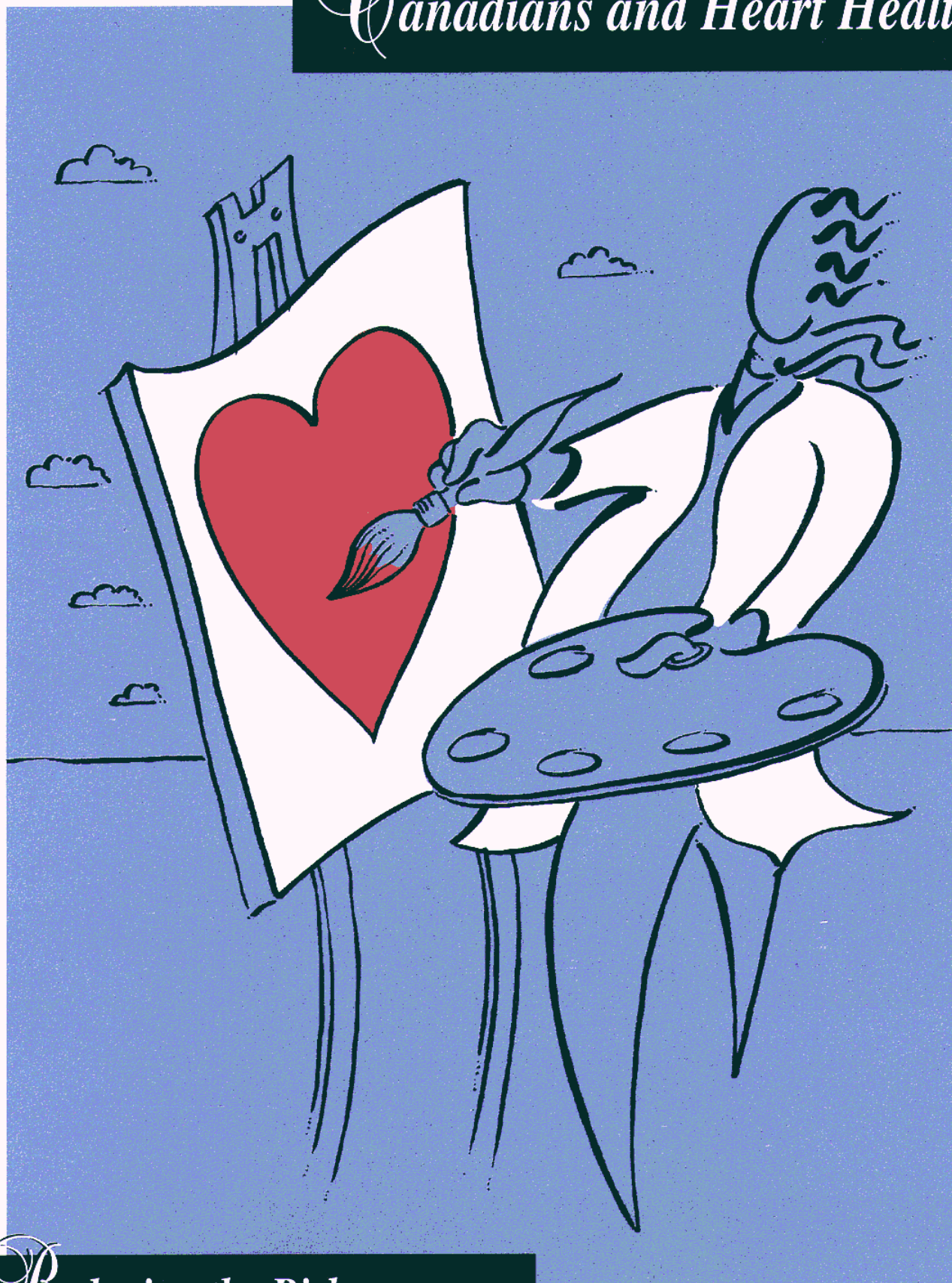




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Canadians and Heart Health



Reducing the Risk

Canada

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Preface

In the 10 years since Canada's Federal-Provincial Working Group on Cardiovascular Disease Prevention and Control first began its work, the issue of heart health has gained increasing prominence on the national agenda. The International Heart Health Conference, held in Victoria in May of 1992, was a landmark event for Canada. The resulting *Victoria Declaration* provided a call to arms for countries the world over and placed heart health on the international agenda.

In Canada, cardiovascular disease prevention is one of a number of public health issues being addressed through a combination of health promotion and disease prevention approaches.

This report examines the results and implications of 10 Provincial Heart Health Surveys which were carried out between 1986 and 1992 within the context of the Canadian Heart Health Initiative. The provincial and federal health departments, the Heart and Stroke Foundation of Canada and numerous other voluntary, professional, scientific and private-sector organizations are all participants in the Initiative. What the survey results confirm is that major health gains are possible in the area of cardiovascular disease. We hope that this report will be welcomed by the myriad of coalitions, groups and individuals now working in the field. It is intended both to bolster support for their efforts by focusing attention on the risk Canadians face, and to help decision-makers strategize for the future.

Sylvie Stachenko, M.D., M.Sc., F.C.F.P.

Director, Preventive Health Services Division, Health Canada

Dale Gelskey, M.P.H., D.P.H.

Rosemary White, R.N., B.N., M.Sc.

Co-chairs, Conference of Principal Investigators of Heart Health

Elinor Wilson, R.N., M.H.Sc.

Director, External Relations, Heart and Stroke Foundation of Canada

Authors

Christofer Balram, Ph.D.	David R. MacLean, M.D.
Lynne Blair, B.Sc.N., M.P.A.	Ella McLeod, B.N., M.Sc. (retired)
Roy Cameron, Ph.D.	Mukund Nargundkar, M.Sc., M.Eng.
Philip W. Connelly, Ph.D.	Brian A. O'Connor, M.D., M.H.Sc.
Karen Cooper, M.S., M.P.H., P.Dt.	Gilles Paradis, M.D., M.Sc., C.C.F.P., F.R.C.P.(C)
Catherine Donovan, M.D., M.H.Sc.	George Pasut, M.D., M.H.Sc., F.R.C.P.(C)
Alison C. Edwards, M.Sc.	Andrés Petrásovits, Ph.D., M.P.H.
Dale Gelskey, M.P.H., D.PH.	Bruce A. Reeder, M.D., M.H.Sc., F.R.C.P.(C)
Kevin Hogan, M.D.	Richard Schabas, M.D., M.H.Sc., F.R.C.P.(C)
Michel R. Joffres, M.D., Ph.D.	Sylvie Stachenko, M.D., M.Sc., F.C.F.P.
Richard Lessard, M.D., M.P.H., M.A., C.S.P.Q., F.R.C.P.(C)	Lamont Sweet, M.D., M.H.Sc.
Sharon Macdonald, M.D., F.R.C.P.(C)	Rosemary White, R.N., B.N., M.Sc.

Editors

Michel R. Joffres, M.D., Ph.D.	Andrés Petrásovits, Ph.D., M.P.H.
David R. MacLean, M.D.	Sylvie Stachenko, M.D., M.Sc., F.C.F.P.
Brian A. O'Connor, M.D., M.H.Sc.	

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1

Introduction

This report contains the aggregate results of the 10 Provincial Heart Health Surveys carried out between 1986 and 1992 in the context of the Canadian Heart Health Initiative.

The Challenge

Cardiovascular disease¹ is Canada's leading cause of death, and a major cause of disability and illness in Canadians. Although our mortality rates for heart disease and stroke have been showing a steady decline since the mid 1960s, the cost of cardiovascular disease in terms of health, quality of life and productive capacity continues to be unacceptably high.

In 1990, cardiovascular disease accounted for 39% of all deaths in Canada, with about half of these occurring in people under 75. Approximately eight million patient-days in hospital and 18 million patient visits to physicians were related to cardiovascular disease, which also accounted for about 12.5% of all prescriptions dispensed. About a fifth of all disability pensions paid out by the Canada Pension Plan to Canadians under 65 are due to a diagnosis of cardiovascular disease. One in every five dollars spent on hospital operating costs and one-tenth of all medical expenditures are for the care of patients with cardiovascular disease. These figures give an indication of the economic costs of cardiovascular disease; in human terms, the costs are incalculable.

