Cardiovascular Disease Prevention Strategy

A Component of Chronic Disease Prevention for British Columbians

Consultation Document

January 2001

BRITISH COLUMBIA
Ministry of Health and
Ministry Responsible for Seniors

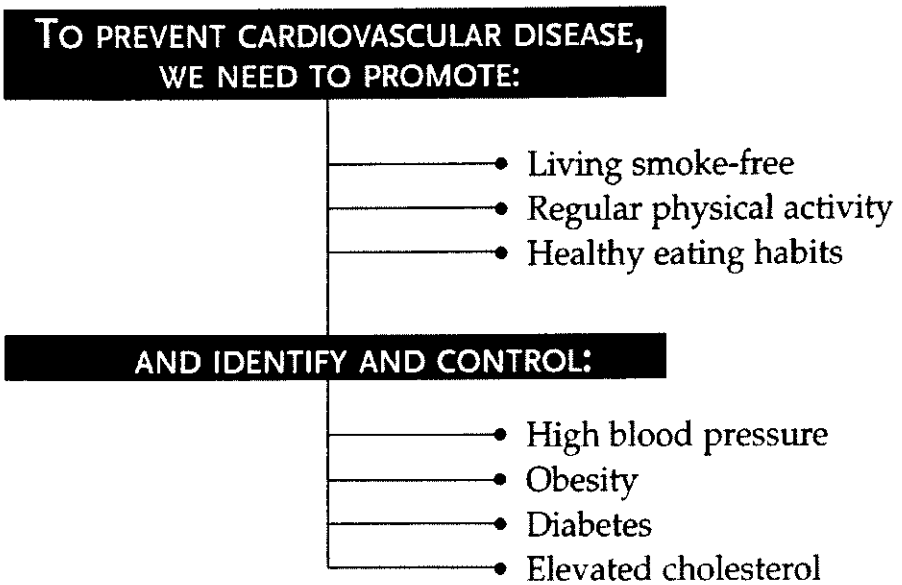


Table of Contents

Executive Summary

The Cardiovascular Disease Prevention Strategy: A Component of Chronic Disease Prevention for British Columbians identifies a comprehensive set of goals and objectives and suggests an agenda for action for both the British Columbia Ministry of Health and the Health Authorities to address the social and economic burden of cardiovascular disease (CVD) from a prevention/health promotion perspective. This strategy has been developed within the broader context and as a component of chronic disease prevention.

The document further outlines a framework for action, recommendations for priority action, roles for key stakeholders, guiding principles, the status of cardiovascular disease in British Columbia and the current provincial and regional context for prevention.

The overall goal of the *Cardiovascular Disease Prevention Strategy* is:

> *"to reduce the prevalence of premature disability and death associated with preventable cardiovascular disease in British Columbia and to enhance the health of British Columbians"*

Achieving this goal will require an approach that builds organizational and community capacity through a willingness to assume leadership, establish infrastructure and take action. In addition, there is an understanding that prevention activities should be planned and implemented across the spectrum of prevention and address the risk factors, target populations and settings that will maximize the impact of our actions.

At the foundation of the strategy are four key elements of effective disease prevention: public communication, prevention programs, public policy/environmental change and capacity-building, which are reflected in the four goals of the strategy:

GOAL 1: To increase public awareness and knowledge of the risk factors for cardiovascular disease and health-enhancing actions.

GOAL 2: To improve access to effective prevention programs/ services for all British Columbians and facilitate the adoption and maintenance of healthy lifestyle choices.

GOAL 3: To create a social/physical environment enabling British Columbians to prevent cardiovascular disease and lead healthy lives.

Goal 4: To enhance the capacity of health professionals and organizations in the province to address the issue of CVD and other health issues.

The strategy further outlines a detailed set of objectives based upon these goals. We recommend stakeholders refine specific objectives to meet their own needs. The strategy also recommends critical priorities for action to direct attention to those initiatives that may have the best chance of enhancing the ability to address and reduce cardiovascular disease in British Columbia. The areas of priority action are based on their potential to positively affect the greatest number of people, as well as their potential to impact the social, economic and environmental influences on health:

Priority I: Prevention/Health Promotion for Children and Youth in the Schools

Priority II: Policy and Environmental Approaches

Priority III: Prevention/Health Promotion for Adults at the Worksite

Priority IV: Improved Surveillance and Prevention for Aboriginals

Priority V: Enhancing the Focus on Physical Activity

Priority VI: Enhancing Secondary and Tertiary Prevention

It is apparent that no single factor contributes to the overall reduction of cardiovascular disease. Long-term positive outcomes of reducing the incidence of and disability from CVD will require a range of coordinated and collaborative efforts.

Introduction

While the *Cardiovascular Disease Prevention Strategy* addresses risk factors and issues specific to cardiovascular disease (CVD), there is a recognition of the close association between many CVD risk factors and those of other chronic diseases[1]. This Strategy is put forth as one component of a broader approach to address preventable chronic disease.

Definition of Cardiovascular Disease

All diseases of the circulatory system classified according to the International Classification of Diseases Codes, Ninth Revision (ICD-9 390-459). They include acute myocardial infarction, ischemic heart disease, valvular heart disease, peripheral vascular disease, arrhythmias, high blood pressure and stroke (Stats Canada, Health Canada 1999).

Both the Ministry of Health's 1999 *Strategic Directions for British Columbia's Health Services System* and the *1997 Health Goals for British Columbia* identify the prevention of chronic disease as a priority action area. Specifically, Health Goal #6 is: "Reduction of preventable illness, injuries, disabilities and premature deaths".

A comprehensive preventive approach requires collaborative action across sectors and disciplines (see Figure 1). It is recognized that targeted, coordinated and sustained efforts, based upon partnerships and integrated programs and services, are critical to successful action. Subsequently, for a comprehensive, collaborative approach to be successful, it must address the broad determinants of health and have an impact where British Columbians live, learn, work and play.

Although there is a substantial overlap in the primary prevention of CVD and many other chronic diseases, this document also encompasses secondary and tertiary CVD prevention and other issues specific to CVD.

Cardiovascular disease, including heart disease and stroke, accounted for 36% of all deaths in British Columbia in 1998 (Vital Statistics Agency, 1998). It is also a major cause of disability and among chronic diseases accounts for the largest portion of health care dollars. More British Columbians die from cardiovascular disease than from any other cause of death. Even though most risk factors for CVD can be prevented or modified, they remain widespread in British Columbia. It can be readily projected that, as demographics within B.C. change, the human, social and economic cost of CVD will increase significantly. Over the next 20 years, our health

1 There has been some discussion about the use of the term chronic diseases vs. non-communicable diseases. In Canada, the US and Australia the term chronic diseases has been used extensively in policy documents. The WHO uses the term non-communicable diseases. In defining non-communicable diseases however, the WHO describes them as "a set of chronic diseases of major public health importance... the development of which is influenced by one or more common risk factors...". For the purposes of this strategy the term chronic diseases will be used but it is intended to be interchangeable with the term non-communicable diseases.

care system can expect to see an increase in the number of individuals with CVD as the proportion of British Columbians aged 55 and older increases.

In British Columbia, a system of CVD-related programs and services delivered by a variety of stakeholders has contributed to three decades of decline in CVD mortality rates. However, as the population of British Columbians ages, further action is required to address the growing burden of cardiovascular disease.

Preventing CVD involves developing a wide range of initiatives (primary, secondary, and tertiary) that target the risk factors and conditions that can be changed (see Figure 2). Prevention must occur across the spectrum, from primary strategies which target the whole population, to secondary and tertiary strategies which target those at highest risk. Evidence to support this approach comes from American researchers who estimated that almost half of the recent decline in rates of cardiovascular disease was attributed to primary and secondary prevention efforts (Hunink, M.G., Goldman, L. Tosteson, A.N. et al, 1997).

The strategy clearly identifies the need for a comprehensive approach and it also calls for an increased investment in a public health approach to preventing cardiovascular disease. In other words, there is a large proportion of the population who are well (but at risk) and there are also a number of people who are 'high risk' or already living with the disease. The strategy calls attention to the former with the intent to prevent cardiovascular disease risk factors from occurring. The strategy clearly identifies the necessity of, and establishes goals and objectives for, secondary and tertiary prevention initiatives. However, there are several issues such as quality of care, access to acute care services, use of technologies and waiting times that may affect secondary and tertiary prevention but cannot be addressed in full by the Cardiovascular Disease Prevention Strategy.

This Strategy has been developed based upon approaches adopted in other jurisdictions, international research, and feedback from key informants and stakeholders who work to prevent CVD in British Columbia. The Strategy is intended to set forth a framework to guide CVD prevention activities, build consensus among strategic players and stimulate actions that will not only decrease the incidence of cardiovascular disease among British Columbians but play a critical role in chronic disease prevention and the overall promotion of health. The Ministry of Health, in partnership with a Provincial Advisory Committee, will take a leadership role within government, consult with other key non-government stakeholders and develop work plans to implement the framework.

Figure 1 Chronic Disease Prevention

*Modified from the W.H.O. Non-Communicable Disease Strategy

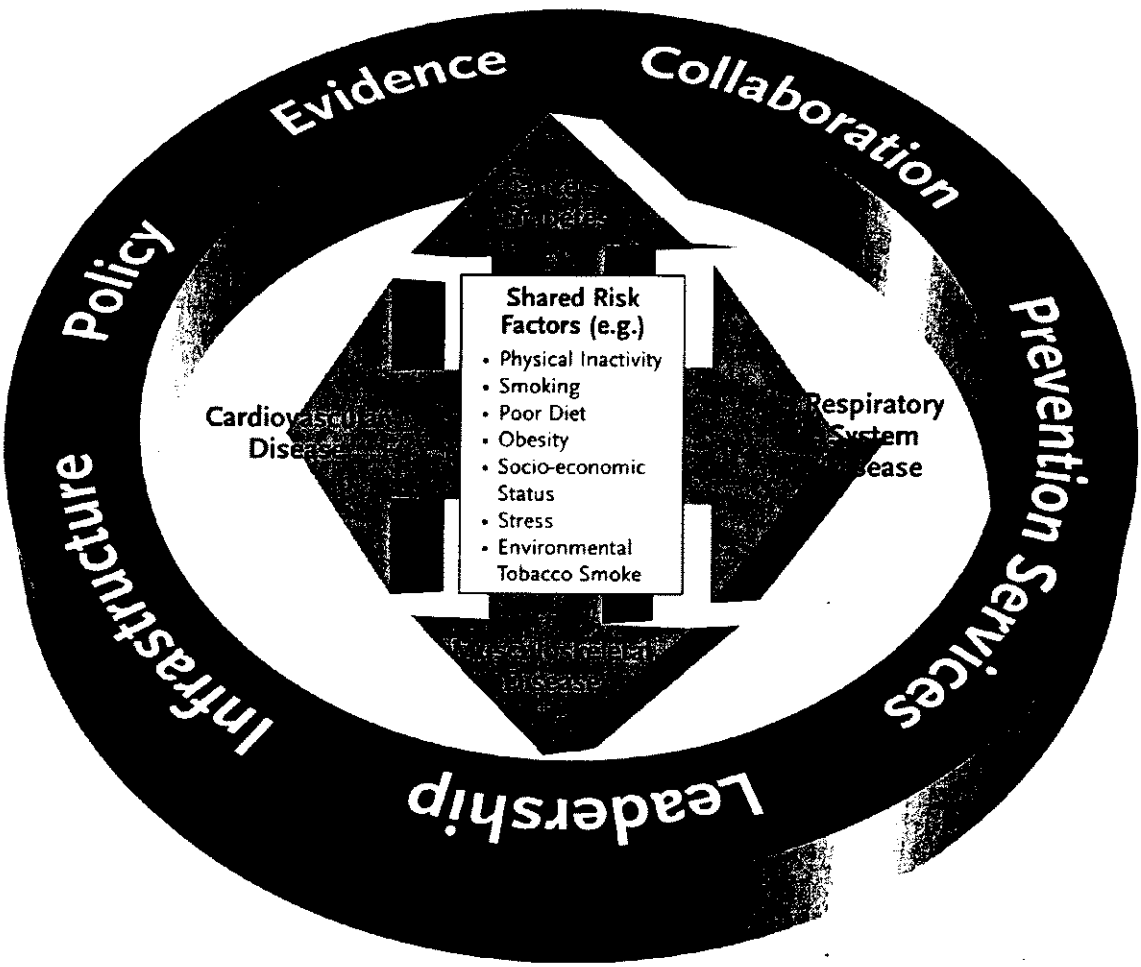


Figure 2 The Prevention Spectrum

Prevention Type	Primary	Secondary	Tertiary
Target Population	Whole Population: no known risk	Segment of the population with higher risk	Segment of the population with signs and symptoms of the disease
Goal	To maintain health by removing the precipitating causes and determinants of departures from good health.	To decrease the duration and severity of disease through early detection and treatment before signs and symptoms occur and where the treatment options are available and effective.	Reducing complications of the existing disease and preventing recurrences.

