Ministry of Health Planning
Ministry of Health Services

RESPONDING TO DIABETES

October 2002

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Preamble

Diabetes is a serious public health problem. It is a complex disease affecting all aspects of life and has significant impacts on health services and society at large. The prevalence of diabetes is increasing, and the impact of Type 2 diabetes in certain populations, including Aboriginal people, is disproportionately high. The complications of diabetes are devastating -- amputation, blindness and renal disease. Fortunately, through healthy living, early diagnosis and effective management, Type 2 diabetes and the complications of diabetes can be prevented or delayed.

Responding to Diabetes is the culmination of a provincial planning process that began in 1999/2000. With support from the BC Diabetes Reference Group[1], a community consultation process involving about 300 stakeholders, including health authorities[2], led to the Draft *BC Strategy for Diabetes Prevention and Management, January 2002*. Since that time there have been substantial changes to roles and responsibilities within the health system. This paper refocuses the concepts presented in the draft strategy, and subsequent feedback, into an approach consistent with the strategic framework set out in the *Ministry of Health Planning and Ministry of Health Services Service Plans 2002/2003 – 2004/2005*[3].

Unless action is taken to reduce the prevalence of diabetes and its complications, the financial and social burden will continue to grow. Reducing the impacts of diabetes requires a coordinated, sustained, multi-sectoral effort, involving a diverse range of partners and stakeholders. *Responding to Diabetes* provides information on strategic initiatives led by the Ministries of Health that will improve the health and wellbeing of British Columbians through enhanced chronic disease prevention and management. It is intended to focus and strengthen collaborative planning and action at the community, regional and provincial levels and to align the efforts of people affected by diabetes, health authorities, health service providers, and government and non-government organizations to deal with a serious public health problem – diabetes.

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1 The BC Diabetes Reference Group was established to assist Health Canada and the BC Ministry of Health with implementation of the Prevention and Promotion Contribution Program of the Canadian Diabetes Strategy and the development of a provincial strategy.

2 *Moving Together Toward a Provincial Diabetes Strategy, Report on BC Community Consultations* Canadian Diabetes Association – available at http://www.diabetes.ca/Section_Regional/bc_yK.asp

3 *Ministry of Health Planning Service Plan 2002/2003 – 2004/2005* – available at http://www.gov.bc.ca/healthplanning/; *Ministry of Health Services Service Plan 2002/2003 – 2004/2005* – available at http://www.gov.bc.ca/healthservices/

Introduction

Diabetes Mellitus can affect anyone. It is a life-long disease in which the body cannot regulate the amount of glucose (sugar) in the blood. There are three types: Type 1, Type 2 and gestational diabetes (Appendix 1). People with Type 1 diabetes require insulin to survive. People with Type 2 diabetes may require medications and/or insulin injections as the disease progresses, particularly if obesity is not addressed. Diet, exercise and regular blood glucose monitoring are necessary for effective management of all forms of diabetes.

Every year, about 19,000 British Columbians are diagnosed with diabetes. As of 2000/2001, approximately 175,000 British Columbians, or 4.3 per cent of the BC population, had been diagnosed with diabetes (Ministry data). The number is increasing (Appendix 2).

The true prevalence of diabetes among Canadians age 12 years and over is estimated to be 4.9 – 5.8 per cent. [1] This means as many as 60,000 British Columbians could have diabetes and not know it. Diabetes represents the tenth largest disease burden in British Columbia, and with cardiovascular disease and cancer accounts for over 40 per cent of the provincial Disability Adjusted Life Years (DALYs) burden[4] (Ministry data).

Type 1 and Type 2 diabetes have different causes and require different prevention strategies. There are no known modifiable risk factors for Type 1 diabetes. Age, genetic susceptibility, race or ethnic background and family history are among the non-modifiable risk factors for both forms of diabetes.

- Type 2 diabetes represents about 90 per cent of all diabetes and shares common modifiable risk factors with cardiovascular disease and many cancers. Primary prevention efforts are focused on the reduction of obesity and inactivity.

- Secondary prevention (early detection) and tertiary prevention (effective management) are focused on preventing or delaying the complications of diabetes. There is clear evidence that quality care and self-management can improve health outcomes for people with diabetes.

Responding to Diabetes provides information to organizations and individuals with an interest in diabetes prevention and management. Diabetes is a complex public health problem, as outlined in the first section: The Challenge. The remainder of the paper focuses on the BC Ministries of Health response to the challenge, including an overview of some key elements of the Ministries of Health Prevention and Wellness and Chronic Disease Management Strategies. Responding to Diabetes reiterates the Ministries of Health commitment to working in partnership with all stakeholders to address the growing burden of diabetes.

[4] The burden of disease is calculated using an internationally accepted measure known as the Disability-Adjusted Life Year (DALY), which is "one lost year of healthy life". For each condition this includes both years of life lost and a proportion of years lived with a disability of known severity, adjusted for severity.

The Challenge

British Columbians are at risk for diabetes

Thirty to 40 per cent of cancers, 82 per cent of coronary heart disease and 91 per cent of Type 2 diabetes is attributable to diet and lifestyle factors. [2] In 1998/99, almost half of British Columbians were not active enough to achieve health benefits. [3] Almost 30 per cent of adult British Columbians were overweight in 1998/99, an increase from 15 per cent in 1981/82. [4] Increasing rates of obesity among children are particularly disturbing. [5]

Diabetes disproportionately affects Aboriginal people

Until the 1940s, diabetes was virtually unknown among Aboriginal people; the traditional lifestyle included high activity levels and eating food from the land. Today the age-standardized prevalence of diabetes for Aboriginal people is at least three times higher than that of the general population and is expected to increase three-fold over the next 20 years. Approximately two-thirds of Aboriginal people with a diagnosis of diabetes are women. Preliminary research indicates that pregnant Aboriginal women have much higher rates of gestational diabetes compared to the general population, and are subsequently more likely to develop Type 2 diabetes. [6]