It would be simplistic to believe that cardiovascular disease is merely the result of aberrant behaviour on the part of certain individuals or groups of people. The sad truth is that cardiovascular disease risk is rooted in the average Canadian lifestyle. We live in a social and cultural environment where there is implicit support for many harmful practices. The *Victoria Declaration on Heart Health* puts it bluntly: "Most cardiovascular disease is brought about by some combination of smoking, high blood pressure, elevated blood cholesterol, and unhealthy dietary habits — including excessive alcohol consumption, obesity, a sedentary lifestyle, and psychosocial stress. These risk factors are woven into the very fabric of life in many societies around the world." Regrettably, Canada is one of those societies.

1 Cardiovascular disease (CVD) is a general term for all diseases of the circulatory system classified according to ICD-9390-459. CVD includes acute myocardial infarction, ischemic heart disease, valvular heart disease, peripheral vascular disease, arrhythmias, high blood pressure, and stroke.

The Opportunities

The good news is that cardiovascular disease is preventable. To cite the *Victoria Declaration* again: "We have the scientific knowledge to create a world in which most heart disease and stroke could be eliminated. In such a world, preventive practices would be incorporated early in life as a matter of course; everyone would have access to positive, healthy living, smoke-free air, good nutrition, regular physical activity and supportive living and working environments."

Research has shown that cardiovascular risk increases markedly with each additional risk factor. So, for example, smoking doubles the risk of ischemic heart disease for a person with one other risk factor. When two additional risk factors are present, the risk doubles again. Moreover, the risk for someone who has only small elevations of several risk factors can be just as great as it is for a person with a single risk factor at highly elevated levels. It is thus easy to understand the importance of reducing or controlling several risk factors, rather than concentrating on one at a time. A so-called "multifactorial intervention" can make a bigger impact on overall mortality and morbidity rates than one aimed at a single risk factor. It can also reach a much wider audience.

In the early 1980s, the federal and provincial governments appointed a working group and launched a nation-wide consultation to address the challenge of cardiovascular disease in Canada. In its report, entitled *Promoting Heart Health in Canada*, the Federal-Provincial Working Group on Cardiovascular Disease Prevention and Control urged the adoption of a public health approach to the issue. This implies taking action at the population level and — in high-risk cases — at the individual (or clinical) level.

The Canadian Heart Health Initiative places the emphasis on the population approach. Sponsored by Health Canada and the provincial ministries of health in collaboration with the Heart and Stroke Foundation of Canada and over 300 other agencies and organizations, the Initiative is a comprehensive national attempt to prevent and control cardiovascular disease in Canada. By taking an interdisciplinary, multifactorial, "partnership" approach to the issue, it seeks to encourage and support the development of collaborative heart health promotion and prevention activities across the country. One of its key features is a series of regional demonstration programs set up to test practical approaches to cardiovascular disease prevention — producing, in effect, a process of "learning as we go."

There are no short-term solutions to cardiovascular disease. Recognizing this, the Canadian Heart Health Initiative is taking a phased approach to the challenge. In the first phase (1985-89) a course of action (the policy) was agreed upon and several provinces carried out risk-factor surveys. The second phase (1989-93) saw the completion of the provincial surveys, and the implementation by all provinces of their own heart health programs. The third phase (1993-2000) has a twin focus: the evaluation of heart health programs and the dissemination of their key findings.

Risk and Mortality

The data from the heart health surveys provide a wealth of information on risk-factor prevalence, as well as on related awareness, knowledge levels, attitudes and behaviours. Among other things, the surveys reveal that two out of three Canadians have at least one of the major modifiable risk factors for cardiovascular disease — namely, smoking, high blood pressure and elevated blood cholesterol. They also show striking disparities in cardiovascular risk among different groups of Canadians and across the country.

As Table 1 shows, there are also considerable differences in age-standardized cardiovascular disease mortality rates among the regions, with the Atlantic region having rates about one-quarter higher than the West. In fact, the distribution of cardiovascular disease mortality across the country reflects the prevalence of risk factors in the population.

Table 1: Age-standardized mortality rates for cardiovascular disease, ischemic heart disease and stroke per 100 000 of the population, by province, 1992

Province	Death Rate					
	Cardiovascular disease ^a		Ischemic heart disease ^b		Stroke ^c	
	Men	Women	Men	Women	Men	Women
British Columbia	297	168	164	78	50	44
Alberta	300	175	177	87	53	44
Saskatchewan	292	164	173	79	46	37
Manitoba	325	181	189	89	53	48
Ontario	324	191	203	106	50	43
Quebec	327	184	202	98	47	38
New Brunswick	325	196	181	98	48	39
Nova Scotia	336	199	196	100	49	40
P.E.I.	334	202	219	115	47	36
Newfoundland	360	241	223	129	58	50
CANADA	319	185	193	97	49	42

Source: Nair, C. *Cardiovascular Disease in Canada*. Health Statistics Division, Statistics Canada, 1994.

Note: Age-standardized to the 1986 Canadian population.

^a See footnote 1 for definition of cardiovascular disease.

^b Ischemic Heart Disease (IHD) (ICD-9 410-414) is any condition in which heart muscle is damaged or works inefficiently because of absence or relative deficiency of its blood supply. IHD is most often caused by atherosclerosis, and includes angina pectoris, acute myocardial infarction, chronic ischemic heart disease, and sudden death.

^c Stroke (ICD-9 430-438) is damage resulting from ischemia (lack of oxygen) or haemorrhage to the brain.

Policy-makers Need the Facts

Until the Provincial Heart Health Surveys were carried out there had been a lack of population studies documenting the prevalence, distribution and coexistence of the major risk factors for cardiovascular disease. Now for the first time data are available on over 23 000 people aged 18 to 74, selected at random from all 10 provinces. This affords decision-makers a unique opportunity to determine how best to direct efforts and resources and evaluate the impact of preventive programs.

This report seeks to provide policy-makers and program developers with the facts about cardiovascular disease in Canada — namely, that it represents a huge drain on our national resources and a major impediment to our collective well-being, that it is largely preventable, that the battle must be waged at the population level (because a vast majority of Canadians are at risk), and — most importantly — that even small changes in Canadians' overall blood pressure, blood cholesterol, weight, smoking rates and physical activity levels can translate into substantial reductions in disease and disability. Finally, because many of the same practices that endanger Canadians' cardiovascular health also contribute to other types of illness — for example, certain types of cancer and lung and liver disease — the long-term benefits could extend into other areas of non-communicable disease.

The world has learned a lot over the years about how to prevent cardiovascular disease. Here in Canada we are learning more all the time through the research demonstration programs of the Canadian Heart Health Initiative. We need to continue acquiring and disseminating this "know-how" to every part of the country so that the entire population can benefit. We need to lower the prevalence of cardiovascular disease by helping people to modify their risk behaviours. At the same time, we need to create policies and environments that support Canadians in making healthy choices. This task will be made easier by the fact that public interest has never been higher in health promotion and disease prevention.

Decision-makers in all sectors, including those responsible for broader social and economic policies and programs, need to support and sustain initiatives that can help to reduce inequalities and change social norms. This calls for collaboration among governments, the academic community, leaders of community health coalitions, health professionals and their associations, the private sector and all other concerned groups. Only by working together will we be able to ensure that all Canadians — regardless of age, gender, income, place of residence or cultural background — have an equal opportunity to achieve cardiovascular health.

Modifiable or Controllable Risk Factors for Cardiovascular Disease

Major Risk Factors

➡ Smoking

Cigarette smoking is responsible for about 40 000 deaths in Canada each year. Of these deaths, about 30% are due to lung cancer and 40% are due to cardiovascular disease. Smoking is also a major cause of chronic obstructive lung disease. It is regarded as the single most important preventable cause of disease and disability. In the Heart Health Surveys, respondents who reported smoking one or more cigarettes a day were defined as regular smokers.

