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Understanding Health Care Cost Drivers and Escalators

HEALTH, HEALTH CARE AND WELLNESS

Understanding Health Care Cost Drivers and Escalators
by *The Conference Board of Canada*

About the Conference Board of Canada

The Conference Board of Canada is the foremost independent, not-for-profit applied research organization in Canada. We help build leadership capacity for a better Canada by creating and sharing insights on economic trends, public policy issues, and organizational performance. We forge relationships and deliver knowledge through our learning events, networks, research products, and customized information services. Our members include a broad range of Canadian organizations from the public and private sectors. The Conference Board of Canada was formed in 1954, and is affiliated with The Conference Board, Inc. that serves some 3,000 companies in 67 nations.

Preface

This report examines cost drivers and escalators in the provincial and territorial health systems.

The purpose of this report is to provide analysis and insights for key decision makers on the management of health care investments and, in particular, the cost drivers and escalators in the provincial and territorial health systems.

In keeping with The Conference Board of Canada's guidelines for financed research, the design and method of research, as well as the content of this report, were determined solely by the Conference Board.

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Executive Summary

The cost of health care will likely reach $121 billion in 2003. The proportion of provincial and territorial revenues devoted to health will grow from about 32 per cent in 2001 to 44 per cent in 2020. Some provinces could spend in excess of 50 per cent of their budgets on health care by 2020, just as the demographic bulge of Canadian seniors start to pass through the systems. But, as stated in the Conference Board's 2001 report, *The Future Cost of Health Care in Canada, 2000 to 2020*, "The impact of a growing and aging population washing onto the shores of the health care systems will not happen overnight."

Cost drivers (population growth, aging, demand, increased prevalence of chronic diseases and inflation), will require an additional public investment of approximately $5 billion annually. Cost escalators (pharmaceuticals, home care, new technologies and health human resources) will add fuel to the fire in the short and medium term. To turn the situation around before the 2020 crunch, governments will have to make tough decisions. They need to balance their priorities in health and health care with other competing priorities. This challenge cuts to the heart of Medicare—the belief that health care is a public good for all who need it, regardless of their ability to pay. Canadians cherish their health care systems today, more than ever. Some even believe that they are part of our national identity—a part that distinguishes us from our neighbours to the south.

In this study, we compared Canada with 23 other OECD industrialized countries and found Canada to be a middle-of-the-pack performer. Canada fares relatively well on health status indicators, ranking fifth overall with strong performances in life expectancy and self-reported health. However, it does poorly on non-medical factors like the incidence of road traffic accidents and obesity. Canada has the second highest rate of sulphur oxide emissions, which lead to air pollution. We rank 20th on health outcomes indicators, which include deaths from lung cancer, heart attack and suicide.

Ironically, Canada is the third highest total spender on health care among the 24 OECD countries and the sixth highest public spender, clearly proving that spending more on health care does not guarantee strong health outcome performance. Meanwhile, the disparity between provincial and federal governments is growing. The provincial/territorial deficit will reach $11 billion by 2019/20. Our analysis shows that the federal government surplus, on the other hand, will rise steadily over that period, reaching $78 billion.

The annual nominal growth rate in health expenditures is forecast at 5.3 per cent, while real growth is projected to average 2.6 per cent per year. The real burden on the public health care systems, as a result of aging and demand, will require an additional investment of approximately $2 billion annually. Inflation alone requires an investment—beginning this year at approximately $2 billion—just to keep up with existing services.

Governments will need to focus on human resource, patient safety and access issues. Research on the factors that drive productivity in the health care workforce may be needed to control the ebbs and flows of health human resources. Recent Conference Board research shows that key factors of productivity include investment in machinery and equipment, as well as education and training. We need to invest in machinery and equipment, like computers, and to support continuous learning if the health care workforce is to improve productivity.

The upcoming Supreme Court decision in the case of *Chaoulli versus Québec* will determine whether or not an individual can pay for care that is provided through the public systems. If successful, this court challenge will have a profound influence on the financing and timely delivery of health care in Canada. Waiting times in Canada are already among the highest in OECD countries and continue to be Canadians' biggest concern. Until now, the success of triage systems to manage waiting lists has been hit and miss. Yet, governments will need to apply this approach across the board to become effective. Serious methodological and data reporting issues will need to be addressed, so that Canadians can better understand how long they should—

and how long they will—wait for a range of medical and technological procedures.

Governments will also need to focus on management strategies for pharmaceuticals and home care. With respect to pharmaceuticals, governments will need to understand how drug prices and use can be better managed, using demand-side tools like cost-sharing, co-payments, and provider incentives, and supply-side management tools, such as volume purchasing. Technology assessment will be a critical element of managing pharmaceutical costs.

As the population grows older and needs more care, governments look for cheaper alternatives to institutional care; this trend coincides with public pressure for care that allows aging parents to remain in their own homes. Governments should find the most appropriate substitution or mix of care—one that balances outcomes with costs.

Governments should continue to restructure the systems to better manage demand and plan for the effects of demographics and inflation. There is apprehension among some Canadians and decision-makers that health care spending will, in time, crowd out other public policy priorities that have a profound effect on health, like education and environmental stewardship.

Governments need to look ahead and work co-operatively with patients, providers, other levels of government, and business to overcome the challenges of escalating costs in the health care systems. And yet, cost is only one of the factors which require attention.

Governments and Canadians will need to focus on a collective vision for health and health care—one with an emphasis on the outcomes from health care, and not simply on the process of delivery. They will also need to shift their emphasis from "fixing what's broken" to supporting health through preventative measures, like reducing obesity. And governments will need to engage Canadians more than ever before, so that they understand the inherent conflict between stable tax rates and escalating health care cost pressures.

Introduction

The public health care systems will continue to consume a greater share of the public purse in Canada, if current conditions persist. The proportion of provincial and territorial revenues devoted to health will grow from about 32 per cent in 2001 to 44 per cent in 2020. Sustainability remains an elusive goal. This report looks at the issue of cost drivers and escalators in the health care systems. **Cost drivers** include the underlying structural forces that have an impact on health care costs; these include the effects of population growth, aging, demand, chronic diseases and inflation. Governments and decision-makers have only minimal control over these forces. **Cost escalators** include mechanical forces which have an impact on health care costs. They include: pharmaceuticals, new technologies, home care, access, patient safety, health human resources and the environment. Governments have greater control over cost escalators than cost drivers.

While the goal of sustainability remains elusive and requires even greater focus, we must recognize that our health care systems are key drivers of innovation and, in fact, have the potential to become an engine of economic prosperity. The Conference Board of Canada defines innovation as a process through which economic or social value is extracted from knowledge.[1] As an economic driver, the pan-Canadian health care systems employed over 1.5 million highly-skilled and educated people across the country in 2000; this amounts to about one in 10 employed Canadians.[2] Total health spending is estimated to be $121.4 billion in 2003 and accounts for almost 10 per cent of GDP.[3] General Motors says Medicare saves it "several dollars per hour of labour."[4] The health care systems provide sustainable employment, add to the Canadian knowledge-based economy, provide for economic prosperity and make Canada an attractive location for the business sector.

The challenge for innovation within health care is enabling and exercising strong leadership, while creating a culture of innovation which permeates the system at all levels.[5] A culture shift to open communication, trust, respect and a willingness to take calculated risks within a safe environment is required. The creation of such a culture should be seen through the lens of a framework which takes into account the creation, diffusion, transformation and use of new processes, products or services.[6] True innovation requires a focus on extracting economic and social value from knowledge. As Prime Minister Paul Martin has said, "there is a growing, worldwide market for health products and services, and Canada is ideally suited to capture a substantial share."[7]

For governments, it becomes an issue of balance and management—the balance between health care investments and an effective innovation strategy. This report focuses on the management of health care investments and, in particular, the cost drivers or escalators. It does not attempt to play one system or sector against another. It only intends to create a platform for discussion for key decision makers.

This report includes a brief summary of how the health care systems are organized and funded. It describes the performance of the health care systems in three different areas (health status, health outcomes, and non-medical factors) and how they compete for scarce resources. We conclude with a focus on key cost drivers and escalators in Canada, with an eye to the challenges facing the health care systems, and an examination of potential avenues for key decision-makers.

[1] The Conference Board of Canada, *Trading in the Global Ideas Market, 5th Annual Innovation Report 2003* (Ottawa: The Conference Board of Canada, 2003), p. 5.

[2] Canadian Institute for Health Information, *Canada's Health Care Providers* (Ottawa: CIHI, 2002), p. ix.

[3] Canadian Institute for Health Information, *National Health Expenditure Trends 1975-2003* (Ottawa: CIHI, 2003), p. iii.

[4] Canadian Auto Workers, General Motors, Ford and DaimlerChrysler, *Joined Letter on Publicly Funded Health Care*, September 12, 2002. See <http://www.caw.ca/whatwedo/bargaining/big3automakers/auto02/jointletter.asp> cited February 2004.

[5] Jacek Warda*, The Road to Global Best – Tweaking the Tax System to Support Innovation, Innovation Challenge Paper #3 May 2002* (Ottawa: The Conference Board of Canada, May 2002), p. 2.

[6] The Conference Board of Canada, *Trading in the Global Ideas Market, 5th Annual Innovation Report 2003* (Ottawa: The Conference Board of Canada, 2003), p. 5.

[7] Montreal Board of Trade Luncheon on September 18, 2003. See http://www.cbc.ca/news/background/martin_paul/ cited February 2004.

CHAPTER 1

How the Canadian Health Systems are Performing and Competing for Scarce Resources

INTRODUCTION

This section begins with a description and analysis of Canadians' health status and the performance of their health systems, benchmarking our country's systems with that of other Organisation for Economic Co-operation and Development (OECD) countries. This analysis is followed by a discussion of the impact that Canadian governments' fiscal capacity has on the health systems and how competing demands from other health and public policy priorities will affect health care resources in the future.[1]

BENCHMARKING CANADA'S HEALTH STATUS AND HEALTH SYSTEMS PERFORMANCE

Before examining possible strategies for addressing the need for additional health funding, we will look at how the current system is performing and ultimately, what the current health status of Canadians is.

For the purposes of this report, the Conference Board undertook a benchmark analysis of Canada and 23 other OECD countries. Using the most recent data available, we examined and ranked the countries, based on 24 performance indicators covering three categories: health status, non-medical factors and health outcomes.

Table 1
List of Ranked Indicators Used (by Category)

Health Status	Non-Medical Factors	Health Outcomes
Life expectancy males / females	Body weight	Lung cancer mortality rates males / females
Disability-free life expectancy males / females	Tobacco consumption	Acute myocardial infarction mortality rates males / females
Self-reported health status	Alcohol consumption	Stroke mortality rates males / females
Infant mortality rate	Road traffic accidents	*PYLL suicide – (males)
Low birth weight	Sulphur oxide emissions	PYLL lung cancer males / females
	Immunization - DTP	PYLL breast cancer
	Immunization for influenza	

*Potential Years of Life Lost

To make our benchmarking analysis more meaningful, indicator scores for each country were categorized, based on their relative position, as gold, silver, or bronze level. Results were then weighted (gold=2 points, silver=1 point, bronze=0 points) to produce an overall score for each country by indicator category (see Appendix B for a discussion of the methodology used and the detailed results of this analysis). We also examined nine health care resource indicators that were not ranked. We did not rank the countries on the basis of health care resources, since it is not possible to say, with certainty, what a high-performing level of resources (e.g., health care spending per capita) is. See tables 1 and 2 for a list of the indicators used.

Overall Results

This particular benchmarking analysis finds Canada to be a "middle-of-the-pack" performer, when it comes to most health-related indicators. Canada placed 13th overall, out of 24 countries on all 24 indicators (see Table 3 below). Switzerland is the overall top performer, with 14 gold-level and nine silver-level placements. Sweden finished second. Canada fares relatively well on health status indicators. However, it does poorly on non-medical factors and in health outcomes.

While Canadians may cherish their "Medicare" system and feel that it is an important distinguishing feature that sets us apart from the United States, Canada is not an elite performer in health, when compared to the world's leading industrialized countries. Other organizations have reached similar conclusions.[2] Clearly, there is room for improvements, both within the health care systems and with the other determinants of health.

Table 2
List of Health Care Resource Indicators (unranked)

Health Care Resources
Total health spending
Public health spending
Public expenditures on prevention and public health
Expenditures on pharmaceutical industry R&D
Number of physicians (general practitioners)
Number of physicians(specialists)
Number of nurses
MRI units
Radiation therapy equipment

Table 3
Overall results* (health status, non-medical factors and health outcomes)

Rank	Country	Gold	Silver	Bronze	Weighted Medal Count
1	Switzerland	14	9	1	37
2	Sweden	14	7	0	35
3	Spain	12	9	3	33
3	France	12	9	2	33
3	Italy	11	11	0	33
3	Germany	9	15	0	33
7	Norway	13	6	2	32
8	Japan	14	3	7	31
8	Iceland	12	7	2	31
8	Australia	10	11	3	31
8	Netherlands	11	9	4	31
12	Finland	11	7	4	29
13	**Canada**	**7**	**13**	**4**	**27**
14	Mexico	12	4	4	26
14	Belgium	9	8	4	26
14	New Zealand	7	12	5	26
17	Austria	6	13	3	25
18	Denmark	8	8	6	24
19	Korea	9	5	9	23
19	Portugal	8	7	5	23
19	United Kingdom	6	11	7	23
22	Ireland	7	7	7	21
23	United States	5	9	10	19
24	Greece	5	8	5	18

*Gold = 2; Silver = 1; Bronze = 0

Health Status

Health status indicators reveal the bottom-line, when it comes to measuring the health of societies and the quality of years lived by their populations. It is important to bear in mind that health status indicators are affected by the performance of a wide range of factors beyond the health care systems, such as socio-economic and environmental conditions.

Among the three categories of indicators examined in this analysis, Canada's best performance is in health status, where it places fifth (see Table 4). Switzerland places first in health status, with four gold-level and three silver-level results. Japan is tied for second place, along with the Netherlands and Spain. The United States, which is the highest per capita spender on health care, places 20th among the 24 OECD countries. Canada does well in relation to life expectancy and self-reported health status, but is an average performer, when it comes to disability-free life expectancy, infant mortality and low birth weight.

Table 4
Results on Health Status Indicators*

Rank	Country	Gold	Silver	Bronze	Weighted Medal Count
1	Switzerland	4	3	0	11
2	Japan	5	0	2	10
2	Netherlands	3	4	0	10
2	Spain	3	4	0	10
5	Iceland	4	1	0	9
5	Norway	4	1	0	9
5	Sweden	4	1	0	9
5	**Canada**	**2**	**5**	**0**	**9**
5	Germany	2	5	0	9
10	Australia	3	2	2	8
11	Finland	2	3	0	7
11	Italy	2	3	0	7
11	France	1	5	0	7
14	Austria	1	4	0	6
14	Belgium	1	4	0	6
16	Ireland	2	1	2	5
16	New Zealand	1	3	3	5
16	Denmark	1	3	1	5
19	United Kingdom	1	2	4	4
20	Korea	1	1	5	3
20	United States	1	1	5	3
22	Portugal	0	2	3	2
22	Greece	0	2	2	2
22	Mexico	0	2	2	2

*Gold = 2; Silver = 1; Bronze =0

Non-Medical Factors

We have examined Canada's performance, based on seven non-medical factors that can have a serious effect on the health of a population and the resulting demand on its health care systems.[3] Overall country results for non-medical factors are shown in Table 5.

Canada places a disappointing 15th in these indicators, while France and Sweden are the top nations in this category. Remarkably, both Japan and United States are among the poorest performers in this category.

Canada has the lowest percentage of people who are daily smokers among OECD countries. It also has one of the lowest alcohol consumption rates. However, it has a high number of road traffic accidents and the second highest rate of sulphur oxide emissions. Canada also has the sixth highest obesity rate among OECD countries—a problem that needs to be closely monitored.

Table 5
Non-Medical Factor Results*

Rank	Country	Gold	Silver	Bronze	Weighted Medal Count
1	Sweden	6	0	0	12
1	France	5	2	0	12
3	Netherlands	5	1	1	11
3	Iceland	5	1	0	11
5	Norway	5	0	1	10
5	Finland	4	2	1	10
5	Switzerland	4	2	1	10
5	Germany	3	4	0	10
5	New Zealand	3	4	0	10
10	Denmark	4	1	2	9
10	Mexico	4	1	1	9
10	Australia	3	3	1	9
10	Belgium	3	3	0	9
10	Italy	2	5	0	9
15	**Canada**	**3**	**2**	**2**	**8**
15	United Kingdom	2	4	1	8
17	Korea	3	1	2	7
17	Spain	2	3	2	7
17	Portugal	2	3	1	7
20	Austria	2	2	3	6
20	United States	2	2	3	6
20	Ireland	2	2	2	6
23	Japan	2	1	4	5
23	Greece	1	3	1	5

*Gold = 2; Silver = 1; Bronze = 0

Health Outcomes

We have attempted to track the effects of policy, program or clinical interventions on quality of life by measuring health outcomes.[4] (Please see Chart 5 for the estimated impact of determinants of health on the status of the health population.) The health outcome indicators used for this analysis are the leading causes of mortality and premature mortality rates in Canada. We focus on mortality rates for lung cancer, acute myocardial infarction and strokes. The rates are age standardized to account for differences in age among the populations of OECD countries.[5] Lower rates can be attributed both to lower incidences, due in part to better health behaviours, and treatment approaches.

The overall results are shown in Table 6. As one can see, Canada is not a top performer in this category of indicators, placing 20th. Italy, Mexico, Japan, Spain and Switzerland are the top performing countries in health outcomes.

Canada has the lowest mortality rate due to stroke for males, and the third lowest for females, among OECD countries. And while many of the mortality rates for Canadians are decreasing over time, the mortality and premature mortality rates for lung cancer, heart attack, and suicide remain high, in comparison to most other OECD countries. In addition, there are some substantial differences in health outcomes within Canada. One area that is worsening is the female mortality and premature mortality due to lung cancer—these rates are increasing, while the overall OECD rate is dropping.

Table 6
Health Outcome Results*

Rank	Country	Gold	Silver	Bronze	Weighted Medal Count
1	Mexico	8	1	1	17
1	Italy	7	3	0	17
3	Japan	7	2	1	16
3	Spain	7	2	1	16
3	Switzerland	6	4	0	16
6	France	6	2	2	14
6	Portugal	6	2	2	14
6	Australia	4	6	0	14
6	Germany	4	6	0	14
6	Sweden	4	6	0	14
11	Korea	5	3	2	13
11	Norway	4	5	1	13
11	Austria	3	7	0	13
14	Finland	5	2	3	12
14	Greece	4	4	2	12
16	Belgium	5	1	4	11
16	Iceland	3	5	2	11
16	New Zealand	3	5	2	11
16	United Kingdom	3	5	2	11
20	Denmark	3	4	3	10
20	Ireland	3	4	3	10
20	Netherlands	3	4	3	10
20	**Canada**	**2**	**6**	**2**	**10**
20	United States	2	6	2	10

*Gold = 2; Silver = 1; Bronze = 0

Health Care Resources (Unranked)

The final piece of this comparative analysis covers health care resources. Since the volume of resources is not a clear indicator of system performance, the nine selected indicators were not ranked. Nevertheless, a picture of the supply of resources among countries can be useful, when considering options for action.

Canada is the third highest total spender on health care among the 24 OECD countries examined and the sixth highest public spender. It falls below the average (of those countries reporting) for per capita total expenditures on pharmaceutical research and development (R&D). A review of total health care expenditure trends over the past three decades (see Chart 1), by country, shows that Canada did not stray far from the OECD average between the periods of 1970-1980 and 1980-1990. However, it fell well below the OECD average during the past decade. Sweden had the lowest health expenditure growth rate among the 11 countries included.

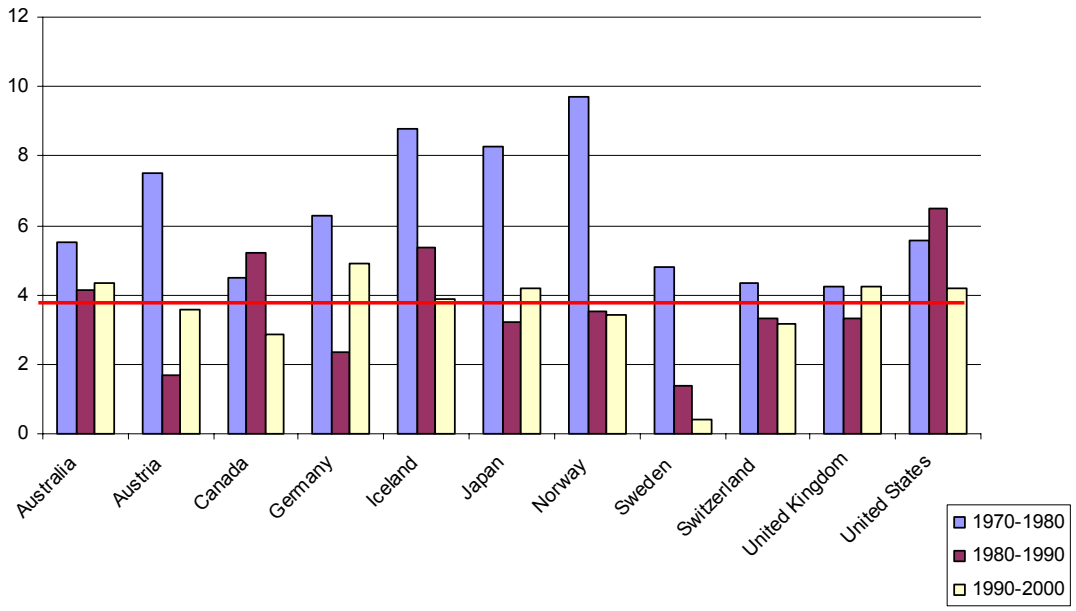
In terms of the health care workforce, Canada is higher than the OECD average for general practitioners and nurses, but below average for specialists. In terms of medical equipment, Canada is well below the OECD average for MRI units, but above average for radiation therapy equipment.

No OECD country appears to be overly abundant in all of the selected health care resources. For example, while the United States is the largest per capita spender, it falls below the OECD average for general practitioners, specialists, nurses and radiation therapy equipment.

There is wide variation in the availability of health care resources among countries. For example, Japan, Switzerland, Austria and Finland have 11 or more MRI units per million of population, whereas 10 other countries, including Canada, have a ratio of less than five per million population. Spending levels alone do not seem to account for this variation in resource levels. There is little difference in the level of total spending between Canada and Germany, yet Germany has twice as many MRI units and specialists per capita as Canada. In other words, the amount a country spends on health care does not seem to determine the array or quantity of health care resources it chooses to fund.

Chart 1

Total Health Expenditures Growth Rate (average annual growth rate)



Source: OECD.

FINANCIAL CAPACITY OF FEDERAL AND PROVINCIAL GOVERNMENTS

In December 2003, the provinces and territories asked The Conference Board of Canada to update the July 2002 study, *Fiscal Prospects for the Federal and Provincial/Territorial Governments*. The purpose of this study is to project the federal Public Accounts and the aggregate provincial/territorial government Public Accounts over the long term, with a particular emphasis on determining the impact of demographic changes on the cost of public health care and education spending to 2019/20.

The long-term projections are based on maintaining the status quo with respect to fiscal and budgetary policy. The status quo assumption is aimed at evaluating the degree of fiscal latitude available to governments to implement new initiatives, or to assess the budgetary actions needed to balance the books. As a result, all federal and provincial/territorial tax rates reflect current levels, unless changes were announced in previous budget documents. This also means that no new government spending initiatives are included in our projections, apart from those announced in previous federal and provincial/territorial budgets. And, all budgetary surpluses in a given fiscal year are earmarked exclusively for debt reduction.

The Conference Board of Canada's *Canadian Outlook Long-Term Forecast 2004* serves as a backdrop for projecting the federal and total provincial/territorial governments' Public Accounts. However, this study's baseline forecast was altered to remove any changes to current budgetary and fiscal policy. It was also updated to incorporate, as a starting point, the medium-term outlook based on actual data for the third quarter of 2003, as shown in the latest release of Statistics Canada's National Income Accounts (NIA). Furthermore, two satellite models were used to project the effect of demographic changes on health care and education, the provinces' and territories' two main areas of spending.

The health expenditure analysis is based on historical movement in real (inflation-adjusted) public per capita health care spending for each of 18 age and gender cohorts. Public health expenditures are projected from fiscal year 2003/04 to 2019/20, based on projections of real per capita expenditures and the changing age and sex distribution of the population. As Canada's population continues to grow and age, total provincial and territorial public health expenditures will reach $170.3 billion in 2019/20, up from $72.5 billion in 2002/03. This translates into an average annual compound growth rate of 5.2 per cent in public health expenditures over the forecast period. As a share of total provincial/territorial budgetary revenues, public health expenditures are projected to increase from 36.6 per cent in 2002/03 to 44 per cent in 2019/20, an increase of 7.4 percentage points over the next 17 years.

The education model also uses regression results to forecast changes in spending for three levels of education: elementary/secondary schools, colleges and universities. Overall education spending by the provinces and territories will increase by an average of 2.9 per cent per year until 2019/20, which is a much slower rate of growth than that of health care expenditures. This relatively modest increase in education spending is due to a projected decline in student population. The proportion of budgetary revenues earmarked for education will ease to 17.8 per cent in 2019/20 from 21.5 per cent in 2002/03.

Our analysis shows that federal government surpluses will rise steadily over the next 17 years, reaching $78 billion by 2019/20. In comparison, our July 2002 study indicated an $85.5 billion surplus. The major differences between the figures shown in our current report and the previous one, relate to the increased transfers to the provinces and territories, as a result of the 2003 Health Accord and the federal budget that followed.

In sharp contrast, the provinces and territories will be in a deficit position throughout the forecast period. The aggregate provincial/territorial deficit is expected to reach $11 billion by 2019/20, up from $1.8 billion in 2002/03. Our previous report showed a $12.3 billion deficit by 2019/20.

Under current revenue and spending structures, the federal government is forecast to achieve multi-billion-dollar surpluses that would reduce its interest-bearing debt to $128.8 billion by 2019/20. On the other hand, the aggregate provincial/territorial net debt will increase by 54 per cent to $431.7 billion. Note that the

provincial/territorial net debt represents the total liabilities less financial assets.

With current fiscal regimes in place, this discrepancy will widen in future. Only the federal government will have the financial capacity to implement new initiatives, such as tax cuts and new discretionary program spending. This is because, as the federal government is able to achieve a budgetary surplus each year, it can pay down the debt and enter the "virtuous circle" of fiscal performance. In contrast, the provinces and territories will have no leeway to implement new policy initiatives over the next two decades; as a collective group, they will neither be able to increase spending, nor cut taxes, without falling deeper into debt.

Our projection includes increases in health care and other social program transfers tabled in the most recent federal budget. The 2003 federal budget extended the September 2000 Canada Health and Social Transfer (CHST) for an extra two years, to include the 2006/07 and 2007/08 fiscal years. Furthermore, the budget indicates planned levels for total cash transfers to provinces and territories until fiscal year 2010/11, which is also included in our projection. After fiscal year 2010/11, growth in the CHST has been adjusted in order to maintain a constant level of real per-capita transfers, defined by population growth plus inflation. The assumption of a fixed real per-capita transfer most closely resembles the status quo with respect to current budgetary policy.