Previously, Type 2 diabetes was only seen in adults. In recent years, Aboriginal children in some provinces have started to develop Type 2 diabetes. Onset at such an early age is of particular concern because of the risk of developing serious health complications at an early age. [7]

Aboriginal people with diabetes have higher rates of complications including heart disease and stroke. Lower limb amputations and renal failure are also more prevalent. The risk of end-stage renal disease may be up to five times greater in Aboriginal adults than in non-Aboriginal adults. [8]

Diabetes contributes to considerable morbidity and mortality

The complications of diabetes can lead to significant disability, and lost productivity and income. Diabetes is the most common cause of end-stage renal disease, new onset blindness and lower limb amputation in the working age population, and is a risk factor for cardiovascular disease. People aged 35 to 65 with diabetes have six times the risk of heart disease or stroke compared to those without the disease. [9] Self-perceived health status is much lower among people with diabetes (Appendix 3).

Diabetes also contributes significantly to premature mortality. According to the British Columbia Vital Statistics Agency, in 2001 there were 784 deaths in BC (7th leading cause of death) for which diabetes was certified as the underlying cause. The true diabetes-related mortality is probably five times higher, once deaths from complications are included. [10] In 2000/2001, 5,448 British Columbians with diabetes died; their mortality rate was double that of people without diabetes (Ministry data).

Health care costs are high

In 2000/2001, hospital, medical and Pharmacare costs for British Columbians with diabetes were approximately $760 million, or about 16 per cent of the total costs of these three services. The per capita cost for these three services was $4,310 per person with diabetes, compared to $987 per person without diabetes (Appendix 4). Pharmacare spent $34.8 million on medications and supplies for diabetes in 2000. Of that sum, glucose testing strips, an essential tool for blood glucose monitoring, cost $19.8 million; the second highest expenditure for Pharmacare. Since diabetes can be disabling, there are also considerable costs to home care and long term care services, including community care facilities.

The quality of health care is variable

The complications of diabetes can be delayed or prevented with early diagnosis and quality care. Many family physicians provide optimal diabetes care and achieve good results. However, on a province-wide basis there is substantial room for improvement in the quality of care provided to people with diabetes (Appendix 5). Lack of quality care can result in higher rates of complications and poorer health outcomes.

Overall the burden of diabetes is increasing

The prevalence of diabetes is increasing (Appendix 2). It is estimated that over 325,000 British Columbians (7.1% of the BC population) will have diabetes by the end of 2010/11, an increase of 87 per cent in 10 years (Appendix 6). This trend reflects the aging of the population (Appendix 7). It may also reflect increased frequency of diagnosis, as well as improved mortality rates among people with diabetes. Increasing rates of obesity and low rates of physical activity among children may accelerate this trend. [11] [12] Without intervention, the human and financial burden of diabetes will also increase.

The BC Ministries of Health Respond to Diabetes

Dialogue with health authorities, stakeholders and partners has highlighted a number of diverse diabetes-related policy, program and service needs, validating the need for a comprehensive approach (Appendix 8). In most cases, there are potential roles for multiple partners and jurisdictions (Appendix 9). Efforts to address diabetes-related priorities are underway in many parts of the province through health authorities and other organizations.

The Ministries of Health are addressing diabetes through two inter-related and complementary strategies: **Prevention and Wellness Strategy** and **Chronic Disease Management Strategy.** The elements of these strategies are consistent with the components of the Expanded Chronic Care Model (Appendix 10). Together, the strategies focus on the prevention continuum; from primary prevention (preventing Type 2 diabetes in the first place), to effective management (preventing or delaying the complications of diabetes).

A Focus on Collaboration and Partnership

Strategies to address the burden of diabetes will not be successful unless stakeholders work together. The Ministries of Health are working in partnership with health authorities, government and non-government agencies, and research and private sector organizations to enhance individual and organizational capacity for sustained chronic disease prevention and management. Health authorities, the Canadian Diabetes Association BC-Yukon Division, British Columbia Medical Association (Medical Services Commission/BCMA Joint Utilization Committee), Canadian Institutes of Health Research, Health Canada and others are involved in planning processes.

With support from the private sector, the Ministries of Health have been able to enhance efforts to improve chronic disease management throughout the health services system. *Improving Chronic Disease Management – A Compelling Business Case for Diabetes* was made possible through partnership with the pharmaceutical industry. This type of strategic collaboration builds capacity within the health services system and the pharmaceutical industry to meet mutual goals of improved health outcomes for patients and overall savings to the system. It also creates a foundation for exploring innovative partnerships elsewhere in the private sector.

A Focus on Aboriginal Health

The Ministry of Health Planning uses an Aboriginal lens on initiatives, like the Rural and Remote Health Initiative, to ensure appropriate attention is given to Aboriginal health issues, such as diabetes. Through the health authority aboriginal health plans, the health sector is putting in place processes to ensure that priority issues like diabetes will be addressed. The Provincial Aboriginal Health Services Strategy will address access to primary care and other health services, and integration of services and service providers, leading to better care for Aboriginal people with diabetes. The *Provincial Health Officer's Annual Report 2001* will feature a report on the health and well-being of Aboriginal People in British Columbia that will update BC's progress toward the goal of improved health for Aboriginal People.

Action on Diabetes – The Elements of the Prevention and Wellness and Chronic Disease Management Strategies

Prevention and Wellness -

Preventing Type 2 Diabetes in the first place

Promoting Physical Activity and Healthy Eating

Through a collaborative planning process with health authorities, government and non-government partners, the Ministry of Health Planning is exploring ways to promote physical activity and healthy eating. This will provide a foundation for future collaborative initiatives within and beyond the health sector.

In addition, the Ministry of Health Planning is working with the Provincial Health Services Authority, University of British Columbia, Ministry of Community, Aboriginal and Women's Services, 2010 LegaciesNow, and Premier Sport Awards to develop an initiative to enhance physical activity levels and improve health outcomes among elementary school children.