➡ High Blood Pressure

High blood pressure is a major risk factor for cardiovascular disease. Elevated systolic and/or diastolic blood pressure increase(s) the probability of ischemic heart disease, stroke, atherosclerosis and overall mortality. Treatment and control of high blood pressure reduces the risk of stroke and possible ischemic heart disease. Overweight is a major contributor to high blood pressure. For purposes of the survey, a person with a diastolic pressure of 90 mm Hg or more, and/or whose blood pressure was being controlled with medication, through a salt-restricted diet or a weight reduction program, was considered to have high blood pressure.

➡ Elevated Blood Cholesterol

Population-wide elevated blood cholesterol levels are a hallmark of societies with high coronary heart disease. Significant reduction of ischemic heart disease can be achieved with a relatively modest lowering of blood cholesterol levels in the Canadian population. For purposes of the Heart Health Surveys, respondents with a total plasma cholesterol level of 5.2 mmol/L or more were considered to have elevated blood cholesterol.

Other Important Risk Factors

➤ Sedentary Lifestyle

A sedentary lifestyle is one result of the modernization of Canadian society and its increasing affluence. Regular physical activity contributes to proper weight maintenance, and to overall health and wellbeing. Given the links between obesity and high blood pressure, diabetes and elevated blood cholesterol, a sedentary lifestyle is a significant factor in the development of coronary heart disease. Survey respondents who had not been physically active during their leisure time at least once a week during the month preceding the survey were considered to have a sedentary lifestyle.

➤ Overweight

Obesity — the presence of excess body fat — has been clearly associated with adverse health consequences. Abdominal obesity is associated with increased incidence of ischemic heart disease, stroke and death and a higher prevalence of high blood pressure, elevated blood cholesterol and diabetes. Even a modest reduction in the prevalence of overweight would result in major improvements in public health in the area of coronary heart disease and other chronic conditions. Survey respondents with a Body Mass Index (BMI) of 25 or more were considered to be overweight.

➤ Diabetes

Diabetes (both insulin-dependent and non-insulin dependent diabetes mellitus) is a risk factor for cardiovascular disease, and a disabling condition in its own right that affects eyesight, kidney function and the peripheral nerves. Diabetes mellitus is associated metabolically with abdominal obesity, elevated blood cholesterol and elevated blood pressure. Prevention of diabetes mellitus is often possible through maintenance of normal body weight through dietary measures and adequate physical activity. In the Heart Health Surveys, diabetes was defined by asking people whether they had been diagnosed with diabetes.

2

Canadians at Risk

The Provincial Heart Health Surveys examined the level and distribution of cardiovascular risk in Canada's population with respect to six risk factors — smoking, high blood pressure, elevated blood cholesterol, a sedentary lifestyle, overweight and diabetes. The survey findings on risk-factor prevalence are presented in this chapter by province, by age, by gender and by education. (See Appendix A for information on the survey methodology and sample sizes.)



Prevalence of Risk Factors by Province

At Least One Major Modifiable Risk Factor: Sixty-three per cent of Canadian adults have at least one of the three major modifiable risk factors for cardiovascular disease (smoking, high blood pressure and elevated blood cholesterol levels), with the highest percentages of such individuals being in the Eastern provinces of Newfoundland and Nova Scotia, and the lowest in the Western provinces of Alberta and British Columbia. Risk-factor prevalence across the country matches cardiovascular disease mortality patterns (standardized for age).

Smoking: More than a quarter of all Canadian adults (27%) are regular smokers. There are wide variations between the provinces in the prevalence of regular smoking, which ranges from a high of 35% in Newfoundland to a low of 23% in Ontario. Smoking prevalence is highest in the Atlantic provinces and Quebec, and lowest in Ontario and the Western provinces.

High Blood Pressure: One in six Canadian adults (15%) has high blood pressure. With the exception of Quebec (13%), the prevalence of high blood pressure in Canada's provinces follows an East-to-West gradient, with the highest prevalence being in Newfoundland (22%) and the lowest in British Columbia (13%).

Elevated Blood Cholesterol: The blood cholesterol levels in the Canadian adult population are uniformly high, at 43%. The lowest prevalence is found in Alberta, where 37% of the population has elevated blood cholesterol, and the highest prevalence is in Quebec (48%). Among the other provinces there are only small variations.

Sedentary Lifestyle: Well over a third of the Canadian adult population (37%) has a sedentary lifestyle. As is the case with smoking and high blood pressure, sedentary living is more likely to be found in the East than in the West, ranging from a high of 48% in Newfoundland to a low of 29% in British Columbia. The exception is Manitoba, where 45% of the population has a sedentary lifestyle.

Overweight: Just under half (48%) of all Canadians have a BMI of 25 or more, which may put them at risk of cardiovascular disease and other conditions (such as high blood pressure and diabetes) known to be linked to overweight. Overweight is generally more prevalent in Canada's Eastern provinces than in the West, ranging from 61% in Newfoundland to 44% in British Columbia.

Diabetes: Four per cent of Canadians report that they have diabetes. (These data may considerably underestimate the true prevalence of diabetes. A good proportion of Canadians who have diabetes are not aware of their condition.) Although highest in Newfoundland, the prevalence of this disease is relatively constant across the provinces. While its reported prevalence may appear low, the importance of this risk factor lies in its compounding effect.

Table 2: Percentage (%) of population aged 18-74 with selected risk factors, by province, Canada, 1986-92

Risk Factors	Province ^a										CANADA ^b
	BC	AB	SK	MB	ON	PQ	NB	NS	PE	NF	
At least one major risk factor ^c	59	58	61	62	61	67	67	69	65	69	63
Major risk factors:											
Regular smoking ^d	25	27	24	25	23	32	31	33	29	35	27
High blood pressure ^e	13	15	16	16	17	13	19	19	20	22	15
Elevated blood cholesterol ^f	43	37	43	44	40	48	46	44	45	43	43
Other risk factors:											
Sedentary lifestyle ^g	29	37	31	45	39	37	45	42	44	48	37
Overweight ^h	44	51	52	52	49	42	52	55	56	61	48
Diabetes ^{i,j}	4	5	5	5	4	5	5	—	4	6	4

Source: Canadian Provincial Heart Health Surveys, 1986-92.

Note: Standardized for age and gender to the 1986 Canadian population.

^a British Columbia (BC), Alberta (AB), Saskatchewan (SK), Manitoba (MB), Ontario (ON), Quebec (PQ), New Brunswick (NB), Nova Scotia (NS), Prince Edward Island (PE), Newfoundland (NF).

^b Excluding Yukon Territory and Northwest Territories.

^c More than one of regular smoking, high blood pressure and elevated blood cholesterol.

^d One or more cigarettes per day.

^e Diastolic pressure \geq 90 mm Hg or being treated with medication, a salt-restricted diet or weight-reduction program.

^f Total plasma cholesterol level 5.2 mmol/L or more.

^g Physical inactivity during leisure time (i.e., not being active during leisure time at least once a week during the month preceding the survey).

^h Body Mass Index (BMI) 25 or over.

ⁱ Self-reported.

^j Diabetes information not collected for Nova Scotia.



Prevalence of Risk Factors by Age

At Least One Major Modifiable Risk Factor: Older Canadians are more likely to have at least one of the three major modifiable risk factors (smoking, high blood pressure, elevated cholesterol) for cardiovascular disease than those who are younger. In the 18-to-34 age group, close to half (48%) of the population has one or more of these major risk factors, compared to an overwhelming 85% in the 65-to-74 age group.

Smoking: Regular smoking is strongly associated with age. There are twice as many smokers among Canadians aged 18 to 34 (31%) as among those aged 65 to 74 (16%).

High Blood Pressure: High blood pressure is markedly more prevalent among older Canadians. Only 5% of Canadians aged 18 to 34 have high blood pressure, compared to one-third (34%) of all those aged 65 to 74.

Elevated Blood Cholesterol: In Canada, blood cholesterol rises steadily with increasing age. Whereas 23% of 18- to 34-year-olds have elevated blood cholesterol, in the 65-to-74 age group the prevalence is 70%.

Sedentary Lifestyle: Canadians aged 35 to 64 are more likely to have a sedentary lifestyle than the rest of the adult population. Younger Canadians (those aged 18 to 34) are the least likely to lead a sedentary life — even so, one-third (32%) of the respondents in this age group reported not having been active during their leisure time at least once a week in the month preceding the survey.