Framework for Action

British Columbia's Cardiovascular Disease Prevention Strategy reflects best practices information gathered from field experts, and evidence from heart health literature. The emphasis on evidence has been balanced with the need for innovation. Given these factors, using a sound system for promoting heart health throughout the population of B.C. involves building on the strengths and capacities of our existing system and ensuring the following major elements for success are incorporated:

- Public Communication Initiatives
- Prevention Programs and Services
- Policy & Environmental Change Initiatives
- Capacity-Building Initiatives

Public Communication Initiatives

Providing information to the public about CVD to raise awareness, educate and change attitudes.
Examples of communication strategies are media campaigns (TV, radio, newspapers and magazines), print and audiovisual resources, public presentations/seminars, websites, health fairs and displays at public events.

Prevention Programs and Services

Interventions or activities designed to increase awareness, knowledge and understanding of CVD and change the behaviour or skills of targeted individuals.
This also includes providing assessments, care and/or support to individuals.
Examples include self-help resources, one-on-one consultations, group sessions, and risk factor screening programs. Typically, prevention programs will involve more than one contact with an individual.

Policy & Environmental Change Initiatives

Changing policy or modifying the environment to increase the likelihood that individuals will adopt health-enhancing behaviours.
Examples of policy and environmental approaches include clean indoor air by-laws, providing free access to recreation facilities to individuals or families with low-incomes, creating walking trails in communities, heart-healthy community kitchens (where people get together to plan, shop, cook, share the cost, and take home food for themselves and their families), community gardens (where people grow fruits and vegetables at public gardens, usually with advice and support from volunteer gardeners), healthy vending machine policies in schools, and social support networks.

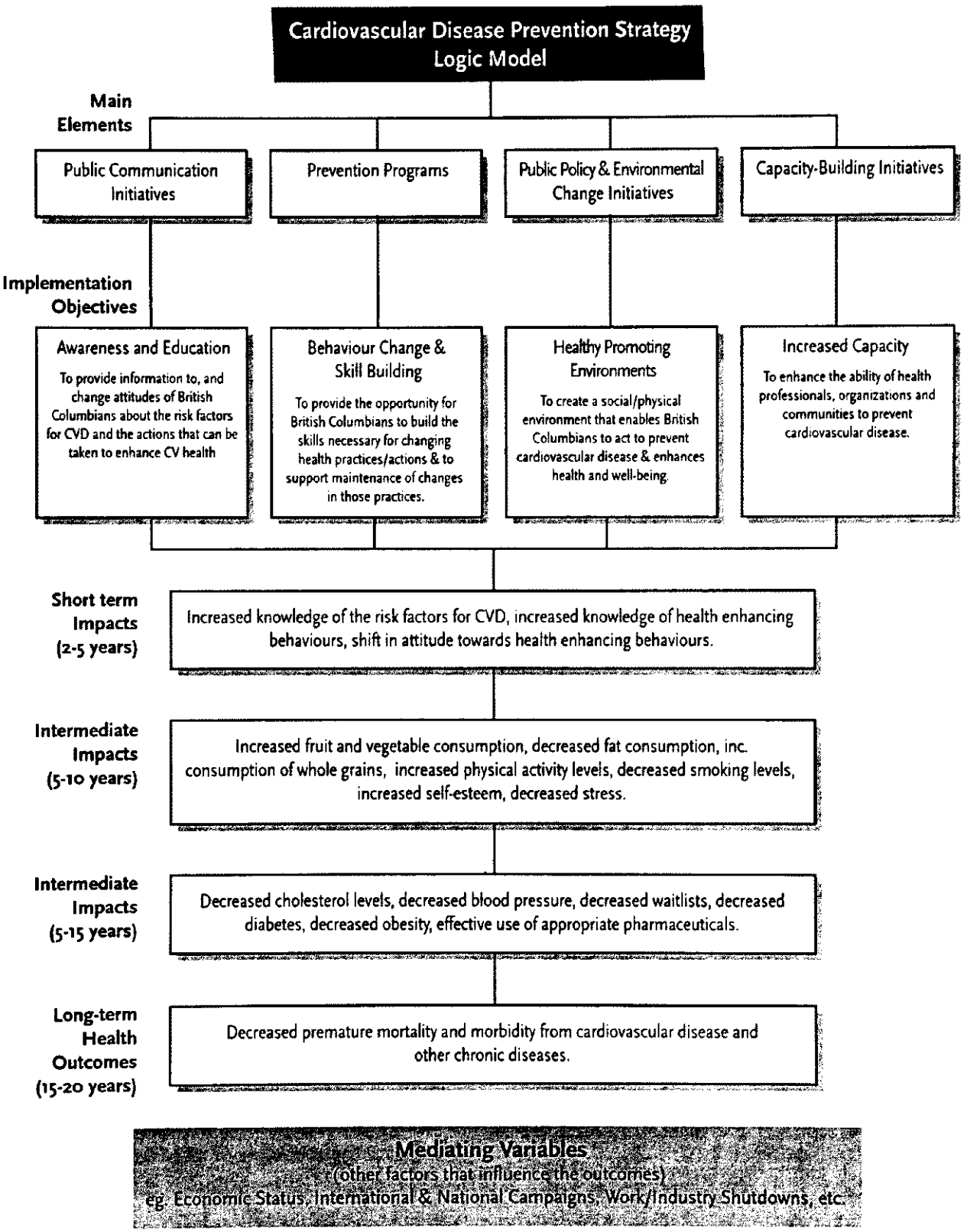
Capacity-Building Initiatives

Activities or interventions designed to enhance the ability of individuals, organizations, health professionals, the health system and communities to address health issues.
Examples of capacity-building activities include developing or identifying best practices; enhancing coordination, surveillance, evaluation and monitoring; training; networking; enhancing collaboration with other stakeholders; funding community-based projects; and providing technical expertise to projects and professionals involved in CVD.

Applying these elements to develop provincial and regional plans involves collaboration and targeted action on key risk factors and at-risk populations across both channels of interventions/settings and the spectrum of prevention services (see 'The Prevention Mix', Appendix A). It is apparent that such endeavours will be unique to each health authority as the approaches address a wide range of social factors that put people at risk for cardiovascular disease. Multiple contacts, follow-up procedures, behavioural approaches and continuing interventions (Simon-Morton, et al., 1998) are needed for programs to be effective. The Prevention Mix illustrates the breadth of options needed to ensure that the unique circumstances across B.C.'s diverse regions are addressed.

The CVD Prevention Strategy Logic Model (Figure 3) incorporates the four main elements of the framework, and projects the resulting short and long-term impacts.

Figure 3


Cardiovascular Disease Prevention Strategy
Logic Model
Main Elements
Public Communication Initiatives
Prevention Programs
Public Policy & Environmental Change Initiatives
Capacity-Building Initiatives
Implementation Objectives
Awareness and Education
To provide information to, and change attitudes of British Columbians about the risk factors for CVD and the actions that can be taken to enhance CV health
Behaviour Change & Skill Building
To provide the opportunity for British Columbians to build the skills necessary for changing health practices/actions & to support maintenance of changes in those practices.
Healthy Promoting Environments
To create a social/physical environment that enables British Columbians to act to prevent cardiovascular disease & enhances health and well-being.
Increased Capacity
To enhance the ability of health professionals, organizations and communities to prevent cardiovascular disease.
Short term Impacts (2-5 years)
Increased knowledge of the risk factors for CVD, increased knowledge of health enhancing behaviours, shift in attitude towards health enhancing behaviours.
Intermediate Impacts (5-10 years)
Increased fruit and vegetable consumption, decreased fat consumption, inc. consumption of whole grains, increased physical activity levels, decreased smoking levels, increased self-esteem, decreased stress.
Intermediate Impacts (5-15 years)
Decreased cholesterol levels, decreased blood pressure, decreased waitlists, decreased diabetes, decreased obesity, effective use of appropriate pharmaceuticals.
Long-term Health Outcomes (15-20 years)
Decreased premature mortality and morbidity from cardiovascular disease and other chronic diseases.
Mediating Variables
(other factors that influence the outcomes)
eg. Economic Status, International & National Campaigns, Work/Industry Shutdowns, etc.

Goals of the Cardiovascular Disease Prevention Strategy

The overall goal of the Cardiovascular Disease Prevention Strategy for British Columbia is:

> *"To reduce the prevalence of premature disability and death associated with preventable cardiovascular disease in British Columbia and to enhance the health of British Columbians."*

The strategy is organized around the four main elements of the framework: public communication, prevention programs, public policy / environmental change and capacity building. The strategy also outlines the infrastructure, collaboration and partnerships and technical expertise necessary for effective CVD prevention.

Goal 1: To increase public awareness and knowledge of the risk factors for cardiovascular disease, and health-enhancing actions they can adopt.

Objective 1 Develop Public Education and Communication Initiatives

	Ministry of Health	Health Authorities
Agenda for Action	Identify priority target populations and risk factors for prevention messages and information. In collaboration with NGOs, develop and produce health education/communications messages for key target groups to raise their awareness and knowledge of the risk factors. Priority should be placed on the critical lifestyle changes that can be made to lower the risk of CVD such as healthy eating, physical activity, not smoking. Disseminate CVD prevention communications materials containing key messages to the public, using multiple channels such as television, radio, newsletters, Internet websites and print media.	Work with local community groups such as recreation, seniors, aboriginal and youth organizations to design and disseminate CVD prevention communications materials containing key messages to the public, using multiple channels such as health fairs, local media releases, workshops and public health units. Support local activities that involve risk factor education initiatives such as Jump Rope for Heart, Talk about it Tuesday, low-fat cooking demonstrations, The Big Bike Ride.

GOAL 2: To improve access to effective prevention programs/ services for all British Columbians and facilitate the adoption and maintenance of healthy lifestyle choices across the lifespan.

Objective 2.1 Enhance prevention programs for children and youth.

	Ministry of Health	Health Authorities
Agenda for Action	Collaborate with non-governmental organizations to develop curriculum resources for K-12 teachers that deal with the range of chronic disease risk factors and affect overall health. These include smoking, diet, physical activity and psychosocial factors such as stress and social support. Liaise with the Ministry of Education and the Ministry of Advanced Education, Training and Technology to identify opportunities to enhance the implementation of health-promoting curriculum resources.	Support local training initiatives for teachers and student teachers to enhance their adoption and implementation of health promoting curriculum resources. Liaise with regional and local school administrators to identify opportunities to enhance prevention programming in the schools.

Objective 2.2 Expand and improve access to primary, secondary and tertiary cardiovascular disease prevention programs for adult men and women.

	Ministry of Health	Health Authorities
Agenda for Action	Partner with the major non-government organizations involved in chronic disease prevention and health promotion to enhance the provision of primary, secondary and tertiary prevention resources. Adopt and apply Comprehensive Cardiovascular Risk Assessment Guidelines for BC which facilitate the integration of CVD prevention activities into clinical practice and include risk management and patient education materials for the prevention of CVD and the promotion of cardiovascular health. Develop a resource/training program to enhance the knowledge of home care support workers so they can support and educate the people they are caring for. Disseminate "Stopping When You are Ready", a stage-based client resource that encourages smoking cessation for women who are pregnant or breastfeeding. Continue efforts to advance our understanding of cardiovascular disease in women and develop programs that adopt a woman-centered approach to prevention. Develop a planning tool to insure that women's needs related to prevention programs are considered. Support primary health care reform to optimize the delivery of primary and secondary prevention services and create links with community resources.	Create partnerships with organizations that service the older adult to identify opportunities to integrate CVD prevention activities into community programs and seniors' drop-in centres. Expand hospital and community-based secondary prevention programs such as risk factor control clinics, cardiac rehabilitation and post cardiac event and stroke counseling. Enhance outpatient nutrition counseling (or medical nutrition therapy). Enhance linkages between hospital-based secondary prevention programs and public health nursing and nutrition, home care nursing, and municipal recreation services to explore opportunities to increase access to secondary and tertiary prevention. Provide support for the training of prenatal educators in "Stopping When You Are Ready", a stage-based client resource that encourages smoking cessation. Liaise with municipalities and recreation stakeholders to create recreation and leisure opportunities where community members can participate in accessible, regular physical activity. Engage management of major local employers in a discussion of opportunities for health promotion and prevention in local worksites. Assist physicians to link with community-based resources.

Objective 2.3 Develop programs to reduce cardiovascular disease and improve access to preventive services for Aboriginal British Columbians

	Ministry of Health	Health Authorities
Agenda for Action	Include indicators for CVD and associated risk factors relative to the Aboriginal population in regional and provincial surveillance systems. Support the development of a surveillance report specifically focusing on aboriginal health. Convene a network of informed experts in health and Aboriginal issues to develop an agenda for CVD prevention.	Support the work of Community Health Resource staff in Aboriginal communities to develop health promotion programs that address the multiple risk factors associated with both cardiovascular disease and diabetes. Involve Aboriginal people in all aspects of community-based CVD prevention including planning, implementation and evaluation.

Objective 2.4 Develop programs to reduce cardiovascular disease and improve access to preventive services for British Columbians who are at increased risk because of the root social conditions in which they live.

