day to 7 out of 10.

This strategy represents a comprehensive and integrated approach to bringing healthy food and beverage choices to BC families, and presents several opportunities to tailor initiatives to meet the needs of the province's most vulnerable populations.

REFERENCES

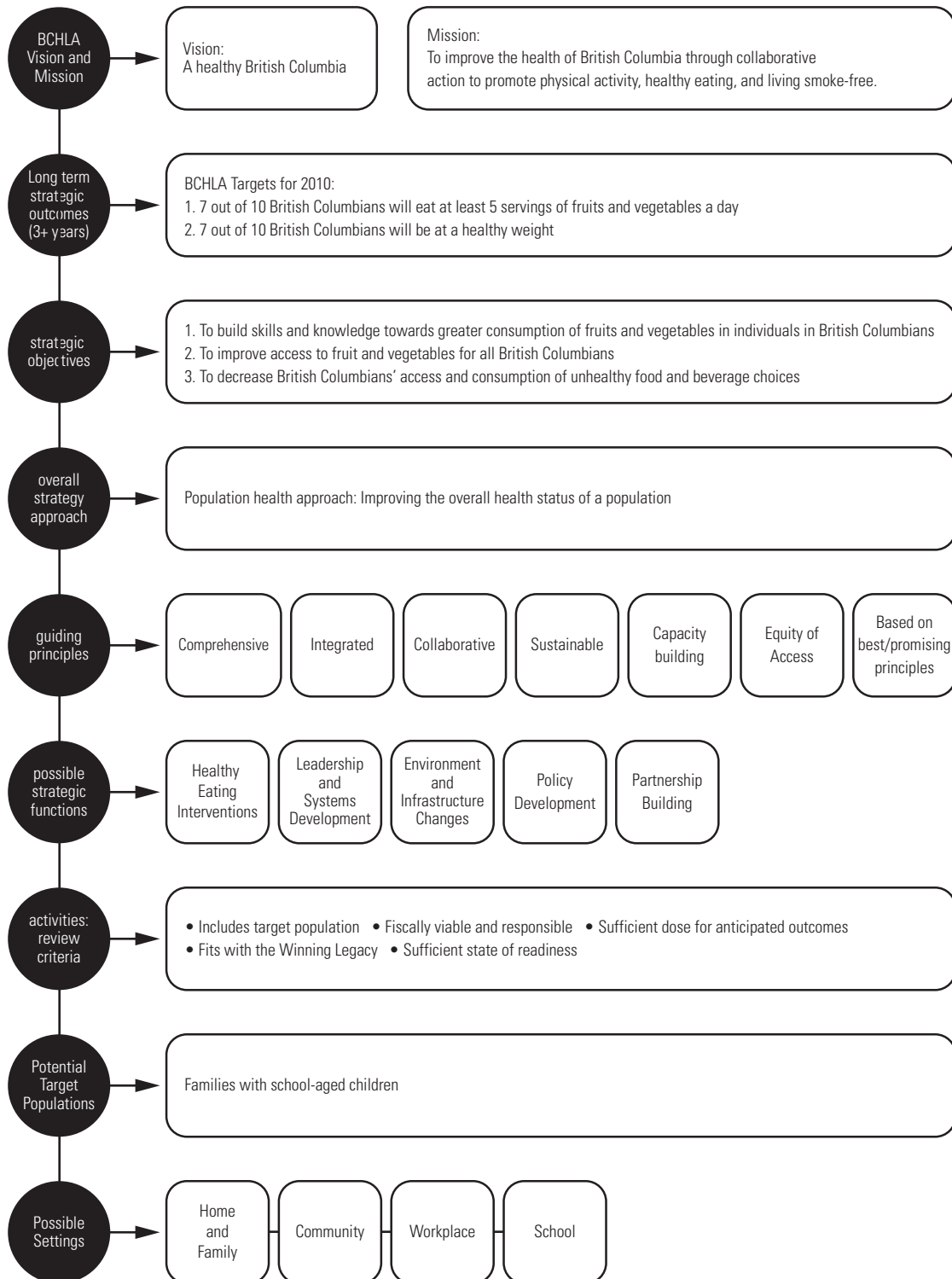
1. Khaw, K.T., et al., Relation between plasma ascorbic acid and mortality in men and women in EPIC-Norfolk prospective study: a prospective population study. *European Prospective Investigation into Cancer and Nutrition. Lancet*, 2001. 357(9257): p. 657-63.
2. Yusuf, S., et al., Effect of potentially modifiable risk factors associated with myocardial infarction in 52 countries (the INTERHEART study): case-control study. *Lancet*, 2004. 364(9438): p. 937-52.
3. Tobias, M., et al., Vegetable and fruit intake and mortality from chronic disease in New Zealand. *Aust N Z J Public Health*, 2006. 30(1): p. 26-31.
4. Steinmetz, K.A. and J.D. Potter, Vegetables, fruit, and cancer prevention: a review. *J Am Diet Assoc*, 1996. 96(10): p. 1027-39.
5. Dufresne, E., Increasing Fruit and Vegetable Consumption In British Columbia. 2001, Prepared for BC Ministry of Health.
6. Vainio, H. and E. Weiderpass, Fruit and vegetables in cancer prevention. *Nutr Cancer*, 2006. 54(1): p. 111-42.
7. Ellinger, S., J. Ellinger, and P. Stehle, Tomatoes, tomato products and lycopene in the prevention and treatment of prostate cancer: do we have the evidence from intervention studies? *Curr Opin Clin Nutr Metab Care*, 2006. 9(6): p. 722-7.
8. Lampe, J.W., Health effects of vegetables and fruit: assessing mechanisms of action in human experimental studies. *Am J Clin Nutr*, 1999. 70(3 Suppl): p. 475S-490S.
9. World Cancer Research Fund and American Institute for Cancer Research, Food, Nutrition and the Prevention of Cancer: a Global Perspective. 1997, American Institute for Cancer Research: Washington, DC.
10. Hsin-Chia, H., J. Kaumudi, and W. Willett, Author Response: Fruit and vegetable intake and risk of major chronic disease. *Journal of the National Cancer Institute*, 2005. 97(8): p. 608-09.
11. Vanasse, A., et al., Obesity in Canada: where and how many? *Int J Obes (Lond)*, 2006. 30(4): p. 677-83.
12. Tohill, B.C., et al., What epidemiologic studies tell us about the relationship between fruit and vegetable consumption and body weight. *Nutr Rev*, 2004. 62(10): p. 365-74.
13. Ledikwe, J.H., et al., Dietary energy density is associated with energy intake and weight status in US adults. *Am J Clin Nutr*, 2006. 83(6): p. 1362-8.
14. Ledikwe, J.H., et al., Low-energy-density diets are associated with high diet quality in adults in the United States. *J Am Diet Assoc*, 2006. 106(8): p. 1172-80.
15. Flood, J.E., L.S. Roe, and B.J. Rolls, The effect of increased beverage portion size on energy intake at a meal. *J Am Diet Assoc*, 2006. 106(12): p. 1984-90; discussion 1990-1.
16. DellaValle, D.M., L.S. Roe, and B.J. Rolls, Does the consumption of caloric and non-caloric beverages with a meal affect energy intake. *Appetite*, 2005. 44(2): p. 187-93.
17. Swinburn, B.A., et al., Diet, nutrition and the prevention of excess weight gain and obesity. *Public Health Nutr*, 2004. 7(1A): p. 123-46.
18. French, S.A., B.H. Lin, and J.F. Guthrie, National trends in soft drink consumption among children and adolescents age 6 to 17 years: prevalence, amounts, and sources, 1977/1978 to 1994/1998. *J Am Diet Assoc*, 2003 103(10): p. 1326-31.
19. Statistics Canada, Food Statistics, in 4(1):Catalogue 21-020-XIE. 2004
20. Schulze, M.B., et al., Sugar-sweetened beverages, weight gain, and incidence of Type 2 diabetes in young and middle-aged women. *JAMA*, 2004. 292(8): p. 927-34.
21. Rolls, B.J., J.A. Ello-Martin, and B.C. Tohill, What can intervention studies tell us about the relationship between fruit and vegetable consumption and weight management. *Nutr Rev*, 2004. 61(1): p. 1-17.
22. Dietz, W.H., Sugar-sweetened beverages, milk intake and obesity in children and adolescents. *J Pediatr*, 2006. 148: p. 152-4.
23. Apovian, C.M., Sugar-sweetened soft drinks, obesity and Type 2 diabetes. *JAMA*, 2004. 292(8): p. 978-9.
24. Canadian Community Health Survey, Cycle 1.1 2000/01.
25. McKay, H., Action Schools! BC Phase I (Pilot) Evaluation Report and Recommendations. 2004.