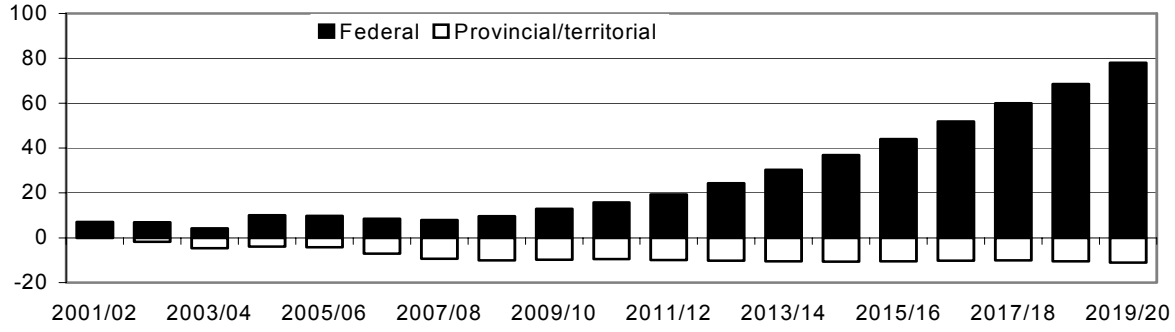
This study examines the aggregate position of all provinces and territories, but the fiscal capacity of individual provinces may be quite varied. Population growth, demographic composition, economic prospects and the initial state of Public Accounts differ among Canada's regions. Thus, beyond the scope of this study, there is a need for research to examine the issue of fiscal capacity for each individual province and territory, in comparison with the federal government.

The Canadian economy is expected to close the output gap over the next few years and expand at the same pace as its potential output thereafter. It is important to note that the effect of inevitable business cycles will not significantly change the conclusions of this analysis, nor alter the average growth in output projected over the forecast horizon. This is due to the acceleration of economic growth during recovery phases that typically follow periods of economic downturn.

Great care was exercised in choosing all of the underlying assumptions required for this research. We believe that the long-term forecast presented in this study is the most probable under the status quo scenario, with respect to budgetary and fiscal policy, and in light of the information available at the time the study was prepared.

Chart 2

Federal and Provincial government budgetary balance
($ billions)



Source: The Conference Board of Canada.

COMPETING DEMANDS FROM OTHER HEALTH AND HEALTH CARE PROGRAMS

Striking A Balance Within Health Care

The financial sustainability of the pan-Canadian health care systems is one of the top social policy concerns for Canadian governments and the Canadian public. As can be seen in Chart 3, the issue rose to prominence in the late-1990s, when governments were forced to cut overall spending to eliminate chronic deficits.

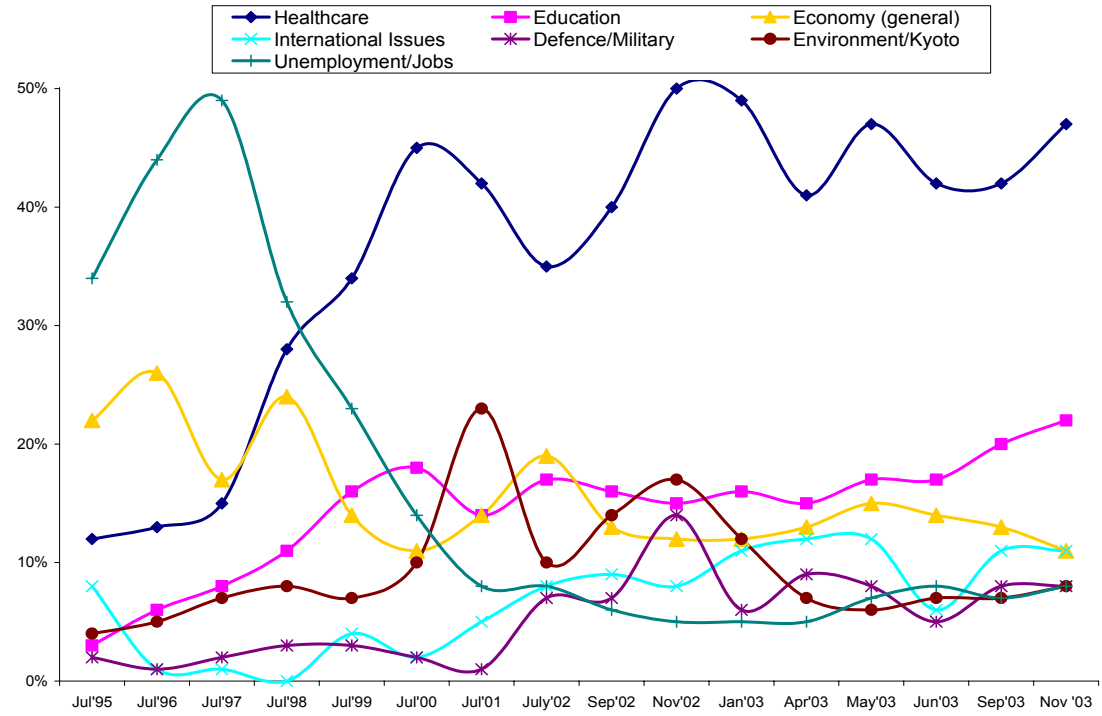
In the past two years, two major national task forces—one chaired by Senator Michael Kirby[6] and the other led by Roy J. Romanow[7]—have reported on the future of the health care systems, resulting in the First Ministers' Health Accord.[8] The Accord outlines a commitment by the federal government to provide $34.8 billion to the health care systems over the next five years. Given this money, virtually all 2003 provincial budgets are projecting larger shares of spending on health care, even though eight provinces now foresee deficits in the current fiscal year.

A report released in November 2003 by The Conference Board of Canada, *Canada's Public Health Care System Through to 2020, Challenging Provincial and Territorial Financial Capacity* forecasts what the provinces and territories are likely to spend on health care until 2020. It considers seven components of public health care spending, reflecting past spending trends, current spending commitments (which include the latest cost increases due to collective bargaining with health care workers), and demographic changes. The seven spending components are: hospitals, physicians, home care, drugs, other professionals, other institutions and other expenses. An explanation of each component is given in more detail in Exhibit 1.

The data for these analyses came from four principal sources: Statistics Canada, Health Canada, The Canadian Institute of Health Information and The Conference Board of Canada. The data are analyzed by nine age cohorts and by gender. The methodology included the development of new deflators[9] (or indices) to better reflect the changes in real volumes of services which we can expect to see in the future. These deflators effectively remove the cost of inflation from the forecast

Chart 3

National Priority Issues 1995-2003



Source: Ipsos Reid.

Exhibit 1
Explanation of Health Spending Components

Hospitals - all hospital expenses, including drugs dispensed in the hospital

Other institutions - expenses for residential care facilities, such as nursing homes, facilities for people with special needs (developmental or physical), and alcohol or drug rehabilitation

Physicians - all physician remuneration, except for those on salary (through block funding), e.g., those in hospitals or public health agencies

Other professionals - chiropractors, dentists, denturists, naturopaths, optometrists, osteopaths, physiotherapists, podiatrists, private nurses

Home care – home care professional services, such as nursing, physiotherapy, social services; also, non-professional services, such as homemaking and support, transportation and respite care

Drugs – prescription, non-prescription, and capital health supplies

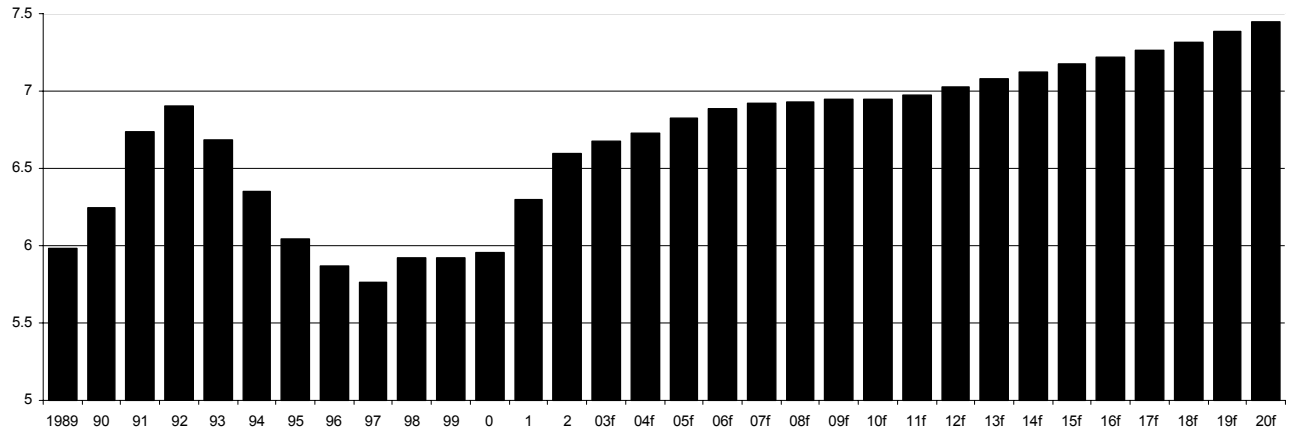
Other expenditures - public health (39.3%); capital (29%); administration (5%); prostheses, aids, appliances (3.2%); health research (2.5%); and miscellaneous health care (21%)

Source: Health Canada.

trends, and provide a realistic picture of the use and cost of each component. These inputs were then used to derive a base case estimate of health care costs over the forecast period. For further details of the methodology used, see *Canada's Public Health Care System Through to 2020, Challenging Provincial and Territorial Financial Capacity.*[10]

This analysis indicates that by 2020, if current conditions continue, overall provincial and territorial public health expenditures are projected to reach 7.4 per cent of GDP and 44 per cent of revenues, bringing into question the financial sustainability of the health care systems. As a percentage of GDP, Canada's spending on health care is among the highest in the world,[7] reflecting the high priority we place on this social program. Chart 4 depicts nominal provincial and territorial health expenditures as a share of total GDP at market prices. Canadians are currently spending approximately the same share of these expenditures on health care as they did in the early 1990s. At that time, however, Canadian governments were beginning to cut back on investments in social programs, as a result of the national debt crisis. Canadian governments were collectively borrowing in the range of $50 billion annually, to support the level of spending.[11]

Chart 4
Nominal Provincial and Territorial Health Expenditures as a Share of Total Gross Domestic Product at Market Prices, 1989-2020 (per cent)



Sources: The Conference Board of Canada; Statistics Canada; Health Canada; Canadian Institute for Health Information.

The annual nominal growth rate is forecast at 5.3 per cent, while real growth (nominal growth minus inflation) in health expenditures is projected to average 2.6 per cent per year. The breakdown of the nominal growth projections is 2.7 percentage points for inflation, 0.9 percentage points for increases in consumption or volumes per capita and 1.7 percentage points for demographics. Of the demographics influences, 0.8 percentage points can be attributed to aging of the population, whereas 0.9 percentage points are directly related to population growth. The aging of the Canadian population will put fiscal pressure on the health systems, particularly when the first wave of baby boomers reaches age 65, starting in 2012. Projected increases in overall provincial health care spending remain largely unchanged since the Conference Board published its 2001 report on this issue.[12]

While the overall share of provincial and territorial budgets devoted to health care will continue to rise, trends will vary significantly among the seven spending components. The Conference Board's analysis of health spending shows that, as a share of total nominal provincial and territorial spending, drug spending will increase from 7.2 per cent in 2001 to 14.6 per cent in 2020. The share of spending for home care will also grow, climbing from 4.2 per cent in 2001 to 7.6 per cent in 2020. Meanwhile, hospitals' share of spending is expected to fall from 43.9 per cent in 2001 to 36.6 per cent in 2020. Costs for physicians, other professionals, and other institutions are also expected to account for a smaller share of total provincial expenditures by 2020. Appendix C includes charts for each of the expenditure components that show how real per capita costs are expected to change over the forecast period. These health care expenditure forecast trends indicate that the specific escalators of health care costs include home care, pharmaceuticals and, to a much lesser extent, other health expenditures. For a more detailed breakdown of the changes to the total share of nominal spending by component, see Table 7.

Meanwhile, historically, and consistent with the *Canada Health Act*, most provincial and territorial health expenditures went to fund hospital and physician costs. However, the deinstitutionalization of health service delivery has led to significant increases in home care and drug costs, while slowing the growth of hospital and physician expenditures. These trends were the result of consumer and policy changes, and not modifications to legislation. It is important to point out that legislation has not caught up with the current and emerging realities.

Table 7
Total Share of Nominal Provincial and Territorial Spending by Component, 2001 and 2020 (per cent)

Spending component	2001	2020
Hospitals	43.9	36.6
Other institutions	9.7	8.7
Physicians	19.7	16.3
Other professionals	1.2	0.8
Home care	4.2	7.6
Drugs	7.2	14.6
Other health expenditures	14	15.3

Sources: The Conference Board of Canada; Health Canada; Canadian Institute for Health Information.

The 2003 First Ministers' Health Accord provided additional funding for the health care systems. With increased coverage for home care beginning in 2004, catastrophic drug coverage proposed for 2005, and primary care reform already underway, the sustained funding that will be required to support this expansion through to 2020 will influence the overall fiscal picture of each provincial and territorial government. At the same time, provincial and territorial governments will continue to be challenged by increased costs for core medical services. Because of the extent of the reforms being suggested, it is essential that Canadian decision-makers consider how expenditures in each area of the health systems will evolve and what impact they will have on provincial finances. This, in turn, should stimulate discussion of mechanisms to affect the demand side of the supply–demand equation.

The growth of health care spending, as a proportion of provincial and territorial revenues, will likely be a source of increasing concern for governments. The 2003 budgets and historical records in Table 8 highlight the difficulty facing governments.

As will be shown in Chapter 2, the aging population and changing use patterns will put increased pressure on the system. Similarly, the effect of further deinstitutionalization and coverage of catastrophic drug expenses and acute home care will present additional challenges for decision-makers. What is not so clear is how unique circumstances, such as changes to the structure of health care delivery or new provider–government agreements, will affect each of the different components and the overall trends in provincial and territorial health expenditures. Despite all the study, additional financing, and solid growth in the Canadian economy, the long-term fiscal sustainability of the health care systems is still far from certain. History suggests that increased revenue for health care does not relieve these pressures. Are we getting closer to the right balance within the health care systems or further away? The answer to this question remains elusive.

Table 8
Government Balances, 1992–93 to 2003–04 ($ millions, Public Accounts basis)

PROV	92–93	93–94	94–95	95–96	96–97	97–98	98–99	99–00	00–01	01–02	02–03	03–04
B.C.	-1,476	-899	-228	-317	-753	-167	-1,003	148	1,426	-1,285	-3,169	-2,300
Alta.	-3,324	-1,371	938	1,151	2,526	2,639	1,026	2,717	6,388	772	1,989	98
Sask.	-592	-272	128	18	407	35	28	83	58	1	1	0
Man.	-566	-431	-196	157	91	76	31	11	41	63	4	5
Ont.	-12,428	-11,202	-10,129	-8,800	-6,905	-3,966	-2,002	668	1,902	375	117	-5,621
Que.	-5,030	-4,923	-5,821	-3,948	-3,212	-2,157	126	7	427	22	-528	0
N.B.	-265	-256	-68	51	66	0	-204	-30	43	79	1	8
N.S.	-617	-546	-233	-199	-116	-442	-260	-795	147	-54	14	3
P.E.I.	-82	-71	-1	4	-4	-7	6	-5	-12	-17	-84	-53
Nfld.	-261	-205	-127	9	-19	-7	4	-23	-26	-47	-36	-213
Yukon	-64	15	29	29	-12	4	30	-16	35	-21	-57	-14
Terr.	6	-22	-26	-22	-12	131	-33	-13	118	120	-34	-84
Prov.	-24,699	-20,184	-15,734	-11,867	-7,942	-3,861	-2,251	2,752	10,546	7	-1,782	-8,171
Fed.	-39,019	-38,530	-36,632	-30,006	-8,688	2,132	2,847	13,145	20,162	7,019	6,969	2,300

Source: Provincial and federal budgets.

THE RE-EMERGENCE OF PUBLIC HEALTH AS AN ISSUE

Recently, there has been a renewed focus on public health in Canada.[13] In 2003, an outbreak of Sudden Acute Respiratory Syndrome (SARS) caused great concern for Canadians. Even though the majority of cases and all of the deaths occurred in the Greater Toronto Area, the economic impact was felt across the country. Estimates of the cost of SARS to the Canadian economy have been suggested to be $1.5 billion; the impact of roughly two-thirds of this cost was felt by the city of Toronto.[14]

What does this mean for public health and the health care systems in the future? Funding, command and control leadership, surge capacity, access to laboratory testing, knowledge translation and transfer, insufficient communication links within and among organizations and systems, disease surveillance, isolation and infection controls are all important considerations for the public health agenda.

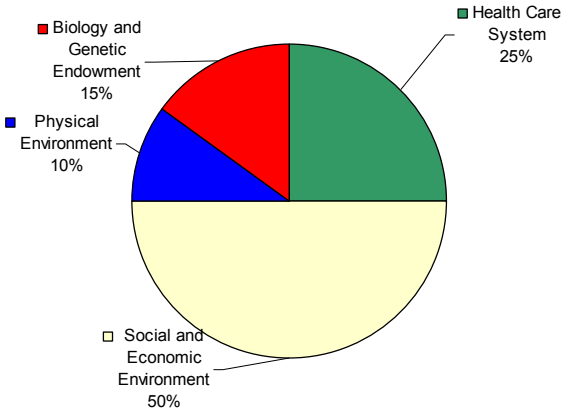
The federal government has announced a new minister of state for public health in response to the "third party" Naylor[15] and Kirby[16] reports, following the SARS crisis. The minister will focus on the development of a new public health agency, similar to that found in the U.S. "The Centre for Disease Control (CDC) North" as some have called it, will be an important element of this renewed focus.

International movement of people and related diseases will continue, as a result of innovations in the transportation industry. This requires a renewed focus on emerging infectious diseases, globalization and bio-terrorism. Canadians require co-operation among all stakeholders to make the necessary legislative reforms, enhance public health capacity and improve communications, research and surveillance, to improve public health.[17] The provincial, territorial and federal governments will need to work together, to overcome the new threats to public health and safety, and these considerations need to be viewed within the context of health care; they are complimentary and inter-related.

Public health, however, is only one important component of health, prevention and wellness. Health also includes lifestyle choices (e.g., diet and exercise) and other socio-economic factors.

Most of the recent national and provincial reports have discussed the importance of prevention and wellness activities.[18] A few of these reports have made upstream activities a central element of their recommendations. The Mazankowski report,[19] for example, made its first recommendation of reforming the system to keep people healthy. However, few reports have allocated any significant financial resources to health, wellness and prevention activities.[20] How can we keep people healthy without appropriate investments, and yet focus on health, prevention and wellness? A key challenge for

Chart 5
Estimated Impact of Determinants of Health on the Health Status of the Population



Source: Canadian Institute for Advanced Research.

decision-makers is how to invest in health, when the net return on investment might not occur for 20 or more years—a time clearly beyond the mandate of an elected official. In fact, we know that non-medical determinants of health, such as higher levels of income, social status and education have a greater influence on health status than the health care systems do (see Chart 5).

Internationally, the World Health Organization (WHO)[21] defines health as "a state of complete physical, mental and social well-being, and not merely the absence of disease or infirmity." The WHO describes a number of "global health risks" responsible for much of the burden of disease in developed and developing nations. The risk factors affecting global health include:

- Underweight;
- Unsafe sex;
- High blood pressure;
- Tobacco consumption;
- Alcohol consumption;
- Unsafe water, sanitation and hygiene;
- Iron deficiency;
- Indoor smoke from solid fuels; and
- Obesity.

This list clearly shows the profound influence lifestyle and socio-economic factors have on health status in both developed and developing nations. Improving lifestyle and socio-economic factors would have a profound influence on the health care systems, by reducing unintentional injuries, suicide rates and cardiovascular diseases. A continued focus, with appropriate investments in these areas, requires strong leadership.

Surveys[22] and health expenditure data[23] suggest that Canadians are ahead of the decision-makers on the issue of investments in health, prevention and wellness. A vision of health (which includes the non-medical determinants), as described by Romanow,[24] and strong leadership is clearly required to change the focus from health care to health.[25] Only then, can we strike the right balance.

Clearly, further work should be done to reach a consensus on how we define, measure and maintain health. But this leads to an even more challenging question: What is the appropriate balance of investment between health and health care? More concisely, what is the appropriate level of investment for health, prevention and wellness? Unfortunately, this question is even harder to answer at the macro level, and likely cannot be answered at present. The use of Regional Health Authorities (RHA) and performance agreements in most provinces may eventually lead to the answer, but only when RHAs are given all of the levers they require to maintain the health of their defined communities. At the macro level, without the availability of better costing data, we are left with "an ounce of prevention is worth a pound of cure." The conclusion is that an investment of one-sixteenth (six per cent) of the total budget for health care is required to prevent illness and maintain the health of Canadians. Obviously, further research will be required to confirm this. In 2002, governments spent 6.6 per cent of the share of total health expenditures on public health and administration,[26] although it is not clear how much of this share was devoted to public health alone.

Currently, governments and decision-makers are struggling with the issue of affordability and sustainability of the health care systems. Are investments in health, prevention and wellness the saviour for the health care systems? Obviously not, at least in the short-term. Collectively, governments will need to better understand the costs and benefits of increased investment in health, prevention and wellness, as well as other population health determinants. Only then, will they be able to make informed decisions with Canadians and for Canadians as to the appropriate level of investment for health. The Nordic countries may provide some direction in this area, based on their strong performance in health and non-medical determinants, as presented in the benchmarking section at the beginning of this chapter. The current Canadian focus on public health is a good start. Decision-makers should also consider the influence on the health agenda of primary care reform and the alignment of professional competencies in this area.

COMPETING DEMANDS FROM OTHER PUBLIC PROGRAMS

As shown earlier, health care is currently Canadians' top public priority. However, there are a couple of points that need to be kept in mind. First, health care has not always been a top priority. It only emerged as the top

national priority around the mid to late 1990s (see Chart 2), despite years of health care reform commissions and reports. The creation of a National Forum on Health was a campaign promise in the federal Liberals' "Red Book" during the 1993 election. Health care remains the highest national priority, despite the announcement of several federal/provincial/territorial funding agreements, including the 2003 First Ministers' Accord on Health Care Renewal. Finally, the emergence of health care occurred as Canada's economic performance improved in the late 1990s. While the level of concern for health care is strong, its top placement is not permanent and would likely drop, should there be a downturn in economic conditions.

Notwithstanding what the polls report, there are other competing public policy demands, such as education, social services, infrastructure, national defence, foreign policy, official development assistance (ODA) and the environment. As pointed out in The Conference Board of Canada's most recent Performance and Potential report, Canada is falling behind other leading industrialized countries in such areas as environmental performance and social conditions.[27]

A recent Ekos survey of Canadians attitudes on public policy priorities reveals that the public wants to see governments investing in a range of human investment priorities, most notably, health care, education, child poverty, environment and post-secondary education.[28]

Despite declining numbers of school-age children, education remains a high priority for most Canadians, particularly in terms of early childhood education and post-secondary education. Although governments in Canada collectively now spend less per capita on education than on health care, both human capital development and lifelong learning remain vital elements of our future success. In addition, as previously identified, any growth in Canada's population will rely more and more on immigration. And there is a growing sense that governments need to spend more on providing "bridging" education to recent immigrants to give them the employability, technical skills and language training that they need to successfully enter Canada's workforce, or to create their own paid work.[29]

Estimates of the appropriate level of funding required for these other sectors are, of course, difficult. But what is available suggests there are substantial shortfalls. For example, The Conference Board of Canada has estimated that the cumulative infrastructure investment shortfall for all Québec municipalities is $17.9 billion. Extrapolating that figure to the national level provides a figure consistent with the estimate of $57 billion for all Canadian municipalities, provided by the Canadian Society for Civil Engineering. Furthermore, the cost of complying with the Kyoto Protocol is not yet known, but some unpublished estimates by Natural Resources Canada suggest $8.1 billion per year between now and 2015 will be required.[30] And, while the last federal budget increased funding for both defence and ODA, there are still those who suggest that these sectors remain substantially under-funded.[31] Canada is also a low investor in terms of research and development, particularly in relation to other leading industrialized countries.

As already noted, health care expenditures are projected to reach 44 per cent of total provincial revenues by 2020, from 32 per cent in 2001. There is apprehension that health care spending will therefore, in time, crowd out other important public policy priorities and may not have a significant impact on health status. The last federal budget did much to eliminate the tendency of federal government budget surpluses to grow over time. The total projected fiscal balances from all levels of government will not be enough to cover the cost of all of the public policy priorities discussed above. As a result, Canadians and their governments will be facing some difficult fiscal policy choices over the next few years.

[1] The Conference Board of Canada has extensive experience providing analyses in all of these areas. See for example: The Conference Board of Canada's *Performance and Potential* reports and the report, *Vertical Fiscal Imbalance: Fiscal Prospects for the Federal and Provincial/Territorial Governments* (Ottawa: The Conference Board of Canada, 2002).

[2] Similarly, the World Health Organization, in its *World Health Report 2000* on health system performance, ranked Canada 30th out of 191 states. WHO's assessment system was based on five indicators: overall level of population health; health inequalities (or disparities) within the population; overall level of health system responsiveness (a combination of patient satisfaction and how well the system acts); distribution of responsiveness within the population (how well people of varying economic status find that they are served by the health system); and the distribution of the health system's financial burden within the population (who pays the costs). World Health Organization, *World Health Report 2000: Health Systems, Improving Performance* (Geneva: WHO, 2000).

[3] There were no viable international data that addressed diet or levels of physical activity, both of which also significantly impact health.

[4] Government of Canada, *Healthy Canadians: A Federal Report on Comparable Health Indicators 2002* (Ottawa: Health Canada, 2002). See <http://www.hc-sc.gc.ca/iacb-dgiac/arad-draa/english/accountability/indicators.html> cited January 2004.

[5] Mortality rates are significantly affected by the age distribution of the population. Mortality rates for most diseases will be higher in populations with a greater proportion of older persons. Comparisons of unadjusted mortality rates among countries is misleading if the age distribution of the populations differs. The mortality and incidence rates used in this report are standardized to remove the effect of the differences in age distribution. Age-standardized mortality rates represent the theoretical risk of mortality for a population, if the population had an age distribution identical to that of a standard population.

[6] Standing Senate Committee on Social Affairs, Science and Technology, *The Health of Canadians – The Federal Role* (Ottawa:The Senate, October 2002), See <www.parl.gc.ca>, cited June 2003.

[7] Commission on the Future of Health Care in Canada, *Building on Values: The Future of Health Care in Canada* (Ottawa: Health Canada, November 2002).

[8] Health Canada, *2003 First Ministers' Accord on Health Care Renewal* (Ottawa: Health Canada, 2003). See <www.hc-sc.gc.ca/english/ hca2003/accord.html>, cited June 2003.