	Ministry of Health	Health Authorities
Agenda for Action	Foster collaboration within BC's diverse cultural groups to develop and distribute culturally appropriate CVD prevention materials. Develop a determinants checklist for CVD prevention planning processes to ensure that the health determinants (the social, economic and environmental factors) are considered along with behavioural and lifestyle issues when prioritizing initiatives. Develop outreach programs and patient support materials for cardiac rehabilitation clients who reside in rural areas and require travel to large communities for specialized treatment services. Provide consumer resources regarding prenatal health education so children have the best possible start in life.	Support the development and implementation of community-based CVD prevention programs in rural communities. Incorporate a determinants checklist into CVD prevention planning processes to ensure that the health determinants (the social, economic and environmental factors) are considered along with behavioural and lifestyle issues when prioritizing initiatives. Prioritize those CVD prevention initiatives that 'add value' by addressing other determinants such as community gardening projects that focus not only on healthy eating, but food security, physical activity and enhanced coping skills or active living projects that enhance social support for seniors and provide access to affordable, healthy meals. Enhance food security programs such as community breakfast programs, good food boxes, community kitchens and gardens for people and support recreation access programs for people who cannot afford healthy food and active living. Support home visitor programs for at-risk children and families who exhibit risk factor behaviors and lifestyles.

GOAL 3: To create a social/physical environment that enables British Columbians to prevent cardiovascular disease and lead healthy lives.

Objective 3.1 Develop policies that increase the opportunities for healthy lifestyle choices in the settings in which individuals live.

	Ministry of Health	Health Authorities
Agenda for Action	Develop and implement public policy that protects British Columbians from exposure to second-hand smoke. Implement legislation to limit access to tobacco by youth. Develop standards and guidelines for health-promoting settings: schools, worksites and communities. Participate in the development and implementation of a provincial physical activity strategy. Facilitate interministerial collaboration on food and nutrition policy.	Support non-smoking policies in public places. Monitor the implementation of legislation as it relates to exposure to second-hand smoke and limiting access to tobacco by youth. Encourage the adoption of health-enhancing school policies such as no smoking regulations, healthy food options in schools and quality daily physical education. Work with local employers to encourage the adoption of health-enhancing workplace policies such as a non-smoking code, healthy food options in worksite cafeterias and opportunities for daily physical activity. Create links with local school districts and municipalities to develop policies that allow after-school access to school gymnasiums and fields for the public. Adopt healthy vending machine policies for schools and municipal recreation facilities.

Objective 3.2 Increase access to health promoting environments.

	Ministry of Health	Health Authorities
Agenda for Action	Facilitate interministerial collaboration on a range of environmental issues: i.e. safe alternative transportation, clean air initiatives, workplace health programs.	Disseminate "Stopping When You Are Ready", a stage-based client resource that encourages smoking cessation among pregnant and breastfeeding women. Create links with municipal councils and recreation services to enhance opportunities for physical activity (healthy trails, safe walk programs, etc.). Support the development of recreation access programs for socially disadvantaged individuals. Increase opportunities for employee smoking cessation programs, and remove organizational barriers that inhibit healthy lifestyle choices. Provide support for programs such as community gardens, community kitchens, "good food" boxes and gleaning projects. Work with restaurants and cafeterias to enhance the provision of healthy food options.

Goal 4: Enhance the capacity of health professionals and organizations in the province to address the issue of CVD and other health issues.

Objective 4.1 To provide the necessary infrastructure (physical and organizational) so that leadership, coordination, and management, of cardiovascular disease prevention activities in British Columbia is enhanced.

	Ministry of Health	Health Authorities
Agenda for Action	Consult with provincial non-governmental and governmental agencies about roles and responsibilities for cardiovascular disease prevention. Establish a provincial advisory committee on CVD to assume leadership for the provincial CVD prevention strategy. Dedicate staff and resources to coordinate cardiovascular disease prevention programs and activities throughout British Columbia.	Dedicate staff and resources to coordinate a regional cardiovascular disease prevention strategy. Increase staff time and resources dedicated to cardiovascular disease prevention initiatives.

Objective 4.2 To facilitate, build upon &/or strengthen partnerships and coalitions to promote awareness of, and broad-based support for cardiovascular disease prevention services.

	Ministry of Health	Health Authorities
Agenda for Action	Identify government ministries and non-governmental agencies implementing initiatives helping to reduce cardiovascular disease and other chronic diseases in British Columbia. Establish a provincial working group on chronic disease prevention, comprised of those ministries and NGOs that have prevention policy and initiatives, that can advocate and develop linked, multifaceted prevention strategies. Develop a communication mechanism to connect the provincial partners/stakeholder organizations to the health authorities. Establish a provincial network/forum for ongoing discussion and integration of primary and secondary prevention activities and personnel. Continue to collaborate with Health Canada by participating in policy development, research surveillance, demonstration projects, and the Canadian Heart Health, diabetes and other prevention initiatives.	Involve local organizations and individuals in planning, developing and implementing regional health promotion and prevention initiatives. Establish a multi-disciplinary, multi-sectoral heart health coalition/committee that bring together primary, secondary and tertiary prevention interests to plan regional strategies and initiatives. Develop a communication mechanism to connect the CVD prevention partners/stakeholder organizations and health professionals in the region. Establish a regional forum for ongoing discussion and integration of primary and secondary prevention activities and personnel.

Objective 4.3 To enhance available technical expertise (knowledge, skills and abilities) related to cardiovascular disease prevention service

	Ministry of Health	Health Authorities
Agenda for Action	Establish a provincial clearinghouse for information and resources on CVD prevention. Establish a mechanism for dissemination of information and resources on policies, programs and activities proven effective in preventing CVD. Liaise with the Ministry of Advanced Education, Training and Technology to explore opportunities for expanded training in health promotion and disease prevention in university-based medical schools. Collaborate with Continuing Medical Education Units in universities and professional associations to develop and promote educational opportunities that will assist health care providers, particularly primary care physicians, to enhance their preventive health practices. Provide training opportunities for health promotion and CVD prevention health professionals in the regions.	Establish a mechanism for health professionals to access information, written resources, how-to guides, best practices etc. Develop a communication mechanism to ensure the effective dissemination of resource materials to health professionals throughout the regions who are involved with health promotion and CVD prevention. Provide training opportunities/ mechanisms related to health promotion and CVD prevention for health professionals in the region.

Objective 4.4 To enhance the evidence-base that supports effective CVD prevention efforts.

	Ministry of Health	Health Authorities
Agenda for Action	Expand current monitoring and surveillance systems to track behavioural risk factors and social conditions, and to monitor changes in trends related to these risk factors and conditions. Continue CVD surveillance and incorporate and contribute to planned improved chronic disease surveillance initiatives at the national level. Augment surveillance systems to track trends related to cardiovascular disease among BC's aboriginal population. Continue to provide cardiovascular disease surveillance reports (Heart Disease and Stroke in BC) that provide extensive information on the mortality, morbidity, economic burden and risk factor profile related to cardiovascular disease. Convene an annual meeting to report on advances and challenges in CVD prevention. Design an evaluation framework to monitor progress toward the goals and objectives of the CVD prevention strategy at the regional and provincial levels. Set provincial targets for short-term health impacts and health outcomes related to CVD. Identify and deliver information on best practices in CVD prevention. Increase collaboration between hospitals and community-based organizations in order to share information, especially data related to hospital discharge and home care.	Enhance regional monitoring and surveillance specifically of at-risk groups within individual health authorities. Participate in provincial and national surveillance initiatives. Adopt and implement a common evaluation framework for prevention initiatives. Set regional targets for short-term health impacts and health outcomes related to CVD.

Objective 4.5 To create, adopt, and support development of organization policies, standards and guidelines that enhance the opportunities to prevent CVD.

	Ministry of Health	Health Authorities
Agenda for Action	Endorse the *Canadian Guidelines for Cardiac Rehabilitation and Cardiovascular Disease Prevention*, recently developed by the Canadian Association of Cardiac Rehabilitation. Continue to develop and implement standards and guidelines for clinical practice. Develop and disseminate standard comprehensive cardiovascular risk assessment guidelines for use by primary care physicians. a. Augment the comprehensive cardiovascular risk assessment guidelines with a patient guide that includes a self-assessment questionnaire and patient education messages. b. Make the patient guide accessible to low-income, illiterate and ethnically diverse populations by producing the guide in other languages and additional formats such as audiotapes, videotapes or computer-based technology available at health centers, pharmacies or local libraries. c. Distribute the patient guide (self-assessment questionnaire and patient risk factor education materials) to pharmacies for distribution.	Include CVD prevention in strategic, business, and operational plans. Develop a regional cardiovascular disease prevention strategy. Adopt the *Canadian Guidelines for Cardiac Rehabilitation and Cardiovascular Disease Prevention*, recently developed by the Canadian Association of Cardiac Rehabilitation. Liaise with physicians to discuss supporting the implementation of comprehensive cardiovascular risk assessment guidelines in practices. Adopt and disseminate Canada's Food Guide and Canada's Physical Activity Guide.

Recommendations for Priority Action

The *Cardiovascular Disease Prevention Strategy* sets forth a comprehensive agenda that comprises a collection of CVD activities and interventions for various population groups within multiple settings. This section suggests recommendations for priority action in cardiovascular disease prevention at both the provincial and regional levels. Recommendations for priority action are based on the following:

a) best practice strategies from literature and jurisdictional reviews
b) interviews with key individuals working in cardiovascular disease prevention in B.C.
c) regional needs assessments
d) evidence of program and policy effectiveness

Recommendations for priority action are also based on their potential to positively affect the greatest number of people, as well as their potential to impact the social, economic and environmental influences on health. Based on these considerations, six priority areas for cardiovascular disease prevention in British Columbia are outlined below.

Priority I: Prevention/Health Promotion for Children and Youth in the Schools

Rationale:

Patterns of health behaviour are established early in our lives. Therefore, focusing on positive health behaviours in children and youth is critical. School-based interventions have extensive reach, including children at risk for CVD.

Priority II: Policy and Environmental Approaches

Rationale:

Ensuring the health of individuals and communities requires a social context that supports healthy lifestyle choices. Current economic constraints on the health system are significant and policy development has a relatively low resource requirement with a high population reach.

Priority III: Prevention/Health Promotion for Adults at the Worksite

RATIONALE:

Workplaces have the potential to reach a large captive audience, including the majority of the aging "baby boomer" population, and encourage the mutual interest of employers and employees in improving or maintaining personal health and corporate productivity.

Priority IV: Improved Surveillance and Prevention Services for Aboriginal People

RATIONALE:

Aboriginal people have higher rates of CVD and diabetes than other British Columbians.

Specific surveillance initiatives that focus on BC's Aboriginal population will help us create prevention programs that are sensitive to the needs of this population and, at the same time, address the determinants of health.

Priority V: Enhancing the Promotion of Physical Activity

RATIONALE:

Forty-nine per cent of British Columbians are physically inactive, making this the most prevalent risk factor, and yet the least addressed of the risk factors that are behaviourally modifiable. It is apparent that as we increase our activity levels, the incidence and mortality from a range of chronic diseases will fall. A challenge for the health system is to reach the large number of individuals who are sedentary or relatively inactive.

Priority VI: Enhancing Secondary and Tertiary Prevention

RATIONALE:

Secondary and tertiary prevention programs have been shown to decrease mortality, morbidity and improve quality of life. Evidence exists supporting the effectiveness of programs incorporating exercise, education, reduction of risk factors and counseling for those diagnosed with CVD.

Contributions from Key Stakeholders in CVD Prevention

Efforts to improve cardiovascular health involve a wide range of stakeholders including:

Health Canada

Collaboration with Health Canada is an important instrument for implementation of the CVD Prevention Strategy in British Columbia. From the development of the Federal-Provincial policy documents such as "Promoting Heart Health in Canada", to the Canadian Heart Health Surveys, demonstration, dissemination and deployment projects, Health Canada has been a partner in promoting heart health and has played a role in linking British Columbia to national and international expertise and supporting key initiatives such as national evaluation strategies, policy papers, conferences and networks. Health Canada's continued support and involvement with provincial and national prevention initiatives such as the Diabetes Strategy, telemedicine, chronic disease surveillance, best practices identification and Internet strategies is vital to advancing prevention in British Columbia.

Ministry of Health

The Ministry of Health will contribute to the Cardiovascular Disease Prevention Strategy by providing overall leadership and coordination for British Columbia. It will advance the vision for CVD prevention by providing technical assistance to B.C.'s health authorities and conducting best practice reviews to assist the development and delivery of CVD programs and policies. The Ministry of Health will oversee surveillance and monitoring systems and allocate funding for targeted prevention initiatives. In addition, the Ministry of Health will engage other ministries whose work touches upon the broader determinants of health to support CVD-related activities,and collaborate with national initiatives spearheaded by Health Canada and other non-governmental stakeholders.

Health Authorities

Health Authorities have the responsibility to plan and administer the delivery of CVD prevention services. As a part of this, health authorities are responsible for identifying regional priorities and goals, setting targets for improved CVD

prevention outcomes and engaging a broad spectrum of organizations and health professionals in prevention initiatives. Health authorities will also coordinate CVD prevention programs at the community level and facilitate regional and community partnerships and coalitions. As outlined in the Health Services Management Policy, health authorities will consult with consumers in program planning, delivery and evaluation.