Ministry of Community, Aboriginal and Women's Services – Policy on Sport and Physical Activity

The Ministry of Health Planning is participating in implementation planning with the Ministry of Community, Aboriginal and Women's Services' Policy on Sport and Physical Activity through the BC Sport and Physical Activity Working Groups; Active Schools, Active Communities and Organized Sport. An inter-ministry work team is being established to plan coordinated action on physical activity.

BC Nutrition Survey

The Ministry of Health Planning, in association with the University of British Columbia and Health Canada, is preparing four reports of the findings and implications from the 1999 BC Nutrition Survey: Nutrient Intake; Food Group Consumption; Seniors' Issues; and Physical Activity. This is the only survey of adult British Columbians of this scope since 1972. The findings will provide current information to inform policy and program decisions related to nutrition, physical activity and obesity.

Tobacco Strategy

BC has a well-established, comprehensive tobacco control program. Through consultation with stakeholders, the Ministry of Health Planning will build on the success of the current tobacco initiatives to further reduce the burden of tobacco-related diseases in BC. Ongoing reductions in tobacco use can only be achieved through partnerships in the tobacco control community and focused efforts in the areas of prevention, cessation, protection from second-hand smoke and public awareness initiatives.

Core Programs for Public/ Population Health

The Ministry of Health Planning is initiating the development of core public health programs. Core Programs are intended to achieve three fundamental tasks of public health which include improving overall health and wellbeing; preventing disease, injury and disability; and reducing inequalities in health by utilizing strategies based on the four essential functions of public health. These functions include health promotion, health protection, preventive interventions, and the assessment of population health and disease surveillance.

National Diabetes Surveillance System

The Ministry of Health Planning, in partnership with Health Canada, is developing and implementing the National Diabetes Surveillance System for BC, including an Aboriginal component. For the first time ever, estimates of the prevalence and incidence of diabetes and its associated health problems, and related health care costs, will be generated. This information will assist health authorities, physicians and others with health services planning to enhance prevention and management. An upcoming report of the Provincial Health Officer on diabetes surveillance in BC will include regional level aggregate data on diabetes.

Chronic Disease Management –

Diagnosing diabetes early; preventing, delaying, managing, minimizing the impacts of the complications of diabetes.

Improving Chronic Disease Management: A Compelling Business Case for Diabetes

Improving Chronic Disease Management, released by the Ministries of Health, includes an evidence-based cost/benefits analysis demonstrating the cost savings accrued by improving health outcomes through better diabetes care and self-management. It clearly shows a financial payback in as little as 33 months. This resource will enable more effective decision-making regarding health services for people with diabetes.

BC Guidelines and Protocols Advisory Committee - Diabetes Care

The *Diabetes Care* guideline provides evidence-based information to physicians on optimal diabetes care, identifying which services should be provided on a regular basis. The Ministry of Health Services is monitoring and evaluating the implementation of the *Diabetes Care* guideline issued by the Committee in June, 2002. Unique to BC, ***A Snapshot of Diabetes Care in BC*** (Appendix 5) provides annual information on performance across the primary care system in meeting these standards of care.

Chronic Disease Management (CDM) Web Site

The Ministries of Health are launching a comprehensive CDM Web Site at http://www.healthservices.gov.bc.ca/cdm to provide patients with information to support self-management, and to provide practitioners with the latest research on evidence-based management of chronic disease. Information on BC developments will be profiled. A secure page on the web site will enable physicians to monitor the performance of their practice in meeting standards of care outlined in Diabetes Care.

BC HealthGuide Program

The BC HealthGuide Program (handbook, on-line and 24/7 NurseLine) http://bchealthguide.org and Dial-A-Dietitian www.dialadietitian.org are providing information and advice to British Columbians to support self-care and self-management. Innovative plans include:

- implementing and evaluating a project in which nurses provide support to callers on personalized, electronic diabetes care plans;
- diverting after-hour calls from Diabetes Education Centres to BC NurseLine; and
- supporting the development and distribution of a 'survival kit' of information for people who are newly diagnosed with diabetes (a project of Dial-A-Dietitian with funding from Health Canada).

Expert Patient

Commencing with Vancouver Island Health Authority and an industry partner, the Ministries of Health are implementing "Expert Patient" to strengthen patient self-management. Expert Patient is self-efficacy training that empowers patients to take better care of their chronic conditions. It will be offered in communities in partnership with health authorities and health care providers. The Ministries of Health are developing Expert Patient in collaboration with Stanford University and the Centre for Aging, University of Victoria, who have pioneered proven methods in this area. Resources to support Expert Patient will be disseminated through venues like the BC HealthGuide Program and the CDM Web Site.

Primary Health Care Renewal

Through funding made available from Health Canada's Primary Health Care Transition Fund, Primary Health Care Renewal is supporting health authorities in implementing initiatives aimed at addressing care gaps in chronic disease management. This includes providing change management mechanisms needed to improve patient health outcomes such as:

- professional development resources for change management;
- strategic partnerships;
- resources and models for chronic disease management;
- shared care; and
- quality improvement of clinical practice, focusing on the measurable targets for improved patient health outcomes.

Learning Collaboratives

The Ministry of Health Services is working with primary care and specialist physicians and their associations to implement structured learning collaboratives. Teams of health care providers participate in an interactive educational program about interventions for effective chronic care. Then, interventions are implemented with the benefit of coordinated coaching, networking and support to improve the quality of chronic care.

Aboriginal Diabetes Screening Project

The Ministry of Health Planning is working with First Nations/Inuit Health Branch, Health Canada and the First Nations Chiefs Health Committee to support the Aboriginal Diabetes Screening Project. This project provides diabetes screening, education and support for rural and remote Aboriginal communities in the North.