[9] Deflators refer to the pure price changes that occur in health expenditures from one period to the next. By defining the deflators, we are able to break down the cost increases into price and volume.

[10] Jane McIntyre et al., *Canada's Public Health Care System Through to 2020: Challenging Provincial and Territorial Financial Capacity*, (Ottawa: The Conference Board of Canada, November 2003).

[11] The Conference Board of Canada, *Canadian Outlook Long-Term Forecast 2003: Economic Forecast* (Ottawa: The Conference Board of Canada, 2003), p. 23-24.

[12] Glenn G. Brimacombe et al., *The Future Cost of Health Care in Canada, 2000 to 2020: Balancing Affordability and Sustainability,* (Ottawa: The Conference Board of Canada, 2001).

[13] Public health includes health protection (food and water safety, basic sanitation), disease and injury prevention (vaccinations and outbreak management), population health assessment, disease and risk factor surveillances, and health promotion.

[14] Paul Darby, *The Economic Impact of SARS* (Ottawa: The Conference Board of Canada, May 2003), p. 1.

[15] David Naylor et al., *Learning from SARS, Renewal of Public Health in Canada*, National Advisory Committee on SARS and Public Health (Ottawa: Health Canada, October 2003).

[16] Michael J.L. Kirby et al., *Reforming Health Protection and Promotion in Canada: Time to Act*, Report of the Standing Senate Committee on Social Affairs, Science and Technology (Ottawa: The Senate, November 2003).

[17] Dana W. Hanson, *Answering the Wake-up Call: CMA's Public Health Action Plan*, Submission to the National Advisory Committee on SARS and Public Health (Ottawa: Canadian Medical Association, June 2003), p ii-iii.

[18] The Conference Board of Canada, *B.C. Ministry of Health Planning, Directional Plan, Component 1: Industry Analysis* (Ottawa: The Conference Board of Canada, 2000), p. 172.

[19] Don Mazankowski et al., *A Framework for Reform, Report of the Premier's Advisory Council on Health*, (December 2001), p. 6.

[20] The Conference Board of Canada, *B.C. Ministry of Health Planning, Directional Plan, Component 1: Industry Analysis* (Ottawa: The Conference Board of Canada, 2000), p. 172.

[21] The World Health Organization, *The World Health Report 2002: Reducing Risks, Promoting Healthy Life* (Geneva: WHO, 2002).

[22] *Ontario's Presentation to the Commission on the Future of Health Care in Canada* (Toronto: Government of Ontario, 2002).

[23] Canadian Institute for Health Information, *National Health Expenditure Trends 1975-2003* (Ottawa: CIHI, 2003), p.13.

[24] R. J. Romonow, *Building on Values: The Future of Health Care in Canada,* Final Report (Ottawa: National Library Catalogue, 2002), p. 53.

[25] Don Mazankowski et al., *A Framework for Reform, Report of the Premier's Advisory Council on Health* (December 2001).

[26] Canadian Institute for Health Information, *National Health Expenditure Trends 1975-2003* (Ottawa: CIHI, 2003), p.23.

[27] The Conference Board of Canada, *Performance and Potential 2003-04* (Ottawa: The Conference Board of Canada, 2003).

[28] Ekos, *Tracking Public Priorities* [on line], January 2004, See <http://www.ekos.com/admin/articles/PublicPriorities04Jan2004.pdf > cited January 20, 2004.

[29] The Conference Board of Canada, *Performance and Potential 2003-04*, p. 125.

[30] Ibid., p. 12.

[31] "*Military Funding Levels: Do the Canadian Forces Need More Funds?"* [on line] *Mapleleafweb*. See <http://www.mapleleafweb.com/features/military/state/funding.html.> cited January 20, 2004.

CHAPTER 2

Key Cost Drivers and Escalators—Challenges and Directions

INTRODUCTION

This section includes a description and analysis of key cost drivers and escalators. Cost drivers include the underlying structural forces that have an impact on health care costs. These include the effects of population growth, aging, demand, chronic diseases and inflation. Cost escalators include mechanical forces which have an impact on health care costs. They are: pharmaceuticals, new technologies, home care, access, patient safety, health human resources and the environment: This report attempts to answer key questions, which include: What, Why, How-To. It also considers the challenges and directions for each cost driver and escalator. Provincial and international perspectives are used, where appropriate.

Cost Drivers

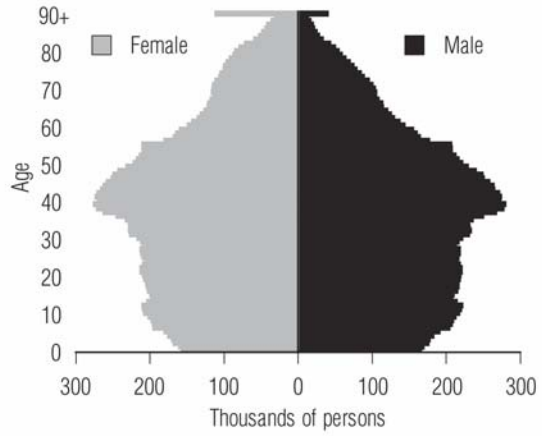
2.1 DEMOGRAPHICS

Demographics affect the health care systems in two key ways. First, they influence the future demand for health care resources. A growing youth population has different needs and requires different services than a population that has a higher percentage of elderly persons. Second, demographics affect the supply side of health care both in terms of economic production required to pay for health care services and in terms of producing the human capital required to provide the services. Fewer people working can mean fewer revenues generated to pay for health care, while an aging health care workforce will place additional strain on the supply of existing services.

Key demographic trends that will affect health care supply and demand over the next two decades are listed below.

Population Growth in Canada Is Slowing Down
Population growth between 1996 and 2001 was 4 per cent—one of the slowest periods of growth for Canada. However, this rate is well above that of many other developed countries, which typically have growth rates of 1.5 per cent. Canada has had a low fertility rate since 1967 (with an all-time low of 1.49 in 2000), which is below the replacement rate of 2.1. Canada's population will begin to shrink in 2025, when deaths will exceed births, unless substantial immigration fills the gap.

Chart 1
Population by Age, Canada, 2002



Source: Statistics Canada.

Canada's Population Is Aging

Similar to other developed countries, the Canadian population is aging, with the proportion of the population aged 65 and over rising from 13 per cent of the total population to 20 per cent, or 7.5 million, by 2025 (see Chart 1). Older people now outnumber youth in Canada. While it is recognized that the health care sector is already experiencing a lack of health care professionals, this will likely worsen after 2010, when shortages will be felt across the broader labour force.[1]

Canada's Urban Population Continues to Grow

Canada is one of the most urbanized nations—almost 80 per cent of Canada's population resides in an urban area. The population continues to concentrate in four broad urban regions: the extended Golden Horseshoe in southern Ontario; Montréal and its adjacent regions; the Lower Mainland of British Columbia and southern Vancouver Island; and the Calgary–Edmonton corridor. Together, these urban regions are home to 51 per cent of all Canadians. In many metropolitan areas, population growth is occurring mostly outside the city core, producing density in the shape of a donut.[2]

This move to urban regions will have implications for Canada's health care systems. Many rural communities more than an hour's drive from a major urban centre are expected to continue to decrease in size, and may be unable to maintain current service levels. As it stands, there are concerns about the level of services available in rural areas and the gap in health status that exists within urban areas. Catchment areas for health care services, particularly hospitals, will need to be re-examined, as populations shift from rural to suburban areas.

Immigration Will Be a Key Issue for Canada's Future

Immigration levels are expected to increase slowly from the current level of approximately 230,000 per year to 270,000 by 2025, at which time immigration is expected to account for all population growth. Even if Canada adopts an ambitious immigration policy,[3] annual population growth is expected to slow from 1.1 per cent in 2002 to 0.7 per cent in 2015, and then to only 0.5 per cent by 2025. The main source for immigration will be from East Asia and the Indian subcontinent, reflecting a continuation of a shift in the source countries away from Western Europe and the United States. Canada will have to compete with other developed nations for the best and the brightest. Most of Canada's new immigrants will settle in Toronto, Montréal and Vancouver.

These demographic movements have service implications for Canada's health care systems. Planning for specific health-related programs and services, as well as for the provision of health care services, is becoming more complex as immigrants require provisions for language, culture and a variety of health-related beliefs and practices. Questions of resources, hiring and training of multicultural staff, and the education of multicultural patients for disease prevention and self-care, are just a few considerations. These issues will have an impact on our health care system's ability to respond effectively.

Impact of Aging on Future Health Care Costs

Analysis of Canadian demographics provides insight into the patterns emerging in the population and their potential long-term impact on the health systems. This knowledge allows forecasting of future costs and implementation of strategies to alleviate the burden on the health systems in order to improve its sustainability.

Table 1
Total Real Public Per Capital Expenditures (Hospitals), by Age and Sex
(1997 $)

	2001		2020	
Age Cohort	**Male**	**Female**	**Male**	**Female**
All Ages	748	937	889	1,106
0–14	298	258	288	249
15–24	195	355	191	349
25–34	230	552	227	544
35–44	310	445	306	438
45–54	514	546	502	533
55–64	1,054	928	1,032	914
65–74	2,409	1,964	2,158	1,740
75–84	4,885	4,120	4,372	3,197
85+	8,689	9,052	7,221	7,325

Sources: The Conference Board of Canada; Health Canada; Canadian Institute for Health Information.

Will the aging of the population be a significant cost driver to the publicly funded health care systems in the foreseeable future? If so, by how much? One thing that is clear is that, as the population ages, health care costs rise substantially. Hospital costs, for example, quadruple from middle age to golden age. In 2001, real per capita costs for the 45–54 age range were $514 for males and $546 for females. This compares to $2,409 for males and $1,964 for females in the 65–74 age range (see Table 1). This increase is attributed to factors such as longer hospital stays, multiple medication therapies and more intensive medical care.

Despite these figures, there are differing opinions on what the future holds for the impact of aging on health care costs. One recent report prepared for the Romanow Commission suggests that population aging could be responsible for generating an increase of 30 per cent in real per capita health expenditures by the year 2030.[4] Still, the authors believe that aging will serve as a secondary source of pressure on health expenditures relative to non-aging factors such as wages and new technologies. Using a sensitivity analysis model, Hogan and Hogan estimate that a 0.9 per cent annual growth in health expenditures will occur over 30 years, attributable to aging, if the relationship between health expenditures and age stay constant. While they believe the impact of aging on health care costs is serious, they argue that there is still a great deal of uncertainty as to its most probable effect due to uncertainties, such as population health trends and technological developments. They conclude by suggesting that the impact of aging on the health care systems can be managed, so long as there is action through such measures as improved health human resources planning, pre-financing for the added demands and health system reforms. Other authors draw similar conclusions.[5]

The Conference Board of Canada has done considerable research on the impact of aging on future health care costs.[6] The Conference Board projects that provincial and territorial health care spending will increase annually by 5.3 per cent in nominal terms through to 2020. Aging accounts for 0.8 per cent of the real growth in health care spending. The impact of the aging population would be one-third (0.8 per cent of 2.4 per cent) of estimated real health care expenditure growth.

The 0.8 per cent directly attributed to aging does not seem significant on first examination, as suggested by the Hogan and Hogan report, although they report similar numbers. To cover the increasing public health care costs as a result of aging, an additional investment of approximately $0.7 billion annually is required. The Conference Board concludes otherwise: "in terms of imposing a burden on Canada's ability to sustain its health care system, it looms large."[7] The rationale behind this conclusion is that, unlike the other cost pressures (i.e., inflation, population growth), aging comes with no offsetting increase in income or wealth that can finance additional cost increases.[8]

In summary, the Conference Board believes the influence of the aging population will continue to be a key issue, particularly as the first of the baby boomers reach 65 years of age in 2012. The result is that the aging population is expected to account for one-third of growth in the health care sustainability burden.

In Canada, many strategies are being examined to reduce the burden of demographic challenges such as aging and predicted labour shortages on the health system. Some are in the process of being implemented to meet the long-term changes in the Canadian population. Examples of strategies may include:

- *Achieve Immigration Goals*
  A goal in immigration levels of 1 per cent has been set. In 2002, a record 229,058 immigrants came to Canada, which is still far below the 1 per cent goal; 300,000 would meet the goal. The Conference Board has predicted a slow increase in immigration to 270,000 by 2025. International migration has remained stable over the years, however, competition is increasing from developing countries. The various levels of government could better co-ordinate Canadian immigration policies and application processing for health care professionals, especially in predicted labour shortage areas such as physicians, nurses and medical technologists. Countries experiencing population growth will need to be targeted specifically.

- *Adjust Human Resource Policies*
  Human resource policies around retirement (working beyond age 65), pensions (early retirement options) and flexible work arrangements (reduced hours, job-sharing, consulting, telecommuting) will need to be adjusted to encourage the aging population to work later in life. Higher wages will encourage younger workers to enter the market earlier and older workers to remain. It is predicted that the rate for older women in the labour market will increase. Proactive human resource planning around predicted shortage areas should occur.

- *Efficiency in Education and Training*
  Schools will also need to be more efficient in producing early graduates with the appropriate skills. More on-the-job training will need to occur to get employees up-to-speed quickly. International agreements could be reached to standardize accreditation, so that immigrant credentials are recognized and their skills put to use quickly.

- *Increase Productivity of the Workforce*
  The productivity of the health care workforce may need to be increased to cope with the strains on maintaining the health systems. Health care workers are 1.5 times more likely to be absent from work due to illness or disability than any other worker in other sectors. In 2000, 7.2 per cent of health workers were absent for health reasons. The mental and physical needs of these workers need to be analyzed and supported.

  We need a flexible system which enables health care workers to work smarter, not harder. Increased investments in machinery and equipment, and education and training should lead to higher productivity.

- *Shift to More Cost-effective Health Services for the Aging Population*
  Canada needs to continue to provide services to the rapidly aging population in proven cost-effective sectors such as home care and long-term care. With the shift from hospital to home care and long-term care, it is predicted that real costs per person for the 65 and over age group will decline. By 2020, hospital expenditures, as a portion of health expenditures, will fall to 36.6 per cent. Home care is predicted to increase to 7.6 per cent by 2020, from 4.2 per cent. Although the shift to lower-cost health services will save money, the number of individuals who are aging will mean that overall costs will still increase.

- *Continue the Examination into the Financing of the Health System*
  Much debate has occurred on the principles of the Canadian health system. The long-term sustainability of the system is in question, given predicted demographic changes. The costs for providing health care to the aging population will put considerable strain on the system. A continued examination into the options and alternatives in the financing of the system needs to occur. Hogan and Hogan propose that a dedicated fund be set up now to pay for the future impact of aging on the health system. As well, financing to the provinces should be increasingly tied to provincial demographic growth.

The aging population and low fertility rates will, therefore, have a significant impact on the health sector, both in terms of health expenditures and the provision of human resources to deliver services. The strength of Canada's labour force is a vital determinant in its prosperity, and labour shortages are predicted after the year 2010. New strategies will need to be put in place to ensure that the future needs of the health systems can be met, based on these predicted demographic outcomes.

[1] The Conference Board of Canada, *Performance and Potential 2003–04*, p. 80.

[2] Statistics Canada, *2001 Census Analysis Series—A Profile of the Canadian Population: Where We Live* (2003).

[3] The Government of Canada's long-term goal is to increase immigration by 1 per cent of the population.

[4] Seamus Hogan and Sarah Hogan, *How Will the Ageing of the Population Affect Health Care Needs and Costs in the Foreseeable Future?* Commission on the Future of Health Care in Canada. Discussion Paper No. 25. October 2002. Available from <www.hc-sc.gc.ca/english/pdf/romanow/pdfs/25_Hogan_E.pdf>.

[5] M.W. Rosenberg, *The Effects of Population Ageing on the Canadian Health Care System*, SEDAP Research Paper No. 14 (2000).

[6] See, for example, The Conference Board of Canada, *Performance and Potential 2003–04* and *Canada's Public Health Care System Through to 2020: Challenging Provincial and Territorial Financial Capacity*. (Ottawa: The Conference Board of Canada, 2003).

[7] The Conference Board of Canada, *Performance and Potential 2003–04*, p. 92.

[8] Incomes, and thus the ability to pay for health care and other public programs, generally rise with inflation. Therefore, inflation is a problem only when the price of health care rises more rapidly than general inflation. Population growth also generates wealth and income, thus helping to pay for cost increases to public programs.

2.2 CONSUMERS' AND HEALTH PROVIDERS' EXPECTATIONS

High consumer and provider expectations of health care systems are resulting in the increased cost of health care around the globe. Costs escalate when expectations exceed productivity improvements. This situation has long affected health care, and it continues to worsen at a rate that cannot be sustained. In Canada, total spending on health care grew from $12.2 billion (7 per cent of gross domestic product, or GDP) in 1975[1] to $112 billion (9.3 per cent of GDP) in 2002. This represents an average of $3,572 per man, woman and child.[2]

The Conference Board of Canada's projections indicate that real growth in the volume of public health care services delivered is projected to increase at 0.9 per cent per year. Although this might seem to be a small number, it will require an additional investment of $0.8 billion annually, just to keep up with increasing expectations.

Comparisons with other countries do not support the hypothesis that increased spending on health care services results in healthier people who live longer. On the contrary, as health care expenditures "crowd out" investments in early childhood development, education, income and social support services, the environment and other major determinants, the health of the population is increasingly put at risk.[3]

In the two most recent studies of health care in Canada,[4,5] the wishes of Canadians were made clear: Canadians want both levels of government to begin to work together in a coordinated way, show leadership, solve the challenges in the health care systems; and expand the publicly funded health insurance program. Canadians would like to see public provision (at least in part) of other "medically necessary" health care services (e.g., high-cost prescription drugs, post-hospital care, palliative home care), despite the recognition that the provision of these services would increase the cost of health care systems.[6]

Although most Canadians are willing to pay more to increase the range of services and improve access to health services, survey results show, that Canadians' confidence in health care systems is continuing to erode.[7] Canadians are concerned about the quality of their health care systems, their access to services and the cherished principle of universality, and they have increasing doubts that Medicare will be available for them and their families when they need it most.

Measuring Consumers' and Health Providers' Expectations

Surprisingly, health literature lacks objective studies of what providers and consumers of health care services really expect health care systems of the 21st century to do for them. Assessments of expectations—those of patients are most frequently cited—seem to be subjective, drawing inferences from the experiences of physicians and other providers, and from anecdotes of unrecorded origin. Under which circumstances were expectations of consumers and/or providers sampled? Were they constrained by the reality of trade-offs, or were they open-ended (e.g., "cost-free")? Objective determination of consumer and health care provider expectations and why consumers and providers hold them, is a topic that cries out for rigorous study.

If we were to predict the outcome of such study, it is highly likely that current expectations of both consumers and providers have been conditioned by two factors. The first relates to the experience Canadians have with other sectors, where speed and quality are highly valued. The second is the fact that the cost of health services does not appear to be a consideration for consumers and providers alike. This might be explained by the perception Canadians have that hospital and physicians' services (and, to a lesser extent in most provinces, prescription drugs and some home- and long-term care services) are "free," or, at least, highly subsidized.

Market forces that apply in most other areas of the economy do not constitute an incentive for increased productivity in health care. There is little or no competition for "customers," except among providers of consumables, like prescription drugs, most of which are paid for either directly, by the consumer, or by the private, for-profit insurance plan to which the employee and/or employer pay(s) premiums. There is little opportunity for "comparison shopping," and there are very few public reports of measured differences in the quality and efficacy of services offered by different providers.[8]

Undoubtedly, change in public expectations (the second of Decter's[9] four winds of change[10]) has introduced a revolution that demands high-quality service more or less instantly, despite the fact that there is little awareness of the costs of providing these services. Few providers and health administrators (including hospital Chief Executive Officers), much less consumers, have a clear understanding of what it costs to provide particular surgical, diagnostic imaging, emergency or other health services. This has resulted in inflationary expectations.

Factors Affecting the Inflation of Expectations

HEALTH CARE PROVIDERS

The expectations of health care workers are shaped by their incomes, relative status, workload and working conditions. These are primarily conditioned by two factors:

- How well their counterparts are paid and treated elsewhere in Canada and south of the border; and
- Where they stand in the "pecking order."

Among physicians, those in primary care compare their incomes, status and workloads to those of specialists who are, in turn, further divided into specialties and subspecialties. Compensation negotiations with governments are based mostly on old fee schedules that have not been adjusted to account for changes in productivity, such as those made possible by new technology (e.g., day surgery). For decades, fee schedules have provided far richer financial rewards to "proceduralists," such as surgeons, rather than "conceptualists," like specialists in internal medicine, psychiatry or pediatrics, or family physicians.

In the relatively free North American market for physicians, nurses and, to a lesser extent, other health professionals, expectations are also conditioned to a considerable degree by the status, incomes and working conditions of their professional and specialist counterparts in the United States. As an example, hospital-based specialists in Canada shape their expectations of what the publicly funded hospital will provide them (e.g., MRIs and other sophisticated imaging equipment, beds, time, research space), based on what is known to be provided to their peers elsewhere, particularly in the United States.

The educational process, including continuing professional education, is an important factor that increases expectations of health care providers and health care costs, as it relates to the availability of new, and usually very expensive, drugs, procedures and equipment. For many years, university and hospital libraries have allocated scarce resources to help their professional staff members stay up-to-date with developments in research and scholarship, an essential objective now more widely and quickly available through the Internet. Naturally, all health professionals and their students and trainees genuinely want access to the latest reported developments, to serve their patients better and to gain familiarity with what is likely to become common practice in a few years. But they also want to defend themselves and their organization against potential lawsuits by disappointed, litigious patients and their aggressive lawyers.

Expectations, both of consumers and providers, are also inflated by the marketing of new pharmaceuticals and devices and, particularly, by their advertising in the American media (especially television), whose outlets are readily available in Canada. A high proportion of new drugs are of comparable efficacy and safety to much cheaper alternatives which have long been on the market.

HEALTH CONSUMERS

The consumers of health care services are influenced by the boomer generation, now in late middle age. This is the generation notorious for its "me first" dominance of Canadian society at every stage of its development and for generating Decter's consumer revolution "wind," referred to earlier. Whether informed by advertisements, Web sites, word-of-mouth tales by fellow globe-trotters, or their physician-providers, these consumers do not want to wait for access to any service, simple or sophisticated, that offers an improvement perceived or real, to their health and sense of well-being.

Such expectations are exemplified by the wealthy, early-retired "snowbird" businessman who, concerned about the effect on his golf game, flew to a willing province where he paid a "facility fee" of $2,400 to have

both of his lenses replaced after being told in his home province that his very early-stage cataracts put him so low on the priority list that he would have to wait a minimum of two years for the procedure.[11] Why didn't he have it done in Florida? The out-of-pocket cost would have been much higher.

There is nothing wrong—in fact, there is everything right—with rising expectations of consumers and providers of health care when they lead to increased productivity, creating more benefits for the same or less cost. But, too many rising expectations in health care are uncoupled from increased productivity.

The implicit bargain made many years ago, when publicly funded insurance (first for hospital services, and then for physicians' services) was introduced, was that only those services that physicians deemed to be "medically necessary" would be covered. In other words, physicians were appointed "gatekeepers" to the health insurance system. Their professional integrity was considered to be a strong foundation for their discrimination between genuine medical needs and their patient's wants or demands.

Not surprisingly, that mechanism of discriminating between need and demand, and of matching growing expectations with comparable growth in productivity—measured in terms of better health for individuals and the population in general—has broken down. It was unrealistic from the outset to expect physicians to play the role of principal gate-keepers in the face of:

- The professional imperative of all health professionals to advocate for their patients/clients, and to provide or facilitate their access to any service, drug or procedure that safely offers the chance of improved health and well-being; and
- The simple fact that nobody likes saying 'no', especially the empathetic individuals who are drawn to health professions. It is far more comfortable for physicians to reserve that function for far-off anonymous governments, provincial and federal, whose "underfunding of health care" is held responsible for creating and maintaining a short supply of the expected services.

As boomers—who are a highly educated, relatively wealthy cohort, with ready access to the Internet and other forms of information (previously the exclusive preserve of physicians and other health professionals)—age, their expectations of the health care system for quick access to high-quality and increasingly sophisticated services, will grow. They are already well-versed in the techniques needed to articulate their wants politically. Continued limits on their access to the health care services they want (e.g., hip and knee replacement surgery, MRI scans) will surely soon lead to the court challenges foreseen by Senator Kirby and his Committee.[12] Claims will be made that it is contrary to Section 7 of the Canadian Charter of Rights and Freedoms to prevent people from using their own resources to buy access to hospital and/or physicians' services that cannot be provided in a timely manner under Medicare. Just such a case, Chaoulli,[13] is now proceeding on appeal before the Supreme Court of Canada.

Failure to match the expectations of providers and consumers with the productivity of Canada's publicly funded system will surely lead to erosion of the principle of universality, as it applies to the coverage of hospital and physicians' services, rather than to expansion, which Canadians clearly want, to other necessary health services.

Addressing Productivity Issues and High Expectations

It is essential to develop appropriate measures of the health benefits derived from the interaction between consumers and providers, in order to begin to get a handle on the productivity of health care. How many health benefits are we (as individuals and as a society) getting for the money spent both privately and out of the public purse? Currently, we have only process measures, and many of those indicators assess only output, a concept vastly different from productivity. The family physician with a busy practice may generate a big throughput, but if he or she is seeing only the "worried well," services well within the competency of the nurse practitioner, nurse or social worker, the corresponding productivity of the practice may well be very low.

Central, and related to the whole question of expectations and productivity, is the urgency of developing a capacity for health information

management. Canada and its provinces and territories are currently trying to govern and manage a more than $112-billion business, based on an information system that the owner of a corner store would consider deficient. With a capacity to collect, analyze and manage health information, data on the quality and timeliness of health care services offered by all providers could be made available to the public. In turn, they could use this information to choose the service provider who is best able to meet their needs.

Federal, provincial and territorial governments might consider investing a larger share of the health care budget, as a line item, on information and communication technology (ICT), with a focus on outcome measures. This will create the capacity for measurement required to better manage the health care systems. Canada invests 1.8 per cent of health care operating budgets on ICT, while the United States invests 5.5 per cent, on average (Kaiser Permanente, a U.S. non-profit health maintenance organization, spends 5-7 per cent). The gap is even wider when we compare the health care industry with other information-intensive sectors, such as banking and government, where information technology (IT) spending ranges from 9 - 13 per cent of operating budgets. Evidence from Veterans Affairs in the United States indicates that investments in ICT may even produce a net return on investment.

With such a capacity for health information management, sensible changes could be made to the incentive/reward system, so that providers could reward their productivity, rather than their throughput. Incentives could also be put in place to reward them for their demonstrated ability to provide positive health benefits to their patients/consumers, rather than simply on the basis of their qualifications.

The fee-for-service payment system currently provides no incentive for family physicians to enlist the help of nurse practitioners, nurses, counsellors or other health professionals. There is little incentive to increase their throughput, reduce their waiting lists and accommodate more of that increasing number of Canadians who cannot find a family doctor willing to take new patients. For the same reason, there are no nurse anaesthetists working in Canadian hospitals, despite complaints that restricted operating room time (because of a shortage of anaesthetists) limits the productivity of surgeons.