26. Wiecha, J.L., et al., School vending machine use and fast-food restaurant use are associated with sugar-sweetened beverage intake in youth. *J Am Diet Assoc*, 2006. 106(10): p. 1624-30.
27. Eisenmann, J.C., Secular trends in variables associated with the metabolic syndrome of North American children and adolescents: a review and synthesis. *Am J Hum Biol*, 2003. 15(6): p. 786-94.
28. Forster-Coull, L., S. Barr, and R. Levy-Milne, *British Columbia Nutrition Survey: Report on Food Group Use*. 2004, BC Ministry of Health.
29. *National Public Health Survey. 1994-2002*, Statistics Canada.
30. Schulze, M.B., et al., Sugar-sweetened beverages, weight gain, and incidence of type 2 diabetes in young and middle-aged women. *Jama*, 2004. 292(8): p. 927-34.
31. Ricciuto, L., V. Tarasuk, and A. Yatchew, Socio-demographic influences on food purchasing among Canadian households. *Eur J Clin Nutr*, 2006. 60(6): p. 778-90.
32. Garriguet, D., *Findings from the Canadian Community Health Survey: Overview of Canadians' eating habits*. 2006, Health Statistics Division, Statistics Canada.
33. Moron, C., Food-based nutrition interventions at community level. *Br J Nutr*, 2006. 96 Suppl 1: p. S20-2.
34. Broughton, M.A., et al., Predictors and outcomes of household food insecurity among inner city families with preschool children in Vancouver. *Can J Public Health*, 2006. 97(3): p. 214-6.
35. Casey, P.H., et al., The association of child and household food insecurity with childhood overweight status. *Pediatrics*, 2006. 118(5): p. e1406-13.
36. Wilde, P.E. and J.N. Peterman, Individual weight change is associated with household food security status. *J Nutr*, 2006. 136(5): p. 1395-400.
37. Drewnowski, A. and S.E. Specter, Poverty and obesity: the role of energy density and energy costs. *Am J Clin Nutr*, 2004. 79(1): p. 6-16.
38. Willows, N.D., Determinants of healthy eating in Aboriginal peoples in Canada: the current state of knowledge and research gaps. *Can J Public Health*, 2005. 96 Suppl 3: p. S32-6, S36-41.
39. Anand, S.S., et al., Risk factors, atherosclerosis, and cardiovascular disease among Aboriginal people in Canada: the Study of Health Assessment and Risk Evaluation in Aboriginal Peoples (SHARE-AP). *Lancet*, 2001. 358(9288): p. 1147-53.
40. Priest, A., Nunavut's Drop the Pop Campaign. *Canadian Nurse*, 2006. 102(4): p. 12.
41. Tarasuk, V.S. and G.H. Beaton, Household food insecurity and hunger among families using food banks. *Can J Public Health*, 1999. 90(2): p. 109-13.
42. Newbold, K.B. and J. Danforth, Health status and Canada's immigrant population. *Soc Sci Med*, 2003. 57(10): p. 1981-95.
43. Cullen, K.W., et al., Availability, accessibility, and preferences for fruit, 100% fruit juice, and vegetables influence children's dietary behavior. *Health Educ Behav*, 2003. 30(5): p. 615-26.
44. Hill, A.J., Developmental issues in attitudes to food and diet. *Proc Nutr Soc*, 2002. 61(2): p. 259-66.
45. Neumark-Sztainer, D., et al., Family meal patterns: associations with sociodemographic characteristics and improved dietary intake among adolescents. *J Am Diet Assoc*, 2003. 103(3): p. 317-22.
46. Taylor, J.P., S. Evers, and M. McKenna, Determinants of healthy eating in children and youth. *Can J Public Health*, 2005. 96 Suppl 3: p. S20-6, S22-9.
47. Krueger, H., *Risk Factor Interventions: An Overview of their Effectiveness*. 2005, Report to the BCHLA.
48. Sorensen, G., L. Linnan, and M.K. Hunt, Worksite-based research and initiatives to increase fruit and vegetable consumption. *Prev Med*, 2004. 39 Suppl 2: p. S94-100.
49. Sorensen, G., et al., Increasing fruit and vegetable consumption through worksites and families in the treatwell 5-a-day study. *Am J Public Health*, 1999. 89(1): p. 54-60.
50. Sahay, T.B., et al., Effective components for nutrition interventions: a review and application of the literature. *Health Promot Pract*, 2006. 7(4): p. 418-27.
51. Blanchette, L. and J. Brug, Determinants of fruit and vegetable consumption among 6-12-year-old children and effective interventions to increase consumption. *J Hum Nutr Diet*, 2005. 18(6): p. 431-43.
52. Knai, C., et al., Getting children to eat more vegetables and fruit: a systematic review. *Prev Med*, 2006. 42(2): p. 85-95.
53. James, J., et al., Preventing childhood obesity by reducing consumption of carbonated drinks: cluster randomised controlled trial. *BMJ* 2004 328(7450): p. 1237.
54. Fitzgibbon, M.L., et al., Two-year follow-up results for Hip-Hop to Health Jr.: a randomized controlled trial for overweight prevention in preschool minority children. *J Pediatr*, 2005. 146(5): p. 618-25.

55. Chomitz, V.R., et al., Promoting healthy weight among elementary school children via a health report card approach. *Arch Pediatr Adolesc Med*, 2003. 157(8): p. 765-72.
56. Haerens, L., et al., Body mass effects of a physical activity and healthy food intervention in middle schools. *Obesity (Silver Spring)*, 2006. 14(5): p. 847-54.
57. Beech, B.M., et al., Child- and parent-targeted interventions: the Memphis GEMS pilot study. *Ethn Dis*, 2003. 13(1 Suppl 1): p. S40-53.
58. Eriksen, K., et al., Effect of a fruit and vegetable subscription in Danish schools. *Public Health Nutr*, 2003. 6(1): p. 57-63.
59. French, S.A. and G. Stables, Environmental interventions to promote vegetable and fruit consumption among youth in school settings. *Prev Med*, 2003. 37(6 Pt 1): p. 593-610.
60. Campbell, M.K., et al., The North Carolina Black Churches United for Better Health Project: intervention and process evaluation. *Health Educ Behav*, 2000. 27(2): p. 241-53.
61. Glanz, K. and A.L. Yaroch, Strategies for increasing fruit and vegetable intake in grocery stores and communities: policy, pricing, and environmental change. *Prev Med*, 2004. 39 Suppl 2: p. S75-80.
62. Coates, R.J., et al., The Women's Health Trial Feasibility Study in Minority Populations: changes in dietary intakes. *Am J Epidemiol*, 1999. 149(12): p. 1104-12.
63. Havas, S., et al., Final results of the Maryland WIC 5-A-Day Promotion Program. *Am J Public Health*, 1998. 88(8): p. 1161-7.
64. Glanz, K. and D. Hoelscher, Increasing fruit and vegetable intake by changing environments, policy and pricing: restaurant-based research, strategies, and recommendations. *Prev Med*, 2004. 39 Suppl 2: p. S88-93.
65. Ebbeling, C.B., et al., Effects of decreasing sugar-sweetened beverage consumption on body weight in adolescents: a randomized, controlled pilot study. *Pediatrics* 2006 117(3): p. 673-80.
66. Scharf, K., The Good Food Box: A Case Study of an Alternative Non-Profit System for Fresh Fruit & Vegetable Distribution, in *Toward Hungerproof Cities*.
67. Brownlee, M. and A. Cammer, Accessing the Good Food Box: A Community Project. 2004, The Community University Institute for Community Research and the Child Hunger and Education Program.
68. Engler-Stringer, R. and S. Berenbaum, Collective kitchens in Canada: a review of the literature. *Can J Diet Pract Res*, 2005. 66(4): p. 246-51.
69. Engler-Stringer, R. and S. Berenbaum, Food and nutrition-related learning in collective kitchens in three Canadian cities. *Can J Diet Pract Res*, 2006. 67(4): p. 178-83.
70. Fano, T.J., S.M. Tyminski, and M.A. Flynn, Evaluation of a collective kitchens program: using the Population Health Promotion Model. *Can J Diet Pract Res*, 2004. 65(2): p. 72-80.
71. Wrieden, W.L., et al., The impact of a community-based food skills intervention on cooking confidence, food preparation methods and dietary choices - an exploratory trial. *Public Health Nutr*, 2007. 10(2): p. 203-11.
72. Tarasuk, V. and R. Reynolds, A Qualitative Study of Community Kitchens as a Response to Income-Related Food Insecurity. *Can J Diet Pract Res*, 1999. 60(1): p. 11-16.
73. Milligan, C.D., et al., Cooking Fun for Families: Perceived benefits to parents and children, in *Food, Nutrition and Health*, Faculty of Agricultural Sciences. 2007, University of British Columbia: Vancouver.
74. Kubik, M.Y., et al., The association of the school food environment with dietary behaviors of young adolescents. *Am J Public Health*, 2003. 93(7): p. 1168-73.
75. Bergen, D. and M.C. Yeh, Effects of energy-content labels and motivational posters on sales of sugar-sweetened beverages: stimulating sales of diet drinks among adults study. *J Am Diet Assoc*, 2006. 106(11): p. 1866-9.
76. Buscher, L.A., K.A. Martin, and S. Crocker, Point-of-purchase messages framed in terms of cost, convenience, taste, and energy improve healthful snack selection in a college foodservice setting. *J Am Diet Assoc*, 2001. 101(8): p. 909-13.
77. Edible Strategies Enterprises Ltd, The Good Food Box Story. 2006.
78. Forshee, R.A., A risk analysis model of the relationship between beverage consumption from school vending machines and risk of adolescent overweight *Risk Anal*, 2005. 25: p. 1121-35.
79. BC Stats, 2001 Census Profile: British Columbia. 2003.

APPENDIX A: FRAMEWORK

British Columbia Healthy Living Alliance Healthy Eating Strategy Framework



APPENDIX B: EVIDENCE FOR INTERVENTIONS

Table 1A. Interventions and Initiatives to Increase Access to, and Consumption of, Vegetables and Fruit in Families

This table does not include clinical interventions. The categories included for evidence of interventions are those that would have potential reach to families in BC (workplace, community and home, community-based food security, and schools). VF = Vegetables and Fruit.