Overweight: Half of all adult Canadians are overweight, and the prevalence of this condition increases with age. A third of Canadians aged 18 to 34, and 60% in the 65-to-74 age group are overweight.

Diabetes: The prevalence of reported diabetes increases with age. Two per cent of Canadians aged 18 to 34 report having diabetes, rising to 11% for older Canadians aged 65 to 74 years.

Table 3: Percentage (%) of population aged 18-74 with

Risk Factors ^a	Age group			
	18-34	35-64	65-74	TOTAL
At least one major risk factor	48	71	85	64
Major risk factors:				
Regular smoking	31	25	16	27
High blood pressure	5	21	34	16
Elevated blood cholesterol	23	55	71	44
Other risk factors:				
Sedentary lifestyle	32	42	39	38
Overweight	34	57	60	49
Diabetes	2	5	11	5

selected risk factors, by age group, Canada, 1986-92

Source: Canadian Provincial Heart Health Surveys, 1986-92.

^a See Table 2 for definitions of the risk factors.



Prevalence of Risk Factors by Gender

At Least One Major Modifiable Risk Factor: The prevalence of one or more of the major modifiable risk factors for cardiovascular disease is uniformly high among men and women (66% and 62% respectively).

Smoking: There are no marked gender differences in the overall prevalence of regular smoking. About a quarter of Canadian men and women aged 18 to 74 smoke on a regular basis.

High Blood Pressure: High blood pressure is more prevalent among Canadian men than among Canadian women — just under one in five (19%) men has high blood pressure, compared to just under one in six (13%) women.

Elevated Blood Cholesterol: There are no substantial differences between Canadian men and women in their blood cholesterol levels. More than two out of five men and women are at increased risk of cardiovascular disease due to elevated blood cholesterol.

Sedentary Lifestyle: The prevalence of a sedentary lifestyle is uniformly high among Canadians of both genders (40% for men and 36% for women).

Overweight: Men are much more likely to be overweight than women — 57% of Canadian men are at increased risk of cardiovascular disease due to overweight, compared to 40% of women.

Diabetes: Canadian men and women are about equally likely to report having diabetes. For both genders the overall prevalence of reported diabetes is generally low (4% for men, 5% for women).

Table 4: Percentage (%) of population aged 18-74 with selected risk factors, by gender, Canada, 1986-92

Risk Factors ^a	Gender		
	Men	Women	TOTAL
At least one major risk factor	66	62	64
Major risk factors:			
Regular smoking	28	25	27
High blood pressure	19	13	16
Elevated blood cholesterol	46	43	44
Other risk factors:			
Sedentary lifestyle	40	36	38
Overweight	56	41	49
Diabetes	4	5	5

Source: Canadian Provincial Heart Health Surveys, 1986-92.

^a See Table 2 for definitions of the risk factors.

Prevalence of Risk Factors by Education

Education level is strongly linked to risk-factor prevalence. Canadians with 11 years of education or less are much more likely to have at least one of the major risk factors for cardiovascular disease than those with more than 11 years of education (76%, compared to 59%).

Moreover, the prevalence of all risk factors studied in the survey is higher among less educated Canadians than among their more educated counterparts. The differences are particularly noticeable for two risk factors (smoking and a sedentary lifestyle). Canadians with less formal education are twice as likely to be regular smokers as those with more, and they are also much more likely to have a sedentary lifestyle.

Table 5: Percentage (%) of population aged 18-74 with selected risk factors, by number of years of education, Canada, 1986-92

Risk Factors ^a	Number of years of education		
	≤11	> 11	TOTAL
At least one major risk factor	76	59	63
Major risk factors:			
Regular smoking	44	22	27
High blood pressure	17	15	15
Elevated blood cholesterol	45	42	43
Other risk factors:			
Sedentary lifestyle	44	35	37
Overweight	51	46	48
Diabetes	5	4	4

Source: Canadian Provincial Heart Health Surveys, 1986-92.

Note: Standardized for age and gender to the 1986 Canadian population.

^a See Table 2 for definitions of the risk factors.

Discussion Highlights

The survey results show that the risk factors for cardiovascular disease are prevalent to a lesser or greater degree in both genders, in every age group and in all provinces. Moreover, there are marked regional variations in risk-factor prevalence which, in turn, are reflected in cardiovascular disease mortality patterns across the country.

Regular smoking is the only risk factor that becomes less prevalent as people age. Also, although regular smoking has declined overall in recent years, it has increased among younger Canadians of both genders. It also continues to be prevalent at unacceptable levels in both men and women in the middle age groups, among Canadians with less education and among the residents of certain provinces and regions.

Except for high blood pressure and overweight — which tend to occur more often in male Canadians — there are no major gender differences in risk-factor prevalence. It is important to note, however, that certain risk factors have the potential to affect women differently — for example, the combination of smoking and oral contraceptives is known to dramatically increase women's risk of cardiovascular disease; also, diabetes is recognized as a more potent risk factor in women than in men.

Risk-factor patterns vary markedly with education level, as do patterns of cardiovascular disease mortality in Canada: Canadians with less education have a greater chance of dying of heart disease and stroke, and dying earlier, than those with more education.

3

What Canadians Know about Risk

People who are aware of what causes heart disease and what they can do to reduce their own risk may be more prone to take action. In the Heart Health Surveys, respondents were questioned about their awareness of the causes of 'heart disease' and about ways of reducing blood cholesterol levels. To the extent that knowledge influences behaviour, the survey data provide an indication of the potential for health education to improve cardiovascular health in Canada.

Causes of Heart Disease

Survey respondents were asked whether they could mention any of the causes of heart disease. The question was unprompted, and multiple answers were allowed.

Awareness Across Canada: Canadians' awareness of the causes of heart disease is low in all parts of the country. For example, smoking is a well-established risk factor for heart disease, yet only about half of all the respondents mentioned it. Also, about three-quarters of all Canadians do not know that elevated blood cholesterol contributes to heart disease. Awareness is lowest in Quebec, where elevated blood cholesterol was cited as a cause by only 18% of the respondents. Moreover, fewer than one in five Canadians recognizes high blood pressure as a risk factor for cardiovascular disease, with awareness levels being particularly low in Central Canada and the Prairie provinces (except Alberta).

A full 30% of Canadians cannot mention even one of the major risk factors for heart disease. The percentages of respondents who mentioned at least one of smoking, high blood pressure and elevated blood cholesterol as a cause of heart disease ranged from a high of 78% in Ontario to a low of 51% in Quebec.

Table 6: Percentage (%) of population aged 18-74 citing selected causes of heart disease, by province, Canada, 1986-92

Selected causes	Province ^a										
	BC	AB	SK	MB	ON	PQ	NB	NS	PE	NF	CANADA ^b
Smoking	52	56	64	51	62	37	41	55	50	39	52
High blood pressure	29	26	14	17	17	11	29	33	34	32	18
Elevated blood cholesterol	36	32	30	20	31	18	30	24	27	28	27
At least one of the above	74	75	77	65	78	51	69	74	72	65	69

Source: Canadian Provincial Heart Health Surveys, 1986-92.

Note: Standardized for age and gender to the 1986 Canadian population.

^a British Columbia (BC), Alberta (AB), Saskatchewan (SK), Manitoba (MB), Ontario (ON), Quebec (PQ), New Brunswick (NB), Nova Scotia (NS), Prince Edward Island (PE), Newfoundland (NF).

^b Excluding Yukon Territory and Northwest Territories.



Age: Younger Canadians are better informed about the causes of heart disease than their older counterparts. This is particularly noticeable with respect to smoking and elevated blood cholesterol, where there are wide differences between those aged 18 to 34 and those aged 65 to 74.

Table 7: Percentage (%) of population aged 18-74 citing selected causes of heart disease, by age group, Canada, 1986-92

Selected causes	Age group			
	18-34	35-64	65-74	TOTAL
Smoking	56	52	39	52
High blood pressure	19	19	14	18
Elevated blood cholesterol	29	28	20	27
At least one of the above	72	69	55	69

Source: Canadian Provincial Heart Health Surveys, 1985-92



Gender: There are no appreciable differences between men and women in their awareness of the causes of heart disease.