Tracking Progress on Diabetes

The Ministries of Health are working with health authorities and partners to better enable British Columbians at risk for Type 2 diabetes change their health behaviours and to assist health care providers to 'close the care gap'. The care gap is the difference between the current standard of care and an optimal standard of care, as outlined in the *Diabetes Care* guideline. How do we know if we are making a difference?

Major strides in information management, including database linkages, are allowing the Ministries of Health for the first time ever, to accurately assess and report on the performance of the health services system in responding to the care needs of people with diabetes (Appendix 5). The leading edge work in the development of the National Diabetes Surveillance System has improved Ministries of Health capacity to use the wealth of information available through existing administrative databases, e.g. Medical Service Plan, Pharmacare, and Hospital, to measure performance. In order to provide a more comprehensive picture of diabetes care in BC, the Ministries of Health are exploring the feasibility of linking their administrative databases to other databases, e.g. Pharmanet, BC Renal Agency and laboratory databases.

The Ministries of Health have developed ***Tracking Outcomes for Diabetes*** an evaluation framework that will help health authorities and practitioners assess their progress in improving the quality of care. It includes a range of verified quantitative and qualitative indicators. Patient satisfaction surveys are among the recommended tools for quality improvement.

The Ministries of Health are using data from provincial and national sources to track progress on changing behaviours that increase risk for Type 2 diabetes. The National Population Health Survey and Canadian Community Health Survey (CCHS) provide self-reported information on physical activity and eating patterns, as well as weight. The Provincial Health Officer's Report is one way in which the Ministries of Health disseminate information on progress in achieving good health for British Columbians.

Conclusion

The government is committed to providing high quality patient-centred care, improved health and wellness for British Columbians, and a sustainable, affordable public health system. Diabetes is a priority issue from both a prevention and management perspective. The Ministries of Health are providing leadership on a diverse range of strategic initiatives designed to build capacity within the health services system to respond to diabetes prevention and management.

Responsibility for addressing the growing burden of diabetes rests with all partners and stakeholders. Success requires a sustained effort to collaborate, integrate and innovate on a comprehensive range of initiatives. The vision of decreased human and financial burden of all forms of diabetes and its complications, and decreased incidence of diabetes is achievable through:

- **Healthy communities** that enable all British Columbians, including individuals with diabetes, to enjoy healthy living;
- **Supportive environments** that enable effective self-care and enhance quality of life for people affected by diabetes; and
- **Cost-effective health services** that balance best practice and innovation to foster primary, secondary and tertiary prevention of diabetes.

References

(1) Diabetes in Canada, 1999

(2) Jenkins D., Report 1 Diet and Chronic Disease: Potential Impact on Unanswered Questions, A Background Document, Prepared for the Prevention Unit, Division of Preventive Oncology, Cancer Care Ontario, November 2001

(3) National Population Health Survey

(4) Ibid

(5) Tremblay, M., CMAJ, 163 (11), 2000

(6) Background Paper for the Development of an Aboriginal Diabetes Strategy, 1998

(7) Diabetes in Canada, 1999

(8) Ibid

(9) Ibid

(10) Ibid

(11) Tremblay, M., CMAJ, 163 (11), 2000

(12) 1998 Physical Activity Monitor CFLRI

Appendix 1: Overview of Diabetes

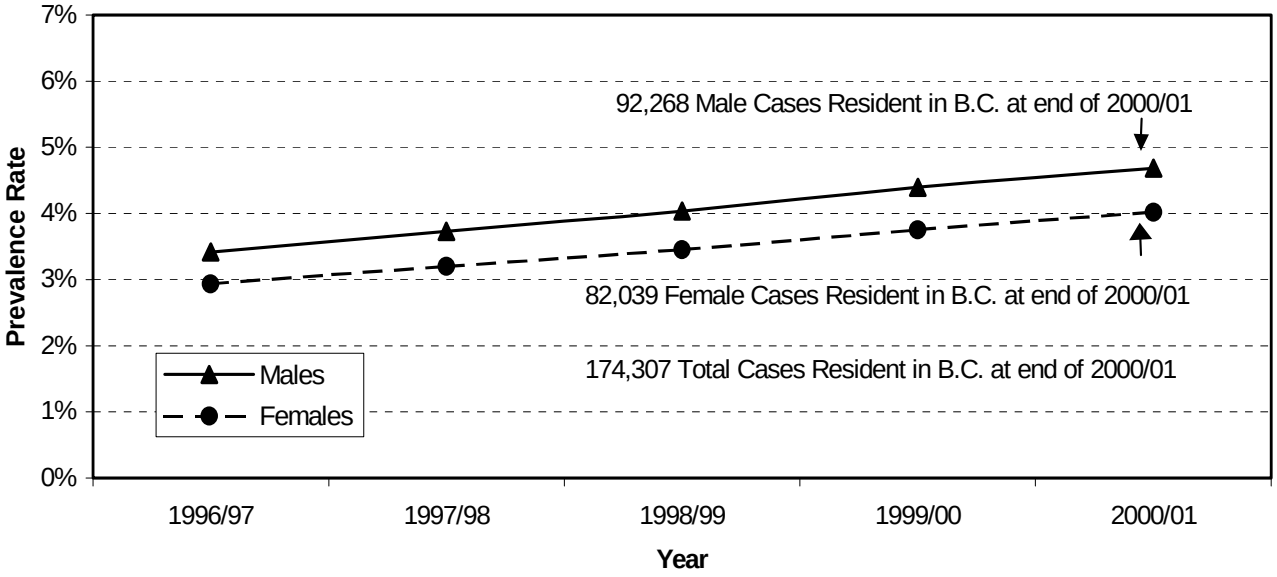
Diabetes Mellitus can affect anyone. It is a life long disease in which the body can not regulate the amount of glucose (sugar) in the blood. There are three types: Type 1, Type 2 and gestational diabetes.