Category	Description or Source	Target	Evidence for increasing VF intake, VF access, or improving healthy eating habits/skills.
Workplace	From review [1]	Working adults	Effective if included individual screening/counseling, and coordinator training, involvement of workers in program design, social support (esp. by family members), environmental changes (i.e., to cafeterias), integrated with wider community campaign [1].
	From review of worksite initiatives to increase VF consumption [2]	Working adults	"Environmental/organizational initiatives rely on management commitment, supervisory support and supportive organizational structures to sustain policy efforts over time. Program effectiveness is enhanced when they are based on social ecological approaches; include worker participation in program planning and implementation (e.g. employee advisory boards and peer-delivered interventions); address multiple (vs. single) risk factors for change; and integrate workers' broader social context (e.g. families, neighborhoods, etc.)." -Addressing needs of blue collar workers is important given the large proportion of workers employed by small worksites.
	18-month work-site educational intervention via employee advisory boards, environmental supports, family support component (Treatwell 5-a-Day).	1,359 adults in workplace	+0.5 (19%) servings/day of VF [3, 4]
Community and Home	From review [1]		<p>FROM: [1]</p> <ul style="list-style-type: none"> • Common framework is social marketing, or adaptation of commercial marketing to the planning, execution, and evaluation of programs to influence behaviour of target audiences. • Doubtful whether mass media campaigns, in the absence of other programming, can create sustained behaviour change. Increased awareness of nutrition principles and recommendations are common result of mass-media campaigns (behaviour changes are less convincing). • Similar conclusion (doubtful sustained behaviour change) regarding labeling for processed foods (i.e., people with high intake of fat do not search for nutrition information as much as healthy eaters do). • Consistent message offered over long period (i.e., 30 years in North Karelia, FN) can cause dramatic changes. • Newsletters with strategies to increase consumption directed at homes resulted in higher intakes of vegetables and fruit, but it didn't matter if the design of the letter was tailored to recipient's characteristics. • Point-of-purchase interventions in supermarkets have limited effect. • Greatest changes are seen in subpopulations selected for some degree of social cohesion and peer support (e.g. schools, churches, or with people who are motivated because of high disease risk). • Meals in restaurants: logical target as Canadian rate of eating out is high, and restaurant food tends to contain more fat, less fibre, and have a greater portion size. Not many evaluations on interventions in this area. • Low cost vegetables and fruits in low-income communities: potentially useful -- price reductions or coupons for healthy foods, point-of-purchase information, more convenient/attractive displays, promotional campaigns. Few evaluations.

APPENDIX B, TABLE 1A

Category	Description or Source	Target	Evidence for increasing VF intake, VF access, or improving healthy eating habits/skills.
Community and Home (continued)	Review of studies examining association between family eating and VF consumption	Families	Research [5-9] suggests that the family environment offers opportunities for: <ul style="list-style-type: none"> · promoting early exposure to nutritious foods, which increases enjoyment and consumption of vegetables and fruit; · collective meals, which is positively associated with intake of vegetables and fruit; · increasing the availability of vegetables and fruit; · modeling healthy behaviours and teaching food skills
	Systematic review of determinants of VF consumption among children and effective interventions to increase consumption [10].	Children	Availability and accessibility of VF and taste preferences were most consistently and most positively related to consumption. Evidence of positive association between VF consumption and: <ul style="list-style-type: none"> · parental VF intake · knowledge of intake recommendations and skills Evidence of negative association between VF consumption and: <ul style="list-style-type: none"> · television viewing · exposure to TV advertisements · having a snack bar at school
	From review of determinants of healthy eating in youth [11]	11-16 year old youth	Young people (11-16 years old) associated parents and the home environment with healthy eating. The home was viewed as a more important source of learning about healthy eating than friends or school [11].
	From review of strategies to increase VF intake in grocery stores and communities [12]	Community, via grocery store interventions	4 key types of grocery store interventions: <ul style="list-style-type: none"> · Point-of-purchase information: evaluations have shown effects on knowledge, but there's little evidence for changes in food purchasing behaviour. · Reduced prices and coupons: lack of controls in these studies make it difficult to show evidence of change in VF consumption. · Increased availability, variety and convenience: (1) Adult VF intake increased with each additional supermarket in a census tract. (2) providing 'bonus space' for VF in stores increases sales, and improving the quality of VF locations significantly improves sales of hard fruits and cooking vegetables (similar to 'power wall' concept used in tobacco advertising). · Promotion and advertising: no evaluations available. "Policy and environmental approaches may have greater overall impact because they influence the overall environment, reach many people, and are less costly and more enduring than clinical, individually oriented, or small group educational interventions." [12, 13]
	From review of strategies to increase VF intake in grocery stores and communities [12]	Community, via churches, child care centres and community heart health programs.	Community Heart Health Programs: little evidence of their effectiveness in increasing VF purchase or consumption. Churches: Interventions include serving more VF at church functions and partnerships with community grocers. RCT showed significant increase of +0.85 servings/dy. Program activity with the highest perceived impact was serving more VF at church functions [12, 14]. Other studies show that this is a promising environment. Child Care Centres: Program from Australia showed that providing centres with incentives to have more healthy choice offerings significantly improved the amount of VF in those environments [15].
	From review of nutrition environmental interventions and point-of-purchase behaviour in adults [16]	Adults, in nutrition intervention situations	When all POP interventions are considered, evaluations suggest that those carried out in the worksite or university are the most effective (in terms of increasing sales of VF), while those in grocery stores are the least effective.

APPENDIX B, TABLE 1A

Category	Description or Source	Target	Evidence for increasing VF intake, VF access, or improving healthy eating habits/skills.
Community and Home (continued)	From review of restaurant environment and r/ship to VF intake [17]	Adults/ Families who eat at restaurants	<ul style="list-style-type: none"> • Most published reports evaluate low fat menu choices, not VF. • Increasing the number of reduced-fat menu items increased healthy choices, but no effect of nutritional information alone (one study, UK). • Because of a lack of reports, no evidence exists that increasing access (i.e., via serving VF in multi-location restaurants including fast food outlets, or serving more VF side dishes) has an impact on sales of VF or consumption. • Reduced prices and coupons: evidence from CHIPS study that price reductions increase sales of low-fat snacks in vending machines in worksites and schools. No price modification interventions have been reported for restaurants. • Point of Purchase information: several studies have shown increased sales of most targeted items (usually lower fat, lower calorie items). • Community-driven healthy promotion in restaurants: no evaluations of effectiveness of these programs in influencing consumer behaviour.
	From review of interventions to increase adult VF intake [18]	Free-living, not acutely ill adults	<p>From all individual and population-based interventions and promotion programs encouraging increased consumption of VF (where change in VF consumption was measured):</p> <ul style="list-style-type: none"> • In general population studies, the majority of studies showed effects ranging from +0.2-0.6 servings/dy, with individual counseling, printed documents, social marketing. • Smaller, focused communities (i.e., African American churches) had larger effects, at +0.7-1.4 servings/dy, using ecological approaches with or without individual counseling. Culturally sensitive, multi-component self-help material with telephone motivational interviewing was more effective than same material with just one phone call, or standard educational materials. • Supermarket-based interventions: no significant effect. • Computer-based individualized education program: +1.3 servings/dy. • Worksite: +0.13-0.7 serving/day, using social support activities, peer education, family members. Greater number of activities and higher participation correlated with greater VF consumption. • Computer tailored-information: with weekly communication and an interactive computer-based counseling voice system resulted in biggest effect (+1.1 servings/dy). • Face-to-face or group counseling had net effects ranging from +0.62-1.4 servings/dy • Low income: with personal counseling – effects ranged from +0.42-1.1 servings/dy. Receiving an education curriculum focusing on reduction of dietary fat associated with increased VF intake of 2.5 servings/dy over 8 months.
	From review of determinants of school children’s VF consumption [19]	Children	<p>Habit is the most influential correlate of VF consumption.</p> <p>“Environmental-related factors such as parental consumption, exposure to VF, and availability not only illustrate the important role of the environment in children’s VF consumption but also indicate that parents have to be included in interventions aimed at children.”[19]</p>
	General, from systematic review [4]	Whole population	<p>The following components contribute to effectiveness of nutrition interventions:</p> <ul style="list-style-type: none"> • Ensure interventions are theoretically based • Involve the family as a source of support • Use participatory models for intervention planning and delivery • Deliver clear messages • Provide adequate training and ongoing support.

APPENDIX B, TABLE 1A

Category	Description or Source	Target	Evidence for increasing VF intake, VF access, or improving healthy eating habits/skills.
Community and Home (continued)	18-month RCT. Nutritionist-led group education sessions delivered weekly for 6 weeks, biweekly for 6 weeks, monthly for 9 months, and then quarterly.	2208 women aged 50 to 79 (largely Black and Hispanic).	+0.5 servings/day VF at 6 months, maintained at 12 and 18 months [4, 20].
	2-year RCT; Peer education including brief messages, three 45-minute education/skill building sessions, printed materials and visual reminders, direct mail.	3122 low-income women	+0.56 servings/day VF, and improved knowledge, self-efficacy, and attitudes [4, 21].
	Heart Smart Family Fun Pack (HSF), contains games, posters, children’s healthy quiz, brochures and growth charts. Aimed at promoting heart healthy eating, physical activity and tobacco reduction. Changes evaluated in 300 families [22].	Resource targeted at families with children between 6 and 12, who were in the contemplation, preparation and action phases of change	Significant decrease in parents concerned about child’s weight (from 27% to 18%). 38% of parents reported that the Family Fun Pack had helped them improve their child’s nutrition. Other evaluation items not specific to VF or SSBs.
	Charitable Food Activities: (Examples: Meals on Wheels, Food Banks, Gleaning Programs, Soup Kitchens)	To get food to people who are hungry or malnourished and cannot effectively supply food for themselves through conventional shopping, purchasing, and cooking practices	Evidence suggests that they do not provide adequately to those in need: ¾ of US households that use these programs continue to be food insecure. Unappealing atmospheres, regulations, and food quality can discourage those most in need from using the facilities (therefore not providing to all those who need food assistance). Finally, foods served may not be the highest quality or include recommended servings of vegetables and fruits [23]. Meals on Wheels mainly targets seniors or those with chronic conditions. Gleaning Programs: Involve collection, processing and distribution of surplus produce from farms or individuals. Challenges: limited seasonally and demands knowledge and capacity to process, distribute, and store the resulting foods; logistics can be demanding. May be suitable link to community kitchens. Lack of data to suggest whether gleaning actually increases participants VF intake. These are “stop gap measures to address problems that stem from broader social policies, but are not solutions in and of themselves to food insecurity” [23].