A blended funding model could offer substantial bonuses linked to patient satisfaction and objective measures of the health of the people served. This change would shift incentives in primary care toward more rigorous discrimination between need and demand, and make use of a greater spectrum of health professionals, while increasing productivity. As for secondary and tertiary care, adopting the Senate Committee's recommendation that service-based funding replace global funding of hospitals[14] would go a long way to increasing institutional productivity.

It is impossible to conclude that our health care systems are underfunded without measuring productivity. If we decide that money should be taken from the population as consumers, rather than taxpayers, it would be far better to return to a subsidized health insurance plan. Such a plan could be operated through the tax system with graduated premiums linked to taxable income. A plan of this sort, to cover insurance against catastrophic drug costs, was proposed by Senator Kirby's Committee.[15] Similarly, all health care services received up to a ceiling could be treated progressively as a taxable benefit. Further research must be conducted on the international use of demand- and supply-side incentives and how they could be transferred into Canadian context.

Clearly, there are many potential ways to create incentives that would affect productivity in health care and the expectations of providers and consumers. But to overcome deeply entrenched resistance to change will require a substantial investment of money and political capital. And, without making this investment, Canada will be sentenced to replicating the experience of the United States, in which high-quality care is readily available, but at very high public and private cost, and only to those who can afford to pay for it. It is clear that Canadians do not want to go down this road, but there are signs they may be coming to expect it.

[1] Standing Senate Committee on Social Affairs, Science and Technology, *The Health of Canadians—The Federal Role, Vol. 1: The Story So Far,* Interim Report (2001).

[2] Canadian Institute for Health Information, *Health Care in Canada* (Ottawa: CIHI, 2003).

[3] Robert G. Evans et al., eds., *Why are Some People Healthy and Others Not? The Determinants of Health of Populations* (New York: Aldine de Gruyter, 1994).

[4] Roy J. Romanow, *Building on Values: The Future of Health Care in Canada* (2002).

[5] Standing Senate Committee on Social Affairs, Science and Technology, *The Health of Canadians—The Federal Role: Final Report on the state of the health care system in Canada* (Standing Senate Committee on Social Affairs, Science and Technology, 2002).

[6] Don Guy, "Public sentiment driving health reform tipping in new directions," *Hospital Quarterly* 54 (Summer 2003).

[7] Health Care in Canada Survey (2002).

[8] Increasingly, hospital "report cards" are being developed and "Quality Councils" have been established or are under consideration in several provinces.

[9] Michael B. Decter, *Four Strong Winds* (Toronto: Stoddart Publishing, 2000).

[10] The others are: a shift in emphasis from individual to population health; new technologies and practices; and pressure for greater productivity driven by competitive global forces.

[11] His subsequent golf score was not improved.

[12] Standing Senate Committee on Social Affairs, Science and Technology, *The Health of Canadians—The Federal Role Volume 6: Recommendations for Reform* (2002), p. 102.

[13] Jugements du Québec (J.Q.) No 470 (QL)(C.S.Q.) per Piche J. (2000).

[14] Standing Senate Committee on Social Affairs, Science and Technology, *The Health of Canadians—The Federal Role Volume 6: Recommendations for Reform* (2002), Chapter 2.

[15] Standing Senate Committee on Social Affairs, Science and Technology, *The Health of Canadians—The Federal Role Volume 6: Recommendations for Reform* (2002), Chapter 7.

2.3 CHRONIC DISEASES

Chronic diseases are the leading cause of death and disability in industrialized countries, and Canada is no exception. Chronic (or non-communicable) diseases have been described by the Pan American Health Organization as conditions that "have an uncertain etiology, multiple risk factors, long latency, prolonged affliction, a non-infectious origin, and can be associated with impairments or functional disability." Although chronic diseases bring high human and financial costs, they are also among the most preventable. The most common chronic diseases affecting Canada include cardiovascular diseases, cancer, mental illnesses (including stress and anxiety), diabetes and chronic obstructive lung diseases.

Canadian Figures

- *There are approximately 16 million Canadians living with chronic illnesses.*[1]
- *Approximately two-thirds of total deaths in Canada occur as a result of cardiovascular diseases, cancer, chronic obstructive lung diseases and diabetes.*[2] *These illnesses are also leading causes of hospitalization.*
- *Chronic diseases account for 87 per cent of disability in Canada.*[3]

Chronic diseases have great impacts on the quality of life of individuals, as they bring chronic pain or discomfort, activity restriction, psychological stress, disability and unemployment. These diseases are a cause of major concern; not only because of their high prevalence, but also because data show high prevalence of their risk factors. Many of these factors result from lifestyle choices (e.g., smoking, obesity, physical inactivity), while others (e.g., age, sex, genetic makeup) cannot be changed. Many behavioural risk factors can be modified, as well as a number of intermediate biological factors including hypertension, being overweight and high cholesterol. Research has demonstrated that, for some chronic diseases, each additional risk factor multiplies the effect of the others, thereby increasing further the risk for disease.

First Nations people, Inuit and individuals from socio-economically disadvantaged communities show higher prevalence rates of the major risk factors. Provinces and territories have taken action to address risk factors for chronic diseases, and certain improvements have been made. However, there is still room for action, as 80 per cent of the Canadian population has at least one modifiable risk factor for cardiovascular disease; nearly one-third has two risk factors; and another 11 per cent have three or more.[4] The most important common risk factors for chronic diseases are:

- **Smoking and the exposure to second-hand smoke.** This is a major risk for respiratory diseases, cardiovascular diseases and cancer. It is responsible for about one-quarter of all deaths among people between 35 and 84 years of age.[5] The 2002 Canadian Tobacco Use Monitoring Survey revealed that an estimated 5.4 million Canadians, representing roughly 21 per cent of the population aged 15 years and older, were current smokers, of which 18 per cent reported smoking daily. This represents a small improvement from the 2001 rate of 22 per cent. Smoking costs our economy more than $16 billion each year ($2.4 billion in health care costs and $13.6 billion in lost productivity due to sick days and early deaths).[6]
- **Obesity.** This is a major contributor to cardiovascular diseases, diabetes, some mental disorders and some cancers. Approximately 48 per cent of Canadians are overweight or obese. Obesity is a major concern, as it is on the rise for all age-sex groups except among women aged 20 to 34. Canadian Community Health Survey data show that from 1994–1995 to 2000–2001, the number of obese Canadians aged 20–64 grew by 24 per cent. These individuals represented about 15 per cent of the adult population, or one out of every seven people, up from 13 per cent six years earlier.[7] Canadians are more likely to be obese than adults in the majority of other OECD countries. It has been reported that obesity accounted for $1.8 billion in medical costs in 1997.[8]
- **Physical inactivity.** Lack of physical activity is a risk factor for cardiovascular diseases, several types of cancer, diabetes, psychological stress and osteoporosis. According to the 2000–2001 Canadian Community Health Survey, 56 per cent of Canadians (aged 20 years and older) are inactive.[9] Over half of Canadian teenagers are sedentary, while only 18 per cent are accumulating enough

daily activity to meet the international guidelines for optimal growth and development. The public and policy-makers, concerned with the lack of activity among Canada's youngest generation, are looking at ways to strengthen physical education and after-school sports programs. Physical inactivity cost the health care systems an estimated $2.1 billion in 1999.[10] It has been estimated that reducing the prevalence of physical inactivity by 10 per cent would save $150 million in health care costs per year.

- **Unhealthy diets.** Over consumption of saturated fats and under-consumption of fibre are risk factors for several cancers and cardiovascular diseases. Diets rich in vegetables and fruits may reduce the overall incidence of cancer by more than 20 per cent and can potentially reduce coronary heart disease and stroke mortality by at least 20 per cent.[11]

Other risk factors for chronic diseases include genetics, age, alcohol, high blood pressure and high cholesterol.

Economic Costs of Chronic Diseases

In 1993, the economic burden to Canadians resulting from cardiovascular diseases, cancer, diabetes, kidney disease and respiratory diseases exceeded $17 billion, or more than 40 per cent of all direct costs for all illnesses (hospital, physician, medication and treatment, pension and benefits).[12] Currently, it is estimated that cardiovascular diseases, diabetes and cancer cost the Canadian economy more than $45 billion.[13] Chronic diseases account for approximately 67 per cent of all direct health care costs and 60 per cent of total indirect costs, which include loss of productivity and foregone income. According to Health Canada, mental illnesses alone account for $6.4 billion in direct treatment costs (including $2.7 billion for hospital care) and $8.1 billion in indirect costs (lost productivity from short- and long-term disability and early deaths).

A study conducted in Nova Scotia found that chronic diseases account for more than $1 billion of the province's $1.9-billion health care budget and more than 70 per cent of total economic burden of illness in Nova Scotia.[14] Furthermore, this report found that 40 per cent of chronic disease incidence, 50 per cent of the premature mortality caused by chronic diseases and 38 per cent of the total economic costs of illness are preventable, and that 25 per cent of medical costs are attributable to a small number of modifiable risk factors. The study also noted important differences in cost distributions of chronic diseases. Cardiovascular diseases and mental illnesses account for the highest direct health care costs in Nova Scotia (particularly hospital and drug costs); cancer produces the highest losses in premature deaths; and musculoskeletal disorders account for the highest disability costs in the province.

Although current costs might seem high, they are expected to increase further due to demographic shifts, as older Canadians are more likely to develop or contract chronic diseases.

Evidence in some industrialized countries has shown that the decline of cardiovascular diseases and the reduction of their mortality rates are possible through primary prevention that focuses on risk factor reduction. It is necessary to address risk factors and implement cost-effective initiatives for the prevention and control of chronic diseases. Addressing smoking, obesity, physical inactivity and unhealthy diets will require concentrated efforts and investments of governments at all levels. Approaches that might be considered include:

- Designing and implementing a co-ordinated strategy for chronic disease prevention. Although some attempts have been made in this regard, no long-term plans and commitment have been made. In addition, as risk factors are linked to socio-economic conditions (e.g., poverty, education, housing, unemployment), it is necessary to ensure that these determinants of health are also considered in this strategy.
- Dedicating specific funds to address common risk factors for chronic diseases.
- Making bigger efforts to ensure that prevention programs and risk factor control strategies reach the most vulnerable groups (children and youth; First Nations and Inuit; sedentary, overweight middle-age individuals; and individuals from economically disadvantaged groups).
- Showing strong leadership to bring partners from all levels of government and other stakeholders to

agree on targets and co-ordinated strategies and to disseminate good practices.

- Supporting more research and development to shed light on the underlying mechanisms of diseases and the effectiveness of prevention interventions.
- Strengthening surveillance activities to ensure that health population data are available for planning and evaluating services, policies and legislation.

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[1] Centre for Chronic Disease Prevention and Control, Health Canada, See <http://www.hc-sc.gc.ca/pphb-dgspsp/ccdpc-cpcmc/topics/integrated_e.html>, cited January 2004.

[2] Advisory Committee on Population Health, *Advancing Integrated Prevention Strategies in Canada: An Approach to Reducing the Burden of Chronic Diseases*, Discussion Paper (2002).

[3] Centre for Chronic Disease Prevention and Control, Health Canada, See <http://www.hc-sc.gc.ca/pphb-dgspsp/ccdpc-cpcmc/topics/integrated_e.html>, cited January 2004.

[4] Heart and Stroke Foundation of Canada, the Centre for Chronic Disease Prevention and Control (Health Canada) and the Canadian Cardiovascular Society, *The Growing Burden of Heart Disease and Stroke in Canada* (2003).

[5] Chronic Disease Prevention Alliance of Canada, *Investing in Our Future: Preventing Chronic Diseases in Canada* (2003)

[6] Commission on the Future of Health Care in Canada, *Building on Values—The Future of Health Care in Canada* (2002).

[7] Statistics Canada, Canadian Community Health Survey.

[8] Commission on the Future of Health Care in Canada, *Building on Values—The Future of Health Care in Canada* (2002).

[9] Canadian Fitness and Lifestyle Research Institute. See <http://www.cflri.ca/cflri/cflri.html>, cited January 2004.

[10] Commission on the Future of Health Care in Canada, *Building on Values—The Future of Health Care in Canada* (2002).

[11] Chronic Disease Prevention Alliance of Canada, *Investing in Our Future: Preventing Chronic Diseases in Canada* (2003).

[12] Moore et al., *Economic Burden of Illness in Canada, Chronic Diseases in Canada: Special Supplement* (1996).

[13] Chronic Disease Prevention Alliance of Canada, *Investing in Our Future: Preventing Chronic Diseases in Canada* (2003).

[14] GPI Atlantic, *The Cost of Chronic Disease in Nova Scotia* (2002).

Cost Escalators

2.4 PHARMACEUTICALS

Drugs have been the fastest-growing component of Canadian health care during the past 25 years, and they promise to be one of the most challenging arenas for health policy reform in the coming years. Nominal growth in public drug expenditures is 9.3 per cent. This amounts to a real increase in public drug expenditures of approximately $0.4 billion annually.

Prescription drug costs are the most important component of drug spending, and they are the single most important reason for escalating expenditures. Spending on prescription drugs rose from about 70 per cent of total drug expenditures in 1990 to 80 per cent in 2002. Total spending on prescription drugs is estimated to be about $14.6 billion, and it is rising (see Chart 2).[1]

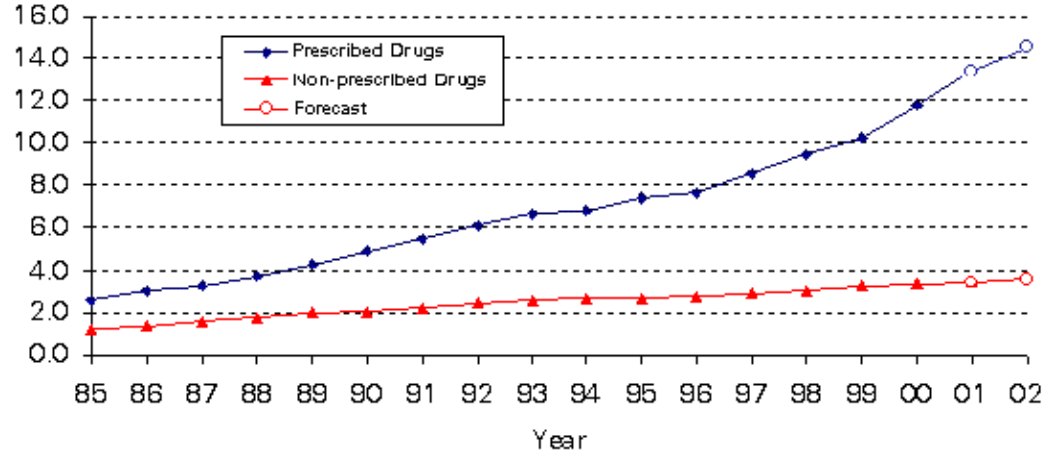
The rate of increase in drug spending has consistently outpaced the overall rate of increase in health care spending since 1984. Total Canadian spending on drugs, estimated at $18.1 billion in 2002, now accounts for 16 per cent of all spending on health care. This is up from 12 per cent in the early 1990s and 8.8 per cent in 1975.[2] Combined Canadian public sector spending on drugs now totals $6.6 billion. This is about 8 per cent of all public spending on health care and more than double what it was 20 years ago: 3.2 per cent of all public health spending.

The public sector dominates most Canadian health care provision, accounting for 70 per cent of all health expenditures. In the area of pharmaceuticals, however, private sector funding has always dominated. Even so, there has been a gradual trend toward greater public funding over the past 25 years. In 1975, public expenditures for drugs accounted for approximately 15 per cent of all drug spending. This rose to 30 per cent in the mid-1980s, and (with a brief reversal in the mid-1990s) it continues to climb, standing at about 36 per cent in 2002.

Reports from the Canadian Institute for Health Information (CIHI) indicate that the sectors of Canadian health expenditure not constrained by the *Canada Health Act* are the ones experiencing the highest growth rates.

This section uses CIHI data to track spending patterns, both public and private, at the Canadian and federal/provincial levels. The CIHI definition goes beyond prescription and non-prescription drugs to include medical supplies and items used to promote or maintain health, such as diabetes test strips. The CIHI definition does not include expenditures for drugs used in hospitals and other institutions, which come under the costs incurred by those institutions.[3]

Chart 2
Total Drug Expenditure by Type, Canada, 1985 to 2002
($*billions)



Sources: Canadian Institute for Health Information, Statistics Canada

The Public/Private Split

About 45 per cent of spending on prescription drugs is financed publicly, through public drug benefit programs that fully fund or subsidize such purchases. Private spending on prescription drugs comes from two sources: private insurance plans (60 per cent of all private spending for prescription drugs) and out-of-pocket purchases (40 per cent), which include patient co-payment for public drug benefit programs.[4]

Canada has one of the lowest shares of drug expenditures financed by the public sector among reporting OECD countries, which (with the exception of Canada and the United States) usually provide universal coverage for prescribed drugs.[5]

There is significant variation in public drug benefits across Canada and in the mechanisms used to provide those benefits. As Table 2 shows, the differences in drug expenditure per capita between jurisdictions that have universal coverage for pharmaceuticals and those that do not are not as great as one might expect.

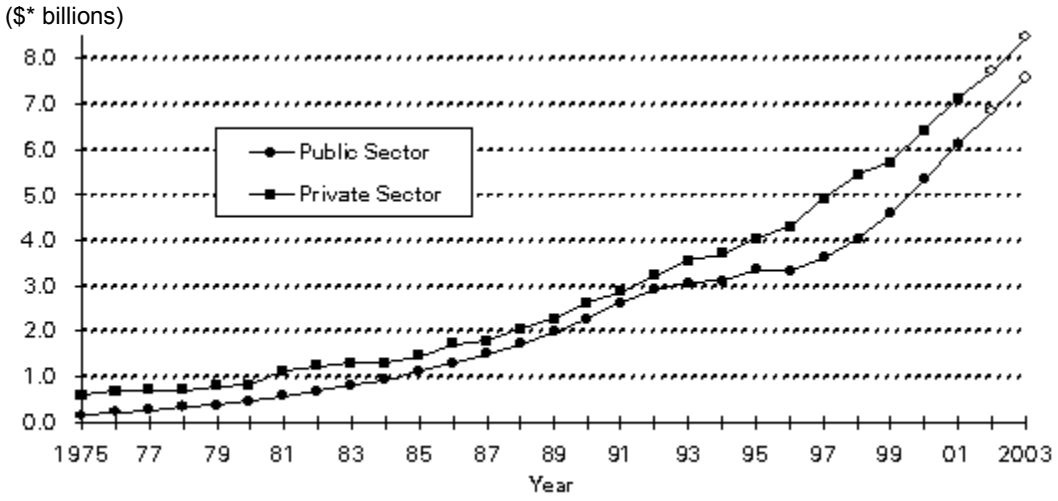
Spending on prescription drugs, both through public and private funding mechanisms, has been steadily increasing since 1995 (see Chart 3). The Conference Board of Canada forecasts that, should current trends continue uninterrupted, prescription drugs will grow from about 7 per cent to 15 per cent of all provincial/territorial costs by 2020. This raises a twofold concern for governments: what is driving these growing costs? And what can be done about it?

Table 2
Drug Expenditure Summary, by Province/Territory and Canada, 2000

	Total drug exp.	Total drug exp. as % of total health exp.	Total drug exp. per capita	Total prescribed drug exp. per capita	Prescribed drug exp. as % of total drug exp.	Public prescribed drug exp. as % of total prescribed drug exp.
	($ ^000,000)	(%)	($)	($)	(%)	(%)
Nfld.	244.0	14.5	453.7	367.2	809.	39.3
P.E.I.	69.4	17.5	501.9	383.5	76.4	32.1
N.S.	468.5	16.7	497.2	387.9	78.0	37.8
N.B.	370.4	16.7	490.2	372.9	76.1	33.4
Que.	3,735.0	17.6	506.0	420.6	83.1	48.1
Ont.	6,245.0	16.1	533.9	407.6	76.3	43.0
Man.	486.1	12.1	424.0	328.0	77.4	45.4
Sask.	433.2	13.9	423.9	322.3	76.0	43.7
Alta.	1,309.1	13.7	435.0	330.5	76.0	44.1
B.C.	1,651.7	12.5	406.8	303.0	74.5	53.7
Yukon	12.9	11.2	422.0	313.0	74.2	66.4
N.W.T.	17.1	8.0	418.7	317.0	75.9	73.5
Nunavut	8.2	5.1	299.1	200.3	66.9	73.4
Canada	**15,051.0**	**15.4**	**488.8**	**380.9**	**77.9**	**45.2**

Sources: Canadian Institute for Health Information; Statistics Canada.

Chart 3
Public and Private Prescription Drug Purchases, 1995 to 2003



Sources: Canadian Institute for Health Information; Statistics Canada.

CAUSES OF RISING DRUG EXPENDITURES

Drug prices and rates of utilization are the two major factors behind increased spending on drugs, particularly prescription drugs. The causes may be inferred from the failure of different policies to restrain the growth described above.

Price push. A variety of price indices show that the prices of existing drugs have been relatively stable for the past 10 years. Increased prices are primarily the result of new drugs being substituted for older drugs, as they are typically introduced at higher costs than the products they displace.[6]

The higher prices of new drugs are largely due to the changing structure of the pharmaceutical industry. Although R&D spending in the United States rose from about $13 billion in 1990 to over $30 billion in 2002, the proportion of R&D resulting in marketable products fell. In 2002, the U.S. Food and Drug Administration approved 17 new molecular entities (NMEs) for sale, down from a peak of 56 NMEs in 1996, the lowest output since 1983. This decline in the productivity of pharmaceutical R&D output was consistent throughout the world during the 1990s, and it requires that companies sustain larger returns on fewer products to support their R&D investment. Since price increases for existing products are largely regulated in many OECD countries, this market structure greatly influences the prices of the new products that do get approved for the market.[7]

Patent laws have been used to prevent price competition by delaying generic product entry. Many new patents are issued that simply extend the life of an existing patented drug by repackaging the product in a new format (e.g., gel capsule, tablet, different dosage). In Canada, of 94 new patented drugs in 2002, only 24 contained new active substances.[8]

The extension of the drug patent law's period of market exclusivity has also played a role. Bill S-17, which was passed into law in June 2001, was introduced to comply with two World Trade Organization rulings. It extended certain pharmaceutical patents from 17 to 20 years. Industry Canada estimates that this legislation cost Canadians $40 million in lost savings on generic products.[9] This extension of patent protection came on top of other improved patent protections through Bill C-22 (1987) and Bill C-91 (1993). Together, these legislative changes have had the sum effect of increasing utilization of patented medications versus their generics. Patented drugs accounted for 67.4 per cent of total drug

sales in 2002, up from 45 per cent in 1996 and 43 per cent in 1990.[10]

Increased utilization. At an aggregate level, it is difficult to quantify the utilization and price effects that lie behind the trends for increased spending on drugs. However, increased utilization might be explained by a complex set of forces, including:

- An aging society, which is more likely to take medications;
- Growing scope for pharmacotherapy (treatment, maintenance, prevention);
- More "consumer-driven" demand (Internet access to information, direct-to-consumer advertising); and
- More direct marketing of physicians by drug companies trying to establish the latest drug.

Demographics are expected to play an important role in increasing drug expenditures. In the United States, people over 65 years of age represent one in eight Americans and consume 30 per cent of all prescription medications.[11] In Canada, those aged over 65 accounted for 23.5 per cent of all private expenditures on drugs in 2000 and for 64.5 per cent of all provincial/territorial spending on drugs.

Table 3
Provincial and Territorial Government Health Expenditures by Age Group and Sex
Drugs
Canada, Provinces and Territories 2000-2001

	Age Groups										
	0-14	15-24	25-34	35-44	45-54	55-64	65-74	75-84	85+	[65+]	Total
	Age standardized percentage distribution										
	Both sexes										
Nfld.	4.4	2.8	6.9	12.3	13.1	15.9	25.1	15.2	4.3	[44.6]	100
P.E.I.	3.3	3.5	5.4	9.6	10.7	9.1	25.7	22.4	10.3	[58.3]	100
N.S.	1	2.2	3.3	5.6	7.2	5.8	36.9	27.7	10.3	[74.9]	100
N.B.	3.3	3.5	5.4	9.6	10.7	9.1	25.7	22.3	10.3	[58.3]	100
Que.	3	3.4	5	8.6	10.8	14.7	28.2	20.9	5.4	[54.5]	100
Ont.	1.7	1.6	3.7	7.2	7.3	7	34.3	28	9.2	[71.4]	100
Man.	2.3	3	3.8	7.8	11.7	17.6	27.8	20.3	5.8	[53.8]	100
Sask.	3.6	4.8	7.7	11.3	14.2	16.9	18.8	15.5	7.2	[41.5]	100
Alta.	0.5	1	1.1	2.3	5.1	12.6	38.8	29.5	9.3	[77.6]	100
B.C.	2.5	2.9	5.1	9.9	11	10.1	29.6	22.1	6.9	[58.6]	100
Yukon	2.6	2.4	3.5	2.8	1.8	3.9	41.8	33	8.3	[83.0]	100
N.W.T.	0.2	0.6	2.5	4.5	8.6	16.3	29.9	30.7	6.6	[67.2]	100
Nunavut	0.2	0.6	2.5	4.2	8.8	16.3	29	30.6	7.7	[67.3]	100
Total	2.1	2.3	4.1	7.6	8.9	10.5	32	24.8	7.8	[64.5]	100

Source: Health Canada.

The variation in public spending on drugs for this group ranged from 44.6 per cent in Newfoundland to 83 per cent in Yukon. The 65-plus group accounted for as little as 14 per cent of all private spending on drugs (in the territories) to a maximum of 33 per cent (in Saskatchewan).

The recent expansion in pharmacotherapy, especially to treat modern diseases for which drug therapy was virtually non-existent 10 years ago, is also responsible for increases in drug expenditures. Examples of diseases for which new treatments have been developed include AIDS/HIV, osteoporosis, anxiety disorders, sexual dysfunction and hyperlipidemia.

While it is true that demographics and technological advances will continue to drive drug utilization, there are growing concerns about inappropriate care results. Overuse, underuse and misuse of medications are common and stem from a variety of causes. Unnecessarily expensive products are sometimes used instead of more cost-effective solutions (both with respect to choices among drugs and to choices between pharmaceutical and non-pharmaceutical approaches). There is also increasing concern about the chronic use of multiple prescriptions, especially but not restricted to consumption of drug products by the elderly.

Early intervention and prevention techniques are widely underutilized. The result is higher cost and lower quality-of-life outcomes. For example, it is suggested that greater use of ACE inhibitors for patients with hypertension would reduce the incidence of cardiovascular disease such as heart attacks and strokes.