Type 1 Diabetes is usually diagnosed in children, and affects about 5 - 10% of people with diagnosed diabetes. It occurs when a person's pancreas produces little or no insulin. This means that people with Type 1 diabetes require insulin to survive. Diet, exercise and regular blood glucose monitoring are essential for maintaining health. Complications of diabetes can be prevented or delayed with effective management. Life expectancy is reduced by at least 15 years among those diagnosed before the age of 15.

Type 2 Diabetes is often preventable. It affects over 90% of people with diabetes and is usually associated with obesity. Type 2 diabetes is generally found in adults over age 40, but is now being diagnosed in a growing number of children as young as age six. Type 2 diabetes occurs when the pancreas produces insulin but the body cannot use it effectively (insulin resistance) and the pancreas is unable to increase insulin production enough to compensate. Many people require medications and/or insulin injections as the disease progresses, especially if obesity is not addressed. Similar to Type 1 diabetes, diet, exercise and regular blood glucose monitoring are necessary for effective management. Early diagnosis and effective management can prevent or delay complications. Life expectancy is reduced by 5 – 10 years among middle-aged people diagnosed with Type 2 diabetes.

Gestational Diabetes affects 2-4% of pregnant women. Women with gestational diabetes do not produce enough insulin, or their bodies become insulin resistant during pregnancy. Although often managed with diet and exercise, some women also need insulin injections. Gestational diabetes normally disappears after giving birth, but both the mother and the baby are at increased risk of developing Type 2 diabetes. The mother's risk of developing Type 2 diabetes is decreased if she breastfeeds.

Appendix 2: Diabetes Prevalence, Crude Rates, by Gender, BC, 1996/97 to 2000/2001



Notes:

(1) Prevalence is the rate of both newly and previously identified cases living in the population

(2) Unidentified persons with diabetes could include people with type II diabetes who: (a) are under the Pharmacare deductible limit, or (b) do not meet the case definition, or (c) have not been medically ascertained.

(3) The case definition is met by any of: (a) MSP - at least 2 physician visits coded as diabetes within a 12-month period. (b) Hospital - at least 1 hospital separation coded as diabetes at any diagnostic level. (c) Pharmacare - receiving drug therapy for diabetes or using diabetes test strips.

(4) Cases with unknown gender excluded.

(5) Cases for 2000/01 are slightly under-estimated due to incomplete follow-up (12 months) of MSP component of the incident case definition.

Appendix 3: Diabetes-Related Morbidity and Disability

The National Population Health Survey (1996/97) showed that:

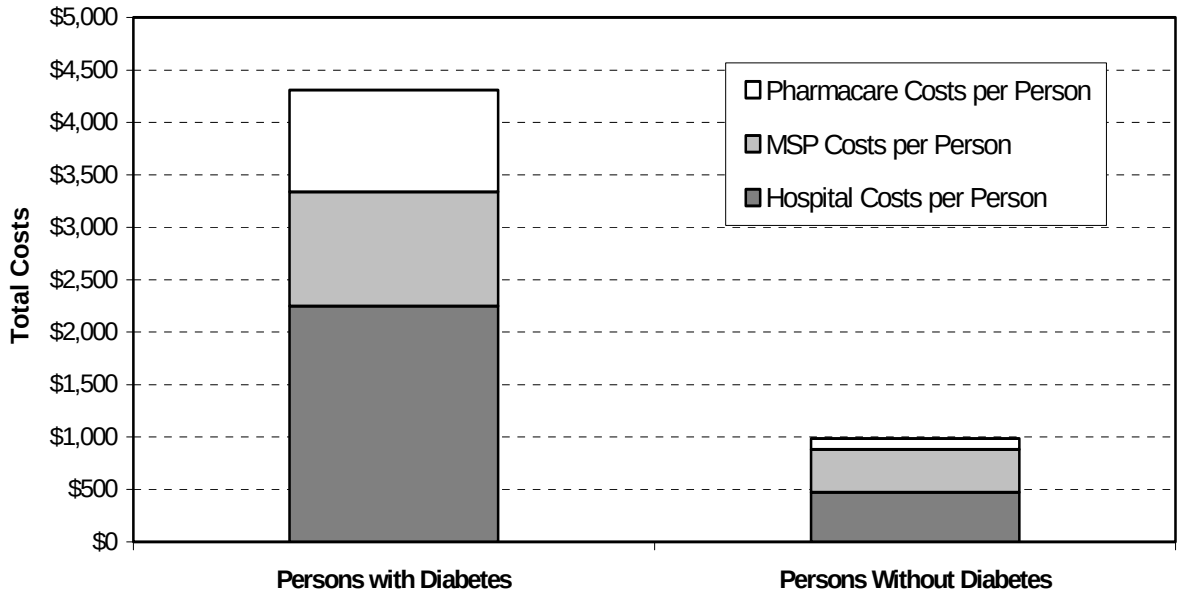
- Among people age 35-64 years, 34% of people with diabetes rated their health as fair or poor, compared to only 9% of those without diabetes.

- Among people over 65 years, 43% of people with diabetes rated their health as fair or poor, compared to 19% of those without diabetes.

- Compared to people without diabetes, people with diabetes experience more and longer periods of disability.

- Among people age 35-64 years, more than twice as many people with diabetes reported one or more disability days (in bed or with restricted activities) in a two-week period. Among those who lost one or more days to disability, the average time lost by people with diabetes was nine days, compared to six days for people without diabetes.