APPENDIX B, TABLE 1A

Category	Description or Source	Target	Evidence for increasing VF intake, VF access, or improving healthy eating habits/skills.
<p>Community and Home (continued)</p>	<p>Community Development Activities</p>	<p>Objective: To supply participants with nutritious, affordable food, while impacting food awareness and preparation skills.</p> <p>Can target adults, families as a group, and children/youth.</p>	<p>Good Food Box (GFB) /Harvest Box: Operate similarly to food-buying clubs; participants pay for locally obtained fruits and vegetables (1 or 2X/mth); costs are reduced because of buying power and volunteer coordination. The sheer volume of delivery in the Toronto area (4000 boxes per month) suggests that this is a direct way to help people have greater access to VF. Eliminates stigma of having to seek charity (through Food Banks). The GFB in Greater Toronto has shown success in increasing consumption of VF in their customers [24].</p> <p>Model challenges the premise that the retail sector (grocery stores) is the healthiest/best way for everyone, regardless of income, to buy food. Reliance on this way of purchasing food isn't necessarily the safest or most stable approach to food supply, and isn't geared toward community needs and health [24].</p> <p>The GFB in Saskatoon [25], a program that has been running for 5 years, and distributes approximately 1500 boxes of VF per month, showed that, in low income households:</p> <ul style="list-style-type: none"> • 84% of participants noted an increase in both their own, and their children's intakes of VF; • Many participants reported that access to VF was improved because the GFB was an economical way to increase the presence of VF in their homes (A related factor: a lack of grocery stores within walking distance of core neighborhoods means that those who do not have easy access to transportation will often go without food. The GFB promotes food access in these circumstances). • The GFB increased the likelihood of trying new VF. <p>Community Kitchens (CK): The process for setting up a CK in BC is well-defined and well-supported [26]. A review of the literature around CKs showed that participants benefit by partaking in the preparation of high quality, culturally acceptable foods, that are acquired in a way that maintains personal integrity [27]. Increasing food skills, and learning to feed one's family healthier foods are seen as a common benefit of CKs [28, 29], while results from studies showing changes in consumption patterns are mixed: some qualitative work shows an increased variety of foods consumed, and increased vegetable consumption [28, 29], while others show that these variables are marginally impacted [27, 30]. Recently, a 10-week community-based food skills intervention for low-income participants (held within a community kitchen environment, 10 people/kitchen) demonstrated a significant increase in participants' fruit consumption (and a non statistically significant increase in vegetable consumption), and a significant increase in the number of participants who had confidence in following a recipe [31].</p> <p>Cooking Fun for Families: an offshoot of CKs, this program gives families the opportunity to learn and cook together, usually in an after-school setting. Documented during the SCAN (School and Community Action on Nutrition (IHPR at UBC, VCHA and Vancouver School Board)) research project were the following program benefits:</p> <ul style="list-style-type: none"> • Offers a setting where parents and children can participate together, enhancing the family unit; • Enables skill development in budgeting, meal planning and food preparation; • Increases awareness of healthy foods and good nutrition [32]. <p>Community gardens: Few studies have quantified the impact of community gardens on food intake by low income households. Gardens can be insecure in terms of location permanence and labour turnover, although they can facilitate community organization [23]. Organization of projects would differ according to the needs of a community. Food supply is generally affected by seasons.</p>

APPENDIX B, TABLE 1A

Category	Description or Source	Target	Evidence for increasing VF intake, VF access, or improving healthy eating habits/skills.
School-based interventions	Review of School Food Programs	Hungry school-age children	A review of Health Canada programs showed that these school-based programs have been unable to demonstrate reductions in hunger and enhancements in nutrition [33].
	From review [10]	6-12 year old children	"The parent-home component should aim at increased home availability and accessibility of VF, repeated exposure to VF in positive contexts, with reinforcements, as well as vegetable and fruit preparation skills." [10]
	Systematic review of determinants of VF consumption among children and effective interventions to increase consumption [10].	Children	Multi-component school-based interventions that combined classroom curriculum, parent and food service components showed the greatest promise to increase VF consumption in children. School VF programs, scout-based interventions, and VF education via computer multi-media channels may be promising.
	From review of school-based research and initiatives in promoting VF [34]	School age children and youth	<p>Multicomponent interventions that include a classroom behavioural curriculum component, a food service environmental component, and a parent home component show:</p> <ul style="list-style-type: none"> Increases in fruit intake of 0.2-0.6 servings/dy (changes in combined VF intake mostly attributable in increased fruit intake) Changes in vegetable intake ranged from 0 to 0.3 servings/dy <p>Stand-alone environmental interventions including increasing availability of VF in schools and lowering VF prices showed:</p> <ul style="list-style-type: none"> Availability program associated in increased fruit intake (+0.4 servings/dy) 50% price reduction in fresh fruit, baby carrots and salads = 4-fold increase in fruit sales, 2-fold increase in carrot sales, and no significant change in salad sales. Other studies show that promotional signage, in addition to a price reduction, has minimal extra benefit. <p>"...results ...[show] that simple, stand-alone environmental interventions involving increases in availability or decreases in price can promote increases in VF intake or purchase among students at school, even without extensive supporting classroom nutrition education and cafeteria promotion programs." [34].</p> <p>"While no model programs were identified, several promising strategies were identified. Promising strategies to promote vegetable and fruit consumption among students in school settings include classroom curricular activities, salad bars, and innovative packaging of vegetables and fruit; policies for nutrition standards and fruit and vegetable availability; training for food service on contract specifications and procurement practices, ..." [34]</p>
	From review of determinants and interventions to increase VF consumption in children [10]	6-12 year old children, school activities with parent involvement	<p>"In general, [school intervention] parent activities had a low to moderate level of participation, with home activities being the most successful and activities outside the home having very low attendance... To date, it appears that the most effective method to involve parents is by having materials sent home to them." [10]</p> <p>*Note, although it appears effective to send home materials from school to increase VF consumption/knowledge in children, evaluations that assessed the impact of this shared learning on parental consumption/knowledge could not be found.</p>
	General, from systematic review [35]	Children (review considered individual and population-based interventions)	<p>Effective components for interventions increasing VF consumption among children by +0.3 to +0.99 servings/day:</p> <ul style="list-style-type: none"> At least 12 months duration Increase exposure to VF among whole school community Include teacher training and integrate within the curriculum Include leadership and encouragement by peers and the school food service staff Involve parents at school and at home <p>"It is important that an enabling environment for VF consumption by children is generated. This might include a range of macro-level interventions such as increasing access to VF through targeted government subsidies of production; agricultural policies that support healthy diets; supporting access to affordable vegetable and fruit markets; adequate funding and policies for schools to provide adequate school food services including local fresh vegetables and fruit, reduced access to 'junk food' in schools to make the "healthier choice" easier for children, and consistent practice of nutrition education lessons." [35]</p>

APPENDIX B, TABLE 1A

Category	Description or Source	Target	Evidence for increasing VF intake, VF access, or improving healthy eating habits/skills.
School-based interventions (continued)	Review for BCHLA [1]	School-age children	<p>FROM [1]: In schools, effective interventions had a focus on diet alone, longer and more frequent classroom contact (dose), parental involvement (with or without home activity). Alongside curricular component, these had impact: food service changes (point of sale promotion, increased variety and better presentation), parental and family involvement, take-home snacks, longer classroom contact, industry involvement, integrated and supportive school environment.</p> <ul style="list-style-type: none"> • those underlined above associated with intervention that had most reliable gain in VF intake. • Also: promising, but need more research: Peer modeling and incentive systems; newsletter to train teachers/parents; price reductions for targeted foods from cafeteria. • For VF intake (and especially fruit intake) outcomes: Multi-component programs are more potent than stand alone cafeteria strategies [1]. • More research is needed on the effects of implementing environmental strategies (i.e., vending machine policies) in schools on VF consumption. However, there is evidence to suggest that if unhealthy choices are available in the students' environment, they will consume them [36]. Two interventions within school cafeterias showed the effectiveness of increasing the availability of healthy choices in secondary schools [11]. <p>School-based interventions with a parental component (reviewed in [9])</p> <ul style="list-style-type: none"> • Most interventions that involve parents are comprehensive programs • Beech et al. The Memphis GEMS pilot study [37] – weekly group sessions with parents • Fitzgibbon et al. Hip-Hop to Healthy Jr. [38] - Parents received weekly newsletters that included a homework assignment for parents. • Coleman et al. CATCH – included family activities for low-income schools [39] • Chomitz VR et al. Health Report Card [40] – families receive a personalized weight and fitness health report card • Haerens et al. 2006 [41]– parental component involved information night, newsletters and interactive CD
	Quasi-experimental, pre-/post-intervention-comparison group. Over school year, intervention consisted of hands-on classroom education plus food service modification and parental involvement.	590 K-6 children	<ul style="list-style-type: none"> • Higher food preference scores for vegetables, improved knowledge of the importance of eating vegetables and self-efficacy for cooking for older children [4, 42].
	RCT; 8-week; the intervention consisted of behavioral curricula in classrooms, parental involvement, school food service changes, and industry support and involvement	1750 4th and 5th grade children	The intervention increased lunchtime fruit consumption and combined vegetable and fruit consumption (+ approximately 0.5 servings), lunchtime vegetable consumption among girls, and daily fruit consumption as well as the proportion of total daily calories attributable to vegetables and fruits [4, 43].
	Experimental cohort design with control group. 8-week classroom education plus community media intervention.	3966 4th and 5th grade children	+0.4 servings/day increase in VF intake, and increased perceived benefit of VF. Decreased consumption for control group [4, 44].
	VF subscription program in schools	School age children and youth	Significant increase in VF intake over 5-week period [45].
	Reducing price of fresh VFs in schools	School age children and youth	Sales of VFs significantly increased (approximately 3-fold) over a 3-week period [46].