The main causes of waste include resolution of the condition for which the medication was prescribed, patient-perceived ineffectiveness, prescription changes by physicians and patient-perceived adverse effects. It is estimated that wasted medications among American adults aged over 65 years top $1 billion a year.[12]

Everyone, from policy-makers and politicians to patients and doctors, is looking for more information in order to make rational decisions on what, and how much, medication is right. The Internet has become the quickest, though perhaps not the most reliable, source of information on all medical questions. This "information overload" is augmented by attempts to raise the demand for new products. Promotion now outstrips R&D in major pharmaceutical firms by a factor of three to one.[13]

Direct-to-consumer advertising (DTCA) of pharmaceuticals is prohibited by the *Food and Drug Act* in Canada, but the ban may be increasingly ineffective, and not just because of the Internet. Between 1996 and 2001, annual spending on DTCA almost tripled in the United States. In 2001, $2.6 billion was spent by the U.S. drug industry on ads for television and magazines, media that know no border for Canadians.[14] DTCA is highly concentrated on a subgroup of about 50 products, and it represents 16 per cent of all drug marketing spending.[15] Most direct marketing spending in the United States (over $13 billion) targets physicians.

As a result of this promotional spending, both consumers' and prescribers' behaviours are affected. The top 25 drugs ranked by spending on direct-to-consumer advertising were responsible for 41 per cent of the $18 billion U.S. year-over-year increase in retail drug costs (from 1998 to 1999). Doctors wrote 34 per cent more prescriptions for these products in 1999 than in 1998, compared with 5 per cent more prescriptions for all other drugs. About one quarter of survey respondents spoke to their doctors about a drug or condition in response to advertising. Although only 6 to 9 per cent of these respondents specifically requested an advertised drug, 80 to 84 per cent of those who requested prescriptions received them.[16]

Table 4
U.S. Total Promotional Spending by Type
[January 2000 to December 2000]

Office promotion	$4,037,702,000
Hospital promotion	$765,261,000
Journal advertising	$484.430.000
Retail value of samples	$7,953,706,000
Professional spending	$13,241,099,000
Direct-to-consumer spending	$2,467,099,000
Total U.S. promotion	$15,078,198,000

Source: IMS HEALTH Integrated Promotional Services and CMR. From <http://www.imshealth.com/public/ structure/dispcontent/1,2779,1343-1343-143223,00.html>.

DTCA is of concern in other countries too. Australia carried out a legislative review in 2000 and recommended against introducing DTCA, with the exception of comparative price advertising. In July 2001, the European Commission proposed legislative changes to allow a five-year pilot project that would allow advertising to the public of prescription drugs for a very restricted group of diseases: HIV/AIDS, diabetes and asthma. The European Parliament voted on this proposal in October 2002, declining it by a margin of 12 to one. The parallel body for legislative reform in the European Union (EU), the Council of Ministers, similarly rejected the proposal in spring 2003. In the industrialized world, only the United States and New Zealand allow direct-to-consumer advertising of prescription medicines.[17] However, in December 2003, New Zealand announced it would adopt common advertising standards with Australia, including advertising of pharmaceuticals. This move represents a first step toward instituting a ban on DTCA in New Zealand.[18]

Health Canada is about to embark on consultations in 2004 on a proposed new *Canada Health Protection Act*. The new act would replace four existing statutes (the *Food and Drugs Act*, the *Hazardous Products Act*, the *Quarantine Act* and the *Radiation Emitting Devices Act*) and cover a host of products from food to drugs to cosmetics. The act would include existing legislation governing DTCA, which promises to be one of the most thorny aspects of legislative renewal, constitutionally pitting the right to know (and advertisers' freedom of speech) against the duty to protect individual citizens and the public good.

Addressing Drug Costs

The debate in pharmaceutical policy, especially in public programs, is access versus excess. In part, this issue reflects the trade-off between public and private coverage: when private insurance plans reduce coverage by restricting eligibility or benefits, more subscribers, especially seniors, become vulnerable and become increasingly reliant on public programs.

Services and products that are provided through public, single-payer administrations reap the benefits of economies of scale (streamlined administration costs, no marketing and profit-taking, the potential for better procurement and price controls). Hence they tend to contain costs more effectively than private sector provision of the same sets of services and products. However, public provision is conditioned by limited public resources, as well as by the reality that private purchase can offer a limitless scope of product/service provision, albeit at greater cost.

Greater public provision offers a greater range of demand- and supply-side management tools that can more effectively contain overall costs to society, freeing up resources for other things. But it comes at greater cost to public treasuries, which is difficult to sell to the public even if it means overall savings in the area of pharmaceuticals or other health provisions.

There is a variety of demand-side management techniques that could be used to control expenditures. These include:

- Increasing, or introducing, co-payments or other direct fees;
- Restricting DTCA; and
- Public health promotion focusing on nutritional education, physical activity, smoking cessation and a range of other "harm prevention" techniques, including social investments in housing and child care.

Some examples of demand-side management in Canada are set out below.

Cost-sharing and co-payments. This is probably the most extensively used demand management tool in Canada. Provinces have a range of cost-sharing levers that affect the rate at which drugs are subsidized through public programs. These include co-payments, premiums, deductibles, income-tested caps on deductibles, absolute caps on deductibles and ability-to-pay criteria. The central concern about cost-sharing is that a significantly high user co-payment may deter ill seniors and social assistance recipients from using medication that may reduce future hospitalization and long-term care costs.[19]

Every province, excluding Manitoba, has co-payments, but not all provinces have deductibles. Only four provinces use premiums to fund provincial programs that provide pharmaceuticals: Alberta, Québec, New Brunswick and Nova Scotia. Four provinces have absolute caps on the amounts residents pay for

pharmaceuticals: British Columbia, Quebec, New Brunswick and Nova Scotia. There is great variation in the degree to which total drug costs and annual deductibles are capped, at absolute levels or income-tested levels.

Other demand-side tools. There is little research on how other demand management tools are utilized in Canada or on what their cost impact might be. However, a substantial literature exists to suggest that large prescriptions may increase waste from drugs that are not compatible. There is some experimental use of trial-sized prescriptions, with dispensing fees for these compensated at a slightly higher rate in some provinces.[20] (For example, Ontario has introduced an initial 30-day supply requirement and capped total dispensed supply for any refill at a 100-day supply.)

There is some discussion of expanding pharmacists' ability to directly provide prescription drugs for a limited range of conditions, thus eliminating the costs associated with the first step of the process: the doctor's visit. In 2003, Saskatchewan pharmacists were given the right to prescribe morning-after contraceptives. They join pharmacists in Québec and British Columbia, who can also prescribe emergency contraceptives.

Other primary care reforms, such as public education campaigns to reduce and control chronic diseases such as diabetes, obesity and asthma are underway. Furthermore, with increasing use of nurses and nurse practitioners as the first point of contact with the health care systems, the tendency to prescribe "on contact" with the medical system will be, of necessity, reduced.

There are also supply-side management techniques to control drug expenditures. These include:

- Scope of coverage (eligibility to programs, caps on benefits);
- Scope of formulary (availability of medicines, delisting or adding drugs);
- Procurement strategies (volume/price agreements, restricting purchase to low-cost supplier lists, risk-sharing agreements [Ontario]);
- Controlling waste (restricting or expanding initial prescription sizes); and
- Implicit and explicit price controls (reference base pricing, Patented Medicine Prices Review Board).

Examples of supply-side management in Canada are outlined below.

Scope of coverage. Expenditures can be limited by restricting coverage to eligible beneficiary groups. All provinces provide some form of seniors' coverage. Until recently, only low-income seniors and the population receiving social assistance qualified for the government program. In the late 1990s and earlier part of the decade, only five provinces (Alberta, British Columbia, Saskatchewan, Manitoba and Québec) offered some form of universal coverage. However, residents without coverage can purchase it from government plans without precondition exclusions. In Ontario, although coverage is available for all persons, coverage for non-seniors through the Trillium program is limited to specific conditions and illnesses, as well as being constrained by income.[21]

Scope of formulary. The most important tools of a formulary are: a) a restrictive list of products that may be reimbursed, b) exclusion of new products until they are specifically adopted, and c) periodic review of the entire list of products by therapeutic classification. These activities combine to "control" the available set of drugs. All provinces use some form of formulary to control the available set of drugs. Grégoire et al. report significant variation in the formularies by province.[22]

Virtually all provinces and territories have some technique to assess the introduction of new drugs into their public formularies, but not all have the capacity to conduct exhaustive clinical and cost-effectiveness tests.

In September 2000, the Federal–Provincial–Territorial Agreement on Health Care launched plans to implement a Common Drug Review process, housed within the Canadian Coordinating Office for Health Technology Assessment. Its purpose was to reduce duplication of effort in evaluations of the cost effectiveness of new pharmaceuticals. The natural outcome of such findings was the possibility of creating a common intergovernmental advisory process that could assess drugs for potential inclusion in publicly funded drug plans.

This initiative has become the most recent example of the easy potential for federal–provincial friction. Given the variation across provincial formularies, it has been

suggested that a national formulary that "grandfathered" all existing medicines onto a common drug list would be very comprehensive and likely expensive.[23] Even moving toward a smaller list of common drugs from the range of new pharmaceuticals may prove politically difficult, given the suggestion that movement toward a national "standard" may not be affordable provincially or territorially without additional funding.

Use of generics. In general, all provinces try to enforce a policy of emphasizing the use of generics. Generic substitution is a form of reference-based pricing (RBP) enforceable under a formulary structure. In most cases, the provinces mandate the use of generics; however, most provinces also have mechanisms to allow a physician to override the preference for generics.

Procurement strategies. None of the provinces makes significant direct purchases of drugs, though many hospitals use their much more limited buying power to strategically reduce their pharmaceutical costs. Without explicit procurement strategies, the massive scale of purchase ($6.6 billion across Canada, with about $2.5 billion spent by the Ontario government alone) is insufficient to, on its own merit, lead to the lowest possible price. In Ontario, the Provincial Auditor has indicated that the Ontario Drug Benefit program does not get as low a price as is available in other jurisdictions.

Efforts have been made to change this approach to drug purchase, but they have not always been successful. In June 1998, the Ontario Drug Benefit Formulary/Comparative Drug Index instituted, as a condition for listing a new drug in the public formulary, a requirement for a written agreement with the government setting out a three-year price/volume guarantee for the product. The September 2000 Guidelines for Drug Submission and Evaluation softened that requirement; it stipulated only that the manufacturer of a product recommended for listing *may* be requested to provide a written agreement.

Strategies to limit price increases have also been used. In Canada, the Patented Medicine Prices Review Board (PMPRB) is mandated to establish price increases for existing drugs and to regulate introductory prices for new drugs. It tries to prevent excessive prices in the Canadian drug market by constraining price inflation of existing patented (but not generic) drugs and setting guidelines for the price of new patented drugs. Its 2002 annual report states that the prices of existing patented drugs fell 1.2 per cent between 2001 and 2002, continuing a general trend of the last decade. However, it notes that Canadian drug prices were one per cent higher than the median of foreign prices in 2002. In recent years, Canadian prices have been 5 to 12 per cent below median foreign prices. Pricing reviews look at factors such as:

- The prices at which the medicine has been sold in the relevant market;
- The prices of other medicines in the same therapeutic class;
- The prices of the medicine and of the other medicines in other countries; and
- Changes in the Consumer Price Index.[24]

Price-setting: Reference pricing. Two provinces, notably British Columbia and now New Brunswick, have some form of reference pricing. In British Columbia, the payment is for the lowest-cost drug within a common therapeutic reference class. Normally, generic substitutes are added to formularies only if they offer a significant cost reduction.

In a move related to reference pricing and generic substitution, Ontario began in 1998 to require specific discounts when listing generic interchangeable products. The first multi-source (i.e., generic) products listed on formulary must be priced no higher than 70 per cent of the listed drug benefit price of the original product. The second and subsequent generic products must not be greater than 63 per cent of the price of the original product for that category.[25]

It should be noted that pharmaceutical policy—and indeed health policy—is set at both levels of government in Canada, but there is a significant disconnect between the two levels. The federal government, through the PMPRB, monitors introductory prices and price increases for those products that are patented. It is insulated from the impact of its policies because it does not incur the expenditures for drugs. In contrast, provincial governments have little or no jurisdiction over many policies affecting market competitiveness or pricing or the statutory rights to care set out in federal

law, but they end up bearing the costs associated with such policy change.[26]

Drug Expenditure Management Mechanisms in Other Jurisdictions

Coverage. Generally, the OECD countries outside North America cover a much broader range of their populations' pharmaceutical needs than is common in Canada. Studies providing comparisons of European and Canadian policy,[27] describing pharmaceutical policies in the OECD countries[28] and summarizing drug policies in European countries[29] have been published. Some coverage schemes in the OECD are quite established. For example, the Australian Pharmaceutical Benefits Scheme has managed a positive benefits list of products (formulary) for more than 50 years. This benefits list covers about 90 per cent of prescriptions in the Australian market.[30] In the mid-1990s, Burstall indicated that coverage in most of the markets averaged between 70 and 80 per cent.[31]

Cost-sharing. Cost control is a key issue in all countries, as most offer some sort of subsidy for pharmaceutical costs to their residents. In the EU, there is a general acceptance of modest out-of-pocket payments for pharmaceuticals.[32] However, the impact of cost-sharing on vulnerable populations remains an issue. Currie and Nielson summarize several studies showing how cost-sharing adversely affects populations with lower incomes.[33] It is important to note that in private insurance schemes, costs are more easily shifted to the person receiving the benefit than to the employer paying the premium.

Table 5
Out-of-Pocket Payments by Patients for Pharmaceuticals in Various EU countries, 1996

Country	Percentage of items exempted	Charges
Belgium	None	Flat rate plus 0/25/50/60/80/100% of price
Germany	n.a.	3, 5 or 7 DM, depending on pack size and based on days of treatment
Denmark	n.a.	0/25/50/100% of price
Spain	62	0/10/40% of price
Finland	None	FIM 50 per prescription and 50% of price
France	9	0/35/65/100% of price
Greece	n.a.	0/10/25% of price
Luxembourg	None	0/20% of price
Ireland	GMS-I00	None for General Medical Services (GMS) patients; Category II eligibility patients: up to £90 IR per quarter
Italy	32	Flat rate of 3,000 lire for first two items or 3,000 lire for first two plus 50% of price
Netherlands	I00	None
Austria	18	ATS 42 per prescription
Portugal	45	0/30/60% of price (15% and 45% for low-income persons)
Sweden	Negligible	SEK 160 for the first item and SEK 60 for further items
United Kingdom	85	Flat rate of £5.40 UK per prescription

Note: n.a.= not available
Source: E. Mossialos, "Pharmaceutical Pricing, Financing and Cost Containment in the European Union Member States," in *Health Care and Its Financing in the Single European Market,* R. Leidl (ed.) (Amsterdam: IOS Press, 1998), pp. 85–115.

Prescribing practices and physician incentives. There are attempts to control prescribing practices by providing information and other incentives to the physician. One American study looked at differences in prescribing practices by physicians in independent practice associations and in network-based health maintenance organizations (HMOs). Higher patient co-payments for prescription drugs were associated with lower spending in the case of independent-practice physicians (where the physicians were not at risk for the drug costs), but had little effect in the HMO-based network model (where physicians bear financial risk for all prescribing behaviour).

Some countries, such as France, provide financial incentives to doctors to manage prescription activity.[34] In Germany, there was a relatively short-lived experiment with pharmaceutical budgeting to put some significant financial risk on the doctors' share of primary care payments. Costs were initially reduced, but drug hoarding and other market failures increased. Since the budgets more or less applied only to "office based" practitioners, there was an increase in referrals to more costly elements of the health care systems: hospitals and specialists, which were not affected by the budget cap.[35]

In the United Kingdom, similar budgeting approaches under GP fund holding were introduced. These approaches, which aimed to achieve rational prescribing goals, produced only mixed results. Strict budgets provided an incentive to use generic drugs, but other undesirable effects of the policy led the Labour government to abolish fund holding in 2000.

Reference pricing. Reference pricing of some form is a common practice in many OECD countries. Reference-based pricing establishes a common price for a generally interchangeable group of drugs.

Table 6
International Policies for Pharmaceutical Cost Containment

Country	Positive lists	Negative lists	Reference-based pricing	Other
Australia	+		+	
Canada[a]	+	+	+	Control of price increases Price negotiations (PMPRB)
France	+			Price negotiations
Germany	(+)	+	+	Global budgets
Ireland		+		
Italy	+		+	Price control
New Zealand	+		+	
Norway	+		+	Direct price control
Spain		+		Price control
Sweden	+	(+)	+	
The Netherlands		+	+	Price regulation law on drugs
United Kingdom		+		Profit control, pharmaceutical budget

[a] Varies for each province in Canada.

PMPRB = Patented Medicines Prices Review Board; + = present.
Source: L.L. Ioannides-Demos, J.E. Ibrahim and J.J. McNeil, "Reference-based pricing schemes: Effect on pharmaceutical expenditure, resource utilisation and health outcomes," *Pharmacoeconomics,* 20 (2002), pp. 577–591.

Price negotiation. Many jurisdictions, including Germany and France, appear to have reference price systems that provide some protection for patented drugs. This seems to be an attempt to balance the industrial policy interests with the health cost interests. In the Netherlands, the high prices of drugs, relative to near-neighbouring countries, resulted in the establishment of price controls. In New Zealand, negotiations take place between the government and specific suppliers to balance market share and price considerations across therapeutic classes.

In Australia, the Pharmaceutical Benefits Pricing Authority (PBPA) negotiates prices with suppliers.[36] The general approach follows reference pricing policies. The PBPA uses benchmark pricing of a therapeutic class as one approach to restrain the price of new entrants. Products that do not suit a benchmark approach are managed on a cost-plus basis. Interestingly, brand premiums are allowed, but this premium is payable by the patient. Certain specific classes of drugs are permitted premiums above monthly average treatment costs for the reference drug. These premiums are paid by the patient to allow patient-specific benefits, such as avoiding adverse effects associated with the reference drug.

Table 7
Summary of Reference-based Pricing (RBP)

Country	RBP type	Year introduced	Determinant of reference price	Total drug expenditure
Germany	I	1989	Statistically derived average price of drugs in a category	Decreased rate of increase 1989, 1993–1995; smaller decrease in 1992
	II	1992		
	III	1993		
Australia	I	1990	Lowest priced drug	Decreased expenditure growth rate 1997–1998, 1998–1999; increased expenditure 1998–1999, 1999–2000[a]
	II	1998		
The Netherlands	III	1991	Average price of drugs in a category	Decreased expenditure growth rate 1991; increased expenditure 1992, 1993
New Zealand	II	1992	Lowest priced drug	Decreased expenditure 1998-1999; decreased expenditure growth rate 1993–1998
Sweden	I	1993	Lowest priced drug plus 10%	Increased total pharmacy sales 1993, 1994; cost savings 1993, 1994
Denmark	I	1993	Average dosage unit price for two lowest cost products in a group	Decreased expenditure growth rate in first year
Norway	I	1993	NA	NA
Canada (B.C.)	II	1995	Lowest priced drug	Decreased expenditure and expenditure growth rate in 1996

[a] Data from the Pharmaceutical Benefits Scheme. Data were also directly obtained from the Drug Utilisation Sub-Committee, Pharmaceutical Benefits Advisory Committee, Canberra, ACT, Australia.
NA = no readily available information.

Other techniques for cost management. In public plans, there has been substantial work on techniques for controlling waste by restricting initial prescription sizes, as well as in evaluating and introducing techniques for influencing the prescription behaviour of physicians. Jacobzone indicates that most OECD countries, except Canada at the federal level, have some form of prescription guideline program. He also indicates some form of profit controls in the United Kingdom, Turkey, Spain, Mexico and Korea, while negotiated freezes on price increases have been tried in many countries.

In the private sphere, pharmaceutical budgets, outright caps on benefits and delisting are among the suite of techniques used to manage the cost profile of programs. It is common for larger plans to attempt to gain better purchase terms from suppliers and to direct pharmacists to prescribe from products supplied by low-cost suppliers.[37]

Pharmacy benefit management personnel or specialist firms are used extensively to monitor and control prescription usage. This is also done in some instances in the public sphere, with ongoing contact with patients, especially by home care workers, to ensure that instructions on the use of medications are being followed.

Summary

There is the potential for some cost savings and efficiencies in public drug programs in Canada, primarily through the use of better procurement. Governments need to look ahead and work co-operatively with businesses and labour to overcome the challenges of escalating costs in the pharmaceutical sector.

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[1] CIHI, *Drug Expenditures in Canada,* 1985–2002.

[2] CIHI National Health Expenditures (NHEX), Series C tables.

[3] From CIHI NHEX, Definition of Data Elements: "Drugs, at the aggregate level, include expenditures on prescribed drugs and non-prescribed products purchased in retail stores. This category has been disaggregated at the Canada level in the Data Tables to provide information on the following sub-categories:

1. Prescribed Drugs—substances sold under the *Food and Drug Act,* which require a prescription.
2. Non-prescribed Drugs—include two sub-components:
   - Over-the-Counter Drugs—therapeutic drug products not requiring a prescription; and
   - Personal Health Supplies—including items used primarily to promote or maintain health, e.g., oral hygiene products, diagnostic items such as diabetic test strips and medical items such as incontinence products.

The drug category does not include drugs dispensed in hospitals and generally in other institutions. These are included with the category of hospitals or other institutions."

[4] Ibid.

[5] Ibid.

[6] Ibid.

[7] Ian Cockburn, "The Changing Structure of the Pharmaceutical Industry," *Health Affairs,* 23, 1 (February 2004), pp.10–24.

[8] PMPRB, *Annual Report,* 2002.

[9] Canadian Drug Manufacturers Association, *Drug Costs News Update,* December 2001.

[10] PMPRB, *Annual Reports,* 2002 and 1996.

[11] From <http://www.imshealth.com/ims/portal/front/articleC/0,2777,6652_3665_1003982,00.html>.

[12] Thomas Morgan, "The economic impact of wasted prescription medication in an outpatient population of older adults," *The Journal of Family Practice,* 50, 9 (September 2001).

[13] Breakouts for the 12 Fortune 500 drug companies show that, at the median in this group, profits accounted for about 18 per cent of revenues, R&D 12 per cent, and marketing and administration 37 per cent. The median revenue of these

companies was about $13 billion US. *Fortune Magazine* (April 2000); Fortune 500 (from <http://www.fortune.com>); 1999 company annual reports.

[14] *Pharmaceutical Executive* (August 2002); Meredith B. Rosenthal, Ernst R. Berndt, Julie M. Donohue, Richard G. Frank and Arnold M. Epstein, "Promotion of Prescription Drugs to Consumers," *New England Journal of Medicine,* 346, 7 **(**February 14, 2002), pp. 498–505.

[15] S.D. Findlay, "Direct-to-consumer promotion of prescription drugs. Economic implications for patients, payers and providers," *Pharmacoeconomics,* 19, (2001), pp. 109–19.

[16] Barbara Mintzes, Morris L. Barer, Arminee Kazanjian, Ken Bassett, Robert G. Evans and Steve Morgan, *An Assessment of the Health System Impacts of Direct-to-Consumer Advertising of Prescription Medicines (DTCA),* Vol. I: Executive Summary (Vancouver: Centre for Health Services and Policy Research, University of British Columbia, Feb. 1, 2002), p. 2.

[17] Ibid.

[18] Bob Burton, "New Zealand Moves to Ban Direct Advertising of Drugs," *British Medical Journal,* 328, 68-c-O (Jan. 10, 2004).

[19] R. Tamblyn, R. Laprise, J.A. Hanley, M. Abrahamowicz, S. Scott, N. Mayo, J. Hurley, R. Grad, E. Latimer, R. Perreault, P. McLeod, A. Huang, P. Larochelle and L. Mallet, "Adverse events associated with prescription drug cost-sharing among poor and elderly persons," *Journal of the American Medical Association,* 284, 4 (2001), pp. 421–9.

[20] Katherine Ho and Linda MacKeigan, "A Model to Estimate Drug Plan Cost Savings from a Trial Prescription Program," *Journal of Managed Care Pharm.*, 7, 5 (2001), pp. 391–401.

[21] Currie and Nielson (1999) in their Table 2.2 provide a very detailed summary of coverage issues.

[22] J.P. Gregoire, P. MacNeil, K. Skilton, J. Moisan, D. Menon, P. Jacobs, E. McKenzie and B. Ferguson, "Inter-provincial variation in government drug formularies," *Can J. Public Health,* 92 (2001), pp. 307–312.

[23] A.H. Anis, D. Guh and X. Wang, "A dog's breakfast: prescription drug coverage varies widely across Canada," *Med. Care,* 39 (2001), pp. 315–326.

[24] R. Corvari, D. King and M. Sanidas, *Canada pharmaceutical pricing and reimbursement* (London: London School of Economics, 2001).

[25] Ministry of Health and Long-Term Care, *Ontario Guidelines for Drug Submission and Evaluation* (2000), See <http://www.health.gov.on.ca/english/providers/pub/drugs/dsguide/docs/dse_guide.pdf>, p. 90, cited January 2004.

[26] Aslam H. Anis, "Pharmaceutical policies in Canada: Another example of federal–provincial discord," *Canadian Medical Association Journal,* 162, 4 (February 22, 2000).

[27] D. Willison, M. Wiktorowicz, P. Grootendorst et al. *International Experience with Pharmaceutical Policy: Common Challenges and Lessons for Canada,* Working Paper 01-08 (Hamilton: McMaster University Centre for Health Economics and Policy Analysis, 2001).

[28] S. Jacobzone, *Pharmaceutical Policies in OECD Countries: Reconciling Social and Industrial Goals* (Paris: Organisation for Economic Co-operation and Development, 2000).

[29] See <http://pharmacos.eudra.org/F3/g10/p6.htm>, cited January 2004.

[30] A. Stevens and M. Sanidas, *Pharmaceutical Pricing and Reimbursement Policies in Australia* (London: London School of Economics, 2001).

[31] M.L. Burstall, "Copayments for medicines. How much should patients pay?" *Pharmacoeconomics,* 6 (1994), pp. 187–92.

[32] E. Mossialos, "Pharmaceutical Pricing, Financing and Cost Containment in the European Union Member States," in *Health Care and Its Financing in the Single European Market,* R. Leidl (ed.) (Amsterdam: IOS Press, 1998), pp. 85–115.

[33] Currie and Nielson (1999).

[34] K. Bloor and N. Freemantle, “Lessons from international experience in controlling pharmaceutical expenditure. II: Influencing doctors,”*BMJ,* 312 (1996), pp. 1525–7.

[35] O. Schöffski and J. Graf von der Schulenburg, “Unintended effects of a cost-containment policy: Results of a natural experiment in Germany,” *Soc. Sci. Med.,* 45 (1997), pp.1537–9.

[36] A. Stevens and M. Sanidas, *Pharmaceutical Pricing and Reimbursement Policies in Australia* (London: London School of Economics, 2001).

[37] R.G. Frank, “Prescription drug prices: Why do some pay more than others do?” *Health Aff.* (Millwood), 20 (2001), pp. 115–28.

2.5 HOME CARE

Health Canada[1] defines home care as "an array of services which enables clients, incapacitated in whole or in part, to live at home, often with the effect of preventing, delaying, or substituting for long-term care or acute care alternatives." Home care provides several inter-related and sometimes overlapping core functions:

- Restorative function, which enables clients to receive care and support, following an acute care intervention;
- Maintenance and prevention function, which focuses on the maintenance and monitoring of health and well-being to prevent deterioration of physical and mental health (at anticipated short-term, but lower long-term costs), and to enable clients to remain in their home setting to the greatest extent possible;
- Substitution function, in which less expensive services are substituted for more costly services, such as hospitals and long-term care facilities; and
- Supportive function, which enables family caregivers to continue with their lives to the greatest extent possible, while still caring for a family member.