Voluntary Organizations

Much work in the prevention of cardiovascular disease has come from voluntary organizations such as the Heart and Stroke Foundation of British Columbia and Yukon, the Red Cross, the B.C. Lung Association, the Canadian Cancer Society and Canadian Diabetes Association. It is largely through the work of these and other organizations that many of the direct prevention services have been offered to clients. Voluntary organizations can also support the Cardiovascular Disease Prevention Strategy by: advocating for healthy public policy, developing, collecting and disseminating information and resources on cardiovascular disease prevention, and raising funds for research and public education to mobilize corporate and community support for CVD prevention initiatives.

Private Sector

The private sector can contribute to the strategy by fostering an organizational culture that supports healthy living and adopting worksite health promotion programs and policies for their employees. They can, for example, provide risk factor screening, establish non-smoking policies and increase opportunities for daily physical activity. The private sector can also organize efforts to raise funds, make in-kind donations and provide sponsorship in support of cardiovascular disease prevention activities. The media, as a part of this sector, can contribute to cardiovascular disease prevention by encouraging public discussion and raising awareness and support for community CVD prevention activities.

Research Community

Contributions to cardiovascular disease prevention can come also from the scientific and research community. Researchers can advocate for increased funding to support research on best practices and undertake demonstration projects. They can establish an agenda for CVD prevention that supports multidisciplinary and community-based research initiatives. The dissemination of research findings through publication, and scientific meetings and conferences could be additional contributions from the scientific and research community of British Columbia.

Professional Organizations/Associations

Health professionals are the key prevention services link to patients and the public. Health professional organizations/associations such as the British Columbia Medical Association, the Registered Nurses Association of British Columbia, and the Dietitians of Canada, B.C. Region can prioritize prevention, consistently indicate the importance of preventive actions to the public and/or patients, advocate for supportive environments and health promotion and prevention programs in their communities, and share their knowledge with others.

Other Ministries

Other B.C. ministries such as the Ministry for Children and Families, Ministry of Education, Ministry of Small Business, Tourism and Culture and Ministry of Aboriginal Affairs can contribute to the CVD Prevention Strategy by collaborating with the Ministry of Health in areas where their work can positively affect CVD prevention or the broader determinants of health.

Municipal Government and Community Organizations

Public education and awareness programs, access to recreational facilities and safe transportation systems are all part of community-based health initiatives. It will be imperative that community-wide interventions are coordinated, cooperative and collaborative so as to impact the greatest number of people.

Guiding Principles

The British Columbia Cardiovascular Disease Prevention Strategy is based on the fundamental principles that follow:

Principle 1:

Promoting a heart-healthy population involves building organizational and community capacity for preventing or controlling cardiovascular disease through changing infrastructure and the will to take action.

The Cardiovascular Disease Prevention Strategy for British Columbia is influenced by the collective efforts of international experts on CVD that have produced three milestone documents in heart health over the past decade. Specifically, this first principle reflects the fundamental principle set forth in the 1998 *Singapore Declaration: Forging the Will for Heart Health in the Next Millennium.*

Principle 2:

Prevention in the First Place: prevent the risk factors for CVD as a priority.

The Report of the Task Force on Research in Epidemiology and Prevention of Cardiovascular Diseases (1994) identified that preventing the development of CVD was its highest priority. The Task Force called for a radical expansion of our investment in preventing the risk factors in the first place. This view represents the belief that it is "insufficient to detect, evaluate, manage and control already established risk factors in order to prevent CVD outcomes; the risk factors themselves are to be prevented":...[that reducing the prevalence of risk factors would reduce the need for treatment and therefore offer a desirable alternative to the present burden of treatment] (Labarthe, 1999, p. S73).

This priority reflects a number of critical issues:

- primordial prevention, the need to create "the root social conditions in which risk factors don't arise",
- the need to know more about the relationship between the root social conditions (broader determinants of health) and the prevention of risk factors,
- the importance of intervening with younger age groups, and
- the gaps in scientific knowledge about the efficacy of actions on the broader determinants of health (their ability to influence the traditional risk factors).

Principle 3:

A balance must be struck between existing demands for immediate intervention/treatment (downstream) and longer-term prevention initiatives (upstream) as well as between population-based and high-risk approaches to the prevention of cardiovascular disease.

Treatment versus Prevention:

Recent public opinion polls about Canadian health services highlight the fact that treatment and acute care is a critical issue for the public. The acute care sector receives the majority of attention in the media. These factors influence decision-makers' ability to focus on 'upstream' prevention initiatives. Despite this, key stakeholders throughout the heart health field have identified a keen awareness on the part of their board members and communities of the importance of the determinants of health and health promotion, in general. This strategy was developed on the assumption that we can not afford the number of cases that are predicted to occur in the near future. We need to invest in upstream and mid-stream initiatives to further suppress the rate of CVD, thereby reducing the number of actual cases and the subsequent burden on the health system and society.

Population versus High Risk Approaches

For years, the debate about the investment in a population health versus a high-risk approach to prevention initiatives (Rose, 1981) has been waged. Each outlook has advantages and limitations. Focussing prevention efforts toward small shifts in the risk profile of the population can result in large reductions in the societal burden of cardiovascular disease. This is a cost-effective, broad-reaching approach that creates small shifts in the risk profile of populations rather than individuals. Alternatively, identifying and intervening with individuals who experience higher risk levels results in significant reduction in personal risk levels and enhanced outcomes per case. However, this approach is costly and reaches a small percentage of the population. This provincial strategy was developed based upon the belief that **both** of these approaches are integral to the prevention of CVD.

Population-based strategies create an environment that supports healthy behaviours for both low and high-risk individuals. Yet, healthy behaviours and environments do not guarantee good health. Identifying high-risk individuals early and making secondary and tertiary prevention services available to them ensures they have the greatest chance of positively influencing their personal health outcomes and related quality of life. Of note, individuals who have received these interventions must live in communities that support behaviour change in order to enhance their chances of maintaining critical changes.

Principle 4:

Physicians play a critical role.

On average, 85% of British Columbians will have contact with a physician in a one-year period. Physicians are often the sole contacts between the public and the health 'system'. They are also uniquely positioned to deal with individuals who are socially disadvantaged and typically do not respond to traditional messages, programs and activities. Although several studies have shown that physician or nurse intervention in the primary care setting has minimal impact on actual patient behaviour and levels of mortality and morbidity, we do know members of the public want their physicians to provide advice on lifestyle modifications for improved health. Subsequently, physicians play a vital role in establishing the importance of health behaviours. Their support in 'asking about', 'counseling about' and providing written information regarding lifestyle is needed in the short-term, but does not result in long-term behaviour change. There are barriers that physicans experience (lack of time, disinterest by doctor and/or patient, lack of financial incentive, insufficient training) that prevent more frequent counseling (Bull, 1998; Swinburne, 1998; Calfas, 1996). Because of the emphasis on care, they are often overlooked as the first line workers in prevention. It will be essential to link physicians more closely with existing support systems within their communities and provide them with a range of supports so as to encourage the delivery of positive health messages.

Principle 5:

A multiple risk factor, multiple setting approach is necessary.

"(G)iven the nature of CVD and its multiple causes, prevention is of necessity complex, requiring efforts to target and reach a vast portion of the population in many settings and through multiple modes of communication. Individual approaches must be reinforced with environmental support, attained by working with numerous and varied organizations and partnerships to promote needed change" (Singapore Declaration, 1998).

If prevention strategies are to be successful and subsequent health costs to be averted, it will be imperative to address the range of risk factors that lead to CVD in ways that target both specific high-risk groups and the population, as a whole. Successful strategies will facilitate the ease and convenience of positive behaviour change so that compliance and sustainability is ensured. It will be critical to ensure that voluntary participation in prevention is encouraged in ways that are 'user-friendly' — happening where people live, work and play.

Principle 6:

Policy and environmental approaches should be a primary component of prevention strategies.

Current economic constraints on the health system are significant. Policy and environmental approaches have the potential to reach a significant portion of the population and enhance our ability to influence the behaviour of at-risk individuals who do not typically respond to traditional approaches (i.e. public communication campaigns, educational/skill-building programs). Initiatives such as seat belt legislation had significant influence in reducing mortality rates from vehicle accidents long before significant support from the public was evident. Policy/environmental initiatives should be a priority in any prevention strategy.

Principle 7:

Both evidence-based approaches and innovation are critical for success.

Developing the CVD prevention strategy for B.C. requires balancing issues related to strategic goals and objectives, best practices, field expertise and innovation. It is apparent that there is much knowledge about how to influence traditional risk factors. Yet, current evidence suggests traditional prevention strategies do not work with those at highest risk due to the social conditions in which they live. While evidence regarding the health outcomes of upstream policy/environmental interventions that address the broader social, economic and environmental determinants of health is still evolving, individual social change theories and health promotion/prevention models all highlight the importance of these types of interventions. This strategy represents a balancing of the need to use evidence-based approaches with the need to shift how we think about the development and prevention of cardiovascular disease. Goals and objectives addressing these issues have been included to broaden the scope of this document and draw attention to the contribution of the determinants to cardiovascular disease prevention.

Context for the Development of the CVD Prevention Strategy

The Status of Cardiovascular Disease in B.C.

Cardiovascular Disease: A Critical Challenge for B.C.

Cardiovascular disease (heart disease and stroke) is the leading cause of death in British Columbia and among diseases, is responsible for the largest amount of spending within the B.C. health care system. In 1998, 36% of all deaths in B.C. (10,000 deaths/year) could be attributed to cardiovascular disease (Vital Statistics Agency, 1998)(Figure 4). In fact, one British Columbian dies as a result of CVD every 53 minutes. CVD is also a leading cause of disability and results in substantial human and economic costs.

Human and Social Costs are High

Contrary to popular perception, many years of disability typically precede death from cardiovascular disease, affecting patients, family members, friends and colleagues. Four percent of British Columbians over the age of 12 are currently living with chronic heart disease. In addition, approximately 28,500 years of life were lost in 1999 due to CVD. 30,000 British Columbians are stroke survivors, many of whom live with severe disability. On average, in 1999, 10.7 years of life were lost due to stroke fatalities. These numbers do not take into account those individuals who live with hypertension and hypercholesterolemia, precursors to CVD.

The Cost to the Health System is Substantial

Among all diagnostic categories, CVD has the largest economic impact in Canada in terms of the total, direct and indirect costs. CVD accounted for 15% of the total cost of all illnesses in Canada and 16.7% of all of the direct costs to the health care system in 1993.

The major direct cost components (representing 37% of total cost) include hospital care (66.1%), drugs (21.3%), physician care expenditures (11.8%) and research (0.8%). Indirect costs (representing 63% of total cost) include premature mortality (60.2%) and short-term (3.4%) and long-term (36.4%) disability.

A snapshot of direct health system costs in B.C. attributable to cardiovascular disease:

- In 1997/98, hospital days cost $258 million and reached 367,205 in number
- Cardio and thoracic surgeries cost close to $9.5 million in 1994/95.
- Drug costs reached almost $134 million in 1998 (approximately $77.5 million for prevention drugs and $56 million for treatment related drugs).
- Cholesterol screening services cost $10.8 million in 1996/97

The Burden of Cardiovascular Disease will Increase Significantly

Our population is aging and CVD is one of the three leading causes of death among older adults. Currently, one in five British Columbians is aged 55 or older. This number will increase to 1 in 3 by the year 2021 (BC Stats, P.E.O.P.L.E. 25 Population Project, 2000). Based upon hospitalization rates in Canada, ischemic heart disease and myocardial infarction become important health issues starting at age 45 for men and 55 for women. Congestive heart failure and stroke have a serious impact in the age group over 75. The combination of an aging population and higher CVD rates among older individuals predicts the likelihood of increased incidence of cardiovascular disease.

Despite declining age-specific mortality rates over the past three decades, the shift in demographics alone will result in a significant increase in the burden of cardiovascular disease (Figure 5). In fact, using coronary heart disease as an example, even if current hospitalization rates were reduced by 20% over the next 15 years, the actual number of hospitalizations due to CVD and therefore direct costs would still increase (Figure 6). These figures do not account for additional increases which will likely result from the increasing prevalence of risk factors in the population and the rising cost of medical treatment.