APPENDIX B, TABLE 1B

Table 1B. Interventions and Initiatives to Decrease Access to, and Consumption of, SSBs in BC Families

Reference	Study design and participants	Intervention	Outcomes	Results
James et al. [47]	<p>Cluster randomized controlled school-based trial, 1 year in duration</p> <p>6 schools, randomized by class (intervention and control classes in the same school)</p> <p>N = 644 children, 7-11yrs</p>	<p>Main objective: discourage the consumption of "fizzy" drinks (sweetened and unsweetened)</p> <p>Four 1 hr sessions / school year (1 each term) – all delivered by one of the study investigators (but teachers were encouraged to participate)</p> <p>Session 1: focused on the balance of good health and promotion of drinking water, children tasted fruit to learn about the sweetness of natural products, each class was given a tooth immersed in a SSB to assess its effects on dental health.</p> <p>Sessions 2 and 3: music competition – each class was given a copy of the song "Ditch the Fizz" and challenged to produce a song or a rap with a healthy message.</p> <p>Session 4: presentation of art and classroom quiz based on popular tv game show.</p>	<p>Drink consumption monitored with 3-day diaries at baseline and at the end of the study.</p> <p>Number of overweight and obese children by BMI.</p>	<p>Children in intervention classes decreased their consumption of carbonated drinks by 0.6 glasses.</p> <p>Children in control classes increased their consumption of carbonated drinks by 0.2 glasses.</p> <p>Mean difference = 0.7, 95% CI: 0.1 to 1.3)</p> <p>The percentage of overweight and obese children in the intervention group decreased by 0.2%.</p> <p>The percentage of overweight and obese children in the control group increased by 7.5%.</p> <p>Mean difference = 7.7%, 95% CI: 2.2% to 13.1%)</p>
Ebbeling et al. [48]	<p>Randomized controlled trial, 25 weeks in duration</p> <p>N = 103 adolescents, 13-18 years who reported consuming at least 1 serving (360 mL) per day of SSB.</p> <p>(not school-based although subjects were recruited from a secondary school)</p>	<p>Participants in the intervention group received weekly deliveries of noncaloric beverages for 25 weeks.</p> <p>Each delivery included 4 servings (360 mL) per day for the subject and 2 servings per day for each additional member of the household.</p> <p>Participants completed order forms for the drinks (water, diet soda, iced teas, lemonade)</p> <p>Subjects were instructed not to drink or buy SSBs during the study and were contacted regularly during the study to assess satisfaction with beverage delivery and discuss beverage consumption.</p> <p>Subjects received magnets that conveyed the theme "Think Before You Drink".</p>	<p>Primary outcome: Change in BMI from baseline to followup.</p> <p>Secondary outcomes: Energy intake from SSBs (determined from a 24 hr dietary recall) and volumetric consumption of all noncaloric beverages.</p> <p>(also assessed physical activity by questionnaire)</p>	<p>Trend for the intervention group to have a smaller increase in BMI compared with the control group (0.07 vs 0.21 kg/m²) but this was not statistically significant.</p> <p>Among subjects in the upper baseline BMI-tertile, BMI change differed significantly between groups.</p> <p>High-BMI subjects in the intervention group had a decrease in BMI (-0.63 kg/m²) and high-BMI subjects in the control group had an increase in BMI (+0.12 kg/m²). (p = 0.04 for group x tertile interaction)</p> <p>Subjects in the intervention group decreased their energy intake from SSBs by 82%. There was no change in the control group.</p>

APPENDIX B, TABLE 1B

Review Articles	Design	Methods	Findings
Malik et al. [49]	Systematic review of publications from 1966 to May 2005	<p>Thirty publications (15 cross-sectional, 10 prospective and 5 experimental) were selected for review.</p> <p>Of these, 13 cross-sectional studies, 6 prospective and 2 experimental involved children or adolescents.</p>	<p>Cross-sectional studies:</p> <ul style="list-style-type: none"> • 6 of the 13 cross-sectional studies found positive associations between SSB intake and overweight or obesity • 3 studies found trends for positive associations but the results were not statistically significant • 3 found no association between SSB and overweight/obesity • 1 study reported inconsistent findings (associations dependent on gender and age group) • Most noteworthy findings from the Growing Up Today (GUT) study [50] and the combined NHANES surveys [51] which both included > 10,000 children and adolescents. <p>Prospective studies:</p> <ul style="list-style-type: none"> • 4 of the 6 studies found significant positive associations between SSB intake and greater overweight or obesity. • In a 3-year follow-up of ~12 000 children, there was a significant association between soda consumption and weight gain in boys and girls [50]. <p>Experimental studies</p> <ul style="list-style-type: none"> • See James et al. [52] and Ebbeling et al. [48] above. <p>Overall findings:</p> <ul style="list-style-type: none"> • Based on the current evidence there is a positive association between SSB intake and weight gain. • Sufficient evidence exists for public health strategies to discourage consumption of SSBs. • Experimental evidence from adult studies suggests that the likely mechanism by which SSBs may lead to weight gain is the low satiety of liquid carbohydrates resulting in incomplete compensation of energy at subsequent meals.
Pereira et al. [53]	Review of human studies on the topic of SSBs and body weight regulation (not a systematic review)	Reviewed some of the same studies as those in the review by Malik et al. [49]	<p>Summary of Findings:</p> <ul style="list-style-type: none"> • Cross-sectional studies suggest that higher SSB intake is associated with higher energy diets and possibly higher obesity risk. • Prospective studies in children and youth suggest that high or increasing SSB intake over time may increase the risk for weight gain and obesity, but many of the studies have methodological limitations including inadequate control for confounding factors. • Additional high-quality RCTs are needed.