Home care is an extended health care service under the Canada Health Act and, as such, is not an insured service. Despite many calls since 1998 for a national home care program, it has still not been created. Furthermore, there is no national strategy to address home care issues.[2] This may simply reflect the diversity of the country and the historical context in which Medicare emerged. As this is not an insured service under the Canada Health Act, home care's funding and delivery is the responsibility of the various departments and ministries of health/social services or community services across the country.

Home care is an integral component of health care systems. While small in relative dollar terms, it is expansive, in terms of its reach with the Canadian population, and how it fits with many other parts of the health care systems. Publicly-funded home care is also under considerable stress, as it depends upon limited dollars, and must compete with demands from other parts of the health care systems, such as hospitals, that attract more attention.

Home care is provided through four different models across the country (see Table 8), and is supported by a large number of professional services (e.g., nursing, occupational therapy, physiotherapy and speech therapy) and home support services (e.g., personal care, laundry, housekeeping, meal preparation and transportation). In the latter part of the 1990s there was increasing concern about the capacity of publicly funded home care to cope with the rapidly growing demand for services.

Forbes et al.[3] note that, although there is great variation across the country, on average, 27 per cent of home care clients are classified as short-term, post-acute clients and 70 per cent are long-term clients.[4] Post-acute clients receive the majority of professional services. They normally get their first visit within 30 days of their in-patient or same-day hospital discharge date. There is an ongoing shift toward servicing an increased number of short-term clients, probably as a result of pressures in other areas of health care systems. This shift is occurring without research-based evidence or principled debate. Generally, long-term clients are generally seniors or people with disabilities, who receive the majority of personal support services. This allows recipients to stay at home and avoid more expensive institutional alternatives.

Governance and Service Organization

Eight provinces have legislation related to public home care, through various Acts and policies. Other provinces and territories have Orders-in-Council or guidelines that direct the delivery of their home care.[5] In 10 out of 13 jurisdictions, the responsibility for home care has been delegated to a regionally based authority. It also means that substantial variation can occur between and within provinces, with regard to which services are provided, to whom, and for how long. This is a central issue, as provincial and federal governments attempt to determine what would be in a Medicare basket of home care services.[6]

Table 8 Care Delivery Models	
1) Public-provider model	Professional and home support services delivered mainly by publicly-funded employees. Examples include Manitoba, PEI, Saskatchewan, Québec, Yukon, Northwest Territories and Nunavut.
2) Public-professional and private home support model	All professional services delivered by public employees. Home support services contracted out to third-party, not-for-profit and corporate agencies. Examples include Newfoundland, New Brunswick and British Columbia.
3) Mixed public-private model	Streamlined functions provided by public employees. Professional services provided by a mix of government/RHA employees (predominantly), or through contracting out to third-party agencies. Home support services contracted out to for-profit and not-for-profit agencies. Examples include Nova Scotia and Alberta.
4) Contractual model	Single-entry co-ordinating functions provided by employees in publicly-funded Community Care Access Centres (CCACs); professional services and home support services contracted out by CCACs to third-party agencies (corporate and not-for-profit), which provide care to clients. The only example is Ontario.
Source: M. Anderson, K. Parent, *Care in the Home: Public Responsibility — Private Roles*, Paper prepared for the Dialogue on Health Reform, Queen's University (2000).	

Most provinces and territories have resident, landed immigrant or citizenship requirements, along with certain criteria for admission. Some provinces have inter-provincial agreements for residents who live in bordering communities of other provinces. There are no age restrictions on services, except in one province that separates funding for home support services for children up to 18 years of age. Six jurisdictions have no *income testing*; and where such testing occurs, it is typically for home support services (i.e., personal care and home-making). There may be direct fees for non-residents, supplies, equipment and drugs in some jurisdictions, as well as for adult day care, meals-on-wheels and respite care. Limits to services either approximate costs for institutional care or expenses to a limited amount of care per month for professional services and personal support (based on hours of care and associated costs).[7]

All jurisdictions provide acute care, continuing care and palliative/end-of-life care. All but one jurisdiction provides physiotherapy and occupational therapy, while 11 out of the 13 provide social work through home care.

Nursing services are provided in all home care programs. Home support workers/personal care attendants provide basic assistance to support activities of daily living. This accounts for about 70-80 per cent of paid home care services.[8] A range of medical equipment and/or supplies is provided in most jurisdictions, but there may be limits or criteria.

A critical component of home care is case management. Case managers (also known as care co-ordinators in some jurisdictions), assess and reassess clients, and co-ordinate and monitor services. Case managers are pivotal to home care, as they are the professionals who determine the level of services that will be allocated at the individual level. As such, they have a huge bearing on the total cost of care to the system. The emergence of common assessment tools and the growing desire of case managers to have better decision-making tools may lead to improved resource allocation and more effective care for Canadians.

New challenges are arising for home care, including the need to provide services to particular populations with specific needs. These populations include children, multicultural communities, First Nations and Inuit populations, and mental health patients. In addition, the pressure on resources has led to a reduction in supportive services such as housekeeping, meal preparation, and laundry – the very services that many

stakeholders and providers generally believe make a difference in determining whether someone remains in the community independently, or moves into a long-term care facility. These reductions may lead to a greater dependency on families and more use of privately-funded home care (outside the publicly-funded systems).

Funding

During the 1990s, home care expenditures grew at an annual rate four times greater than other health spending: 9 per cent versus 2.2 per cent.[9] Public home care expenditures reached $2.6 billion in fiscal year 2000.[10] The percentages for home care expenditures of the total provincial or territorial health budget ranged from 1.2 per cent to 6.6 per cent.[11] There is well-known variation in spending on home care in the provinces and territories, ranging from $1.7 million to $1.1 billion in 2001-2002, with per capita public spending varying from $47.85 to $193.76. These important variations in total and per capita funding resulted in differences in the basket of home care services provided in Canada's 13 provinces and territories.

The rise in the cost of home care is reflected in the growth exhibited in Chart 4 below. On a nominal basis, total spending on home care is expected to average 8.7 per cent annually. Even on a real basis, the forecast shows an annual average growth rate of 5.8 per cent, increasing from current spending of $81 per capita to $198 per capita in 2020. The growth in spending will continue through to 2020.[12]

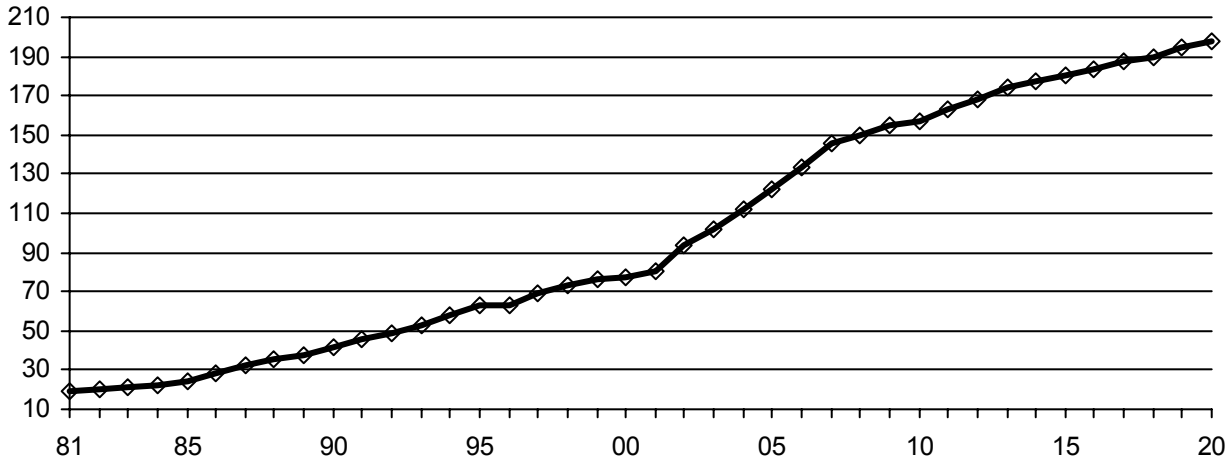
The Escalation of Home Care Spending

The increasing shift towards greater use of home care in Canada over the past 10 years has been driven primarily by fiscal, demographic and political imperatives, and, based on polling data, a growing interest from the public in having more care provided in the home setting. The shift has significant implications for Canadians, who are expected to engage in greater levels of caregiving.[13]

Restructuring of the health delivery systems, demographic changes, new technologies, new policy directions, increasing demand and human resources costs have a major part in the increased cost of home care services, as follows.

Restructuring of the health delivery systems:
Part of new spending on home care can be attributed to changes in other parts of the health care systems, most notably in the hospital sector. MacAdam[14] notes that, during the 1990s, hospital beds were reduced by 30 per cent, nursing home beds were reduced by 11 per cent, and ambulatory care was increased. This resulted in increased demand on hospitals and long-term care facilities to reduce the length of stay and avoid admission.

Chart 4
Real Per Capita Provincial and Territorial Health Care Spending: Home Care, 1981–2020
(1997 $)



Sources: Canadian Institute for Health Information; Conference Board of Canada.

As a viable alternative to acute care, these services are generally provided at home on a temporary basis (50 per cent of the population receives more than 30 days of care), but can last less than 60 days (70 per cent) and more than six months (12.7 per cent).[15] Visiting health professionals, who may include nurses, physiotherapists, occupational therapists, social workers, speech-language pathologists and dietitians are available to conduct assessments and to develop treatment plans for clients in home care programs. While health professionals' services in the post-acute program are provided by home care programs, health supplies and assistive devices and equipment may need to be rented, borrowed or purchased by the client.

The trend away from hospitals is likely to continue. Indeed, concern has been raised that too much emphasis is being placed on home care, as a substitute for hospital services.[16]

Demographic changes: Canada's population is aging. Demand for home care is highest for the population over age 80. Over the next 20 years, the 80 and over population is expected to increase from just over 1 million to about 1.6 million, an increase of 60 per cent.[17] Given the growing population of seniors, home care will have major policy areas to address. In the case of Alzheimer's disease, for example, the projection is for there to be 314,000 cases by 2011, up from 161,000 in 1991 (i.e., 5.1 per cent of the population 65 and over). In 1991, 34.5 per cent of people aged 85 and over suffered from dementia.[18] Additional cases will require additional support in the community, both for clients and their formal and informal caregivers. Many other chronic diseases are expected to place further demands on the public home care system, as new medications and technologies increase the level of chronic illness, while enabling people to remain in a community setting.[19]

New technologies: New discoveries and more user-friendly materials and equipment have allowed more care in home settings. There has been an increasing growth of high technology in the home environment. Intravenous (IV) therapies, chemotherapy, dialysis and epidurals, tele-home care and tele-learning, are some of the technologies being used. Staff who provide these services could demand higher levels of pay, which will further increase the cost of services. There is also a greater need for technical support for the range of equipment being used. As well, family members may require training to use the equipment and to fix malfunctions.[20]

New Policy Directions: It appears that there will be an infusion of funding to home care for end-of-life care. The political momentum seems appropriate for this to occur. The precise contours, however, are still uncertain. This will likely bring an increase in spending on home care programs, although the source of this funding could well be the federal government.

Increasing demand: Polling data suggests that more and more Canadians would prefer care to be given in the home setting, as compared to hospitals. The Canadian Home Care Association (2003), for example, states "*92 per cent of Canadians are highly supportive of having provincial and territorial governments provide funding for health care service that patients receive in their own home and 89 per cent support having home care covered by Medicare in the same way that hospital care is covered.*[21] This is particularly evident with end-of-life care; the majority of Canadians would prefer to die at home, even though, at present, the vast majority of Canadians die in an institutional setting.

In the 2003 Accord on Health Care[22] there is explicit acknowledgement and support for three main components of home care: post-acute, community mental health and palliative care. Coyte[23] estimates that the total annual cost of these components will be $2,065 million ($1,022.3 million for post-acute home care, $648.4 million for community mental health and $394.3 for palliative care). The cost estimate for a national post-acute home care program is three times greater than the figure recommended in the Romanow report.

This increased demand brings some challenges. Home care organizations across Canada have expressed concern about their ability to deliver a consistent basket of services to their communities, given fiscal constraints, competing demands from the acute care sector, geographic funding inequities, and fragmented and inconsistent interpretation of service policies, leading to inconsistent access to community-based services.

Human resource costs: There are a number of complex, inter-related issues which affect workers in home care. As a cost escalator, the fundamental concern is appropriate compensation levels. Home care workers are delivering care to increasingly complex clients and, as such, they deserve compensation that is commensurate with other sectors inside and outside the health industry. If wage levels rise, there will be significant increases in home care budgets, without concomitantly equivalent increases in the number of clients, or in the extent of services being provided. Other concerns include the shortage of home care workers in some areas and the aging cohort of workers who will soon retire. In order to solve these issues and guarantee an adequate workforce, more investments may need to be made.

There is also growing recognition of the fundamental importance of family caregivers. This was evident in the September 2002 Speech from the Throne, which stated that, *"The government will also modify existing programs to ensure that Canadians can provide compassionate care for a gravely ill or dying child, parent or spouse, without putting their jobs or incomes at risk."* The recognition of the needs of the "sandwich generation" [24] (who provide care to their children and their parents), resulted in the introduction of a six-week compassionate care benefit being introduced through the Employment Insurance Program and job protection through the Canada Labour Code. While funding to support family caregivers in these instances may come from sources beyond the health care sector, it will, nevertheless, result in an increase in public spending.

Some additional relevant human resource issues are identified in Exhibit 1.

Addressing High Costs in Home Care

There is no single magic solution to the rising cost of home care. There are certain things that could happen, however, to alleviate some of the stress on the public system. Solutions to the cost burden are multi-faceted and involve many stakeholders.

The increasing cost of publicly funded home care means that taxpayers will foot more of the bill for home care if alternative policies are not introduced. Fundamentally, however, the value base may well suggest that Canadians would be willing to support more publicly funded home care through tax dollars, and that cost is not so much the issue as a confirmation that paying for more publicly funded home care is a socially desirable thing.

On the other hand, if this is not desirable, then there are various options. More private funding is an obvious option. In fact, Coyte[25] notes that private expenditures for home care rose from 9.4 per cent during the 1980s to 13 per cent in the 1990s. Given the massive reductions in many supportive services across the country, it is not surprising that more and more care is being shifted, and could continue to shift to the individuals requiring care and their families.

Exhibit 1
Human Resource Related Issues in Home Care

- Perceived shortages of home care workers in Canada, particularly in rural, isolated areas;
- Concerns regarding staff's working conditions, which act as disincentives for people entering and remaining in the sector;
- Lack of recognition of the role of both formal and informal caregivers;
- Lack of development opportunities (education and training) for home care workers;
- Frequent mismatch between consumer needs and work skills;
- Increased demand for services without similar increases in funding levels for home care (this affects employment stability, compensation and nature of service provided, and support available to formal and informal care providers); and
- Lack of parity in wages and benefits among various sub-sectors within the home care sector, and between the home care and institutional sectors, in some regions.

Source: Based on the Canadian Home Care Human Resources Study (2003).

While more private funding may be one option, it raises another issue: who can afford to take this option? Some families may not be able to afford private care, while others may decide not to pay privately, but use the money in other ways, which could potentially influence their health. More responsibility may fall to the family caregiver, which, in some circumstances, could lead to diminished health for that individual.

If families are expected to take on more responsibility, then it will become, as we have seen recently, a growing issue for employers to provide appropriate support that enables employees to use time, as required, to care for family members. Attention directed to corporate responsibility, however, may in turn, lead the business sector to question the role of governments, with regard to funding health care.

If more resources are put into home care and targeted to preventive and maintenance functions that will enable seniors to remain in their homes for as long as possible, there may be long-term efficiencies which are less likely to use more expensive resources such as residential care. With the appropriate support structures in place, patients would also be more likely to have a higher quality of life by remaining in their homes.

Appropriateness of Home Care Versus Institutional Care

It is well-known that people would much prefer to remain in their own homes, rather than move into an institutional setting. There is an inherent quality of life dimension to this preference. From a cost perspective, the recent work of Hollander (the cost effectiveness of home care projects under the Health Transition Fund) suggests that home care can be a cost-effective substitute for residential long-term care services. Conversely, as noted by Shapiro,[26] among others, home care may not be a cost-effective substitute for acute care provided in hospital. In all likelihood, home care may be more effective for some procedures, or levels of care, without negatively affecting health outcomes, but the reverse may be true for other hospital-based activities. It is necessary to ascertain the most appropriate substitution or mix of care—one that balances outcome with cost.

As was briefly touched upon earlier, the role of values is important. Even if the cost of home care does rise, it may still be seen to be acceptable, if the prevailing value base affirms that more care could be given in the community setting. It comes back to establishing priorities with limited resources and putting in place a transparent process for allocating resources to (and within) home care. It also reaffirms the importance of an informed discussion among Canadians and the necessity for a vision that truly sees integrated health care systems.

Summary

Various reports have made recommendations for federal and provincial governments to develop the home care agenda. A curative or biomedical model is evident in the recommendations made in the Kirby report.[27] This report recommends the implementation of a National Post-Acute Home Care Program, which would be administered by hospitals, to encourage shorter lengths of stay and greater use of post-acute home care. Provinces and territories would share the funding on a 50-50 basis with the federal government, whose share is estimated to be approximately $550 million per year (total cost $1.1 billion). The Romanow report[28] also recommends that the Canada Health Act be expanded to include coverage for post-acute home care, including medication management and rehabilitation services, at a cost of $300 million. Both reports recommend that the federal government commit to a National Palliative Home Care Program, which would be co-funded by the provinces and territories on a 50-50 cost-sharing basis with the federal government.[29] As spending continues to rise, there is still promise and hope for the sector. However, there is no overarching, integrated strategy for health care, which includes home care as an integral part. There is still a window of opportunity to include home care, but it remains to be seen if the development of this sector will continue by default, or by design.

[1] Health Canada, *Provincial and Territorial Home Care Programs: A Synthesis for Canada* (Health Canada: Ottawa, May 1999).

[2] M. MacAdam, "Home Care: It's Time for a Canadian Model," *HealthcarePapers* 1, 4 (Fall 2000).

[3] D. Forbes et al., "Two Distinct Subgroups of Home Care: The Interface of Medical and Social Policy," paper prepared for the *International Home Care Roundtable* (Kingston, ON: February 20-22, 2003).

[4] Annual Premiers' Conference, *Strengthening home and community care across Canada: A collaborative strategy*, Report to the Annual Premiers' Conference (2002).

[5] Canadian Home Care Association, *Expanding the Medicare Envelope: Publicly funded home care services* (Ottawa: CHCA, 2003).

[6] Ibid.

[7] Ibid.

[8] Canadian Home Care Human Resources Study (Ottawa: The Home Care Sector Study Corporation, 2003).

[9] P. Coyte, "Expanding the Principle of Comprehensiveness from Hospital to Home," submission to the *Standing Committee on Social Affairs, Science and Technology* (2002).

[10] Ibid.

[11] Canadian Home Care Association, *Expanding the Medicare Envelope: Publicly funded home care services* (Ottawa: CHCA, 2003).

[12] J. McIntyre et al*., Canada's Public Health Care System Through to 2020: Challenging Provincial and Territorial Financial Capacity* (Ottawa: The Conference Board of Canada, November 2003).

[14] M. MacAdam, "Home Care: It's Time for a Canadian Model," *HealthcarePapers* 1, 4 (Fall 2000).

[15] P. Coyte, "Expanding the Principle of Comprehensiveness from Hospital to Home," submission to the *Standing Committee on Social Affairs, Science and Technology* (2002).

[16] E. Shapiro, *Sharing the Learning: Health Transition Fund, Synthesis Series: Home Care* (Ottawa: Health Canada, 2003). See: <http://www.hc-sc.gc.ca/htf-fass/english/home_care_en.pdf>, cited January 2004.

[17] M. MacAdam, "Home Care: It's Time for a Canadian Model," *HealthcarePapers* 1, 4 (Fall 2000).

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[29] M. Kirby, M. LeBreton, “The Health of Canadians: The federal role, Highlights, Volume 6: Recommendations for reform,” submission to the *Standing Committee on Social Affairs, Science, and Technology* (2002).

2.6 HEALTH HUMAN RESOURCES

INTRODUCTION

What is the impact of health human resources on future health care costs? A large portion of health care costs is the income earned through the production of health services[1] and therefore, understanding the spending patterns of health human resources is a component of understanding projected health care costs.

Currently, there is an interesting tension in the Canadian health human resource environment—as provincial governments face ever-expanding health care budgets, there are simultaneous concerns about perceived personnel shortages and the ability to retain and recruit health care providers. Because planning methodologies are in their infancy in Canada—essentially counting the number of personnel on a population basis and projecting forward into the future—claims of a future crisis are hard to assess.

This section outlines the role of health human resources in the pan-Canadian health care cost equation and reviews some future challenges. The two largest groups of health personnel in Canada are physicians and nurses, and they are the major focus for this discussion.

THE SUPPLY OF HEALTH HUMAN RESOURCES IN CANADA

Health human resources are the men and women who make health care happen.[2] They are physicians, nurses, pharmacists, midwives, laboratory technicians and community health workers who provide health care services to the public. Although they are the backbone of the health care systems, accurate costing data by professional groups are hard to find. Physician-specific data is the most accessible and comprehensive in Canada because physicians' services are largely funded through separate, earmarked, health insurance plans. Professions such as nursing, medical radiation technologists and laboratory technicians are usually employees of organizations and their salaries are captured in institutional budgets. Payments to individuals such as dentists, chiropractors or physiotherapists are usually grouped together under the category of "other health professionals."

Census data tell us that in 2001, 824,600 individuals worked in the Canadian health care systems—66,000 of them were physicians (8 per cent of the total health care workforce) and 285,200[3] of them were nurses (35 per cent of the total workforce).[4] Approximately half of the country's physicians are family doctors. The basic ratio of the number of physicians per 100,000 people steadily increased over time to reach a high of 194:100,000 in 1993—that figure dipped to 188:100,000 in the year 2000.[5] The ratio varies widely, from region to region, across the country.[6]

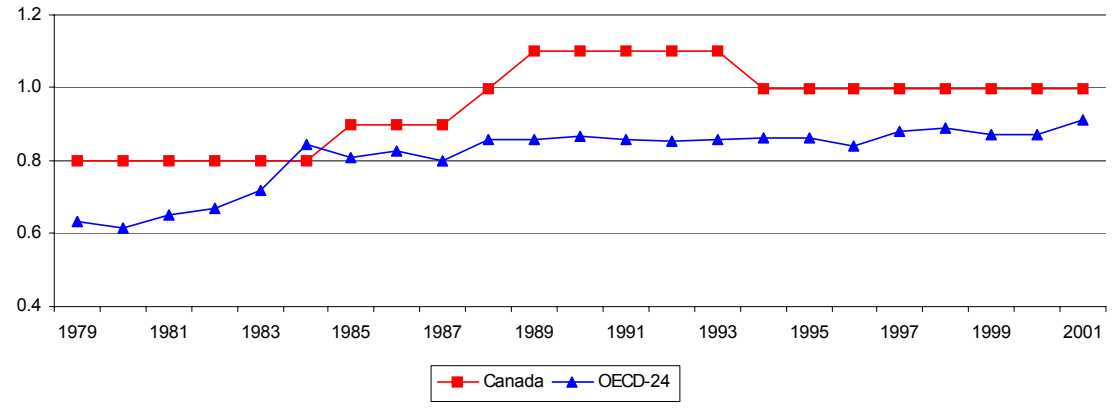
A recent study examining physician supply trends found that the physician to population ratio (after accounting for the increased demands of an aging population and the entry into the workforce of more female physicians who work fewer hours) decreased by 5 per cent from 1993 to 2000, returning to the level that existed in 1987. The causes of the decline were attributed primarily to a sharp drop in Canadian post-graduates entering practice from 1994 to 2000, due mainly to longer post-graduate training requirements since 1993, a decrease in the intake of international medical graduates and a previous surge in enrolment. Medical school enrolment decreases were deemed to have had only a modest impact on the decline.[7]

How do these figures compare to other OECD countries? Well, as shown in charts 5, 6 and 7, Canada is now close to the OECD average with respect to the number of family physicians per capita, after having had higher rates for most of the 1990s, particularly the early 1990s. The story regarding the number of specialists per capita is quite different. Canada has a much lower ratio than the OECD average, remaining unchanged over the past decade. In fact, Canada has one of the lowest rates of specialists per capita among OECD countries. In terms of nursing, Canada has historically had higher ratios of nurses per capita than the OECD average. However, this gap has diminished greatly.

The supply of health human resources is often cyclical. The Hall Commission in 1964 recommended the doubling of medical student positions and new medical schools were established in Canada. By 1976, the year in which enrolment expansion was fully reflected in numbers graduating, 1714 MD degrees were awarded by Canadian universities, compared with 852 in

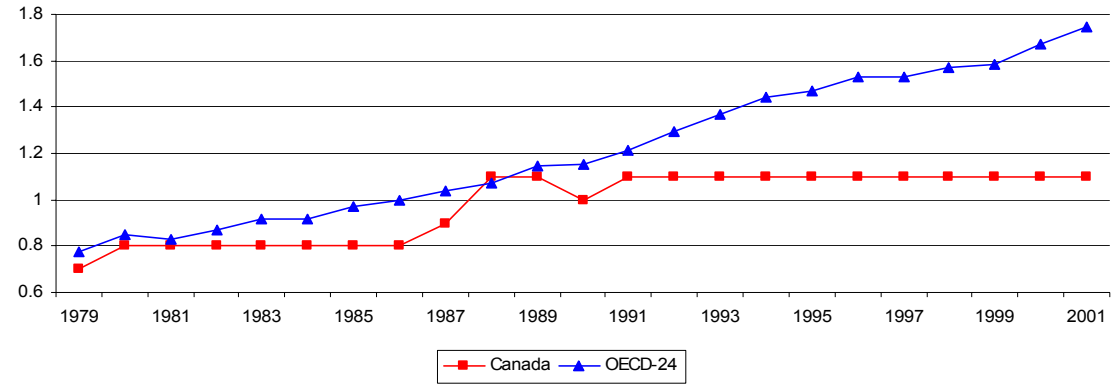
1962.[8] In fact, the supply of physicians had grown faster than the population almost every year for almost 30 consecutive years—the physician supply increased by 170 per cent, while the country's population grew by only 48 per cent between 1964 and 1993. Much of the increase in physician supply stemmed from this major expansion in domestic training capacity.[9] By the late 1980s and early 1990s, there was a widely held view that Canada had a physician surplus. The 1991 Barer-Stoddart report on physician human resources made several recommendations on this issue, including a 10 per cent reduction in medical school positions. This recommendation was subsequently accepted by provincial health officials.[10]

Chart 5
Number of general practitioners per 1,000 population



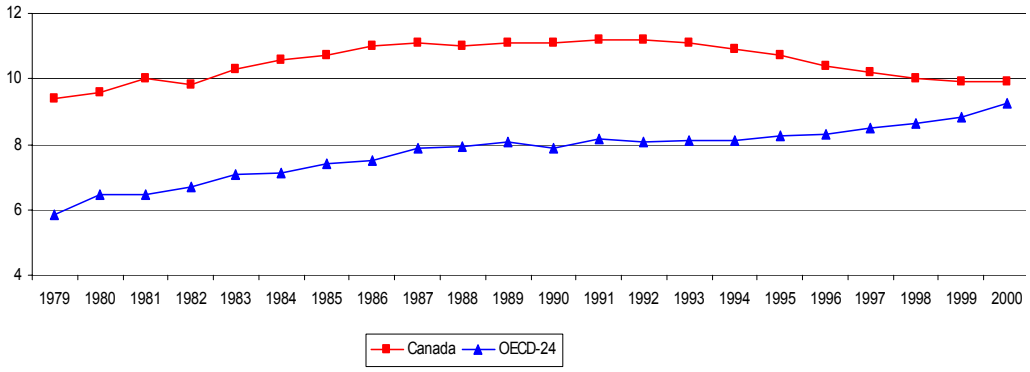
Sources: Statistics Canada; OECD.