Figure 4 Selected Causes of Death in British Columbia for 1998

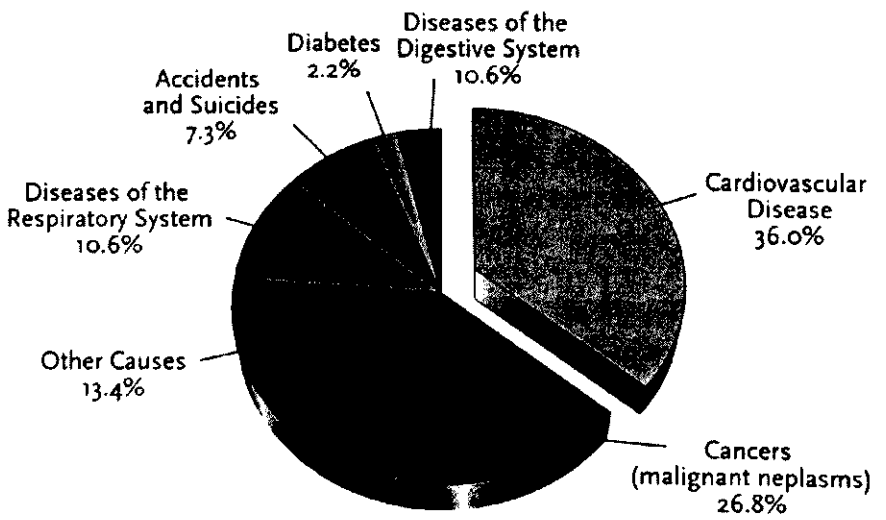
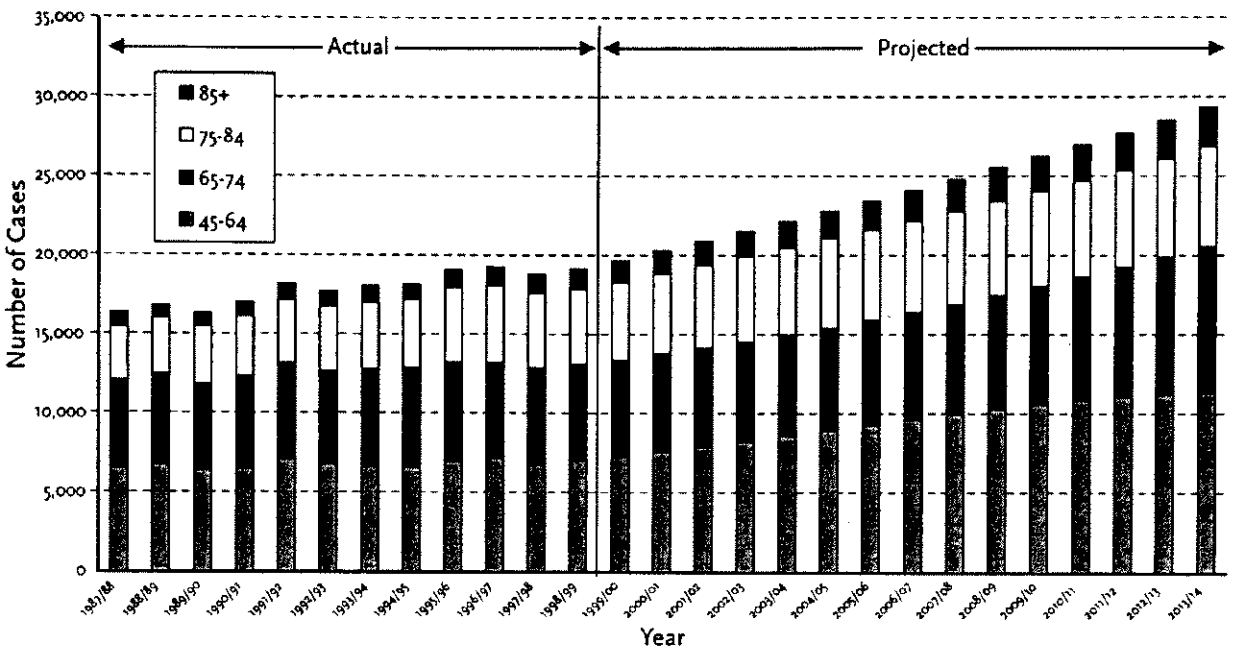
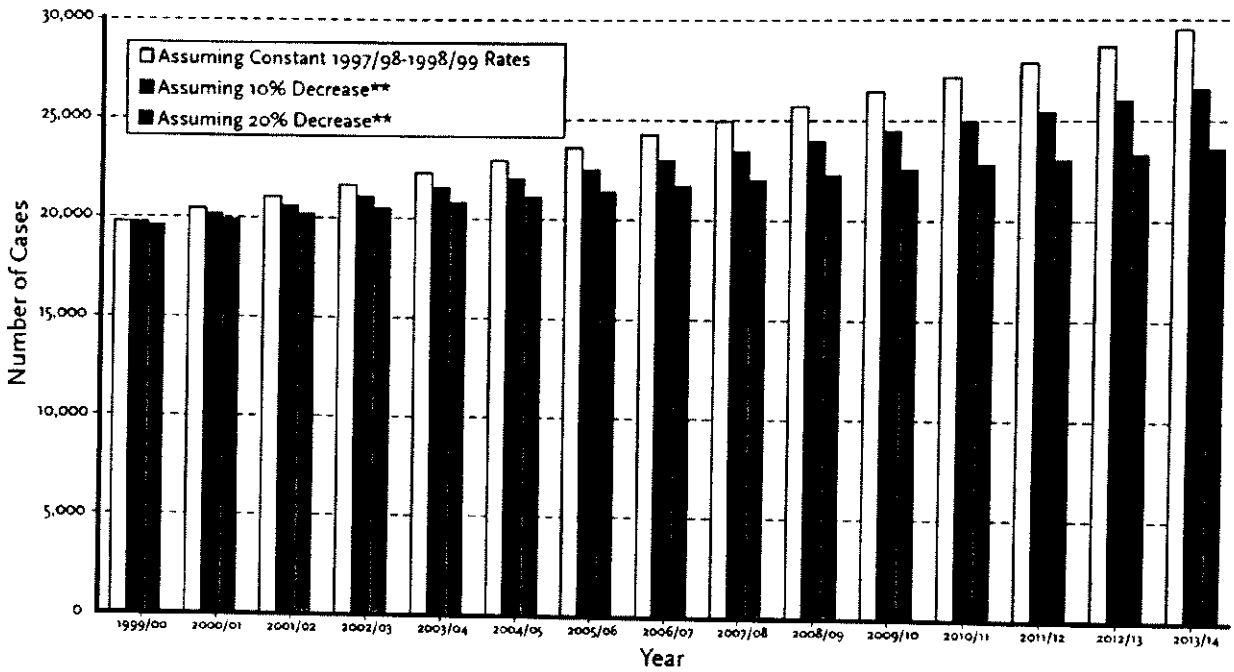


Figure 5 Coronary Heart Disease*, Actual and Future Projected** Number of Hospital Cases, by Age Group, BC, 1987/88 to 2013/14



* ICD 410-414, 429.2. Ages 45+.
** Assuming decrease in average rates for the period 1997/98 to 1998/99 apply.
Source: BC STATS, B.C. Ministry of Finance and Corporate Relations - Population Estimates (P.E.O.P.L.E. 25), Release July 2000, Health Data Warehouse, B.C. Ministry of Health; Information Support, B.C. Ministry of Health.
Prepared by: Population Health Surveillance and Epidemiology.

Figure 6 Coronary Heart Disease*, Future Projected Number of Hospital Cases Under Various Rate Assumptions, BC, 1999/00 to 2013/14



* ICD 410-414, 429.2. Ages 45+.
** Assuming decrease in average rates for the period 1997/98 to 1998/99 apply.
Source: BC STATS, B.C. Ministry of Finance and Corporate Relations - Population Estimates (P.E.O.P.L.E. 25), Release July 2000, Health Data Warehouse, B.C. Ministry of Health; Information Support, B.C. Ministry of Health.
Prepared by: Population Health Surveillance and Epidemiology.

Modifiable Risk Factors

- Cigarette/tobacco use
- Physical inactivity
- Diet/high blood cholesterol levels
- High blood pressure
- Diabetes mellitus
- Obesity
- Heart disease, prior stroke and transient ischemic attacks
- Psychosocial (e.g. stress, isolation)
- Risk Conditions (e.g. poverty, low education)

Non-modifiable Risk Factors

- Age
- Gender (earlier onset in males)
- Family History

British Columbians are at Risk

High prevalence of major CVD risk factors continues to contribute to the pattern of heart disease and stroke in British Columbia (see Appendix B for additional information regarding individual risk factors and conditions). Ironically, most of these risk factors can be prevented. It is troubling that more than half of all British Columbians have at least one modifiable risk factor associated with cardiovascular disease.

- 49% of British Columbians lead sedentary lifestyles and the number of children who are inactive rises each year (National Population Health Survey, 1996/97)
- 23% of all British Columbians smoke and one third of young adults aged 19-24 use tobacco (Angus Reid Survey, 1997)
- 14% of British Columbians have high blood pressure (diastolic above 90mmHgm) (B.C. Heart Health Survey, 1990)
- 26% of British Columbians have a Body Mass Index greater than 27, increasing their risk of death or illness from cardiovascular disease (National Population Health Survey, 1996/97). The prevalence of this factor increases with age.
- 3.2% of British Columbians over the age of 12 have diabetes, a significant risk factor for cardiovascular disease. This percentage increases substantially, to 10.5%, among people over the age of 65 (National Population Health Survey, 1996/97)
- Young people with lower education live with more risk factors than the average British Columbian (B.C. Heart Health Survey, 1990)
- 17% of British Columbians have high-risk blood cholesterol levels (BC Heart Health Survey, 1990)

For CVD, risk factors have a synergistic effect. Having more than one risk factor, even at a moderate elevation, substantially increases the risk of developing CVD. Almost 20% of British Columbians live with two or more of these risk factors (B.C. Heart Health Survey, 1990). If we hope to decrease the incidence of CVD and the associated human, social and economic costs, it is not just the prevention of cardiovascular disease that is imperative, it is fundamentally important to prevent the onset of CVD risk factors.

A concerted effort to prevent and control CVD is needed. Lifestyle habits that are precursors to underlying pathophysiologic changes and increase the likelihood of developing CVD begin early in life. Evidence indicates cardiovascular disease prevention programs hold promise for decreasing the burden of CVD. The declaration from the 1st International Heart Health Conference, the Victoria

Declaration on Heart Health states: "Cardiovascular disease is largely preventable. We have the scientific knowledge to create a world in which most heart disease and stroke could be eliminated".

Provincial and Regional Context

The role of the B.C. Ministry of Health has changed significantly following the regionalization of health services in British Columbia. Historically, the ministry was directly involved in service provision. In the current regionalized health care system, the ministry is responsible for funding, monitoring and establishing policy, while health authorities are responsible for governing, managing and delivering services. Specifically, the ministry supports the legislative framework; develops and maintain policies, procedures, and standards; monitors and evaluates program operations; provides expertise, consultation and training to the regions; and liaises with federal, provincial, local government and other agencies.

Both the ministry and health authorities are currently working through the impact of the regionalization process. According to the *Health Authorities Act*, health authorities are responsible for planning and administering the delivery of health services. These services, in addition to acute care services, include disease/injury prevention, health promotion and facility-based care. All 18 health authorities have completed three-year health plans.

Ministry of Health Context

The 1999 document, *Strategic Directions for British Columbia's Health Services System*, clearly identifies the need for a continued and enhanced focus on preventive health strategies. Such direction works toward ensuring that, amongst an aging population, the incidence of chronic disease (such as CVD and diabetes) and illness does not result in greater levels of demand for treatment and other care services.

The *1997 Health Goals for British Columbia* provide a framework for health planning and priority setting and reflects current understandings related to the social, economic and environmental factors that affect health. The provincial health goals are grounded in the following principles:

1) Collaborative action
2) Public participation
3) Equitable access to health and health services
4) Respect for diversity
5) Feasibility

These principles ensure Ministry of Health initiatives reflect and are respectful of the current constraints and issues affecting the delivery of health services in British Columbia.

Many program areas of the B.C. Ministry of Health are currently engaged in prevention initiatives that have an impact on the cardiovascular health of British Columbians (see Appendix C for an outline of current activities classified by risk factor and target population and Appendix D for an outline of current activities by risk factor and approach). Four key areas involve raising public awareness and knowledge, modifying individual behaviours and skills, modifying policy or the environment, and building capacity for addressing health issues.

Raising Public Awareness and Knowledge

The Ministry of Health (MOH) has a critical role in educating British Columbians about CVD. In the past, public education campaigns such as PreventionCare addressed many of the risk factors for CVD and other diseases. More recently, key resources have been targeted at youth tobacco use. Examples of these youth initiatives include the award-winning "Critics Choice", a contest inviting BC youth to judge the effectiveness of anti-smoking television messages; "Talk About It Tuesday", a National Non-Smoking Week program encouraging parents and youth to talk together about smoking; and "Gasp", a magazine for teens using graphic images, personal stories and factual information to communicate the dangers of smoking. The "Your Health" magazine is another example of the ministry's commitment to helping modify risk behaviours in the population.

Many written resources for the public are made available by the ministry through community health units and the ministry website. For example, the Ministry of Health distributes Canada's Food Guide, Canada's Physical Activity Guide and the ministry's own Health Files. The ministry has also supported the publication of a number of self-help resources, e.g., The Vegetarian Edge, Recovery Road and 6 Steps for a Healthy Heart.

The ministry is also responsible for two major health information initiatives that have provided free up-to-date health information to British Columbians: Dial-a-Dietitian and a pilot project, Partnerships for Better Health. Both initiatives support a consultation advice approach. Dial-a Dietitian has been operating since 1972. Registered dietitians answer nutrition and food safety questions and explain special diets recommended by physicians for medical conditions. Dietitians offer quality information based on current scientific sources by phone, fax or mail, 5 days a week and in four languages. If in-depth counseling is required, dietitians guide callers to nutrition services available in their home communities. About 100 people call each day to ask approximately 125 questions. Over half of the calls in 1999 related to

cardiovascular disease and its risk factors (hypertension, diabetes and overweight). This number rose to 65.5% of the Chinese language calls and 90.3% if the Punjabi language calls. Evaluations have shown that almost half of the callers to Dial-a-Dietitian are seeking therapeutic nutrition guidelines for medical conditions — fulfilling a role of secondary prevention service. Dial-a-Dietitian also has a public website that receives 11,000 visits per month.