Table 8: Percentage (%) of population aged 18-74 citing selected causes of heart disease, by gender, Canada, 1986-92

Selected causes	Gender		
	Men	Women	TOTAL
Smoking	53	51	52
High blood pressure	18	19	18
Elevated blood cholesterol	27	28	27
At least one of the above	69	68	69

Source: Canadian Provincial Heart Health Surveys, 1986-92.



Education: Canadians with more than 11 years of education are consistently better informed about the causes of heart disease than those with 11 years or less. The gap is especially wide in the case of elevated blood cholesterol — whereas 30% of the better educated group mentioned this as a cause of heart disease, the figure fell to 21% for respondents with less formal education. However, knowledge of risk factors is limited even among those with more than 11 years of education.

Table 9: Percentage (%) of population aged 18-74 citing selected causes of heart disease, by number of years of education, Canada, 1986-92

Selected causes	Number of years of education		
	≤11	> 11	TOTAL
Smoking	50	54	52
High blood pressure	15	20	18
Elevated blood cholesterol	21	30	27
At least one of the above	63	72	69

Source: Canadian Provincial Heart Health Surveys, 1986-92.
 Note: Standardized for age and gender to the 1986 Canadian population.

Ways of Lowering Blood Cholesterol

Survey respondents were asked whether they could mention any ways of lowering their blood cholesterol. This is regarded as a marker of knowledge and awareness with respect to heart disease. Multiple responses were allowed, and the question was unprompted.



Awareness Across Canada: Eating lower-fat foods (61%) and lowering cholesterol intake (57%) were the two ways mentioned most frequently for reducing blood cholesterol. By comparison, 36% mentioned exercise, 8% mentioned losing weight and 7% mentioned taking medication.

Overall, Canadians living in the Western provinces are much more likely to mention exercise as a way of lowering blood cholesterol than those who live in the Atlantic provinces. Awareness of the importance of exercise is highest in British Columbia (49%) and lowest in Quebec (22%). The picture is similar with regard to lowering cholesterol intake, with awareness being highest in the Western provinces (except Manitoba) and lowest in the Quebec and the Atlantic provinces (except Nova Scotia).

Awareness that weight loss helps to reduce blood cholesterol is low in every province of Canada, ranging from a high of 14% in British Columbia to a low of 4% in Quebec.

Table 10: Percentage (%) of population aged 18-74 citing selected ways of lowering blood cholesterol, by province, Canada, 1986-92

Selected ways of lowering blood cholesterol	Province ^a										
	BC	AB	SK	MB	ON	PQ	NB	NS	PE	NF	CANADA ^b
Eating lower-fat foods	55	59	45	61	62	68	51	42	47	54	61
Lowering cholesterol intake	69	63	74	52	66	36	46	67	54	45	57
Exercise	49	46	40	42	42	22	25	27	35	23	36
Losing weight	14	8	9	7	10	4	7	9	10	10	8
Taking medication	7	9	6	8	8	5	6	5	7	3	7
At least two of the above	66	64	58	57	67	39	41	47	48	41	56

Source: Canadian Provincial Heart Health Surveys, 1986-92.

Note: Standardized for age and gender to the 1986 Canadian population.

^a British Columbia (BC), Alberta (AB), Saskatchewan (SK), Manitoba (MB), Ontario (ON), Quebec (PQ), New Brunswick (NB), Nova Scotia (NS), Prince Edward Island (PE), Newfoundland (NF).

^b Excluding Yukon Territory and Northwest Territories.



Age: Older Canadians (those aged 65 to 74) are only half as likely as their younger counterparts (aged 18 to 34) to know that exercise can help to lower blood cholesterol (21%, versus 43%). Age does not appear to have a major effect on people's awareness of other ways of reducing blood cholesterol.

Table 11: Percentage (%) of population aged 18-74 citing selected ways of lowering blood cholesterol, by age group, Canada, 1986-92

Selected ways of lowering blood cholesterol	Age group			TOTAL
	18-34	35-64	65-74	
Eating lower-fat foods	58	63	62	61
Lowering cholesterol intake	58	58	47	57
Exercise	43	34	21	36
Losing weight	7	9	9	8
Taking medication	6	7	7	7
At least two of the above	59	57	45	56

Source: Canadian Provincial Heart Health Surveys, 1986-92.



Gender: There are only minor differences between men and women in their knowledge of how to lower blood cholesterol, with women being slightly more knowledgeable overall than men.

Table 12: Percentage (%) of population aged 18-74 citing selected ways of lowering blood cholesterol, by gender, Canada, 1986-92

Selected ways of lowering blood cholesterol	Gender		
	Men	Women	TOTAL
Eating lower-fat foods	58	63	61
Lowering cholesterol intake	56	58	57
Exercise	35	37	36
Losing weight	8	9	8
Taking medication	6	8	7
At least two of the above	54	59	56

Source: Canadian Provincial Heart Health Surveys, 1986-92.



Education: Education has a marked effect on what people know about reducing blood cholesterol. Canadians with more years of education are consistently more knowledgeable than those with fewer — they are much more likely to mention exercise (42%, compared to 22%) and lowering cholesterol intake (61%, compared to 47%), and to be able to cite more than one way of lowering blood cholesterol (three out of five respondents, compared to two out of five of those with less education).

Table 13. Percentage (%) of population aged 18-74 citing selected ways of lowering blood cholesterol, by number of years of education, Canada, 1986-92

Selected ways of lowering blood cholesterol	Number of years of education		
	≤11	>11	TOTAL
Eating lower-fat foods	55	62	61
Lowering cholesterol intake	47	61	57
Exercise	22	42	36
Losing weight	7	9	8
Taking medication	5	8	7
At least two of the above	40	63	56

Source: Canadian Provincial Heart Health Surveys, 1986-92. Note: Standardized for age and gender to the 1986 Canadian population.

Discussion Highlights

Canadians appear to be surprisingly ill-informed about the causes of heart disease, given that it accounts for more deaths each year than any other cause. Almost a third of the population is unable to name even one major risk factor and half of Canadians are unaware of the role played by smoking in heart disease.

There are considerable provincial and regional variations in awareness levels. Awareness of the causes of heart disease is lower in Quebec than in any other province. At the same time, Quebecers are least likely to be able to mention two or more ways of lowering blood cholesterol. Regionally, residents of the Atlantic provinces are much less likely to identify two or more ways of lowering blood cholesterol than people living in Canada's Western provinces..

Some risk factors are less well known than others. For example, although high blood cholesterol levels are fairly widely recognized as playing a causal role in heart disease, only a very small proportion of Canadians can identify

losing weight as a way of reducing blood cholesterol. Furthermore, there is a widespread lack of awareness that high blood pressure is a major risk factor for heart disease.

Age and gender do not appear to play a significant role in what Canadians know about heart disease; awareness is low overall among young and old Canadians, men and women alike. On the other hand, people's education level does play a role: more years of education translate into higher awareness levels.

4

Health Professionals: Measuring and Communicating Risk

In Canada, as in many countries, there is a growing recognition that it is important for health professionals and their clients to work as partners. This is a reflection of our broadened understanding of health and the attendant need to increase people's control over the circumstances of their lives. It also stems in part from Canadian consumers' growing demand to be well informed and actively involved in decisions that concern their lives, health and safety. From this perspective, clients need the facts to act responsibly. It is reasonable to expect that with a better understanding of their own risk, people will be more amenable to adopting preventive practices.

The Provincial Heart Health Surveys attempted to gauge how successfully Canadian health professionals are communicating with their clients, and the extent to which they take advantage of clients' visits to educate and inform them about cardiovascular disease and their personal risk. Two measures were used: survey respondents were first asked whether they had had their blood pressure measured in the preceding 12 months, and whether they had been told the numbers; they were then asked whether they had ever had their blood cholesterol levels measured, and whether they had been told the results.

It is important to note that these responses are based on people's recollections of their interactions with health professionals. They provide an indication of the effectiveness of communication between health professionals and their clients concerning at least two of the major risk factors for cardiovascular disease. What they underline is the importance for health professionals (particularly physicians, who have the most opportunity) of communicating with clients clearly — that is, in a manner that ensures clients will understand and remember what has been said.