APPENDIX B, REFERENCES

1. Krueger, H., Risk Factor Interventions: An Overview of their Effectiveness. 2005, Report to the BCHLA.
2. Sorensen, G., L. Linnan, and M.K. Hunt, Worksite-based research and initiatives to increase fruit and vegetable consumption. *Prev Med*, 2004. 39 Suppl 2: p. S94-100.
3. Sorensen, G., et al., Increasing fruit and vegetable consumption through worksites and families in the treatwell 5-a-day study. *Am J Public Health*, 1999. 89(1): p. 54-60.
4. Sahay, T.B., et al., Effective components for nutrition interventions: a review and application of the literature. *Health Promot Pract*, 2006. 7(4): p. 418-27.
5. Cullen, K.W., et al., Availability, accessibility, and preferences for fruit, 100% fruit juice, and vegetables influence children's dietary behavior. *Health Educ Behav*, 2003. 30(5): p. 615-26.
6. Hill, A.J., Developmental issues in attitudes to food and diet. *Proc Nutr Soc*, 2002. 61(2): p. 259-66.
7. Neumark-Sztainer, D., et al., Family meal patterns: associations with sociodemographic characteristics and improved dietary intake among adolescents. *J Am Diet Assoc*, 2003. 103(3): p. 317-22.
8. Taylor, J.P., S. Evers, and M. McKenna, Determinants of healthy eating in children and youth. *Can J Public Health*, 2005. 96 Suppl 3: p. S20-6, S22-9.
9. Lindsay, A.C., et al., The role of parents in preventing childhood obesity. *Future Child*, 2006. 16(1): p. 169-86.
10. Blanchette, L. and J. Brug, Determinants of fruit and vegetable consumption among 6-12-year-old children and effective interventions to increase consumption. *J Hum Nutr Diet*, 2005. 18(6): p. 431-43.
11. Shepherd, J., et al., Young people and healthy eating: a systematic review of research on barriers and facilitators. *Health Education Research*, 2006. 29(2): p. 239-57.
12. Glanz, K. and A.L. Yaroch, Strategies for increasing fruit and vegetable intake in grocery stores and communities: policy, pricing, and environmental change. *Prev Med*, 2004. 39 Suppl 2: p. S75-80.
13. Glanz, K., et al., Environmental and policy approaches to cardiovascular disease prevention through nutrition: opportunities for state and local action. *Health Education Quarterly*, 1995. 22: p. 512-27.
14. Campbell, M.K., et al., The North Carolina Black Churches United for Better Health Project: intervention and process evaluation. *Health Educ Behav*, 2000. 27(2): p. 241-53.
15. Pollard, C., J. Lewis, and M. Miller, Start right-eat right award scheme: implementing food and nutrition policy in child care centers. *Health Educ Behav*, 2001. 28(3): p. 320-30.
16. Seymour, J.D., et al., Impact of nutrition environmental interventions on point-of-purchase behavior in adults: a review. *Prev Med*, 2004. 39 Suppl 2: p. S108-36.
17. Glanz, K. and D. Hoelscher, Increasing fruit and vegetable intake by changing environments, policy and pricing: restaurant-based research, strategies, and recommendations. *Prev Med*, 2004. 39 Suppl 2: p. S88-93.
18. Knai, C., et al., Getting children to eat more vegetables and fruit: a systematic review. *Prev Med*, 2006. 42(2): p. 85-95.
19. Reinaerts, E., et al., Explaining school children's fruit and vegetable consumption: The contributions of availability, accessibility, exposure, parental consumption and habit in addition to psychosocial factors. *Appetite*, 2007. 48(2): p. 248-58.
20. Coates, R.J., et al., The Women's Health Trial Feasibility Study in Minority Populations: changes in dietary intakes. *Am J Epidemiol*, 1999. 149(12): p. 1104-12.
21. Havas, S., et al., Final results of the Maryland WIC 5-A-Day Promotion Program. *Am J Public Health*, 1998. 88(8): p. 1161-7.
22. Cookson, S., A. Heath, and L. Bertrand, The HeartSmart Family Fun Pack: an evaluation of family-based intervention for cardiovascular risk reduction in children. *Can J Public Health*, 2000. 91(4): p. 256-9.
23. Provincial Health Services Authority, Perspectives on Community Based Food Security Projects: A Discussion Paper.
24. Scharf, K., The Good Food Box: A Case Study of an Alternative Non-Profit System for Fresh Fruit & Vegetable Distribution, in *Toward Hungerproof Cities*.
25. Brownlee, M. and A. Cammer, Accessing the Good Food Box: A Community Project. 2004, The Community University Institute for Community Research and the Child Hunger and Education Program.
26. Community Kitchens: Building Community Around Food, Basic Steps. 2007.
27. Engler-Stringer, R. and S. Berenbaum, Collective kitchens in Canada: a review of the literature. *Can J Diet Pract Res*, 2005. 66(4): p. 246-51.
28. Engler-Stringer, R. and S. Berenbaum, Food and nutrition-related learning in collective kitchens in three Canadian cities. *Can J Diet Pract Res*, 2006. 67(4): p. 178-83.
29. Fano, T.J., S.M. Tyminski, and M.A. Flynn, Evaluation of a collective kitchens program: using the Population Health Promotion Model. *Can J Diet Pract Res*, 2004. 65(2): p. 72-80.

APPENDIX B, REFERENCES

30. Tarasuk, V. and R. Reynolds, A Qualitative Study of Community Kitchens as a Response to Income-Related Food Insecurity. *Can J Diet Pract Res*, 1999. 60(1): p. 11-16.
31. Wrieden, W.L., et al., The impact of a community-based food skills intervention on cooking confidence, food preparation methods and dietary choices - an exploratory trial. *Public Health Nutr*, 2007. 10(2): p. 203-11.
32. Community Kitchens: Building Community Around Food. *Cooking Fun For Families*. 2007 [cited; Available from: <http://www.communitykitchens.ca/index.php?module=htmlpages&func=display&pid=21> Accessed February 7, 2007.
33. Hay, D.I., School Food Programs: A Good Choice for Children? *Perception*, 2000. 23(4).
34. French, S.A. and H. Wechsler, School-based research and initiatives: fruit and vegetable environment, policy, and pricing workshop. *Prev Med*, 2004. 39 Suppl 2: p. S101-7.
35. Knai, C., et al., Getting children to eat more vegetables and fruit: A systematic review. *Preventive Medicine*, 2006. 42: p. 85-95.
36. Wiecha, J.L., et al., School vending machine use and fast-food restaurant use are associated with sugar-sweetened beverage intake in youth. *J Am Diet Assoc*, 2006. 106(10): p. 1624-30.
37. Beech, B.M., et al., Child- and parent-targeted interventions: the Memphis GEMS pilot study. *Ethn Dis*, 2003. 13(1 Suppl 1): p. S40-53.
38. Fitzgibbon, M.L., et al., Two-year follow-up results for Hip-Hop to Health Jr.: a randomized controlled trial for overweight prevention in preschool minority children. *J Pediatr*, 2005. 146(5): p. 618-25.
39. Coleman, K.J., et al., Prevention of the epidemic increase in child risk of overweight in low-income schools: the El Paso coordinated approach to child health. *Arch Pediatr Adolesc Med*, 2005. 159(3): p. 217-24.
40. Chomitz, V.R., et al., Promoting healthy weight among elementary school children via a health report card approach. *Arch Pediatr Adolesc Med*, 2003. 157(8): p. 765-72.
41. Haerens, L., et al., Evaluation of a 2-year physical activity and healthy eating intervention in middle school children. *Health Educ Res*, 2006. 21(6): p. 911-21.
42. Liquori, T., et al., The Cookshop Program: Outcome evaluation of a nutrition education program linking lunchroom food experiences with classroom clooking experiences. *Journal of Nutrition Education*, 1998. 30(5): p. 302-13.
43. Perry, C.L., et al., Changing fruit and vegetable consumption among children: the 5-a-Day Power Plus program in St. Paul, Minnesota. *Am J Public Health*, 1998. 88(4): p. 603-9.
44. Foerster, S.B., et al., The California Children's 5 a Day-Power Play! Campaign: Evaluation of a large-scale social marketing initiative. *Family and Community Health*, 1998. 21(1): p. 46-64.
45. Eriksen, K., et al., Effect of a fruit and vegetable subscription in Danish schools. *Public Health Nutr*, 2003. 6: p. 57-63.
46. French, S.A., M. Story, and R.W. Jeffery, Pricing strategy to promote fruit and vegetable purchase in high school cafeterias. *J Am Diet Assoc*, 2003. 97(1008-10).
47. James, J., et al., Preventing childhood obesity by reducing consumption of carbonated drinks: cluster randomised controlled trial. *BMJ* 2004 328(7450): p. 1237.
48. Ebbeling, C.B., et al., Effects of decreasing sugar-sweetened beverage consumption on body weight in adolescents: a randomized, controlled pilot study. *Pediatrics* 2006 117(3): p. 673-80.
49. Malik, V.S., M.B. Schulze, and F.B. Hu, Intake of sugar-sweetened beverages and weight gain: a systematic review. *Am J Clin Nutr*, 2006. 84(2): p. 274-88.
50. Gillman, M.W., et al., Family dinner and diet quality among older children and adolescents. *Arch Fam Med*, 2000. 9(3): p. 235-40.
51. Troiano, R.P., et al., Energy and fat intakes of children and adolescents in the united states: data from the national health and nutrition examination surveys. *Am J Clin Nutr*, 2000. 72(5 Suppl): p. 1343S-1353S.
52. James, J., et al., Preventing childhood obesity by reducing consumption of carbonated drinks: cluster randomised controlled trial. *BMJ*, 2004. 328(7450): p. 1237.
53. Pereira, M.A., The possible role of sugar-sweetened beverages in obesity etiology: a review of the evidence. *Int J Obes (Lond)*, 2006. 30 Suppl 3: p. S28-36.

APPENDIX C: CONSULTATION LIST

Informants Consulted for Healthy Eating Strategy Development

- Cindy Anderson, Manager of Preventive Services, Vancouver Island Health Authority
- Cheney Caukwell, Former Coordinator, Vancouver Good Food Box
- Dianne Collis, Leader, Community Kitchen Project
- Barbara Crocker, Community Nutritionist, Vancouver Coastal Health Authority
- Meghan Day, 2010 Legacies Now Program Manager, Physical Activity and Healthy Living Initiatives, and Coordinator, Action Schools! BC Healthy Eating Pilot
- Jovanka Djordjevich, Prince George Good Food Box
- Lesley Dyck, Chronic Disease Prevention Lead, Interior Health Authority
- Kristi Estergaard, Community Nutritionist, Interior Health Authority
- Debbie Field, Executive Director, FoodShare Toronto
- Lisa Forster-Coull, BC Provincial Nutritionist
- Claire Gram, Regional Coordinator, Healthy Communities and Community Food Security, Vancouver Coastal Health Authority
- Caryl Harper, Food Security Lead, Vancouver Island Health Authority
- Lorie Hryciuk, ActNow Nutritionist, BC Ministry of Health
- Anna Kirbyson, Provincial Coordinator, Community Food Action Initiative, PHSA
- Bryna Kopelow, Action Schools! BC
- Sandra Mark, Consultant, Edible Strategies Enterprises Limited
- P.J. Naylor, Principal Investigator, Action Schools! BC and Municipal Recreation Food Environment Project
- Andrea Ottem, Former Community Nutritionist (Fraser Health Authority), Independent Nutrition Consultant
- Flo Sheppard, Community Nutritionist, Northern Health Authority
- Stephanie Staus, Community Nutritionist, Fraser Health Authority
- Suzanne Strutt, Chair, BC Healthy Living Alliance, CEO British Columbia Parks and Recreation Association
- Cathryn Wellner, Food & Health Project Leader, Interior Health Authority

APPENDIX D: BC PROGRAMS AND INITIATIVES

The chart below contains a BC programs and initiatives that have specific goals in healthy eating, that have a provincial/regional scope, are not private or for private activities, and are not primarily educational (handouts/pamphlets), and are likely to have impact on the family (adults 35-54 years old and school-age children). The programs/initiatives are summarized within the intervention categories used in the BCHLA’s Winning Legacy. The list excludes clinical interventions.