Chart 6
Number of specialists per 1,000 population



Source: OECD.

Chart 7
Number of nurses per 1,000 population



Source: OECD.

There is now general consensus by decision-makers that Canada is experiencing a shortage of health human resources. Recent increases in medical school enrolments and attempts by governments to address nursing shortages suggest that the supply of health human resources may result in a rise in numbers and an increase in spending in the immediate short term.

However, The Conference Board of Canada, in its recent forecast of public health expenditures through to 2020, is assuming that, based on historical patterns, the present physician to population ratio will remain unchanged over the long term. This is based on several factors, including high retirement rates, increased duration of post-graduate training and a reluctance to recruit physicians from other countries. However, the Board acknowledges that further analysis is required, as other factors, such as primary care reform, changing incentive structures and potential productivity improvements, may affect the future supply of health human resources.[11]

HOW PHYSICIANS AND NURSES ARE PAID

Physicians in Canada are paid largely on a fee-for-service basis, although alternative payment mechanisms, such as salary or capitation arrangements, are slowly increasing.[12] The amount of public resources allocated to physician services is a matter of negotiation between each provincial government and the corresponding provincial medical association. A global amount is negotiated, and then it is up to the medical association to determine how to divide new resources among the various groups within medicine. Nurses are paid under a province-wide contract, negotiated between an employer association and the nursing unions. The employer association is restricted in its negotiations to a funding amount set by the provincial government. Thus, the amount of public expenditure on the services of physicians and nurses is largely determined by the level of service use and what the public treasury can afford.

The average income for health professionals in some occupations is more than three times that of others, and there is wide variation in earnings within the same occupation and among jurisdictions.[13]

WHAT IS ESCALATING THE COST OF HEALTH HUMAN RESOURCES?

Health care spending in Canada has regularly outpaced inflation during the last 30 years, and although average annual increases decreased significantly during the mid-1990s, spending increases over the last decade still average out to the long-term historical annual growth rate of more than 5 per cent.[14] During the 1990s, health workers, in general, saw their median annual earnings rise twice as much as non-health workers (6.4 per cent versus 3.1 per cent) and health professionals experienced a 15.1 per cent increase.[15]

SPENDING ON PHYSICIAN SERVICES

There are two aspects to viewing physicians as cost escalators: the first is the amount of public expenditure dedicated directly to their services and the second is their role in generating other costs in the system, such as ordering laboratory tests, diagnostic procedures, prescribing medications and admitting patients to health care facilities.

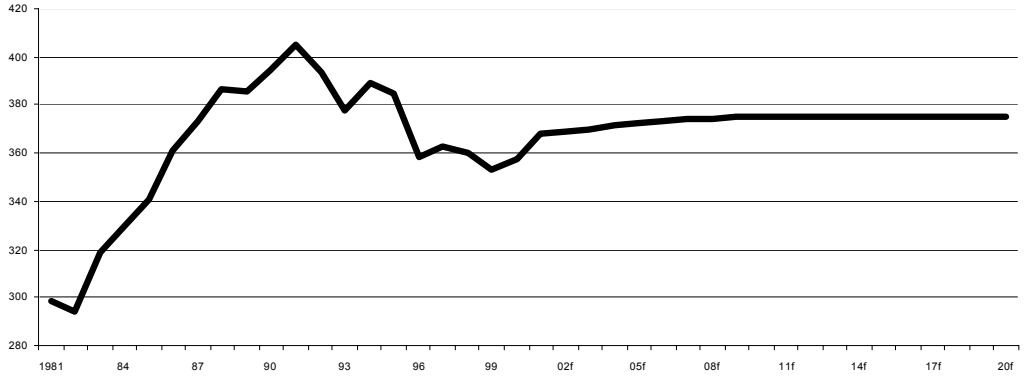
We know that:

- Historically, the relative share of health care dollars directed to physician payment has been fairly stable, over time, at just over 20 per cent of total health care spending. Spending on physicians is expected to remain stable, according to recent forecasts by The Conference Board of Canada (see Chart 8), based on the assumption that the physician-patient ratio will remain relatively stable over the long term.[16]
- Median annual earnings for specialists increased at 3.3 per cent through the 1990s, while family physicians actually saw a corresponding decrease of -4.9 per cent.[17,18] Hard billing caps imposed and later removed in the 1990s contributed to the slower growth rate of physician expenditures, as did a very modest drop in the number of practicing physicians.
- Average hours worked decreased over the decade for both specialists (-6 per cent) and general practitioners (-3 per cent). Comparisons of full-time, full-year physicians show that women averaged just less than 50 hours a week, whereas men averaged 56.[19]
- Within the overall expenditure envelope, there is a significant shift in the types of services being provided (more activity in office practice and less in hospital) and an increase in the overall amount of service provided.[20]
- While fee-for-service is still the prevailing payment model for physicians, an increasing number of physicians (20 per cent) receive payment through alternative payment plans.[21]

In sum, the share of total spending on physicians will increase slightly in the short term but appears to be relatively stable over the long term. Specialists have increased their average earnings over time, at the expense of family medicine. There has been a decrease in the number of physicians relative to historical figures, but not a significant decrease in individual productivity, as lower levels of total hours worked appear to be linked to the changing gender and age patterns of medicine. The largest changes appear to be in the types and volume of services provided.

Chart 8

Real Per Capita Provincial and Territorial Health Care Spending: Physicians, 1981–2020
(1997 $)



f= forecast

Sources: The Conference Board of Canada; Statistics Canada; Health Canada; Canadian Institute for Health Information.

SPENDING ON NURSING SERVICES

Disentangling the costs of nursing services is even more difficult than physician costs, as nursing costs are integrated into institutional and agency budgets.

We know that:

- More than 60 per cent of nurses still work in hospital settings, while the next largest group working in long-term care facilities is at 11 per cent.[22]
- The nursing profession was particularly affected by health care cutbacks in the mid-1990s: during this decade, the overall supply of RNs grew by 2 per cent. When population growth is taken into account, the ratio of nurses to the population fell from 93.3:10,000 to 82.5:10,000 during the decade.[23]
- Managerial/supervisory nursing positions decreased by 48 per cent and LPN positions decreased by 11 per cent.[24]
- Nurses are paid on the basis of hours worked, rather than by volume of services provided. The average employment income for RNs in 2000 was just over $46,000, although this varied among provinces.[25]
- The average nursing hours of work increased during the decade (by 8 per cent), but not in full-time positions. However, it appears that full-time positions have been increasing since 1998.[26]
- RNs who did maintain their attachment to the labour force saw a 17 per cent increase in their median annual employment income.[27] LPNs saw a corresponding 11 per cent increase.

In summary, nurses are still largely employed within health care institutions (hospitals and long-term care facilities) and their salaries are determined through provincial, regional or employer-based negotiation. Nursing did experience a relative and absolute decline in numbers during the 1990s, although those who stayed employed saw increased employment income, primarily through more hours worked.

Our review of physician and nursing costs suggests that the 1990s succeeded in cost containment by using the blunt instruments of billing caps and workforce downsizing. However, in the immediate future, there may well be an increase in expenditures on health human resources, both through rate increases and an increase in the number of practitioners.

OTHER HEALTH PROFESSIONALS

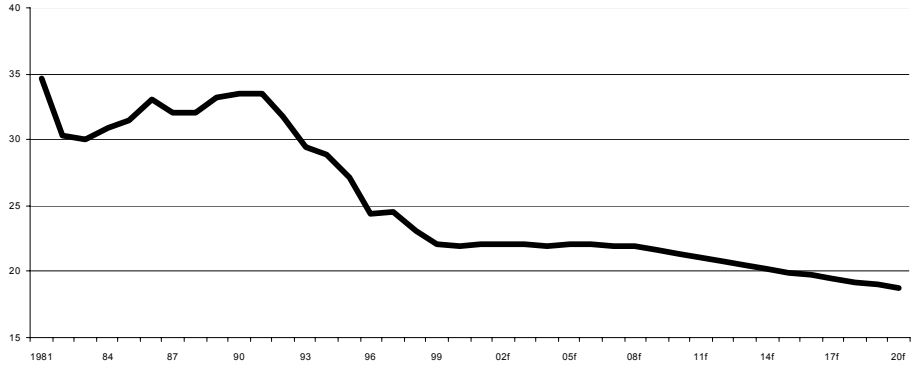
Other health professionals include chiropractors, dentists, denturists, naturopaths, optometrists, osteopaths, physiotherapists, podiatrists and private nurses. Historically, this group has held a very small share of total public spending (approximately 2 per cent), but the largest category of private health spending.[28] Most of what is publicly spent on this category of human resources represents partial payment, as in the case of chiropractors, physiotherapists and optometrists. According to Conference Board projections, real public spending per capita on other health professionals will decrease in the future, due to the delisting of services and reducing coverage, by not compensating for inflation (see Chart 9).[29] However, an issue to recognize is that, while public costs may diminish, private spending on other health professionals is likely to increase (e.g., the delisting of physiotherapy and other services provided by allied health professionals).

What can be done to address health human resource issues?

Although it may not be the fastest growing component of health care expenditures, the way in which we organize and fund health care personnel is one policy lever available to governments to achieve some cost savings in the long term. More importantly, attention to these matters can help improve the effectiveness of our health care systems by diminishing the oversupply and undersupply cycle of health human resources (smaller peaks and valleys) and through greater use of existing resources.

Just as there has been no single cause for current shortages, there is no single cure to improve the ongoing supply of health human resources in Canada. There are a number of broad strategies, however, that could be taken *over the long term* and, concurrently, that *might* improve the supply and how we make use of health human resources.

Chart 9
Real Per Capita Provincial and Territorial Health Care Spending: Other Professionals, 1981–2020 (1997 $)



f= forecast
Sources: The Conference Board of Canada; Statistics Canada; Health Canada; Canadian Institute for Health Information.

The first strategy would be to take a careful look at the scopes of practice of a range of health care professions (looking at what they are trained to do)[30] and using a more aggressive approach to substituting non-medical personnel, where appropriate. For example, traditionally, primary care services in Canada have relied upon family physicians as the first point of contact and as gatekeepers to other services. New models of care are slowly being implemented across Canada, using varying degrees of reliance on health professionals other than physicians. These models have not generally been marketed as a cost savings—in fact, just the opposite is true.[31]

It is possible, however, that, over the long term, the substitution of less expensive personnel may occur. For example, the Ontario College of Family Physicians has estimated that nurse practitioners could undertake 32 of 46 procedures performed by a family physician.[32] The use of integrated delivery models would take a significant investment in education and training, including greater use of inter-professional education programs, to focus more on integrated approaches to preparing health care teams.

A second strategy involves greater use of alternative payment formats, e.g., blended service models, particularly for physicians. In the short-term, to encourage provider participation, payment under such schemes should be more generous than the current system. In the longer term, however, such plans give government greater scope to set deliverables and to bargain aggressively over increases to payment. As long as practitioners have the option of reverting to fee-for-service, this approach will lack the capacity to enforce cost control.

A third broad strategy would be a focus on the volume and cost of the non-medical services generated by physicians (ordering lab tests, prescribing medications, ordering diagnostic procedures). There is evidence of both problems of access to services (particularly medical imaging) and overuse of existing technologies for non-emergent conditions,[33] as well as concerns about the levels of medication prescribed.[34] Greater use of evidence-based practice guidelines *may* have the potential to ensure more uniform and consistent use of these interventions and to direct resources to where they are most needed.

A fourth broad strategy would be to support a more long-term and national approach to health human resource planning, which might decrease the current intra-provincial competition through escalating fee

awards. This could also integrate federal immigration policy with provincial health care needs, allowing greater use of international health care graduates, where appropriate. As well, education and training programs could be planned at a national, rather than local level, thus allowing for standardization and specialization at the same time. None of these strategies is without difficulty, given current constitutional authorities.

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[1] R.G. Evans, *Strained Mercy: The Economics of Canadian Health Care* (Toronto: Butterworths and Co. (Canada) Ltd., 1984).

[2] World Health Organization, *Human Resources for Health.* See < www.who.int>, cited January 2004.

[3] This includes registered nurses (RNs) and licensed practical nurses (LPNs).

[4] D. Galarneau, Health Care Professionals, *Perspectives* (Ottawa: Statistics Canada, December 2003).

[5] Canadian Institute for Health Information, *Health Care in Canada 2003*. (Ottawa: CIHI, 2003).

[6] Canadian Institute for Health Information, *Health Care in Canada 2003*, (Ottawa: CIHI, 2003), p. 52.

[7] B. Chan, *From Perceived Surplus to Perceived Shortage: What Happened to Canada's Physician Workforce in the 1990s?* (Ottawa: CIHI, 2002).

[8] E. Ryten et al., "The Class of 1989 and physician supply in Canada" *CMAJ* 1998;158:723-8.

[9] G. Stoddart, M.L. Barer, "Will increasing medical school enrolment solve Canada's physician supply problems?" *CMAJ*, 1999 ;161:983-4.

[10] M.L. Barer, G.L. Stoddart, *Toward Integrated Medical Resource Policies for Canada*, prepared for the Federal/Provincial/Territorial Conference of Deputy Ministers of Health (1991).

[11] A recent report by the Canadian Health Services Research Foundation on primary health care reform in Canada identified several potential primary health care models. The Integrated Community Model was identified for its ability to achieve both effectiveness and efficiency (reduced costs) through more efficient use of health human resources. Canadian Health Services Research Foundation, *Choices for Change: The Path for Restructuring Primary Health Care Services in Canada* (Ottawa: CHSRF, 2003).

[12] Canadian Institute for Health Information, *Canada's Health Care Providers (*Ottawa: CIHI, 2001).

[13] Canadian Institute for Health Information, *Health Care in Canada 2003* (Ottawa: CIHI, 2003), p. 68.

[14] Canadian Institute for Health Information, *Health Care in Canada 2003* (Ottawa: CIHI, 2003).

[15] D. Galarneau, Health Care Professionals, *Perspectives* (Ottawa: Statistics Canada, December 2003).

[16] The Conference Board of Canada, *Canada's Public Health Care System Through to 2020* (Ottawa: The Conference Board of Canada, 2003), pp. 8-9.

[17] The actual amounts vary significantly for General Practitioners, with a low of $85,000 in B.C., and a high of $120,000 in Ontario.

[18] D. Galarneau, Health Care Professionals, *Perspectives* (Ottawa: Statistics Canada, December 2003).

[19] Ibid.

[20] Canadian Institute for Health Information, *Health Care in Canada 2003* (Ottawa: CIHI, 2003).

[21] Canadian Institute for Health Information, *Canada's Health Care Providers* (Ottawa: CIHI, 2003), p. xii.

[22] Canadian Institute for Health Information, *Canada's Health Care Providers* (Ottawa: CIHI, 2001).

[23] D. Galarneau, *Health Care Professionals*, *Perspectives* (Ottawa: Statistics Canada, December 2003).

[24] Ibid.

[25] Canadian Institute for Health Information, *Canada's Health Care Providers* (Ottawa: CIHI, 2001).

[26] D. Galarneau, Health Care Professionals, *Perspectives* (Ottawa: Statistics Canada, December 2003).

[27] Ibid.

[28] G. Brimacombe, *Every Number Tells a Story: A Review of Public and Private Health Expenditures and Revenues in Canada, 1980-2000* (Ottawa: The Conference Board of Canada, 2002).

[29] The Conference Board of Canada, *Canada's Public Health Care System Through to 2020* (Ottawa: The Conference Board of Canada, 2003).

[30] Senator Kirby proposed productivity studies and a review of scopes of practice for health professionals.

[31] The Ontario primary care models explicitly stated that urban physicians would gain approximately 20 per cent in income and rural physicians would gain 30 per cent.

[32] D. Way et al., *Implementation Strategies: Collaboration in Primary Care: Family Doctors and Nurse Practitioners Delivering Shared Care* (Toronto: Ontario College of Family Physicians, 2000).

[33] Canadian Institute for Health Information, *Medical Imaging in Canada* (Ottawa: CIHI, 2003).

[34] Canadian Institute for Health Information, *Health Care in Canada 2003* (Ottawa: CIHI, 2003).

2.7 NEW TECHNOLOGIES

Over the past quarter century, pan-Canadian health care expenditure growth outpaced the increase in national income by approximately 1 per cent per year.[1] The total cost of health care rose from 7 to 10 per cent of gross domestic product (GDP) in this era. Although an aging population and health care price inflation are important contributors to cost increases, they do not explain all of the observed expenditure growth. Instead, it is the increased utilization of health care, by Canadians of all ages, that has been a primary determinant of health care costs in recent history. Much of this increase is driven by changing technology and consumer demand. Indeed, technological change and heightened patient expectations are said to be the primary sources of an escalating cost crisis in Canadian health care. They are therefore a leading research priority for policy-makers and academics in health services and policy research.[2]

Medical breakthroughs are a daily occurrence, making headlines in every newspaper and featured on every news hour. "'SUPER ASPIRIN' TREATS ARTHRITIS PAIN." "MACHINE DETECTS CANCER BEFORE IT TAKES ROOT." "DEVICE ALLOWS DEAF TO HEAR." "GENETIC TEST PREDICTS FUTURE." Such sensational stories are not just the stuff of the popular press. Scientific journals are filled with research on novel and emerging technologies that promise to dramatically alter the medical landscape, improving health in ways previously unimaginable. For health care policy-makers, new health care technologies may seem to be both a blessing and a curse. Demand for costly medical technologies strains a health care system already under intense pressure. Systems are needed to ensure that both new and old technologies are used in a way that produces maximum value for money.

What Technologies Are Escalating Health Care Costs?

Technological change is said to account for about a quarter of current health expenditure growth in the United States,[3,4] and it is likely to account for a similar share of cost increases in Canada. Medical technologies range from computers that assist practitioners with clinical decision-making to robotic devices that facilitate delicate surgical interventions. New technologies also include pharmaceuticals, which, as the fastest-growing cost component of Canadian health care, have captured the most attention from researchers and policy-makers.

However, changes in clinical practice and health care costs due to non-pharmaceutical technologies have also been significant over the past decade. Leading examples include new imaging equipment and surgical procedures, which physicians rank alongside pharmaceuticals in terms of impact on modern clinical practice.[5] Although quality data on utilization and costs for non-pharmaceutical technologies are scarce, the financial burden of increased use of new surgical procedures and diagnostic imaging is estimated to be billions of dollars. Capital expenditures on hospital machinery and equipment alone currently exceed $1.5 billion per year in Canada.[6]

IMAGING

Advances in biomedical imaging have already had a significant impact on diagnostics, medical treatment and surgical procedures.[7] Magnetic resonance imaging (MRI) and computed tomography (CT) in particular have been ranked by American physicians as the new medical technologies with the greatest consequences for clinical practice.[8] Diagnostic imaging—the fastest-growing use of these technologies—can provide early indication of disease. In some cases, patients who are at risk of developing a condition may receive regular diagnostic imaging as a form of surveillance. One such example is routine mammography for women whose age or medical history (or both) indicates a risk of breast cancer.

Advancing technology, minimal harm to patients and broad scopes of application have made diagnostic imaging a leading non-pharmaceutical cost driver in Canada and the United States.[9,10,11] While data on national costs and utilization rates are limited, one Canadian study recently found that the volume and physician-related costs of outpatient imaging in Ontario rose by 574 per cent and 835 per cent, respectively, from 1992 to 2001.[12] The Canadian Institute for Health Information reports that hospitals in British Columbia, Alberta, Ontario and New Brunswick spent a total of $1.3 billion on diagnostic imaging services in 2000, up 44 per cent from 1996. By extrapolation, national spending on imaging services is estimated to be in the

range of $2.1 billion for 2000.[13] It is notable that older technologies such as x-rays account for approximately half of diagnostic imaging expenses, but the share of scans using newer technologies is rising quickly.[14]

Although diagnostic equipment can cost millions of dollars per unit, the most significant expense in diagnostic imaging is not capital, but the human resources required to operate the machinery and interpret results. The long-term impact on health systems costs is even greater. Diagnostic imaging produces information that patients and practitioners may use to alter future care-seeking and treatment patterns. If tests generate a large number of false-positive results (those that suggest illness when, in fact, the patient is healthy) or false-negatives, the cascading costs of downstream interventions and patient anxiety can be significant.[15] Appropriate use of diagnostic imaging for screening purposes, therefore, relies on population targeting, which significantly increases the predictive value of screening processes.[16] Appropriateness also relies on the clinical validity of the information conveyed: are patients and/or practitioners able to act on diagnostic information? Unless "something can be done" about a diagnosis obtained from an imaging process, there will be little clinical value in the procedure. High rates of false-positives and low clinical relevance from testing results do not, however, seem to stop the marketing of and induced demand for certain tests, such as "whole body" scans done by private clinics.[17,18]

For Canadian policy-makers, imaging equipment and services have become a hot-button issue. Under pressure to increase capacity, first ministers included a $1-billion Medical Equipment Fund in the September 2000 First Ministers' Health Accord. This has reportedly contributed to the purchase of 50 MRIs, 65 CT scanners, 33 nuclear medicine cameras (used for cardiac and cancer diagnosis) and other equipment purchases and upgrades.[19,20] The January 2003 First Ministers' Accord added an additional $1.5 billion for further equipment acquisition. Furthermore, an increasing number of freestanding imaging centres in Canada are being built and financed privately, often by the physicians who provide the imaging services therein.[21] The increased supply of imaging technologies can be expected to have considerable implications for the volume of diagnostic scanning conducted in Canada and the utilization of downstream health care services.

SURGICAL

It is difficult to quantify the cost impact of technology on organizations as diverse as hospitals. In the United States, where hospital costs have grown steadily over the past decade, a recent study found that technology was the source of approximately 19 per cent of hospital cost increases between 1998 and 2000.

In Canada, provincial governments carried out considerable cost-cutting during the mid-1990s; total hospital expenditure per Canadian was stable, if not falling, at that time, but it has resumed modest growth since.[22] However, the average "resource intensity" of inpatient hospital treatment in Canada has been rising during the past decade. Much of the apparent cost increase within Canadian hospitals should not be attributed to high-cost technology. Today, the average hospital patient in Canada stays for fewer days and is "sicker" than the average hospital patient of a decade ago. A significant difference in this decade has been shorter lengths of stay and the increased use of day surgery and outpatient procedures. These increases illustrated a change in the use of new and old technologies that effectively reduces costs per unit of care delivered by hospitals. Many of the patients who today receive day surgery or are given outpatient procedures may have formerly required costly stays in hospital.

Technologies—including better anaesthetics, which accomplish the same procedures with less radical means—made it possible for the hospital system to downsize dramatically without a severe impact on population health. Such progress characterizes technological advances in many areas of surgical intervention. For example, laparoscopic surgeries have been on the rise for years and have all but replaced conventional techniques for many procedures, such as gall bladder surgery.[23,24] Even surgical biopsies are becoming significantly less invasive with such modern techniques. Similarly, smaller, less-invasive devices require less drastic surgery and generate greater post-operative quality of life. Such progress in the manufacturing of stents, pacemakers and ventricular

assistance devices is making more and more cardiovascular conditions operable.[25,26]

When the risks and adverse health impacts of a procedure fall, its usage may increase. Patients whose condition did not previously justify the risks of an intrusive intervention might be considered candidates for the less-invasive procedure. Thus, the procedural rates for certain surgical interventions can escalate even when the population's health needs remain unchanged. This can even occur when the cost of the newer procedure is significantly more expensive than that of older interventions. Thus, the delivery of apparently low-impact day surgeries and outpatient procedures will be an important challenge for policy—especially as an increasing supply of these services is coming from free-standing private facilities, over which policy-makers have fewer controls.

GENETICS

A modern list of health technology cost escalators would not be complete without acknowledging the current and potential impact of the genetic sciences. Health care is said to be entering "the era of post-genomic science" in which virtually all aspects of medicine will change.[27,28,29] While progress is likely to be more gradual than scientists (and stock promoters) predict, genetics and related biotech research has already led to a measurable output in pharmaceutical research activity. Drugs designed on the basis of new genetic and biological knowledge account for approximately one third of drugs currently in clinical testing.[30] "Pharmaco-genetics"—using genetic test results to individualize drug therapy—is also beginning to impact clinical practice. Tailoring therapy promises to reduce side-effects and/or improve efficacy per case treated, and it will undoubtedly be attended by significant increases in the average drug cost per patient—if only because manufacturers will have fewer patients from which to recoup research costs.

Another potential application for pharmaco-genetics arises with emerging predictive genetic tests, which are supposed to predict the future health status of patients long before illness might occur.[31] Referred to as "medicine's new gold mine,"[32] predictive genetic tests are promoted on the basis that they will allow patients and practitioners to plan ahead for late-onset diseases. Ideally, this information would lead to prevention or treatment at early stages of disease. This may create market opportunities for firms to sell, for example, hypertension treatments to patients who have not yet developed high blood pressure but carry a genetic susceptibility for it.

Like diagnostic imaging, the ultimate value of genetic tests, and the preventive or treatment responses they induce, depends on a number of assumptions. However, the information derived from a genetic test result can be significantly more complicated. Not only must a genetic test detect a specific genotype with accuracy; that genotype must also predict a substantial relative risk of the disorder in question. Tests may be highly accurate in determining a particular genetic mutation, but they will provide no valuable information if environmental and other factors render the relationship between that mutation and health status weak.

Experts believe that, with the exception of relatively rare single-gene disorders of high heredity, genetic testing for risk factors currently has little clinical value.[33] Nevertheless, direct-to-consumer marketing of predictive genetic tests has begun on American television and radio, and it is reaching any potential consumer through the Internet. While predictive genetic testing itself is currently small in Canada (a market with little data available, but likely measurable in the tens of millions of dollars), expanding applications of it—and the downstream costs induced by it—may make this a major cost driver in the coming years.

Is Cost Growth Inevitable?