Measuring Blood Pressure and Giving the Result

Across Canada: Close to three-quarters (72%) of the Provincial Heart Health Survey



respondents reported having had their blood pressure measured in the 12 months preceding the survey, but less than half (45%) of those said it had been told to them in numbers. There were striking variations among the residents of different provinces — for example, only 26% of Newfoundlanders said they had been given their blood pressure results, compared to 51% of Quebeckers.

Table 14: Percentage (%) of population aged 18-74 reporting that they had had their blood pressure measured and told to them in the 12 months preceding the survey, by province, Canada, 1986-92

	Province ^a										
	BC	AB	SK	MB	ON	PQ	NB	NS	PE	NF	CANADA ^b
Had their blood pressure measured in past 12 months	66	70	71	70	75	71	70	75	69	68	72
Among those who had their blood pressure measured in the previous 12 months, said their reading was described to them in numbers	41	41	45	39	46	51	34	37	44	26	45

Source: Canadian Provincial Heart Health Surveys, 1986-92.

Note: Standardized for age and gender to the 1986 Canadian population.

^a British Columbia (BC), Alberta (AB), Saskatchewan (SK), Manitoba (MB), Ontario (ON), Quebec (PQ), New Brunswick (NB), Nova Scotia (NS), Prince Edward Island (PE), Newfoundland (NF).

^b Excluding Yukon Territory and Northwest Territories.



Age: Older respondents were more likely to report having had their blood pressure measured in the preceding 12 months (87% of those aged 65 to 74, compared to 66% of those aged 18 to 34). They were also more likely to say they had been told their blood pressure in numbers (50% of those aged 65 to 74, compared to 41% of those aged 18 to 34).

Table 15: Percentage (%) of population aged 18-74 reporting that they had had their blood pressure measured and told to them in the 12 months preceding the survey, by age group, Canada, 1986-92

	Age group			
	18-34	35-64	65-74	TOTAL
Had their blood pressure measured in previous 12 months	66	74	87	72
Among those who had their blood pressure measured in the previous 12 months, said their reading was described to them in numbers	41	47	50	45

Source: Canadian Provincial Heart Health Surveys, 1986-92.



Gender: While more women than men said that their blood pressure had been checked in the preceding 12 months, men and women were about equally likely to report that they had been told the result in numbers.

Table 16: Percentage (%) of population aged 18-74 reporting that they had had their blood pressure measured and told to them in the 12 months preceding the survey, by gender, Canada, 1986-92

	Gender		
	Men	Women	TOTAL
Had their blood pressure measured in previous 12 months	66	79	72
Among those who had their blood pressure measured in the previous 12 months, said their reading was described to them in numbers	47	44	45

Source: Canadian Provincial Heart Health Surveys. 1986-92.



Education: Respondents with more education were much more likely to say their blood pressure had been described to them in numbers than those with less. However, education level did not appear to be associated with reporting that the measurement had been taken in the first place.

Table 17. Percentage (%) of population aged 18-74 reporting that they had had their blood pressure measured and told to them in the 12 months preceding the survey, by number of years of education, Canada, 1986-92

	Number of years of education		
	≤11	> 11	TOTAL
Had their blood pressure measured in previous 12 months	70	72	72
Among those who had their blood pressure measured in the previous 12 months, said their reading was described to them in numbers	35	49	45

Source: Canadian Provincial Heart Health Surveys. 1986-92.

Note: Standardized for age and gender to the 1986 Canadian population.

Measuring Blood Cholesterol and Giving the Result



Across Canada: Forty-five per cent of survey respondents said they had had their blood cholesterol levels measured at some point in their lives. The percentages were generally lower in Canada's Eastern provinces and higher in Ontario and Quebec.

Of those who said they had ever had their blood cholesterol levels measured, 61% reported that the results had been told to them. In general, Canadians living in the Western provinces are more likely than those living in the East to say they have been told their blood cholesterol levels. Residents of Alberta (70%) are most likely to report having been told the levels, and residents of New Brunswick least likely (42%).

Table 18: Percentage (%) of population aged 18-74 reporting that they have ever had their blood cholesterol measured and told to them, by province, Canada, 1986-92

	Province ^a										
	BC	AB	SK	MB	ON	PQ	NB	NS	PE	NF	CANADA ^b
Said they had ever had their blood cholesterol measured	35	40	42	45	51	48	38	23	21	18	45
Among those ever measured, said their blood cholesterol levels had been told to them	68	70	68	61	65	49	42	47	57	62	61

Source: Canadian Provincial Heart Health Surveys, 1986-92.

Note: Standardized for age and gender to the 1986 Canadian population.

^a British Columbia (BC), Alberta (AB), Saskatchewan (SK), Manitoba (MB), Ontario (ON), Quebec (PQ), New Brunswick (NB), Nova Scotia (NS), Prince Edward Island (PE), Newfoundland (NF).

^b Excluding Yukon Territory and Northwest Territories.



Age: Older respondents were substantially more likely than younger ones to say they had ever had their blood cholesterol measured. A full two-thirds (67%) of those aged 65 to 74 years reported that their blood cholesterol had been measured at some point in their lives, compared to only a quarter in the younger group.

Table 19: Percentage (%) of population aged 18-74 reporting that they have ever had their blood cholesterol measured and told to them, by age group, Canada, 1986-92

	Age group			
	18-34	35-64	65-74	TOTAL
Said they had ever had their blood cholesterol measured	26	58	67	46
Among those ever measured, said their blood cholesterol levels had been told to them	159	62	59	61

Source: Canadian Provincial Heart Health Surveys, 1986-92.



Gender: Men and women were about equally likely to say they had ever had their blood cholesterol measured and that the results had been told to them in numbers.

Table 20: Percentage (%) of population aged 18-74 reporting that they have ever had their blood cholesterol measured and told to them, by gender, Canada, 1986-92

	Gender		
	Men	Women	TOTAL
Said they had ever had their blood cholesterol measured	46	47	46
Among those ever measured, said their blood cholesterol levels had been told to them	63	59	61

Source: Canadian Provincial Heart Health Surveys, 1986-92.



Education: Canadians with less education are less likely than those with more education to report either that their blood cholesterol has ever been measured or that they have been told the result.

Table 21: Percentage (%) of population aged 18-74 reporting that they have ever had their blood cholesterol measured and told to them, by number of years of education, Canada, 1986-92

	Number of years of education		
	≤11	> 11	TOTAL
Said they had ever had their blood cholesterol measured	39	49	45
Among those ever measured, said their blood cholesterol levels had been told to them	57	63	61

Source: Canadian Provincial Heart Health Surveys, 1986-92.
 Note: Standardized for age and gender to the 1986 Canadian population.

Discussion Highlights

These data provide a valuable window on how Canadians and their health care providers interact with respect to two of the major risk factors for cardiovascular disease they show clearly that there is room for improvement in the communication skills of health professionals.

For example, less than two-thirds of the Canadians who have had their blood cholesterol levels measured report having been told what these were. Assuming that one of the desired end-results of any communication between a health professional and a client is an informed client, these findings suggest that health professionals may be missing out on valuable opportunities to engage patients on the issue of cardiovascular disease and its risk factors. It is important for all health professionals — physicians particularly — to ensure that the message gets through, and that they find ways of overcoming socioeconomic, cultural and other barriers to communication with their clients. This is especially important with respect to persons who have a lower level of education. Although they are known to be at higher risk of cardiovascular disease (see Table 5), these individuals are less likely to report having had their blood pressure and cholesterol measured, and less likely to say the results were told to them than are their more educated counterparts.

5

Policy Implications and Future Directions

Canadians are at Risk

The Provincial Heart Health Survey results confirm that the average Canadian lifestyle is fraught with risk. There are considerable differences in cardiovascular disease risk and mortality rates, not only from one region to another, but between various socioeconomic and age groups. The survey findings further debunk the myth that women are at less risk than men. They indicate that Canadians know too little about the causes of heart disease and how to lower their risk and that the people who are at greater risk, such as those with lower educational levels, are often the least well informed. Finally, the data suggest that health professionals could do more to make Canadians conscious of the risks inherent in certain lifestyle choices.