Partnerships for Better Health, piloted in the Capital Health Region (CHR) by the Ministry of Health and the CHR from 1997 to 1999, addressed the full spectrum of health and disease issues. This initiative assisted clients in making decisions about their health treatment options through a handbook containing health information about a variety of topics, including cardiovascular disease and its risk factors. The handbook was distributed to 12,000 households in the region and was supported by toll-free telephone consultation line with registered nurses. The Partnerships for Better Care pilot resulted in a Ministry of Health commitment to extend the benefits of better access to health advice and information to British Columbians. The new B.C. Health Guide program, to be introduced in 2001, is designed to help British Columbians get the health care they need through a comprehensive health handbook, a 24-hour toll-free advice line, staffed by nurses, and a Web site that expands on the information in the handbook.

Modifying Individual Behaviours and Skills

The Ministry of Health has encouraged the development and dissemination of prevention programs and resources (i.e. Clinical Nutrition Services, Dial-a-Dietitian and a number of nutrition self-help resources such as The Vegetarian Edge) aimed at modifying the health behaviours and skills of individual British Columbians. The ministry has designed and/or funded the creation of tobacco related curriculum resources and student materials for Grades K-12 that encourage youth to adopt and maintain healthy lifestyle habits and build skills to prevent smoking. A number of secondary prevention activities have also been developed or funded for both youth and adult smokers such as Kic the Nic 2000, Stopping When You're Ready, the Quit Line, Quit Tips, Fresh Start and the B.C. Doctor's Stop Smoking Project.

Modifying the Environment in which British Columbians Live

The development of public policy is a key MOH role within the regionalized health care system. From the Tobacco Damages Recovery Act to Guidelines for Cholesterol and Homocysteine Testing*, the Ministry of Health has established several policies or guidelines that influence the primary, secondary and tertiary prevention services for CVD. Tobacco enforcement and support for municipal clean air by-laws are key examples of environmental initiatives.

*(A paper entitled "Use of Homocysteine Measurement in the Evaluation of Atherthrombotic Disease" is currently being drafted and the Comprehensive Cardiovascular Risk Assessment Guidelines are in a preliminary stage of development.)

Building Capacity

Capacity is seen as the partnerships, infrastructure, resources, technical expertise, policy and evidence-base that make it possible for communities to take action on health issues. The Ministry of Health (MoH) is involved in several capacity-building initiatives. For example, the ministry:

- funds infrastructure (e.g., Diabetes Education Centres and Regional Tobacco Reduction Coordinators),
- provides training/skill building and professional resources for health authorities (e.g. Prevention Source BC, MoH Library webpages on nutrition and cardiovascular disease, CVD Prevention Workshops, and the BC Heart Health website (www.heart-health.org)
- enhances the current evidence-base through surveillance systems (e.g. Angus Reid Smoking Survey 1997, Provincial Nutrition Survey 1999, Heart Disease and Stroke in B.C. 1998, Community Health Survey, support for the Adolescent Health Survey, Regional Heart Health Profiles),
- facilitates collaboration (e.g. Canadian Heart Health Initiative, Interministerial Integrated Food Policy Committee, Provincial Nutrition Council, Clean-Air Coalition).
- provides standards and guidelines that influence the primary, secondary and tertiary prevention services for CVD (e.g. Guidelines for Cholesterol and Homocysteine Testing, Guidelines for Comprehensive Cardiovascular Risk Assessment*) in conjunction with the British Columbia Medical Association.

Other examples of the Ministry's commitment to enhancing capacity are the B.C. Heart Health projects and the Women in Mid-Life projects. The emphasis on capacity building is consistent with the ministry's role within a regionalized health care system.

Current and Emerging Initiatives

Aboriginal Health

Ischaemic heart disease and cerebrovascular disease/stroke are the leading cause of death in British Columbia's Aboriginal population (Vital Statistics Agency, 2000). Although mortality rates for CVD have been declining over the last decade, the rates among Status Indians (36.2/1000 deaths) were almost 60% higher than the provincial average (22.9/1000 deaths) between 1991 and 1998 (Vital Statistics Agency, 2000). This difference was almost entirely produced by two areas. In both the South Mainland and Vancouver Island areas, the age standardized mortality rates (ASMR) for Status Indians were almost twice the rates for other area residents

(over age 40). In the North West and North East areas, the Status Indian and 'All Others' mortality rates are similar (Vital Stats, 2000).

Similarly, the ASMR for diabetes (a risk factor for CVD) in the Status Indian population (2.5 per 10,000) was almost double the rate for all other B.C. residents (1.3 per 10,000) in that same time period (Vital Statistics Agency, 2000). The highest mortality rate was seen in the South Mainland Status Indian population, and the rates in both the South Mainland and Vancouver Island areas were above the rates for other residents. It is important to note that Status Indians account for about half the Aboriginal population in B.C. and that we do not know the health status of the other half of the Aboriginal population at this time.

The factors that determine poor health status in Aboriginal communities are the same as those in other populations – poverty, unemployment, lack of education, inadequate housing, family violence, poor diet, physical inactivity, smoking and lack of empowerment. The Provincial Health Officer has recommended that the greatest impacts on health status will be made through addressing living and working conditions and political issues (PHO Annual Report, 1996).

Many of the current initiatives supported by the B.C. Ministry of Health's Aboriginal Health Division address the broader determinants of health such as family violence, addictions and social support. Specific disease prevention initiatives with this target population are yet to be initiated, although an Aboriginal Tobacco Reduction Strategy is under development.

Women's Health

CVD is the number one cause of death for British Columbian women (although, in women, the disease is evident approximately 10 years later than in men). The Women's Health Bureau at the B.C. Ministry of Health specifically addresses women's health issues. While focusing on the broader determinants of women's health, the bureau has recently partnered with Pharmacare to develop the Women in Mid-Life projects and the Women in Mid-Life forums, self-help booklets and video series. These initiatives address the behavioural and psychosocial risk factors for cardiovascular disease. The bureau has also commissioned a best practices review of the efficacy of cholesterol treatment for women. In addition, the B.C. Ministry of Health's Cardiovascular Disease Prevention Unit, in partnership with the Heart and Stroke Foundation of Canada, produced and distributed a brochure targeted at women entitled "Women Take Heart" and supported the 1st International Conference on Women and Heart Disease held in Victoria, B.C., May 2000. The outcome of these initiatives is an increased focus on the CVD risk factors unique to women.

Chronic Disease Prevention

There is an emerging emphasis on chronic disease prevention that focuses on the common risk factors and their reduction through primary, secondary and tertiary prevention services. Addressing behaviours such as physical inactivity, tobacco use and poor diet can have an impact on a wide range of conditions such as obesity, diabetes, cancer, elevated blood pressure and elevated serum cholesterol, in addition to CVD. Therefore, primary prevention initiatives focusing on the behavioural risk factors can have a wide-ranging impact. Existing infrastructure is in place to support primary prevention activities directed at two out of three of the modifiable behavioural risk factors – tobacco use and poor diet.

Tobacco Reduction and Control Strategy

The ministry has directed substantial resources to the reduction of tobacco use in British Columbia. Research indicates that isolated prevention measures produce little effect on smoking (Willemsen & De Zwart, 1999). The Provincial Tobacco Reduction Strategy, while focusing on children and youth, addresses most target populations and is an example of a comprehensive approach. The strategy addresses both primary and secondary prevention (protection, prevention and cessation). It also includes initiatives that cross the continuum of health promotion/prevention approaches from raising awareness and educating, to supporting behaviour change and building individual skills, to building regional capacity and providing health promoting policies/environments. A need for enhanced cessation activities has been identified.

Nutrition Strategy

Recognizing the importance of healthy eating habits, the ministry plans to develop a provincial nutrition strategy. Prelimanary action toward the development of a nutrition strategy includes:

- the Healthy Restaurant Program, a provincial accreditation/recognition program focussing on the availability of nutritious food choices in restaurants;
- Healthy Bones and Healthy Bodies, a video package including print resources for preteens, and teaching aids with a positive messages regarding healthy eating and physical activity, to be developed in partnership with the Osteoporosis Society of B.C (OSTOP)., the B.C. Dairy Foundation and the Knowledge Network;
- Healthy Eating Resource for Seniors, a print resource package designed to assist seniors choose 'nutrient dense' foods and use vitamin, mineral and nutritional supplements appropriately, to be conducted in partnership with the Vancouver/Richmond Health Board, and
- an evaluation of home care nutrition services to better understand the cost-effectiveness of medical nutrition therapy and its impact on the utilization of hospital services, to be conducted in partnership with the Capital Health Region.

Primary Care Reform

Primary-care physicians play an important role in both primary and secondary prevention. However, under the fee for service model, prevention/lifestyle counseling has not historically been an insured benefit. In December 1999, the Ministry of Health with Health Transition funding from Health Canada, initiated seven Primary Care Demonstration Projects. These projects use a population-based funding model that makes it possible for physicians to identify specific needs within their practice and provide evidence-based programs. This funding model creates the potential for practice-based prevention activities and the use of allied health professionals to support such activities. The demonstration projects will incorporate extensive client tracking and evaluation that help to provide both the physicians involved and Ministry of Health officials with information about previously non-reportable items of physician activity such as ad-hoc lifestyle counseling. Furthermore, Medical Service Plan (MSP) guidelines influence primary and secondary prevention activities in this clinical setting. MSP/British Columbia Medical Association (BCMA) guidelines currently exist for the assessment of cholesterol and homocysteine and are being developed regarding comprehensive cardiovascular risk assessment.

Secondary Prevention

Pharmacare and MSP are involved in secondary prevention activities. MSP/BCMA policies/guidelines help to ensure effective secondary prevention (early identification and modification) of physiological risk factors, particularly high cholesterol levels. Elevated blood pressure (hypertension) will be addressed in the cardiovascular risk assessment guidelines. MSP/BCMA guidelines for diabetes look at diagnosis and monitoring through the use of appropriate lab tests. Pharmacare ensures that all British Columbians have access to effective pharmacological prevention and treatment.

The Cardiovascular Disease Prevention Unit has supported the publication and dissemination of a secondary prevention resource for patients, called 'Recovery Road', that helps them plan supportive lifestyle changes and develop coping strategies, and links them with resources on their 'road to recovery'.

A 1999 scan of Ministry of Health activities illustrates its role in building capacity for prevention services. However, the scan also highlights a lack of coordinated effort regarding the multiple risk factors for CVD and a lack of coordination across the spectrum of prevention activities. The scan indicates tobacco and nutrition are the only two risk factors that are being consistently addressed using comprehensive approaches. Physical inactivity, blood pressure, cholesterol and obesity are not yet being addressed consistently. Strategies to deal with high-risk and vulnerable populations are also yet to be developed.

Regional Context

A 1999 scan of regional activities related to cardiovascular disease shows health authorities are currently involved in a wide variety of prevention activities. However, the evidence suggests the number of people reached by these activities is low. Typical prevention activities are directed toward increasing knowledge and awareness of the risk factors or altering individual behaviours and skills. Few activities have focused on system-wide prevention initiatives such as policy/environmental approaches or capacity-building within the health system. The highest activity levels among health promotion/prevention approaches in the regions are those relating to the risk factors of tobacco and diet. This appears to reflect the presence of infrastructure (staff and resources) associated with these two risk factors.

Further information provided by key stakeholders was gleaned from regional needs assessments. This information highlights the necessity of increasing:

- primary and secondary prevention programs in the community, school and work-site,
- accessibility for high-risk populations,
- resources/programs for patients,
- coordination, and
- attention toward physical inactivity.

Access to outreach prevention services is more of an issue for those health authorities working within isolated communities. Most needs assessments highlighted a desire to focus on a broad set of health outcomes when planning programs and interventions.

References

(those found in the text)

Blair, S.N., Khol, H.W. III, & Gordon, N.F. (1992). Physical activity and health; A lifestyle approach. *Medicine, Exercise, Nutrition and Health, 1*:54-57

British Columbian Ministry of Health and Ministry Responsible for Seniors (1996). A Report on the Health of British Columbians, Provincial Health Officers Annual Report.

British Columbian Ministry of Health and Ministry Responsible for Seniors (1997). Health Goals for British Columbia

British Columbian Ministry of Health and Ministry Responsible for Seniors (1999). Strategic Directions for British Columbia's Health Services System; May 12, 1999

British Columbia Vital Statistics Agency, BC Ministry of Health and Ministry Responsible for Seniors (2000). Analysis of Health Statistics for Status Indians in British Columbia 1991-1998: Birth Related and Mortality Summaries for British Columbia and Four Administration Areas.

BC STATS, B.C. Ministry of Finance and Corporate Relations – Population Estimates and Projections (P.E.O.P.L.E. 25) Release July 2000

Bull, F.C. & Jamrozik, K. (1998). Advice on exercise from a family physician can help sedentary patients to become active. *American Journal of Preventive Medicine. 15*(2): 85-94

Calfas, K.J., Long, B.J., & Sallis, J.F. (1996). *A controlled trial of physician counseling to promote the adoption of physical activity. Preventive Medicine. 96*: 225-233

Capacity for Heart Health = Infrastructure; Will to Action: The Singapore Declaration (1998). *CVD Prevention, Volume 1, No. 3*, September 1998

Case, R., Heller, S., Case, N., et al: (1985). Type A behavior and survival after acute myocardial infarction. New England Journal of Medicine, 312, 737.