Category	Initiative	Lead Organizations, Partners
Regulatory and Economic Interventions	Community Food Action Initiative: To facilitate the development and implementation of community, regional and provincial food security initiatives including food action plans and grants to support local food access projects.	Act Now BC; All Health Authorities
	Guidelines for Food and Beverage Sales in Schools: To provide guidelines for all BC school food sales outlets as part of providing environments that support students to make healthy food choices at school.	Act Now; Ministry of Education, Ministry of Health, Dietitians of Canada, BCHLA
	Promoting Local Foods to Restaurants: To increase use and promotion of BC foods by restaurants by supporting various activities with suppliers and distributors in partnership with the food service industry.	Act Now BC
	Local Government Policy - comprehensive	Union of BC Municipalities
Community-Based Interventions	<p>Community Kitchen Project:</p> <p>A community kitchen is a group of individuals who meet regularly to cook healthy, nutritious meals. Everyone is expected to participate in the menu selection shopping, preparation, and cooking; the only requirement is an interest in food. Good nutrition plays a key role in each community kitchen. Participants learn new recipes and are introduced to new foods which contribute to a more balanced diet. As well, several meals are usually taken home and frozen for later, thus furthering healthy eating habits. Members often share nutritional knowledge as they cook and everyone gains from each other’s enthusiasm.</p> <p>The Vancouver Community Kitchen Project is an educational, resource project for people interested in community kitchens. The mission of the project is to build community around food and create opportunities for people to cook together.</p> <p>There are approximately 150 active Community Kitchens in BC (~50% in Vancouver). Some of these include kitchens targeting the needs of aboriginals, new immigrants, and those with mental health issues, specifically.</p> <p>Community kitchens address many social, economic and nutritional barriers. Multicultural kitchens, vegetarian kitchens, kitchens for people who are living with diabetes, kitchens for new immigrants, kitchens for people who are single and are tired of cooking for one, people who work long hours and want more than a quick take out on the way home, kitchens for youth, kitchens for seniors, elementary school community kitchens for parents, pre and post natal kitchens, canning kitchens, single parent kitchens, kitchens for people with a disability, family kitchens, single room occupancy hotel kitchens, and gourmet kitchens.</p>	<p>Greater Vancouver CK is sponsored by Terasen in partnership with The Greater Vancouver Food Bank Society, REACH Community Health Centre and the Vancouver Coastal Health Authority.</p> <p>See: http://www.communitykitchens.ca/index.php</p> <p>New kitchens have to seek sponsors for funding.</p>
	Dial-A-Dietitian: To provide readily accessible quality nutrition information to the public and health professionals through the provision of a toll free telephone nutrition service under the BC HealthGuide Program that is supported by the most up-to-date clinical nutrition databases.	Act Now BC, Ministry of Health.
	Agri-Food Partners in Healthy Eating Alliance: To encourage the agri-food industry to promote and support healthy eating through information, communication and recognition activities led by a new industry alliance.	Act Now BC
	CommunityLINK: To support connections to business and industry to increase donations to the nutrition grants program and to provide leadership to BC Schools, school districts and communities.	DASH/Breakfast For Learning Partnership Partner: Ministry of Children and Family Development
	EaTracker: An online eating and activity assessment tool. Tracks progress of healthy food consumption over time and compares nutrition habits to Health Canada’s guidelines.	Dietitians of Canada

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Category	Initiative	Lead Organizations, Partners
Community-Based Interventions (continued)	<p>Good Food Box: ~20 programs currently in BC volunteer run. The Good Food Box runs like a large buying club with centralized buying and co-ordination. Twice a month individuals place orders for boxes with volunteer co-ordinators in their neighborhood and receive a box of produce. Customers pay between \$12 and \$32 for their box, depending on the version that they choose (Ontario). Each box contains the same mixture of food, though the contents change with each delivery, depending on what is in season and reasonable at the time. Truck drivers deliver the boxes to the neighborhood drop-offs, where the local volunteer co-ordinators ensure that customers pick-up their boxes. Local products are chosen for the box whenever possible, to support local farmers and reduce the fossil fuels burned when food is imported. Customers pay the cost of the food itself, while distribution overheads are subsidized. Boxes are typically accompanied by a newsletter that offers nutrition information, as well as easy and economical food preparation tips. The Good Food Box makes top-quality, fresh food available in a way that does not stigmatize people, fosters community development and promotes healthy eating.</p> <p>CHALLENGES: The popularity of programs, demand to increase number of customers and the number of deliveries per month, is such that infrastructure funding is inadequate. Inaccessibility for seniors and disabled; delivery services are required. Need for improved management and communication systems for the volunteer/workers' network.</p> <p>Community Supported Agriculture: a program of mutual commitment between a farm and community of supporters. People pay a lump sum to the farmer in the spring in return for a weekly supply of fresh produce during the harvest season. In essence, supporters purchase a share in the season's harvest and this provides the farmer with a source of income at a time of high expense. Examples: Nathan Creek Organic Farm (Abbotsford); over a 100 families are reported to be involved with 2 farmers in the Cariboo Health Region – one in Williams Lake and another in Quesnel – and there is a one year wait list of other families wanting to engage in this process. LifeCycles, a non-profit organization in Victoria, connects people to farmers.</p>	<ul style="list-style-type: none"> • run by volunteers, variety of leads and variety of supporting NPOs. • no central/provincial coordination • history, how to start up, listings for BC at www.foodshare.net • Health Authorities are staff
	<p>HealthCheck™ BC Healthy Dining Program: To help British Columbians identify and make healthy menu choices in participating dining establishments using point of purchase information and the HealthCheck (Heart and Stroke Foundation) logo that provides nutritional information on the menu items. To raise awareness of the availability and sources of supply of local foods available to foodservice.</p>	<p>Act Now BC, Heart and Stroke Foundation, Ministry of Health, Whitespot, Boston Pizza.</p>
	<p>Cooking Fun for Families: (CFFF) is a food skill-building program that supports families around a variety of issues including food security, life skills, socialization and integration within communities. The program complements school breakfast and lunch programs and has been endorsed and recommended as a core program for inner city schools by the Inner City School Advisory Committee (May 1999) of the Vancouver School Board.</p> <p>CFFF programs are currently being developed or are running in 10 Vancouver inner-city elementary schools. Programs are individualized according to the unique needs and resources available to each school.</p> <p>CFFF is based on a three-year health promotion research project (1994-97) that was conducted in two Vancouver elementary schools. The research – "School and Community Action on Nutrition (SCAN)" - was a collaborative effort of the Institute of Health Promotion Research, University of British Columbia, Vancouver Coastal Health Authority and Vancouver School Board, funded by the BCHRF. This project was developed out of questions raised in 1992 when the Vancouver school lunch program expanded. Was the program addressing all of the school-communities' nutrition needs and issues? Were there other food and nutrition programs that would further support families? The outcome of the research was the development of two model programs - one appropriate for inner city schools (CFFF).</p>	<p>See: http://www.communitykitchens.ca/index.php?module=htmlpages&func=display&pid=21</p> <p>Vancouver Coastal Health (Vancouver Programs)</p> <p>Also: Cooking Fun for Families – A Cooking Program for Parents and Children – Interior Health and Kamloops Food Policy Council.</p> <p>(emphasis on those with barriers to healthy eating)</p>
	<p>Partners in Healthy Eating: To promote, support and encourage agri-food industry initiatives and activities that proactively 'make the healthy choice the easy choice' for British Columbians, and to provide as many BC products as possible to meet their healthy food choices.</p>	<p>Ministry of Agriculture and Lands Partner: BC Agriculture Council</p>
	<p>City Farmer: a non-profit organization based out of Vancouver. It serves the local as well as an international community in promoting urban food production and environmental conservation. It has a comprehensive website with extensive links, and a newsletter – Urban Agriculture Notes.</p>	<p>City of Vancouver and Greater Vancouver Regional District</p>