A Firm Policy Foundation

Promoting Heart Health in Canada provided a policy blueprint for the prevention and control of cardiovascular disease using a public health approach. With virtually all the recommendations of that landmark report now implemented, Canada's current heart health policy is distinguished by the following main features:

- a balance of measures addressed to the *population in general* as well as to *high-risk groups*
- integrated action in the four "cornerstone" areas of heart health, namely:
 - improvement of *dietary habits*, in particular a reduction in total consumption of fat and saturated fat
 - eradication of *tobacco use*
 - increased *physical activity* in all population groups, in keeping with age and health status
 - alleviation of harmful *psychosocial factors* related to cardiovascular disease
- an emphasis on *healthy public policy* and the *creation of supportive environments* through multisectoral action (i.e., action involving the health and non-health sectors).

2 Report of the Federal-Provincial Working Group on the Prevention and Control of Cardiovascular Disease (1987).

The public health system has initiated the necessary intersectoral dialogue at the provincial level, building the linkages required to support the effective implementation of heart health policy.

This is a formula that has served Canada well to date. The Canadian Heart Health Initiative has wide participation, with all 10 provinces and the federal government involved as major partners, as well as the Heart and Stroke Foundation, its provincial affiliates and a multitude of other organizations and associations nation-wide. The dimensions of cardiovascular disease risk have been mapped out in unprecedented detail, thanks to the Provincial Heart Health Surveys. Numerous coalitions, linked by a common policy, have come together at the community, provincial and national levels to work for improved heart health in Canada. Research and program development capacity is building locally and provincially by virtue of a series of heart health demonstration programs. These research studies are, in turn, yielding valuable information that can guide and contribute to future policy and program development in heart health and other areas of health promotion and disease prevention.

Although there have been impressive achievements, there is still much to do. The provincial survey results make it clear that major challenges remain ahead for Canadians in the area of heart health, namely:

- cardiovascular disease risk is widespread in Canada
- some groups are at greater risk than others
- Canadians need to know more about the causes of heart disease and how to reduce their risk
- health professionals need to communicate more effectively with their clients about cardiovascular disease and its risk factors.

Refining the Approach

The strategies and approaches employed at the federal, provincial and community levels have worked well to date. However, the challenges revealed by the Heart Health Surveys confirm that Canada needs to sharpen the focus of its heart health policy.

Policy Development

Policy development — the reaching of consensus among key stakeholders on ways to effect positive change — is a prime area for action. The widespread prevalence of risk in Canada confirms the appropriateness of Canada's current two-pronged approach, which emphasizes population-based as well as traditional high-risk strategies. However, the survey data underscore the need for policies addressing the special risk-reduction needs of women, youth, older Canadians and groups who are socially disadvantaged in our society. There is also an urgent need for policies that deal explicitly with the uneven distribution of cardiovascular risk.

Aside from policies to address these "broad-sweep" equity concerns, we also need stronger policies to enhance the preventive practices of physicians

and other health care workers, who may not be fully exploiting valuable educational opportunities in the clinical setting. In particular, health professionals need support in overcoming the cultural, social and economic barriers to effective communication with their clients.

Research Demonstration Programs

The main purpose of the provincial research demonstration programs is to learn about the practice and the science of heart health interventions at the provincial and community levels. The emphasis is on *integrated* interventions that address the multifaceted nature of cardiovascular disease through a variety of channels. These programs are making a valuable contribution to local research and program development capacity, and have been the bedrock for coalition-building. Very importantly, they are providing a means of testing out new ways of promoting community heart health.

In the few years since they started, the research demonstration programs have produced many innovative organizational responses to heart health issues identified by both communities themselves and provincial coalitions. In effect, the programs have established a health promotion and disease prevention infrastructure which can be used in responding to the challenges raised by the Heart Health Survey results, both provincially and in selected communities — for example, the special needs of certain groups — and in exploring such key questions as how the public health and primary care sectors can work more closely together to address barriers to prevention.

Community Mobilization

As one of the linchpins of Canadian heart health policy, the community mobilization approach is based on two main premises: that health has strong links to social, economic and political conditions, and that communities at risk should themselves decide how best to address that risk.

The surveys have revealed wide variations in cardiovascular disease risk across Canada's regions and provinces. It is almost certain that the differences between poor and affluent communities in various parts of the country are even more pronounced. Through the Canadian Heart Health Initiative, we are learning a great deal about how to engage communities in support of health promotion and disease prevention, and how to maintain that support. This work must continue and expand if Canada is to achieve the goal of equity in health.

Community mobilization strategies offer high pay-offs, and they help to ensure sustained heart health programming. In fact, their benefits go far beyond heart health, because when people come together in a genuine partnership, possibilities open up for participation in a wide range of issues. In effect, heart health can provide an "entry point" for the community's broader, more long-term involvement in health and development. Community mobilization strategies must continue to be accorded a high priority, which includes the provision of appropriate resources.

Enhancing the Preventive Practices of Health Professionals

Most Canadians visit their physicians at least once a year, and this provides an excellent opportunity for preventive education. Clinical practice guidelines on prevention have been available for some years in Canada. Health Canada is currently working with voluntary organizations and professional associations in a concerted effort to facilitate adoption of these guidelines by physicians and other health professionals. This joint work is also focusing on helping health professionals acquire appropriate counselling skills and making improvements to the practice environment generally. The communication challenges and opportunities for prevention identified in this report should be addressed as part of this ongoing collaborative initiative.

Public Education

Canadians have made major lifestyle modifications over the past 20 years. To sustain and accelerate these positive trends requires a continuation and, indeed, a redoubling of the public education effort. People need adequate support in making and maintaining lifestyle changes, one element of this being a consistent, continual message about the multifaceted nature of cardiovascular risk and what can be done to prevent it. This will positively reinforce the actions of Canadians who already understand the benefits to be gained from improved health practices, and help to engage the commitment of new cohorts of people who have not yet been exposed to the heart health message.

There are countless opportunities to build on existing campaigns addressing single-factor issues such as smoking, nutrition, physical fitness or high blood pressure. Opportunities also exist at the community level to develop innovative multifactorial approaches that address several issues simultaneously, working through the coalition system. However, what is most needed is wide-scale *integrated* public education programming. Provinces — and indeed communities — must coordinate efforts to develop appropriate social marketing concepts and a clear message about the risk factors for cardiovascular disease, their determinants, and what Canadians can do to reduce their risk. Huge health gains can accrue from such efforts.

Coalition-building

A key strength of Canada's heart health policy has been the role played by a network of coalitions in its implementation. Encompassing governments at all levels, non-government organizations, community agencies and the private sector, these coalitions promote program flexibility and facilitate the linking of federal and provincial resources with those from communities and elsewhere. They also provide a vehicle whereby partners with widely varying interests can reach consensus on practical ways of implementing heart health policy.

Operating within a coalition calls for a different set of skills than working within a more traditional organization. For example, there is less emphasis on process and more on results, less on formal structures, rules and dollar allocations, and more on informal modes of communication and the leverage

of resources, less delineation of "turf" and more emphasis on shared responsibility for results. This type of "paradigm shift" is not achieved overnight, and considerable practice and effort — not to mention evaluation — is required to get it right.

Thus far, the coalition system has allowed the heart health community to lever considerable resources. The current base of partners in heart health is very broad, and yet it needs to be expanded even further if the coalition approach is to realize its full potential — for example, bringing more scientists in could help to ensure that the "public health message" influences the scientific research agenda.

As the *Victoria Declaration on Heart Health* acknowledges, one of the major challenges facing heart health is bridging the gap between science and policy. Coalitions provide an excellent mechanism for bringing the two constituencies together and, indeed, for broadening the partnership in general by drawing in more disciplines and recognizing the linkages with issues beyond heart health. Expanded partnerships increase the potential for resource-sharing and for reaching a wider audience.