Catalonia Declaration; Investigating in Heart Health (1995). Declaration of the Advisory Board of the 2nd International Heart Health Conference; Barcelona, Catalonia (Spain), June 1

Centre for Disease Control (1997). Worldwide Efforts to Improve Heart Health: A Follow-up to the Catalonia Declaration — Selected Program Descriptions, June

Choinière, R. Lafontaine, P., Edwards, A.C. (2000). Distribution of cardiovascular disease risk factors by socioeconomic status among Canadian adults. *Canadian Medical Association Journal*, 162 (9 suppl); S13 0 S24.

Craig, C.L., Russell, S.J., Cameron, C., Beaulie, A. (1999). Foundations for Join Action: Reducing Physical Inactivity. Ottawa, On: *Canadian Fitness and Lifestyle Research Institute*

Health Canada (1993). Economic burden of illness in Canada

Heart and Stroke Foundation of BC and Yukon, *The Effects of Environmental Tobacco Smoke Exposure on Human Health: A Compendium of Studies From the Scientific Research Literature,* published between January 1989 to October 1999

Heart Disease and Stroke in British Columbia 1998. Heart and Stroke Foundation of BC and Yukon, and the British Columbia Ministry of Health and Ministry Responsibe for Seniors, 1998

Hunink, M.G., Goldman, L. Tosteson, A.N. et al (1997). The recent decline in morality from coronary heart disease, 1980-1990: The effect of secular trends in risk factors and treatment, *Journal of the American Medical Association, 227(21)*: 1678

McGinnis, J.M., (1992). The public health burden of a sedentary lifestyle. *Medical Science & Sports Exercise; 24*(suppl):s196-s200

Ministry of Health and Welfare Canada, 1990:8

Labarthe, Darwin R. (1999). Prevention of cardiovascular risk factors in the *first* place. *Preventive Medicine, 29*:S72-S78.

Pelletier, K.R. (1997). Clinical and Cost Outcomes of Multifactorial, Cardiovascular Risk Management Interventions in Worksites: A Comprehensive Review and Analysis. Journal of Occupational and Environmental Medicine, 39(12).

Pelletier, K.R. (1999). A Review and Analysis of the Clinical and Cost-effectiveness Studies of Comprehensive Health Promotion and Disease Management Programs at the Worksite: 1995-1998 Update (IV). American Journal of Health Promotion; 13(6); 333-345.

Potvin, L., Richard, L., Edwards, A.C. (2000) Knowledge of cardiovascular disease risk factors among the Canadian population: relationships with indicators of socioeconomic status. *Canadian Medical Association Journal*, 162(9 Suppl); S5 – S11.

Powell, K.E. Thompson, , P.D., Caspersen, C.J. & Kendrick, J.S. (1987). Physical activity and the incidence of coronary heart disease. *Annals Review of Public Health, 8*:253-287

Promoting Heart Health in Canada: A Focus on Heart Health Inequalities. (1993). Ottawa. Minister of Supply and Services, Canada.

Resnicow, K. and Robinson, T. (1997). School based cardiovascular disease prevention studies: review and synthesis. *Annals of Epidemiology, 7*: 14-31

Rose, Geoffrey (1981). Strategy of prevention: Lessons from cardiovascular disease. *British Medical Journal, 282*:1847-1851

Simons-Morton,D.G., Calfas, K.J., Oldenburg, B., & Burton, N.W. (1998). Effects of interventions in health care settings on physical actvitiy or cardiorespiratory fitness. *American Journal of Preventive Medicine, 15*(4), 413-429

The Singapore Declaration, *Forging the Will for Heart Health in the Next Millennium* (1998). Declaration of the Advertising Board of the Third International Heart Health Conference. Singapore, September 2, 1998.

Stamler, J. (1992). Established major coronary risk factors, In M. Marmot & Elliott (Eds). Coronary Heart Disease Epidemiology: From Aetiology to Public Health. (pp. 35-66). New York, Oxford University Press

Stats Canada, Health Canada 1999

Steenland, K. (1992). Passive smoking and the risk of heart disease. *JAMA*, 267, 94.

Swinburn, B.A., Walter, L.G., Arroll, B., Tilyard, M.W. & Russell, D.G. (1998). The green prescription study: A randomized controlled trial of written exercise advice provided by general practitioners. *American Journal of Public Health, 88*(2): 288-291

US Department of Health and Human Services (1991). *Healthy People 2000: National Health Promotion and Disease Prevention Objectives.* Washington, DC: US Department of Health and Human Services; DHHS publication PHS 91-50212

Vital Statistics Annual Report, 1999

Webber, L.S., Osganian, S.K., Feldman, H.A., Wu, M., McKenzie, T.L., Nichaman, M., Lytle, L.A., Edmundson, E., Cutler, J., Nader, P.R., and Luepker, R.V. Cardiovascular Risk Factors among Children after a 2.5 year intervention – The CATCH Study. Preventive Medicine, 25:432-441.

Willemsen, M.C. & De Zwart, W.M. (1999). The effectiveness of policy and health education strategies for reducing adolescent smoking: A review of the evidence. *Journal of Adolescence, 22*:587-599

Recommended Documents

Alaska - Association of State and Territorial Health Officials (1994). A State-Based Plan for Action

U.S. Department of Health and Human Services; CDC (1998). Chronic Diseases and Their Risk Factors: The Nation's Leading Causes of Death

Report of the Chief Medical Officer of Health (19??) Opportunities for Health; Promoting Heart Health; Ministry of Health, Ontario

Blackburn, Henry (1989). Population Strategies of Cardiovascular Disease Prevention: Scientific Base, Rationale and Public Health Implications; Annals of Medicine 21: 157-162

U.S. Department of Health and Human Services; CDC (1998). Preventing Cardiovascular Disease: Addressing the Nation's Leading Killer; At-A-Glance

Oberman, Albert, Kuller, Lewis, & Carleton, Richard (1994). Prevention of Cardiovascular Disease — Opportunities for Progress; Preventive Medicine 23, 727-732

British Columbia Ministry of Health and Ministry Responsible for Seniors (1998). Revitalizing and Rebalancing British Columbia's Mental Health System; The 1998 Mental Health Plan

U.S. Department of Health and Human Services; CDC (19??). State Cardiovascular Disease Prevention Plans and Programs; Results of a Survey

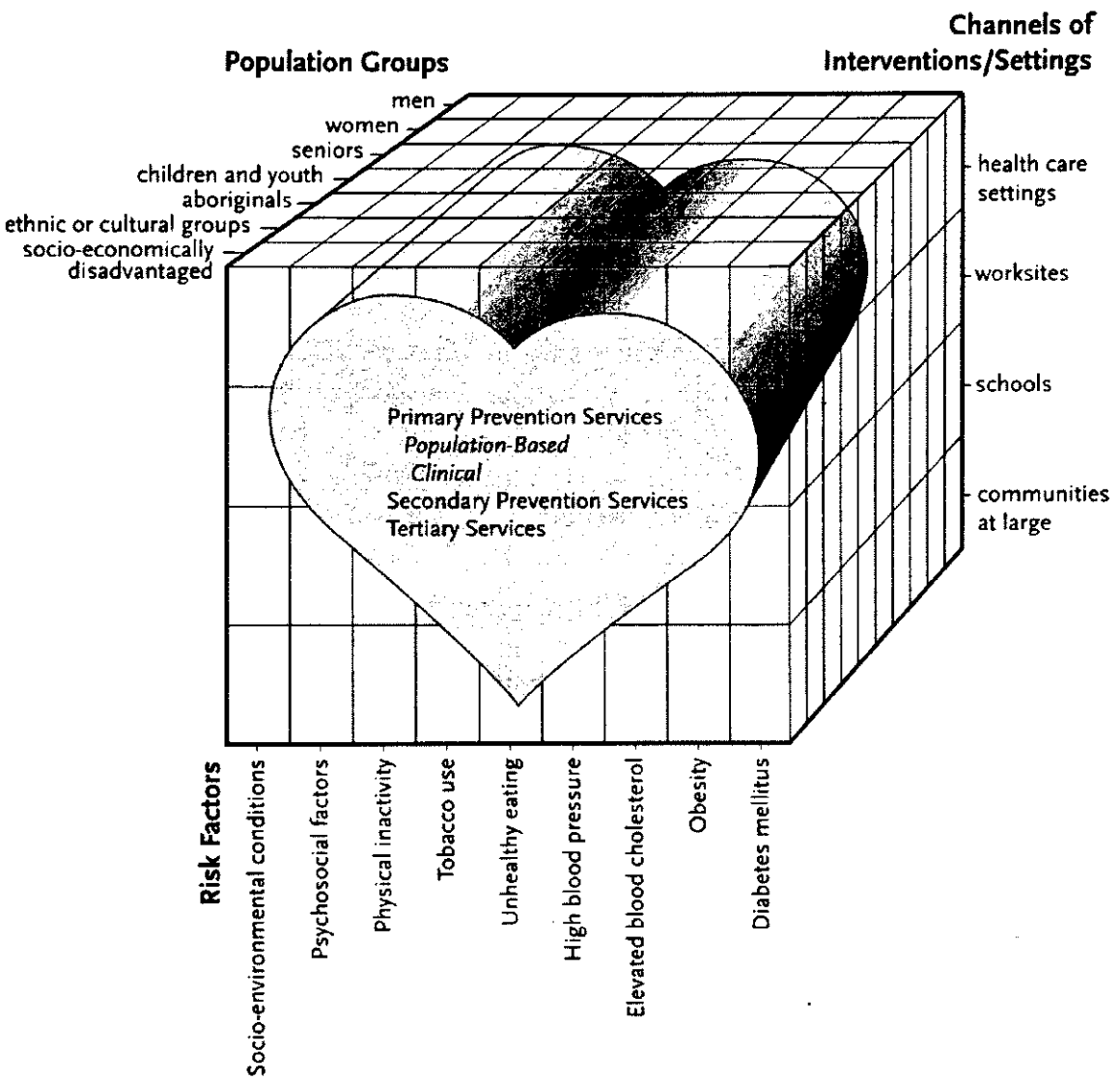
The Victoria Declaration on Heart Health (1992). Declaration of the Advisory Board; International Heart Health Conference; Victoria, Canada, May 28

MacLean, David (1994). Theoretical Rationale of Community Intervention for the Prevention and Control of Cardiovascular Disease; Health Reports, 6/1; Statistics Canada, Cat. 82-003

(1997). Towards a Healthy Russia: Policies and Strategies for the Prevention of Cardiovascular and Other Noncommunicable Diseases Within the Context of Public Health Reforms in Russia; Executive Summary

Appendix A

The Prevention Mix



Appendix B

Modifiable Risk Factors and Conditions for Cardiovascular Disease

Non-modifiable risk factors

AGE - Rates of all major forms of cardiovascular disease increase with age.

GENDER - Men are at higher risk for cardiovascular disease at younger ages than are women. There appears to be a ten-year lag in the development of CVD for women.

FAMILY HISTORY - A family history of early CVD is an independent risk factor for CVD.

Not all risk factors for CVD can be modified by individual behaviour. Factors such as age, gender and family history contribute to the likelihood of developing cardiovascular disease. However, as seen earlier, many factors and conditions that contribute to CVD can be prevented. These include:

Cigarette / tobacco use

The risk of heart disease among smokers is more than twice that of non-smokers. In fact, cigarette smoking increases the risk of dying from heart disease up to 2.5 times that of a nonsmoker (Stamler, 1992). It is estimated that 30 to 40 per cent of coronary heart disease deaths each year can be attributed to smoking (Steenland, 1992). With over 22% of all British Columbians smoking and 43% of Aboriginal people smoking (Heart and Stroke Foundation of B.C. and Yukon, 1998), the potential to impact this behaviour is significant. Regular exposure to second-hand smoke has been associated with an increased risk of heart disease in the order of 25-30% among non-smokers. (Heart & Stroke Foundation of B.C. and Yukon,1999). Contrary to popular belief, more cardiovascular disease deaths are attributable to smoking (38.5%) than cancer deaths (37.9%). (BC Vital Statistics Agency Annual Report, 1996).

Physical inactivity

Inactivity is the most prevalent preventable risk factor for CVD among British Columbians (Heart and Stroke Foundation of B.C. and Yukon, 1998). In fact, greater numbers of people are at risk for developing CVD due to inactivity than from any other single risk factor (U.S. Department of Health and Human Services, 1991; McGinnis, J.M., 1992). The risk of cardiovascular disease among people who are physically inactive is almost twice that of people who are active (Powell, K.E. Thompson, , P.D., Caspersen, C.J. & Kendrick, J.S. (1987) and seven - eight times higher in individuals who are unfit, as compared to individuals who are considered to be fit (Blair, 1992). In 1996/97, only 27% of individuals living in B.C. aged 12 or older were identified as sufficiently active during their leisure time to achieve optimal health benefits; 49% were found to be inactive. Generally, the older we get, the more inactive we become. Additionally, evidence points to an association

between regular, moderate-intensity physical activity and a decrease in other risk factors including blood lipid levels, blood cholesterol, diabetes and obesity. Over the past several decades, research has confirmed the health benefits of regular physical activity, including improved cardiovascular function and quality of life, and reduced risks of morbidity and mortality from cardiovascular disease. It is estimated that, if Canadians were to become active, the population risks of premature death that are attributable to inactive lifestyles would translate into 23% fewer deaths from coronary heart disease, 27% fewer deaths from type II diabetes and 20% fewer deaths from colon cancer (Craig, et al, 1999). Additionally, a 1% increase in the number of Canadians who are active could reduce the annual health care costs by $10.2 million (1993 dollars) for heart disease alone (Craig, et al, 1999).