Appendix 4: Total Health Service Costs for Persons with Diabetes versus Persons without Diabetes, BC, 2000/2001



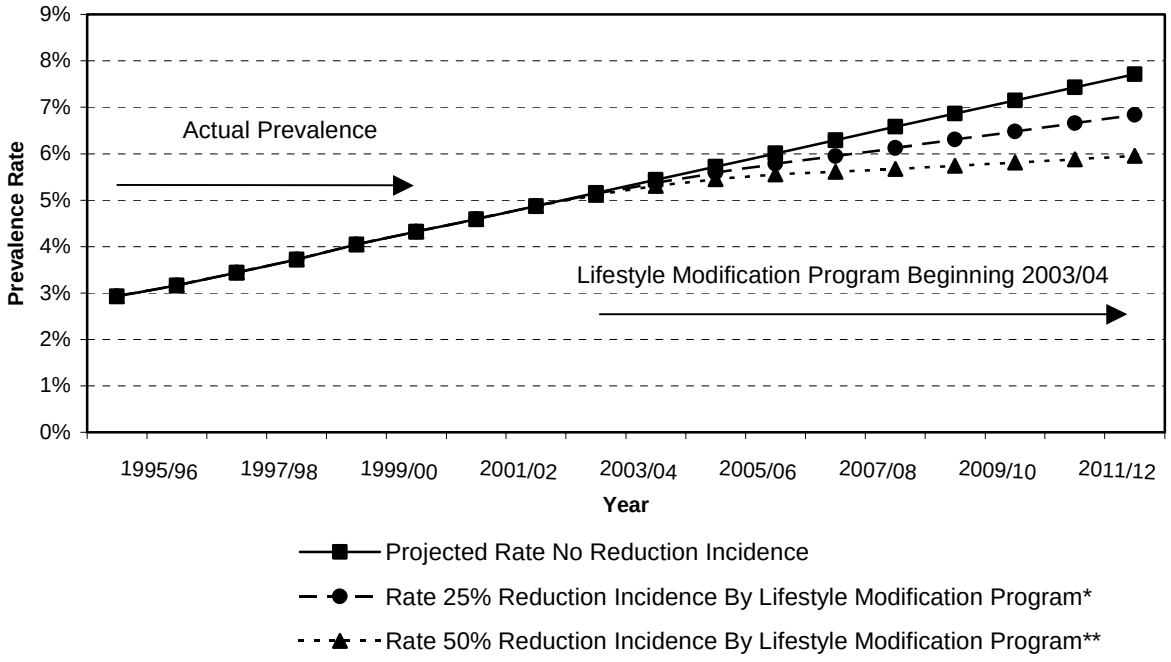
Notes:

(1) Costs per person are not age or sex adjusted.
(2) Costs for entire year are assigned to prevalent case regardless of case date during course of year
(3) Incidence is the rate at which new cases are identified in the population.
(4) Identified prevalence is the rate of both newly and previously identified cases living in the population.
(5) Unidentified persons with diabetes could include people with type II diabetes who: (a) are under the Pharmacare deductible limit, or (b) do not meet the case definition, or (c) have not been medically ascertained.
(6) The case definition is met by any of: (a) MSP - at least 2 physician visits coded as diabetes within a 12-month period. (b) Hospital - at least 1 hospital separation coded as diabetes at any diagnostic level. (c) Pharmacare - receiving drug therapy for diabetes or using diabetes test strips.
(7) Costs for persons identified as having gestational diabetes are not excluded.
(8) Cases for 2000/01 are slightly under-estimated due to incomplete follow-up (12 months) of MSP component of the incident case definition.

Appendix 5: A Snap Shot of Diabetes Care in BC - People with Diabetes, and Proportion Receiving Recommended Services 2000/2001

Health services area of patient	Number of people with diabetes	Tests			
		HbA1C	Eye Exam	Microalbumin	Lipid
11 - East Kootenay	2,953	37%	55%	30%	71%
12 - Kootenay/Boundary	3,441	37%	58%	36%	70%
13 – Okanagan	13,815	36%	50%	28%	67%
14 - Thompson/Cariboo	9,281	34%	50%	42%	70%
21 - Fraser Valley	11,192	35%	46%	27%	71%
22 - Simon Fraser	22,302	40%	47%	26%	74%
23 - South Fraser	26,403	37%	46%	30%	73%
31 – Richmond	7,494	46%	44%	33%	80%
32 – Vancouver	25,959	40%	42%	29%	75%
33 - North Shore/Coast Garibaldi	8,956	37%	51%	28%	72%
41 - South Vancouver Island	17,369	47%	51%	30%	71%
42 - Central Vancouver Island	11,329	38%	49%	25%	70%
43 - North Vancouver Island	2,295	41%	42%	30%	69%
51 – Northwest	3,242	28%	50%	39%	78%
52 - Northern Interior	5,847	37%	45%	36%	78%
53 – Northeast	2,001	28%	40%	34%	53%
Unknown	942	25%	29%	19%	60%
Total	**174,821**	**39%**	**47%**	**30%**	**72%**

Appendix 6: Diabetes Prevalence Projections, Crude Rate, BC 1995/96 to 2012/13



* Assumes that approximately half of the lifestyle modification benefit was achieved (25% reduction in incidence) throughout the province, implemented over 5 years, and sustained thereafter, as per Diabetes Prevention Program Research Group, *Reduction in the Incidence of Type 2 Diabetes with Lifestyle Intervention or Metformin*, NEJM, Vol. 346, No. 6, Feb. 7, 2002: 393-.

** Assumes that approximately the full lifestyle benefit was achieved (50% deduction in incidence).

Notes:

(1) Prevalence is the rate of all cases occurring in the population, both new and existing cases.