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Category	Initiative	Lead Organizations, Partners
Community-Based Interventions (continued)	BC Healthy Communities (and facilitators) Encourages healthy public policy, community involvement, intersectoral partnership and local government commitment to healthy communities. The goal is to foster individual and collective health and well-being. Facilitators encourage the healthy communities approach in the Northern, Interior, Vancouver Island and Vancouver Coastal Health areas, as well as networking with other community action coordinators.	BC Healthy Communities Partners: Union of BC Municipalities; Local Governments and community involvement by various non-profit agencies Partners for facilitators: Union of BC Municipalities, BC MoHS, Health Canada, Environment Canada
	Community Health Promotion Fund (Union of BC Municipalities) Funding 30 pilots during initial phase. Mostly involved in chronic disease prevention by building skills needed to protect and promote community health. Evaluations will look at long-term impacts.	Union of BC Municipalities Partners: Health Authorities, School Boards and Non-Governmental Organizations
	Creation of a Model for Community Health (Central Coast, First Nations) "Mobilize the regional communities to participate in the planning, development and implementation of the model of Community Health and Economic Development & support proactive health promotion programming, involving a Health and Wellness charter, series of Regional Health Summit meetings, planning and advocacy."	Central Coast Regional District Partners: Health services, First Nation governments, Nongovernmental Organizations
	InterACTION Workshops: encourage participants to engage in healthy behaviours and develop individual action plans that make healthy choices "the easy choice".	CCS Partners: Volunteer facilitators
	Community Gardens: use communal land to grow produce. Land is usually donated or provided for a nominal fee. Reasons for participation vary: health benefits – physical health (nutrition and exercise) as well as mental health; economic – vegetable and fruit source for low-income families; environmental – beautification of neighborhoods and crime reduction; social – enhancement of social networks and organizational capacity, practice of traditional culture. Exist throughout most of the health regions. Locations of community gardens in Greater Vancouver, Greater Victoria, and Prince George can be accessed via the City Farmer web site. Bella Coola has a traditional First Nations garden.	Varied leads and partners
	Healthy Eating and Active Living in Northern BC (HEAL) Focused on community capacity and increased opportunities for healthy living to decrease T2 diabetes (project funding period is over, HEAL continues in smaller capacity)	Sponsored by NHA. Funded by Health Canada.
	Provincial Positive Youth Development (PYD) Program	BC Coalition for PYD
	Social & Recreation Programs	Boys and Girls Clubs of Canada
School-Based Interventions	Action Schools! BC Healthy Eating: to provide schools with a framework for action as well as tools, resources BC Healthy Eating and support to enhance opportunities to promote healthy eating at school.	Act Now BC, Ministry of Health, Ministry of Education, Legacies Now.
	Elementary & Secondary School Milk Program, Nutrition Education Programs, School Nutrition Policy Tools	BC Dairy Foundation
	Heart Smart Kids: Resources designed to help teachers integrate healthy eating messages/ activities into curriculum. There are additional resources available on the HSF website for healthy eating for families.	HSF Partners: schools, health authorities
	BC School Vegetable and Fruit Program: To provide twice-weekly BC vegetable or fruit snacks to elementary school students as well as information to teachers, students and their families to increase awareness and consumption of BC vegetables and fruits in the school community.	Act Now BC Ministry of Health
	Feeding the Minds and Bodies of BC Students: To reach decision makers in the school community with convincing messages of BC students and resources about the link between nutrition and learning and the importance of creating a culture of healthy eating at school.	Act Now BC Dietitians of Canada
	Knowledge Network Interactive Implementing healthy food policies in schools around the province.	BC Dairy Foundation, Partners: Community Nutrition Council, Ministry of Health Services, Dietitians

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Category	Initiative	Lead Organizations, Partners
School-Based Interventions (continued)	Making it Happen: Healthy Eating at School: To inspire the school community through video/television messages to take action on school food policy and then to assist them by providing website resources (a tool box) to develop and implement school food policy.	Act Now BC Knowledge Network DASH
	Healthy Living Schools Initiative (BC Cancer): To promote healthy schools and to identify schools which provide a healthy environment for children. The Initiative targets three key areas of cancer prevention: tobacco use, diet and obesity, and sun exposure. Healthy Living Schools are those schools that not only offer educational components on these three subjects, but strive to create a healthy environment for students, e.g., ensure that lunch programs and on-site vending machines offer healthy food choices; another is to ensure students use hats and/or sunscreen during field trips and on sports day. Over 550 schools in British Columbia have achieved certification.	BC Cancer Agency
	Healthy Schools Framework: Provides guidance to target population to develop new and improve existing policies and practices that promote student health and achievement.	Ministry of Education Partners: Act Now BC, ASIBC
	Pan-Canadian Joint Consortium for School Health: A working group is developing a series of best-practice documents for health and education professionals to promote health more effectively in the school setting. The Goal is to strengthen health education capacities and to support school health promotion.	Joint Consortium for School Health Partners: Provincial and Territorial Ministries and Federal Departments
	Eat Well, Play Well: Offers support resources for teachers, parents, health professionals in providing healthy living environments	Dietitians of Canada Partners: DASH, Knowledge Network
	Healthy Buddies: Direct instruction in healthy living concepts to intermediate students; students then teach each other healthy living concepts	BC Children's Hospital Partners: BC Educators
	Healthy Eating and Physical Activity Learning Resources: To develop and implement teacher friendly learning resource(s) and collateral focusing on knowledge and skill building in healthy eating and physical activity for students in K-12 that are linked with appropriate 'health-related' learning outcomes	Act Now BC
	Healthy Living for Families: To produce booklets with tips and guidelines to support a healthier life for families with students in grades 4-9, focusing on healthy eating and physical activity for improved health and student learning.	Act Now BC
	Move More, Eat Well: Targeted at families through schools	BCPS
Workplace-based interventions	NOTE: there are no workplace-based interventions aimed specifically at healthy eating	
	Vending Policies for Public Buildings (in progress): Implementation of School Guidelines for Food and Beverages Sales (with some modifications)	Lead: Ministry of Labour and Citizen's Services Partner: Ministry of Health
	Bringing Health to Work (comprehensive): The goal of acknowledging that healthy workplaces benefit whole communities "to make information, tools and resources easily available that will help employees, employers and practitioners participate in making their workplaces healthy and safe." Primarily educational, Collection of resources on a website.	Canadian Centre for Occupational Health and Safety
	Healthy Workplaces: Toolkits	Act Now BC

APPENDIX D

Category	Initiative	Lead Organizations, Partners
Specific Populations	<p>Building Better Food Skills and Knowledge for Low-Income British Columbians</p> <p>Not for profit Community Agencies throughout BC that provide hands-on cooking and nutritional skill-building programs for adults and families living with limited income can apply to DASH for a one-time funding grant.</p> <p>First phase of this project involved building an inventory of all cooking and skill-building resources/programs in the province. Report at: http://www.dashbc.org/resources/Cooking%20and%20Nutrition%20Skill%20Building%20Resources.Oct06.pdf</p>	<p>DASH</p> <p>Ministry of Employment and Income Assistance</p>
	<p>Cooking for Your Life!</p> <p>Series of 4 sessions delivered by a dietitian and cooking instructor. Program provides a participant handbook (Grade 4-6 level) and facilitator manual. Skills developed: cooking, shopping, meal planning and nutrition education. Program is offered in partnership with community agencies. Cost is dependent on community resources available. Program has been adapted for Chinese population and youth aged 12-18 years. Plans are in place to adapt the program for Aboriginal, South Asian, and low income populations. Envision delivery of low income program in collaboration with community kitchens and Good Food Box programs.</p> <p>It is estimated that 50% of participants have diabetes or family members with diabetes and 50% of participants perceive themselves to be at-risk for diabetes. The program is offered in collaboration with the local school boards and is held in the fall, winter and spring. All classes have a cooking component and an attempt is made to incorporate vegetables and fruit in each cooking session. Participants are exposed to new vegetables and fruit and the skills to use them while preparing meals.</p>	<p>Canadian Diabetes Association</p>
	<p>First Nation Community Food Systems for Healthy Living:</p> <p>Create awareness among the First Nations communities regarding the importance of fresh locally grown/processed food for healthy living. Improving access by all community members to an adequate, affordable, nutritious diet. Transform existing un-used land resources and high unemployment into sustainable food production and employment generation programs. Promote small scale farms that use production practices that are less chemical and energy-intensive, and emphasize local inputs; Encourage food and agriculture-related businesses that create jobs, re-circulate financial capital in the community, and contribute to the community's economic development.</p> <p>The project has three distinct components:</p> <ol style="list-style-type: none"> 1. Training/capacity building 2. Food production 3. Food processing for value added products and extended shelf life <p>See: http://www.fnala.com/CFSApplicationGuidelines.pdf</p>	<p>Project funded by BC Government, ActNow Incentive Fund. The project is implemented by Ministry of Agriculture & Lands in collaboration with First Nations Agricultural Lending Association (FNALA). A Steering Committee is established comprising of representatives from MAL, MOH, FNALA Board, Aboriginal Agric. Education Council (AAEC) and representative of First Nations.</p> <p>Partners: Coastal Communities Health Summit, First Nations 2010, Community Gardens.</p>
	<p>Train the Trainer: Sessions to teach pre school teachers how to offer healthy meals to preschool children.</p>	<p>Childcare licensing body</p>
	<p>Aboriginal Health Initiative Program: Improving the health of Aboriginal residents of the health authority through 1-3 year health promotion projects. Funding streams include Addictions, Mental Health, Chronic & Infectious Diseases, and Injury Prevention.</p>	<p>VCHA</p>
	<p>Aboriginal Women's Health Program: To elevate the importance of Aboriginal women's health issues (including those related to risk factors for chronic disease, primary prevention, screening, etc), especially by training CHR's to be advocates for improving women's health in their communities. Provides women's wellness clinics and health forms, CHR workshops and health fellowships.</p>	<p>Hospital & Health Centre</p> <p>Partners: Community Health Representatives (CHR's) from reserves in the province; Pacific Association of First Nations' Women; First Nations Health Careers (UBC); Vancouver Aboriginal Council</p>
	<p>Success by Six: Helping ensure that children aged 0-6 develop physical activity and healthy eating for life (targets parents).</p>	<p>Government of BC; Savings and Credit Unions of BC, United Way</p>
	<p>Healthy Start for Life" Help preschool children learn healthy eating and physical activity habits that will become life long habits and to prevent future obesity by reinforcing these habits early.</p>	<p>Health Canada; Dietitians of Canada; Many partners</p>

BC HEALTHY LIVING ALLIANCE
HEALTHY EATING STRATEGY

17 MAY 2007

THE BC HEALTHY LIVING ALLIANCE

#310 – 1212 West Broadway, Vancouver BC V6H 3V2
phone 604 629.1630 • fax 604 629.1633
info@bchealthyliving.ca • www.bchealthyliving.ca