Diet

Diet is generally recognized as a pivotal lifestyle factor influencing the current cardiovascular epidemic in industrialized countries. High blood cholesterol levels in North America have been associated with diets rich in total fat, saturated fat, cholesterol and/or high in calories relative to energy expenditure. Alcohol consumption, at a rate of more than two drinks per day, and excessive daily salt intake are additional contributors to high blood pressure. Recent research has also indicated low dietary intake of antioxidants (present in many fruits and vegetables) as a potential risk factor for both cardiovascular disease and certain types of cancer.

High blood cholesterol levels

Currently, 17% of British Columbians aged 18-74 have high risk levels (>6.2 mmol/L) of blood serum cholesterol (Heart and Stroke Foundation of BC and Yukon, 1998:108). This prevalence increases with age and is higher for males than for females in the younger and middle age groups. The trend then reverses in the older age range with the number of women exhibiting elevated levels exceeding that of men (Ministry of Health and Welfare Canada, 1990:8). Research shows that lowering elevated blood cholesterol levels and, in particular, LDL cholesterol, can reduce the risk of cardiovascular disease. The risk of cardiovascular disease among people with high blood cholesterol levels is 2.4 times that of people with optimal blood cholesterol levels. Age, heredity and diet affect cholesterol levels. A diet rich in saturated fats and dietary cholesterol increases blood lipid levels. Lipid-lowering drugs for secondary prevention of coronary heart disease have been shown to lower cholesterol levels.

High blood pressure

Arterial hypertension has significant influence on cardiovascular disease. High blood pressure increases the heart's workload, causing it to enlarge and weaken over time. Individuals with high blood pressure have a risk of dying from CVD that is 2.1 times greater than people with normal blood pressure. While research has led

to advances in therapy, epidemiological surveys show that nearly 50 percent of individuals with elevated blood pressure remain unaware of their condition. The incidence of chronic high blood pressure increases as the population ages and is also associated with lower income and education levels (Heart and Stroke Foundation of BC and Yukon, 1998:109). Of those who are aware of elevated levels, a large proportion is not taking adequate measures to reduce the onset of CVD. Most studies support a multiple intervention strategy for reducing high blood pressure levels, where lifestyle modification including weight loss, reduction of sodium and alcohol intake and increases in physical activity levels are twinned with anti-hypertensive therapies.

Diabetes mellitus

Both Type I and Type II diabetes mellitus are risk factors for cardiovascular disease. For diabetic women, the risk of CVD is three times greater than it is among those who are free of diabetes. In men, the CVD risk is twice as high among diabetic men as it is among men without diabetes. For individuals living with diabetes, CVD is the leading cause of illness and death — accounting for nearly 76 percent of deaths. Fifty-five percent of these deaths can be attributed to coronary heart disease and 12 percent are due to stroke.

Obesity

Obesity, especially abdominal obesity, is associated with several major CVD risk factors: high blood pressure, elevated blood cholesterol and triglycerides, low HDL-cholesterol and non-insulin dependent diabetes mellitus. Moreover, obesity is associated with high rates of heart disease deaths, especially sudden death among men and congestive heart failure among women. In most industrialized countries, obesity is reaching epidemic proportions. In the developing world, it is becoming increasingly common. It is linked to lifestyles that are sedentary and populations who have poor eating habits.

Heart disease, prior stroke and transient ischemic attacks

Second only to high blood pressure, heart disease is the most important risk factor for stroke. Heart attacks are the major cause of death among stroke survivors. People who have experienced one or more transient ischemic attacks are nearly 10 times more likely to have a stroke than someone of the same age and sex who has not. After a single stroke episode, men have a 42 percent chance and women a 24 percent chance of experiencing another stroke within five years. Pharmacological approaches, especially antiplatelet and anticoagulation agents, are commonly applied in secondary stroke prevention initiatives.

Psychosocial

While most of the literature on cardiovascular disease prevention focuses on physiological and behavioural or lifestyle influences, there is evidence to suggest that psychosocial risk factors play a role. These factors include stress, isolation, lack of social support, poor social networks, low self-esteem and low levels of perceived power (Health Canada, 1993). Some studies indicate psychosocial factors have been associated with as much as a four-fold increased risk for myocardial infarction (Case, et al., 1985). It has also been shown that people who have social supports engage in fewer high-risk behaviours and more health-promoting behaviours, reducing their risk of cardiovascular disease (Health Canada, 1993).

Risk Conditions

Risk conditions refer to general societal and environmental forces or conditions over which people have little or no individual control and which are known to determine one's health status. For cardiovascular disease, determinants of health include poverty, low education and occupational status, dangerous and stressful work, discrimination (sex, age, race), low political and economic power and large gaps in income within a community, region or nation. In Canada, the prevalence of most CVD risk factors is inversely related to socioeconomic status (Choinière, Lafontaine, Edwards, 2000). The relationship between the risk of CVD and socioeconomic conditions is stronger and more consistent for level of education attained than it is for income level. The inverse relationship between socioeconomic status, smoking and high weight levels are particularly strong. The prevalence of leisure-time physical inactivity and elevated cholesterol is highest in both men and women in the lowest socioeconomic category, particularly in relation to education level. Additionally, personal knowledge of the risk factors is strongly associated with education levels (Potvin, Richard, Edwards, 2000). Research indicates that individuals who are socioeconomically disadvantaged are less likely to make changes in response to community-based interventions that aim to raise awareness and change lifestyle behaviours. Therefore, the most vulnerable populations in British Columbia include those who are poor, poorly educated and of a different culture than the majority, as well as elderly individuals living on fixed incomes.

Appendix C

Primary Prevention
Secondary/Tertiary Prevention

B.C. Ministry of Health Activities Categorized by Risk Factor and Target Population

	Children & Youth	Women	Aboriginal	Socio-economically Disadvantaged	Seniors	General public
Tobacco	Tobaccofacts.org K-3 HeartSmart Kids / 4-7 bc.tobaccofacts bc.tobaccofacts Talk about it Tuesday Kidzone Kids against Tobacco Summit' Teen Tobacco Team BC Smoke Free Activity Book Tobacco Sales Act Gasp The World's Deadliest Addiction Critics Choice Kic the Nic 2000	Women & Tobacco Grants	Aboriginal Tobacco Strategy Enforcement and Compliance On-Reserve Pilot Project		WCB Regulations for residential facilities and long-term care facilities	tobaccofacts.org World No-Tobacco Day National Non-Smoking Week Promotions Weedless Wednesday Tobacco Damages and Health Care costs Recovery Act Tobacco Testing and Disclosure Regulation WCB Public Entertainment and Residential Care Facilities Regulation
		Stopping When You're Ready	Aboriginal Tobacco Strategy			QuitLine Quit Tips Fresh Start BC Doctor's Stop Smoking
Nutrition	Canada's Food Guide (preschool & 6-12)				Continuing Care Facility Standards Adult Care Regulations Provincial Nutrition Survey	Dial-a-Dietitian Canada's Food Guide 6 Steps to Healthy Eating (healthfile) Provincial Nutrition Survey
						Community Based Nutrition Services Outpatient Nutrition Counselling
Diabetes						Dial-a-Dietitian
Physical Activity					Canada's Physical Activity Guide for Older Adults	Canada's Physical Activity Guide
Blood Pressure						

	Children & Youth	Women	Aboriginal	Socio-economically Disadvantaged	Seniors	General public
Cholesterol						
						Guideline for Education, Testing and Management (GETM)
Social Determinants						
Multiple Risk Factors	HeartSmart Kids / bc.tobaccofacts	You and Your Health: A Woman's Handbook. Building Bridges Conference			Support, Medication Information Line	Your Health Comprehensive Cardiovascular Risk Assessment Guidelines[1] Self-Care Project Reboot, Road Self-Care / Telecare Provincial Project

1 Ministry Of Health Initiatives That Are Currently Under Development

2 Programs Or Policies That Are Categorized As Addressing The Social Determinants Address: Living And Working Conditions, Physical Environment, Health Services, Gender, Culture, Genetic Endowment. Programs/Policies Targeting Individual Capacities & Skills Including Health Practices Are Incorporated Within Other Risk Factor Categories.

Appendix D

Primary Prevention
Secondary/Tertiary Prevention

B.C. Ministry of Health Activities Categorized by Risk Factor and Approach

	Awareness and Education	Behaviour Change and Skill Building	Capacity Building	Policy/ Environmental
Tobacco	Tobaccofacts.org World No-Tobacco Day National Non-Smoking Week Talk about it Tuesday Weedless Wednesday Kidzone BC Smoke Free Activity Book Gasp The World's Deadliest Addiction Critics Choice Your Health Kids Against Tobacco Summit Teen Tobacco Team	Fresh Start K-3 HeartSmart Kids / bc.tobaccofacts 4-7 bc.tobaccofacts	***Partnerships*** Clean-Air Coalition Heart and Stroke Foundation of BC & Yukon BC Lung Association Canadian Cancer Society, BC and Yukon Division ***Infrastructure*** Regional Tobacco Coordinators Tobacco Enforcement Officers (TEO) *Training & Skill Building* HeartSmart Kids /bc.tobaccofacts training Best Practices Workshop for TEO's WCB workshops on 2nd hand smoke regulations Aboriginal On-reserve Pilot Project ***Resources*** Retailer Tool Kit Bc.tobaccofacts 8-12 Kit Prevention Source BC Community-Action Guide ***Surveillance*** Angus Reid Survey Testing & Disclosure Regional Tracking of Compliance with Sales to Minors Legislation ***Research & Evaluation*** The transition from experimentation project Compendium of Health Effects of 2nd hand smoke Tobacco Strategy Evaluation Framework	Tobacco Damages and Health Care Costs Recovery Act WCB Regulations for Public Entertainment and Residential Care facilities Tobacco Sales Act Tobacco Testing and Disclosure Regulation
Nutrition	Canada's Food Guide Distribution (preschool, 6-12, Adults) 6 Steps to Healthy Eating Dial-a-Dietitian Public Website	Dial-a-Dietitian Community Clinical Nutrition Services	***Partnerships*** Interministerial Integrated Food Policy Committee Provincial Nutrition Council ***Surveillance*** Provincial Nutrition Survey ***Research & Evaluation*** Dial-a-Dietitian Tracking & Evaluation ***Resources*** Nutrition Website for Professionals	Continuing Care Facility Standards Adult Care Regulations

	Awareness and Education	Behaviour Change and Skill Building	Capacity Building	Policy/ Environmental
Physical Activity	Canada's Physical Activity Guide (Adults and Older Adults) Distribution			
Diabetes			***Infrastructure*** Diabetes Education Centres ***Training & Skill Building*** Home Blood Glucose Certification Committee	Home Blood Glucose Certification Provincial Diabetes Strategy[1] Protocol for use of Glucose and HbA1C Tests in Diagnosis and Monitoring of Diabetes Mellitus Guideline on Microalbuminuria in Patients with Diabetes Mellitus[1]
Blood Pressure				
Cholesterol			***Research & Evaluation*** Clinical Effectiveness of Cholesterol Lowering Drugs for Women	Provincial Guidelines on Cholesterol & Homocysteine Testing[1]
Multiple Risk Factors	Women's Health in Mid-Life Years Project Your Health: A Woman's Handbook Women's Health In Mid-Life Kit (Menopause & Heart Health) Self-Care Project (Pilot) Self-Care / Telecare Provincial Project[1]	Heart Smart Kids / bc.tobaccofacts	Women's Health in Mid-Life Years Project Women's Health Profile Health Goals for Women Women's Health in Mid-Life Years ***Surveillance*** Regional Heart Health Profiles 1999 Heart Disease and Stroke in BC 1998, 2000 ***Training, Skill Building*** Canadian Heart Health Network Meetings 2000 ***Research & Evaluation*** BC Heart Health Project (training, partnerships, resources) ***Resources*** Communities Taking Action For Heart Health CVD Library Website for Professionals www.heart-health.org ***Infrastructure*** Primary Care Demonstration Projects	Comprehensive Cardiovascular Risk Assessment Guidelines[1]
Social Determinants[2]	Recovery Road	Community Medication Pilot Projects Recovery Road	Therapeutic Initiative Academic Detailing Seniors Medication Information Line	

1 Ministry of Health initiatives that are currently under development

2 Programs or policies that are categorized as addressing the social determinants address: Living and Working Conditions, Physical Environment, Health Services, Gender, Culture, Genetic Endowment. Programs/policies targeting Individual Capacities & Skills including health practices are incorporated within other risk factor categories.

Notes