(2) Projection based on a preliminary extrapolation of data for the period 1995/96 to 2000/01, applied to the future population projections from BC STATS

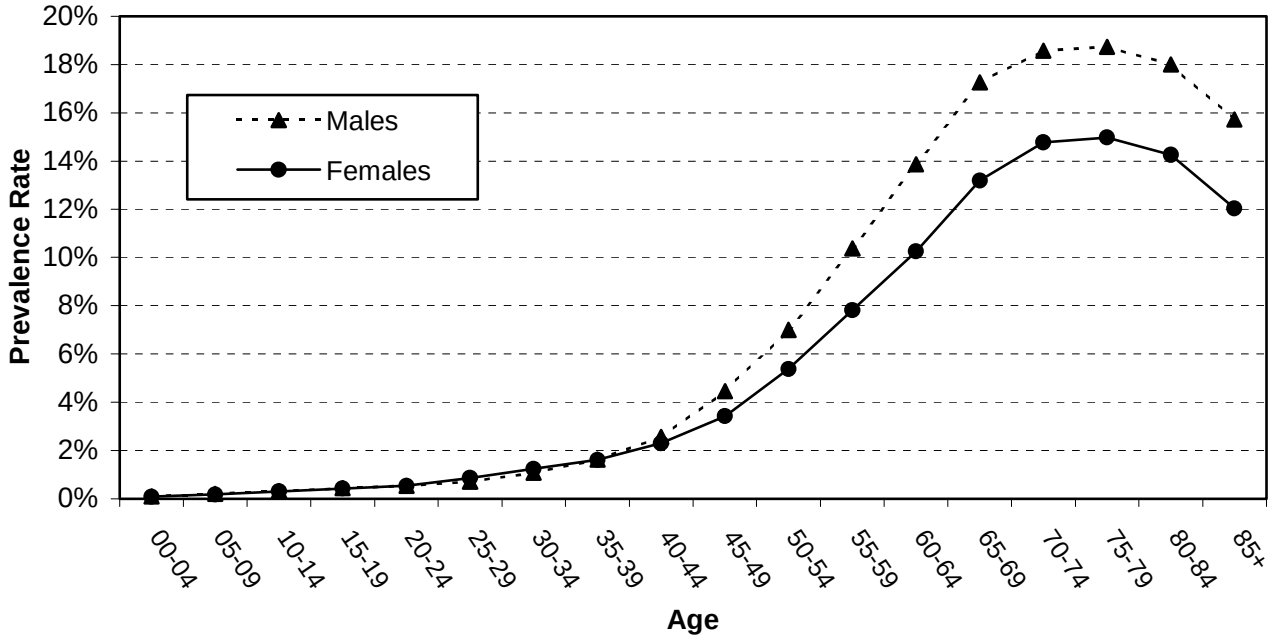
(3) Unidentified persons with diabetes could include people with type II diabetes who: (a) are under the Pharmacare deductible limit, or (b) do not meet the case definition, or (c) have not been medically ascertained.

(4) The case definition is met by any of: (a) MSP - at least 2 physician visits coded as diabetes within a 12-month period. (b) Hospital - at least 1 hospital separation coded as diabetes at any diagnostic level. (c) Pharmacare - receiving drug therapy for diabetes or using diabetes test strips.

(5) Cases with unknown gender excluded.

(6) Cases for 2000/01 are slightly underestimated due to incomplete follow-up (12 months) of MSP component of the incident case definition.

Appendix 7: Diabetes Prevalence, Age –Specific Rates, by Gender, BC, 2000/2001



Notes:

(1) Prevalence is the rate of both newly and previously identified cases living in the population.

(2) Unidentified persons with diabetes could include people with type II diabetes who: (a) are under the Pharmacare deductible limit, or (b) do not meet the case definition, or (c) have not been medically ascertained.

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(5) Cases for 2000/01 are slightly under-estimated due to incomplete follow-up (12 months) of MSP component of the incident case definition.

Appendix 8: A Comprehensive Approach

Many jurisdictions, regional, provincial, national and international are working to reduce the burden of diabetes. While strategies and action plans vary in format and priorities, a common theme emerging across jurisdictions is that a comprehensive approach is needed to stem the growing burden of diabetes.

A comprehensive approach…

- Encompasses the prevention continuum: Primary prevention – preventing Type 2 diabetes in the first place; Secondary prevention – diagnosing diabetes early; Tertiary prevention – preventing or delaying the complications of diabetes, or minimizing their impacts, through effective management.

- Focuses on high-risk populations, as well as the population at large.

- Employs clinical and education programs and services for individuals, as well as population-based interventions including consumer health education, policy and environmental change strategies, and capacity building initiatives.

- Engages multiple stakeholders (including Aboriginal people), partners, disciplines and sectors in planning, implementing and evaluating interventions.

- Involves multiple jurisdictions; community, regional, provincial and national.

- Appropriately targets multiple populations and age groups.

- Uses evidence–based information from surveillance, evaluation and research, to support sound decision making throughout the system.

Appendix 9: Partners in Diabetes Prevention and Management

Individuals and Families (including those affected by diabetes and at risk for Type 2 diabetes)…

Caring for one's health is an essential component of remaining healthy and reducing the risks of Type 2 diabetes which is often preventable. Individuals are responsible for managing personal health risks and self-managing their disease, as well as contributing to the health of their family and community.

Non-Government Organizations (community, educational, business)…

Non-government agencies can work in partnerships with other stakeholders to foster collaborative approaches to diabetes prevention and management by developing and promoting policies, programs, goods and services that support individuals, families and communities in achieving good health.

Aboriginal organizations and governments…

Aboriginal organizations and governments can work together, with health authorities and other partners to identify community needs and ways to facilitate access to culturally appropriate health services and other supports that contribute to the prevention and management of diabetes among Aboriginal people.

Ministry of Health Planning/Ministry of Health Services…

The Ministry of Health Planning monitors the prevalence, incidence and impacts of diabetes among British Columbians, and responds by working with partners and stakeholders to foster healthy public policies and develop prevention and management strategies that contribute to improved individual and population health outcomes.

The Ministry of Health Services provides funding, direction and leadership to health authorities in support of the delivery of quality, accessible health services throughout the province. The Ministry of Health Services also monitors and evaluates health authority performance.

Other government organizations (municipal, provincial, federal)…

Federal, provincial and municipal governments can work with partners and stakeholders and act within their jurisdictions to identify needs, deliver programs and services, and adopt health enhancing policy and legislation that fosters supportive environments and community action.

Health Authorities…

Health Authorities are responsible for identifying regional needs and planning and providing appropriate diabetes-related programs and services in an effective and efficient manner. Health authorities are also responsible for contributing to the development and implementation of provincial initiatives that contribute to the prevention and management of diabetes.