Intersectoral Action

Making the healthy choices the easy ones and creating "health-supportive" environments are effective ways for a society to encourage healthy individual practices and lifestyles. There is considerable scope for collaboration among those who work in the "cornerstone" areas of nutrition, smoking, physical activity and psychosocial factors — not only across government but with the private sector. Legislative/regulatory initiatives, the elaboration of nutrition policies, and the provision of smoke-free spaces and recreational and workplace opportunities for physical exercise are examples of activities that depend on intersectoral cooperation.

While health-related policies are of critical importance, they are not, on their own, enough. They need to be complemented by, and coordinated with, policies and practices in other spheres of activity that have the potential to affect people's health. Agriculture, housing and transportation are three examples of sectors where enlightened policy-making can reinforce and support healthy lifestyle choices. Similarly, work-site and school policies and practices on active living, healthy eating, stress reduction and a non-smoking lifestyle can make it easier for Canadians to pursue healthier lifestyle practices.

People who live in high-risk socio-environmental circumstances generally have less social support, lead unhealthier lifestyles, experience higher rates of cardiovascular disease, and die earlier than those who have more social and economic advantages. Clearly, there are some issues underlying the uneven distribution of cardiovascular risk in Canada that are beyond the scope of heart health policy. These need to be addressed through social and economic policy initiatives and measures that will reduce inequalities by stimulating employment, education and income opportunities.

Research, Evaluation and the Dissemination of Knowledge

It is widely agreed, and explicitly recognized in the *Victoria Declaration*, that the knowledge currently exists to prevent cardiovascular disease. However, there are some important gaps. What are the best ways of applying our knowledge to help communities improve their health? How do we go about evaluating heart health programs "on the ground"?

We also need to find out how to disseminate interventions that work — what, for example, are the factors that favour the adoption of new models and the incorporation of new information into existing programs? With a better understanding of the conditions that promote effective dissemination of research results, program knowledge and, indeed, practice guidelines — the heart health community will have bridged a major gap. Without it, we may be merely marking time. Bridging the science-policy gap is identified in the *Victoria Declaration* as a broad strategy for the prevention of cardiovascular disease. Certainly, it is vital to the resolution of the challenges identified in this report. The research model used in the Canadian Heart Health Initiative's demonstration programs, which combines scientific research and program development, has contributed immensely to our knowledge base, while at the same time ensuring the quality of the interventions.

Forging close links between the scientific community and the government sector can be an effective way of ensuring that the benefits of prevention reach the entire population. One way to do this is to ensure that scientists are involved in policy development and program implementation at the federal, provincial and community levels.

An Investment in Health

The steady decline in the incidence of cardiovascular disease in Canada over the past 20 years has been a major public health success. The decrease can confidently be attributed to a combination of health promotion policies and an effective health care system. The decrease in smoking rates, the lower proportion of fat in the Canadian diet and the reduction in the average alcohol intake in Canada probably account for most of the gains in terms of mortality rates, while reduced smoking and the control of high blood pressure through universal access to a high-quality health care system have given Canada one of the lowest stroke rates in the world.

Yet further investments are required, because the costs of cardiovascular disease in human, social and economic terms continue to be far too high. Broadly, the Provincial Heart Health Surveys suggest that our resources should now be focused in two main areas: support for dissemination, to ensure that the benefits of prevention reach all Canadians, and secondly, action to ensure that health promotion and disease prevention interventions become an integral part of Canada's health system. To achieve these goals means that governments, professionals, the private sector, voluntary health organizations, community workers and the research community must grasp the opportunity to work together for a Canada free from the burden of cardiovascular disease.

We must not underestimate the power of our health policies — including how we choose to allocate our resources and how we organize the delivery of health promotion — to improve population health. It is the quality of these policies that will ultimately determine the health and quality of life of Canadians and, in turn, their contribution as citizens. Seen in these terms, an investment in heart health represents an investment in Canada's future development and prosperity.

Appendix A Survey Methodology

The primary objective of the Canadian Provincial Heart Health Surveys was to determine the prevalence of cardiovascular disease risk factors and participants' knowledge and awareness of the causes and consequences of these factors. The surveys followed a standard core protocol, which was originally developed in Nova Scotia. The surveys were part of the Canadian Heart Health Initiative, a collaborative program of the provincial departments of health and of Health Canada to implement a comprehensive cardiovascular disease prevention strategy in Canada.

The 10 provincial surveys were completed between 1986 (Nova Scotia) and 1992 (Ontario). Data from all 10 surveys form the foundation of the foregoing report. A report on the results of the surveys in nine provinces was published in a special supplement to the *Canadian Medical Association Journal* in June, 1992.¹

The survey methods and field and clinical procedures used in each province were similar. A core of information about demographics, knowledge, awareness and risk factors was common to all surveys. A manual was developed to train the interviewers (community health nurses) to carry out field procedures and common protocols for the measurement of blood pressure and anthropometric variables and for collection of blood samples.

Upon completion, each provincial survey was reviewed by a data interpretation committee with expertise in epidemiology, medicine, laboratory analysis and statistics. The committees examined compliance with the survey protocol and interpretation of the results before their release by the corresponding departments of health.

Target Population

The target population for each provincial survey was defined as people aged 18 to 74 years not in institutions. In all provinces except Manitoba, people living in Indian reserves, military camps and institutions were not sampled. (The Yukon Territory and Northwest Territories are not included in this report, as they have not yet conducted risk-factor surveys.)

Sampling Design and Frame

Stratified, two-stage, replicated probability sampling designs were used. Within each province, standard geographic areas were categorized as metropolitan, urban or rural, using 1986 census of population definitions.² Urban centres were stratified according to population size, while rural areas were categorized according to their geographic location.

Survey Questionnaire

The questionnaire was reviewed by an expert panel convened to evaluate the protocol for the Nova Scotia Heart Health Survey. It was subsequently tested for reliability. The instrument developed for the Nova Scotia survey was tested in each of the other nine provinces to ensure consistency of questions (e.g., names of foods) with the regional vernacular. The questionnaire was translated into French for use in Quebec and other francophone regions of Canada.

Field Operations

The subjects selected from the provincial medical registries were invited by telephone or letter to participate in the survey. Those who could not be reached by telephone were contacted in person at home by a public health nurse. The nurses then made appointments for home interviews.

Data were collected in two phases:

- 1 A 40- to 60-minute home interview provided information on demographics, lifestyle (smoking, physical activity, alcohol intake), diabetic status, hypertensive status, and knowledge and awareness of causes and consequences of cardiovascular disease risk factors. Blood pressure was measured at the beginning and end of the interview. At the home interview, the participants were invited to attend a clinic.
- 2 A clinic visit usually took place within two weeks of the home interview. This visit included two additional blood pressure measurements, a fasting blood sample for lipid analysis and anthropometric measurements (height and weight in all provinces; waist and hip circumference in Manitoba, Saskatchewan, Quebec, Alberta and Ontario).

Participants

A probability sample of 29 855 men and women aged 18 to 74 years was selected from the health insurance registries in each province. The total number of individuals interviewed was 23 129; 20 100 attended the clinic and 18 689 provided a fasting blood specimen.

Using lists from the registries, the population aged 18 to 74 in the selected primary sampling units was stratified into six age-gender groups (men and women aged 18 to 34, 35 to 64 and 65 to 74) before the required numbers were chosen at the second stage of sample selection.

Response Rates

Of the subjects invited to participate in the survey, 77% were interviewed; the percentage was slightly higher for women (79%) than for men (76%).

Of those invited to participate in the survey, 67% attended the clinic and 63% provided a fasting blood specimen. Overall, 87% of those interviewed came to the clinic and, of these, 93% provided a fasting blood specimen. Losses due to failure to attend the clinic and failure to give a fasting specimen were similar for the six age-gender categories.

Data Processing and Analysis

Data from each of the 10 provinces were used. Within each province, two probability weights were calculated for each person, taking into account the province's sample design. To allow comparisons between provinces, prevalence rates and other proportions were age- or age- and gender-standardized based on the age-gender distribution of the 1986 Canadian population.³ The direct method was used for standardization.

The statistical method used to calculate the weights, estimates of proportions (prevalence rates), mean values and associated standard errors is available from the Assistant Director, Social Survey Methods, Statistics Canada, Ottawa, Ontario.

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