Physicians, Nurses, Dietitians and other Health Service Providers…

Physicians, nurses, dietitians and other health care providers must continue to strive for excellence through ongoing professional development and use of evidence-based tools, models and strategies that support effective practice in the prevention and management of diabetes.

Appendix 10: The Expanded Chronic Care Model

Responding to a need for a more comprehensive model that could engage the entire health team in a more integrated fashion, a group of BC practitioners broadened the focus of the evidence-based Chronic Care Model[1]. The *Expanded Chronic Care Model – Integrating Population Health Promotion*[2] encompasses primary prevention and population health concepts.

The components of the Model are:

Healthy Public Policy

Policies beyond the health sector that enhance opportunities for good health; making the healthier choice the easier choice.

Supportive Environments

Strong social, physical, political and economic environments, that support individual, family and community health.

Community Action

Enhanced capacity within community groups to build on strengths and work together to address community issues and solve problems.

Self-Management/Develop Personal Skills

Individual capacity to access opportunities and resources that enable and support sound personal health knowledge and skills, leading to effective self-care and self-management.

Delivery System Design/Reorient Health Services

Capacity within the health services system to integrate and coordinate prevention and management policies, programs and services, responding to both individual and population health needs.

Decision Support

Use of evidence-based tools, models and strategies by practitioners and organizations, including community groups, to support decision-making.

Information Systems

Use of relevant clinical, utilization and surveillance information, to support planning and monitoring at the individual and population level.

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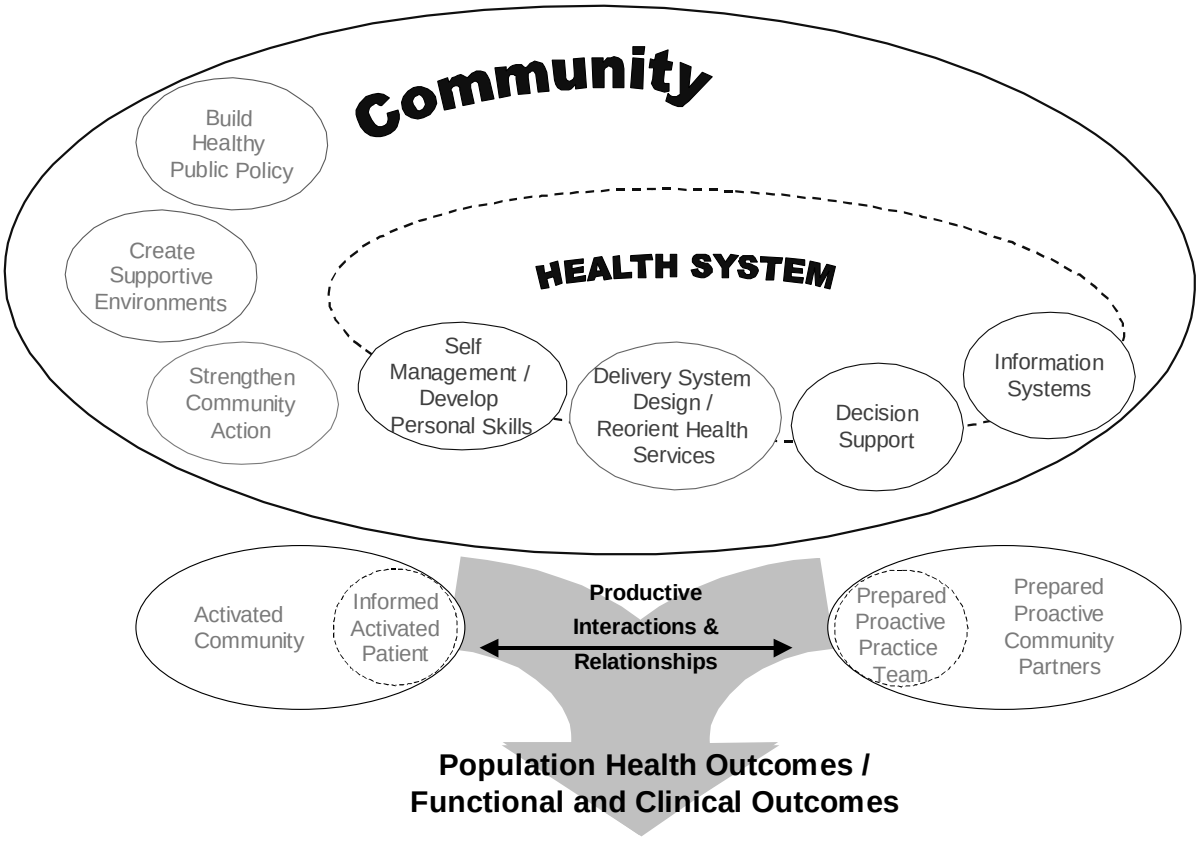
1 The Chronic Care Model developed by the Robert Woods Johnson Foundation in the US identifies the components of successful chronic disease management programs.

2 *The Expanded Chronic Care Model: An Integration of Concepts and Strategies from Population Health Promotion and the Chronic Care Model*. Barr, Victoria; Robinson, Sylvia; Marin-Link, Brenda; Underhill, Lisa; Dotts, Anita; Ravensdale, Darlene. Submitted for publication September, 2002. Contact victoria.barr@caphealth.org for more information.

THE EXPANDED CHRONIC CARE MODEL: INTEGRATING POPULATION HEALTH PROMOTION



Created by: Victoria Barr, Sylvia Robinson, Brenda Marin-Link, Lisa Underhill, Anita Dotts and Darlene Ravensdale (2002)

Adapted from Glasgow, R., Orleans, C., Wagner, E., Curry, S., Solberg, L. (2001*). Does the chronic care model also serve as a template for improving prevention*? The Milbank Quarterly*, 79*(4), and World Health Organization, Health and Welfare Canada and Canadian Public Health Association (1986) *Ottawa Charter of Health Promotion*.