It is not inevitable that technology increases health care costs. Technology itself does not demand utilization. Indeed, utilization of technology should be justified, not automatically assumed as an inherent good. Decision-makers, including patients, practitioners, managers and government officials, make choices that lead to the use and therefore cost of new health care technologies. It is at least theoretically possible that we could use only the mix of technologies (new and old) that produced the desired outcomes at the lowest cost. New technologies would replace older ones only when they produced more valued outcomes per unit of expenditure. Furthermore, technological advances in

health care could be incorporated in a manner that would not contribute to increased health care costs unless the gains from such health sector investment offset the opportunities forgone in other areas.

In reality, the aggregate impact of changing health technologies tends to increase cost. While many technologies are of tremendous value when used appropriately, evidence of persistent, simultaneous overuse and underuse of health care technologies both within and across Canada, the United States and other developed countries suggests that what is inescapable in this sector is the political and economic forces that drive utilization and demand for high-tech health care.[34,35,36,37,38,39,40]

The ability of technology to diffuse into broad and potentially "grey" areas of use depends as much on the financial incentives of providers and the system of technology ownership as it does on its cost and impact on patient health. Cataract surgery is a good example. New technology in this area has reduced the risks involved in surgery, thereby improving patient outcomes. The same technology has increased the capital costs of procedures while reducing the time-cost of practitioners who deliver it—from a matter of hours to a matter of minutes. Fees paid to providers have remained relatively high (based on the former time-cost of practitioners). This creates a situation where—perhaps to cover the capital cost of newer machines—cataract surgery is now widely performed on patients for whom the medical necessity of the intervention would have been called into question previously.[41] Both the risks and benefits of the surgery are reduced, but the costs remain largely the same.

Another example of the effect of ownership, decision-making structures and financial incentives is the use of diagnostic imaging in the United States. Physician referral for MRI or other scanning technologies is significantly influenced by the ownership of the scanning facilities. Needs-adjusted scanning rates are as much as seven times higher among physicians who refer patients for screening services they own than physicians who refer patients to third-party screening services.[42,43] The consequences of self-referral are sufficiently adverse that several states have laws to prohibit the practice.[44,45] This is of relevance to Canadians because an increasing number of free-standing diagnostic imaging facilities in Canada are privately owned and operated.[46]

What Can Be Done to Contain Health Technology Cost Escalators?

The organization of financial and information flows in a health care system is critical to managing the cost impact of health technology. Given the nature of health care, policies to promote fair and efficient priority setting and allocation decisions should take place at multiple levels. At a macro, federal/provincial level, policies should include the allocation of both market access and public subsidy, based on valid scientific evidence of safety and efficacy. Centralized decisions may also include determining who owns and operates technologies, as well as how they are referred to and remunerated. However, centralization has its limits because of the context of health care decision-making. Allocating individual access to technologies occurs at a micro level: the point of the clinical encounter. Policy should strive to ensure that adequate information, opportunities and incentives are given to those taking part in clinical decision-making, so that they can weigh the full costs and benefits of adopting technology.

A commonly discussed health care technology could be used at the point of the clinical encounter to significantly improve the use of other health care technologies. This is "health information technology." Electronic health records and health information systems can provide computer-assisted decision-making assistance for practitioners and patients. Electronic patient records and decision-making aids have proven records of accomplishment in reducing medical errors, improving prescribing appropriateness and cost effectiveness, and determining appropriate use of diagnostic scanning (MRIs, CTs, etc.). Information technology reduces the cost of unnecessary technology while encouraging greater use of technologies which have been proven to be underused.

To date, adoption of such technology in Canada has not been swift. It is difficult to determine whether a lack of progress toward electronic health records and decision-making is a result of pressure from interests that benefit from the status quo, or a result of federal and

provincial governments' reluctance to invest the billions of dollars necessary to establish such systems.

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Emerging Cost Escalators

2.8 ACCESS ISSUES

Access to health care is a promise to Canadians enshrined as one of the five principles of the *Canada Health Act*. The preamble to the Act states that continued access to quality health care without financial or other barriers will be critical to maintaining and improving the health and well-being of Canadians.[1] The 2003 First Ministers' Accord reaffirmed that "all Canadians (must) have timely access to health services on the basis of need, not ability to pay, regardless of where they live or move in Canada."[2]

In spite of legislative and political affirmations of the importance of access, it remains a national issue, with long waiting lists for certain health services. Canadians are concerned that lack of timely access to service can compromise a person's health and well-being. Repeated polls, as well as the Romanow and Kirby Reports, affirm that waiting times are the primary concern Canadians have about the system.[3,4]

"… repeated public opinion polls, increasingly, have shown that the greatest concern Canadians have about the existing publicly-funded health care system is the perceived length of waiting times for diagnostic services, hospital care and access to specialists."

—Kirby Report, Vol. 5 Ch. 6

The Romanow Report says that "long waiting times are the main, and in many cases, the only reason Canadians say they would be willing to pay for treatments outside of the public health care system."[5] The Kirby report also stresses the vulnerability of our health care systems, if consumers are asked to wait longer than they think is reasonable. Unless this situation can be addressed, Canadians will either pressure governments, or look to the courts to make a private health system legal. That is, unless this issue is resolved to the public's satisfaction, timely access to health services will be a driver of system change.[6]

An upcoming court case to watch is *Chaoulli v. Québec,* due to go before the Supreme Court of Canada in April. The plaintiff had to wait close to a year before having needed hip surgery. His case is based on his desire to pay a private provider for surgery to shorten the wait, and to purchase private insurance, should these circumstances occur again. The Supreme Court decision will determine whether an individual can pay for care that is available in the public systems, but not in a timely manner.[7] A finding in favour of the plaintiff would have a serious impact on the timing and cost of providing health care.

Other issues related to access to health services include the lack of clarity about "medically-necessary" health services and geographic variations in the availability of health services. The first relates to controversies regarding the lack of a standard basket of "medically-necessary" insured health services. Thus, services that are publicly-available in one province, might not be available in others. Furthermore, it is up to physicians, in most cases, to determine what health services are required, which has resulted in a very subjective process.

There are big differences in the availability of health services across Canada. Rural Canadians, especially northern populations, have greater difficulties accessing care than urban Canadians. Not only are there bigger shortages of health care personnel in these regions, there is also difficulty keeping health organisations operating, due to the lack of economies of scope and scale. In addition, there may be language and cultural issues, especially for new Canadians.

Measuring Access to Health Services

Access itself is difficult to measure. Most of the research about access has been about waiting lists. However, for many services, there is still a lack of valid data on the numbers of people who are waiting, what their needs are, or the waiting times involved. Canadians, in most instances, seem to have satisfactory opportunities for access to basic health care services. Statistics Canada conducted a survey in 2001, asking Canadians questions about their ability to access services. The survey found that approximately 12 per cent of the population does not have a family physician to determine initial health care needs and arrange for those needs to be met. Therefore, these individuals do not have the usual access to health services. However, 88 per cent of Canadians not only have a family

physician, but rate family physician care as either excellent or good.[8]

There have been attempts to measure waiting lists, with mixed results. On one hand, the public, some health professionals and the media seem to share the perception that waiting lists are increasing. Furthermore, international comparisons indicate that waiting times in Canada are among the highest in OECD countries.[9] On the other hand, some provincial reports have shown no significant increase in waiting time for most surgical procedures.[10]

These differences might be explained by limitations in methodologies, such as:

- The lack of standards or conventions for defining, measuring, managing and reporting waiting time;
- Discrepancies in methodologies and data sources to evaluate waiting times;
- Lack of prioritization mechanisms for most clinical conditions. As a result, some urgent patients may wait longer than necessary; and
- Little co-ordination of waiting lists across the country, as noted in the Romanow and Kirby reports.

Waiting lists are generally not subject to verification and therefore, they could contain patients who no longer require the service. In other instances, people who should be on the waiting list are not registered.[11]

In spite of the limitations noted, efforts are made to measure waiting times for needed care. The Fraser Institute in British Columbia surveys a wide range of clinical specialties in all provinces. The 2003 report, the thirteenth in the series, indicates longer waiting times in every province and for every specialty, with the exception of cardiovascular surgery, where the waiting time remains the same. The physicians surveyed considered these waiting times to be too high. An interesting section in this report is dedicated to the verification of data from provincial governments.[12]

In 2001, Statistics Canada conducted a survey to measure waiting times. It found that the waiting time for cardiac and cancer-related surgery was less than for joint replacement or cataract surgery,[13] suggesting that waiting times are bigger issues in the case of non-urgent or elective procedures and treatments.

Addressing Access Issues

There are some outstanding Canadian examples of efforts to improve waiting list management and to make waiting time information more comparable.[14] One example is Ontario's Cardiac Care Network. This network involves care providers across the province in ensuring proper patient access to cardiac care. It has set up patient registries, developed an urgency rating score to triage patient needs, and has co-ordinated caregivers. Its implementation has resulted in the reduction of waiting time in almost all areas of cardiac services, as well as improved access for patients who really need services quickly.[15]

A more recent effort is the development of the Western Canada Waiting List Project. This represents a co-operative effort among British Columbia, Alberta, Manitoba and Saskatchewan to address five clinical areas: children's mental health, cataract surgery, general surgery, hip/knee replacement surgery and MRI scanning. The project has developed criteria for prioritizing patients and acceptable waiting time targets, and is developing waiting list management tools.[16] Its implementation has resulted in public availability of information on waiting times for a variety of procedures. Information on triage decision criteria and waiting list management tools is also available.

A definite trend toward making more information available to the public is taking place. Ontario has committed to building on this work, to implement its own Waiting List Project. Québec has also committed to making waiting times for certain procedures public.

In spite of these initiatives, access continues to be a major challenge of our health care systems. Action to better manage waiting times and strengthen our health care systems is required. The Romanow Commission recommended that "provincial and territorial governments should take immediate action to manage waiting lists more effectively by implementing centralized approaches, setting standardized criteria, and providing clear information to patients on how long they can expect to wait."[17] This report identified waiting

times for diagnostics as a major bottleneck to accessing other services and stressed that addressing waits in this area could enhance the rest of the system. The Commission recommended separate funding from the federal government to address this issue, in recognition of the cost impact of improving service.[18]

It is necessary to conduct more research on the causes and solutions for waiting list issues and to measure the effectiveness of proposed options, in order to make informed choices. Increasing financing to address access issues is a starting point, but management of waiting lists requires a lot more than this. Evidence indicates that merely increasing resources will not result in the overall shortening of waiting times. Increased funding may reduce lists in the short term, but in the long term, patient numbers have been seen to increase again, lengthening the wait.[19] An example of this is waiting lists for MRI scans, where expanding capacity has often not been successful in reducing waiting lists. Reasons for this include wider use of MRIs and a change of referral patterns when capacity is increased.[20]

A different waiting list management idea that has received attention lately relates to care guarantees. A care guarantee is a commitment to provide specific services within certain time limits. The Romanow Commission discussed this idea, but did not support it, and instead recommended better co-ordination of care. The main concern of the Commission was that guaranteed elective procedures could garner resources that could go to more urgent health problems.[21] The Kirby report, on the other hand, indicated greater concern that excessive waiting time could undermine the whole system, and therefore strongly advocated for guarantees.[22] Currently, there is no national consensus on this idea.

Access can also improve through greater use of Information and Communication Technologies (ICT). Federal and provincial resources have been designated to develop these technologies further. Current efforts are being made in the areas of electronic health records and long distance diagnostics. Provinces are working collaboratively and are benefiting from pooled resources.[23] The Atlantic Provinces have recently announced plans to create an inter-provincial system to allow the sharing of health information and image files, with the objective of reducing patient travel for diagnosis and treatment. Another initiative is Tele-health Nurse calling centres, which are in use, or in development, across the country. Investment in ICT may also help to address the special access needs of Canada's rural, northern and Aboriginal populations.

It is necessary to conduct an economic analysis to better understand the costs associated with the wait for services. This will allow policy-makers and administrators to design cost-effective strategies to support setting priorities and to provide better care. Costs of waiting for health services are not well-established. Patients might incur financial costs (e.g., loss of work or income) and quality-of-life related costs (e.g., mental and/or physical pain and suffering). Employers might have costs associated with the provision of benefits to employees who cannot work. In addition, there are foregone taxes to provincial and federal coffers, and there might be additional costs to the health care systems, when paying for drugs, repeated physician visits, further diagnostics and interim treatments, as well as longer stays in community hospitals (tertiary hospital patients seem to have priority over community hospital patients). Furthermore, complications can arise over time and cause costs to escalate.

If the plaintiff in the Supreme Court case mentioned earlier *(Chaoulli v. Québec)* were to be successful, we have no reliable data to enable the calculation of the financial impact. The overall lack of information on the cost of waiting presents an excellent opportunity for advanced cost-benefit research.

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2.9 PATIENT SAFETY

In the last few years, patient safety has come to the forefront of health system issues, especially after studies conducted in the United States, United Kingdom and Australia estimated the extent of adverse events and their human and economic costs. In Canada, national efforts to address patient safety were launched after the Royal College of Physicians and Surgeons of Canada held a one-day conference on the topic in September 2001. This conference became the catalyst to establish the National Steering Committee on Patient Safety, which, in its report, *Building a Safer System: A National Integrated Strategy for Improving Patient Safety in Canadian Health Care*, recommended the establishment of a Canadian Patient Safety Institute (CPSI). This new institute was supported by the 2003 First Ministers' Accord on Health Care Renewal, which provided $10 million annually for five years. The mandate of the CPSI is to:

- Foster the sharing of knowledge and information about optimal patient safety practices and models;
- Influence change in culture and provide advice to support change in systems to improve patient safety; and
- Collaborate with stakeholders in an ongoing dialogue to support patient safety improvements.[1]

A Brief Overview of Patient Safety Theory

A multitude of reports and articles have been produced on patient safety, both nationally and internationally. The *Canadian Patient Safety Dictionary*[2] recommended adoption of the following definition of patient safety:

> "the reduction and mitigation of unsafe acts within the health care system, as well as through the use of best practices shown to lead to optimal patient outcomes."

The term *medical error* has been associated with a culture of individual blame. Current literature examining patient safety has stressed the importance of disclosure and system approaches for evaluating processes, rather than individuals. Therefore, the term *adverse event* has been recommended instead of *medical error*. The *Canadian Patient Safety Dictionary* defines an adverse event in one of three ways:

- An unexpected and undesired incident directly associated with the care or services provided to the patient;
- An incident that occurs during the process of providing health care and results in patient injury or death; or
- An adverse outcome for a patient, including an injury or complication.

A system approach is being advocated in the development of strategies for improving patient safety. In this approach, adverse events are a result of a health system that can be broken down into three components: structure, process and outcome. The focus is on improving the structure or process so that the occurrence of an event is reduced. Proponents of this model expect that it will minimize human error.

Diverse theories and models have been put forward in the discussion of patient safety. The "Swiss Cheese Model" proposed by James Reasons has become most prevalent. This theory claims that the health system is full of high-risk situations; however, many defensive layers (structures and processes) are in place to protect patients from hazards. Although each layer is not totally effective, each defensive layer minimizes the chance of an adverse event occurring. At times, the holes line up, as in a Swiss cheese, and allow an error to permeate a barrier.[3] System failures can occur at any time in the process of care or service and in any health care sector. Some of the more common system failures include delays in diagnosis, preventable falls, hospital-acquired infections, medication errors and medical device incidents; they also occur in the application of new treatment techniques.

Saskatchewan Health is using another model to illustrate the factors involved in adverse events.[4] This model applies the theory of "sharp and blunt end" to five categories of adverse events, which include medications, medical devices, nosocomial infections, medical interventions and broader system issues. Under this model, the *sharp* (or nearby end of the system) is where providers interact with consumers in the delivery of care and service. If an error occurs at this end, then individual blame usually results. The *blunt* (or distant end of the system) is the environment (e.g., constraints, policies, resources within which the provider works). Structures

and processes at the blunt end of the system might contribute to the occurrence of an event at the sharp end of the system.

Different techniques (e.g., root cause analysis, failure-mode and effects analysis, human factors engineering and Six Sigma) are becoming important tools in understanding and developing solutions for adverse events. These techniques and tools have proven very useful in increasing quality, not only within health care, but also within other industries. As an example, human factors engineering has helped the aviation industry to improve the safety of passengers. The implementation of strategies, such as *redundancy* in key operating systems and voluntary reporting of near misses, has been essential in minimizing the human factor involvement. The Six Sigma methodology is gaining prominence with its structured focus on process improvement and the reduction of defects or error to near zero. The term *Six Sigma* is used in statistics to measure variation in data. Although it originated with Motorola, it has now been applied in many settings, ranging from GE to health care.

The Costs of Patient Safety Issues

Rates of medical error or adverse events have now emerged internationally. The United Kingdom, Australia and the United States have all undertaken studies of the incidence of adverse events in hospital settings. A comparative study of policies and practices on patient safety in these three countries was also undertaken.[5]

In the United Kingdom, it was estimated that 850,000 adverse events occur annually, which translate into 10 per cent of admissions or 25,000 deaths and at least £2 billion in costs. In Australia, a 1995 study found an adverse event rate of 16.6 per cent or 230,000 adverse events. Further analysis provided a revised rate of 13 per cent, which equates to a cost of $867 million Aus. and 10,000 deaths annually.

In 1991, the Harvard Medical Practice Study was the first major study in the United States of adverse events involving over 30,000 patients. It established that 3.7 per cent of patients had injuries and that 58 per cent of these were deemed preventable. Estimates in the United States from the Institute of Medicine (IOM) now range from 44,000 to 98,000 deaths per year due to adverse events. The IOM believes medical errors to be the largest avoidable cause of death. Preventable incidents are estimated to cost from $17 to 29 billion US annually.

All three of the above-mentioned countries have also experienced significant increases in the costs of medical malpractice. Reform to litigation systems is being examined to support non-fault malpractice, and incidence reporting systems are being scrutinized in relation to the opportunity to litigate and disclose practices. This approach aims to foster further disclosure of adverse events and near misses, so that control strategies can be designed and implemented.

No national data are available yet in Canada on adverse events. However, given international rates, an overall Canadian incidence rate of 10 per cent of hospital admissions would be a reasonable estimation. This would translate into 10,000 preventable deaths per year and hundreds of thousands of patients who experience injury and prolonged hospital stays. Estimated costs for Canada are probably similar to those for Australia at $840 million Cdn. This incidence rate would place adverse events as the eighth leading cause of death in Canada, ahead of breast cancer and motor vehicle accidents.[6] The Canadian Institute for Health Information and the Canadian Institutes of Health Research are in the midst of data collection across five provinces to verify these estimates. Results should be available in early 2004.

Potential Strategies to Improve Patient Safety and Minimize the Cost to the Health Systems

The Australians, the British and the Americans are all ahead in developing strategies to effectively cope with patient safety. Each country's approach differs, and evaluation of the effectiveness of these strategies is underway. The Australians have developed the Council for Safety and Quality in Healthcare. This organization, which receives national funding, has placed significant emphasis on incident reporting systems and root cause analysis in the hospital setting. Cultural change at both the provider and consumer level has also been a focus in Australia.

The Department of Health and National Health Service in the United Kingdom provide overall direction on patient safety to all areas, including primary care. The National Patient Safety Agenda—which resulted in responsibilities for patient safety being more clearly delineated among the various levels of health care—was initiated in 2001. Currently, there is national mandatory incident reporting that involves root cause analysis, and physicians undergo annual peer assessment.

The United States has focused its limited federal funding on incident reporting systems ($25 million US per year) and the Patient Safety Task Force. In response, the private sector has taken a larger role in patient safety. Noteworthy advances have been made in high-tech, often expensive, strategies such as computerized order entry systems, pharmaceutical bar coding and computerized incident reporting. The Leapfrog Group, using research done at the Dartmouth Medical School, has determined that there are three practices that, if implemented in all non-rural hospitals,[7] could help to avoid over 58,000 deaths per year. The three practices include:

- Computer physician order entry, which has been shown to reduce serious prescribing errors by more than 50 per cent;
- Evidence-based hospital referral, which entails referrals to institutions with significant experience in treating certain conditions, since these offer the best survival odds; and
- Intensive care unit (ICU) physician staffing, since there is evidence of a direct correlation between the level of training of ICU personnel and the quality of patient care.

Other organizations in the United States have been instrumental in communicating patient safety concepts and issues to consumers and providers. As an example, the non-profit National Patient Safety Foundation, which was founded by the American Medical Association, CNA HealthPro and 3M Company, has become a resource for individuals and organizations on patient safety topics. Certain practices, such as "executive walk rounds" are also becoming more prevalent in hospitals across the United States. During these walk rounds, senior health executives, accompanied by nurses and other health professionals, undertake regular visits to medical units and review specific issues related to adverse events.

In Canada, although data are still forthcoming, many noteworthy strategies have been developed or are underway to decrease adverse events:

- The Canadian Patient Safety Institute has been established to provide leadership in patient safety. It will share knowledge on effective patient safety practices and influence cultural changes.
- The Canadian Institute for Health Information and the Canadian Institutes of Health Research are collecting data on adverse events in hospitals from five provinces, which will be available in 2004.
- Health Canada has initiated a medication incident reporting and prevention system that includes a partnership with the Institute for Safe Medication Practices Canada and the Canadian Institute for Health Information.
- The Saskatchewan Health Quality Council is a new independent agency that will oversee innovative methods to improve quality in the province. It consists of a quality improvement network and conducts research in evidence-based management.
- British Columbia has established a patient safety task force.
- Alberta has created the Alberta Electronic Health Record, which provides care providers across the province with access to on-line patient information. This system includes prescription histories, laboratory test results and known allergies.
- The College of Physicians and Surgeons of Ontario has implemented a position statement that includes the right of a patient to disclose harm that may have occurred during the course of care.

Although some strategies have been put in place to ensure the safety of the pan-Canadian health care systems, more efforts are required. Key elements for consideration in Canada include:

- Promotion of a culture of safety, which entails a focus on leadership, quality, the consumer, system improvement and teamwork;
- Integration of patient safety into all sectors of the health systems, especially in the organizational structure and policy components;
- New and improved reporting systems on adverse events and other data related to patient safety;

- The implementation of new and effective, information-based system improvements. Areas such as medication administration, electronic health records, patient-focused concern management and new technologies should be considered;
- The dissemination of best practice information and models throughout the health systems;
- Provider and health service executive awareness and education on patient safety, including theory and new methodologies (such as root cause analysis and other investigative techniques); and
- Consumer awareness and education on topics such as the role and responsibilities of the patient in the Canadian health systems and the availability of health information.

Canadians have already taken significant steps to improve patient safety. The future holds many new challenges and opportunities in building a safer health system.

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[1] Health Canada, 2003.

[2] Systems Issues Working Group of the National Steering Committee on Patient Safety, 2003.

[3] James Reason, "Human Error: Models and Management," *BMJ,* 320 (2000), pp. 768–770.

[4] National Steering Committee on Patient Safety, *Building a Safer System: A National Integrated Strategy for Improving Patient Safety in Canadian Health Care* (Ottawa: 2002).

[5] P. Gardner et al., G*overnments and Patient Safety in Australia, the United Kingdom and the United States: A Review of Policies, Institutional and Funding Frameworks, and Current Initiatives* (Advisory Committee on Health Services, 2002).

[6] John Millar, "System Performance is the Real Problem," *Healthcare Papers* 2, 1 (2001), pp. 79–85.

[7] J. Birkmeyer, *Leapfrog Patient Safety Standards—The Potential Benefits of Universal Adoption* (2000).

2.10 ENVIRONMENTAL ISSUES

According to the Conference Board's 2003-2004 Performance and Potential report,[1] Canada's environmental performance ranks only 16th among 24 comparator industrialized countries. Canada's worst record is in the area of air quality. In light of this poor performance, there is a case to be made for moderating the exposure of the population to human health risks caused by environmental factors.

Public awareness and concern over environmentally-related health problems have increased in recent years. Industrialized countries have been alerted, in some instances by widespread media attention, to incidents of illness and disease associated with environmental risks. Environment is clearly a determinant of health and a factor in the demand for health care.

The relationship of environmental exposures and human health is multi-faceted. Health problems can arise as a result of voluntary or involuntary exposure to physical and chemical agents derived from human activity (e.g., mining, gardening). Normally, these factors are outside the health care systems; therefore, they require co-ordinated control strategies that go beyond health care.

There is a variety of ways in which health problems are linked to the environment. For industrialized countries such as Canada, main concerns are cancers and chronic diseases caused by industrial and agricultural chemicals and other pollutants in the atmosphere, soil and water. Although contamination by infectious agents is more important in developing countries, industrialized countries are no exception, as the recent case of polluted drinking water in Walkerton, Ontario, proved.

A number of diseases and conditions can be caused or aggravated by environmental pollutants. These include, but are not limited to, cancer, asthma, emphysema, acute respiratory attacks, heart disease and other forms of cardiorespiratory morbidity; Parkinson's Disease; Multiple Sclerosis; mental/neuro-developmental disorders, birth defects and reproductive system effects (endocrine disruption), and auto-immune disease.

Health Care Costs Associated with Environmental Degradation

In evaluating the health costs of environmental degradation, experts use a variety of estimation methods. Economists rely on estimates of environmental and health impacts. These analyses are difficult to conduct, as estimating the impact of environmental degradation on human health accurately is very difficult. However, various studies have attempted to measure the contribution of pollution/environmental degradation to health costs. These studies all have different purposes and methodologies so, characterizing their conclusions or comparing them, is difficult.

An exploratory Health Canada study conducted in 2002 provided an indication of the potential effect that environmental factors may have on the health care systems. The study hypothesized the percentage of the current health bill in Canada that can be attributed to environmental causes.[2] An economic assessment of the effect of environmental pollution on human health was conducted. The study identified likely illness categories influenced by environmental factors and, using existing data on the associated total health care direct costs for those categories, the authors estimated the costs attributable to environmental causes. The study concluded that, even at the lowest estimate of 1 per cent of illness being caused by the environment, the impact on human health is a significant $236 million per year.

In 1999, Health Canada estimated that approximately 5,000 premature deaths were attributable to air pollution. The associated economic value (health care costs, lost productivity, out-of-pocket expenses, and pain and suffering) of avoiding these health effects on an annual basis was estimated to be $10 billion.[3] The benefit of potential strategies to improve the environment has also been studied. The Federal-Provincial Analysis and Modelling Group calculated the benefits of better air quality to be about $160 million per year over the next 20 years, largely as a consequence of preventing premature death and chronic disease, as a result of reductions in ambient air pollution.[4]

Provincial studies in Ontario and British Columbia have also explored these issues. A recent report in Ontario showed that both total toxic pollution output and per capita municipal environmental expenditures have significant associations with health expenditures.[5] In addition, the Ontario Medical Association reported that air pollution costs the Ontario economy and the health care systems more than $1 billion a year.[6] This study linked smog with the costs of premature deaths, hospital admissions, emergency room visits and lost time at work. The annual health care costs alone were estimated at $630 million; of those, $150 million are incurred in the Toronto area. Similar figures in B.C. found that annual health care costs of air pollution in the Lower Fraser Valley alone were $830 million in 1990 and were projected to rise to $1.5 billion by 2005.[7]

In May 2000, E. coli bacteria contaminated drinking water in Walkerton, Ontario. This tragedy left seven dead and 2,300 ill. The Walkerton Inquiry commissioned a study of the economic impact of the Walkerton event. Hard costs were estimated at $64.5 million, while less tangible costs of illnesses suffered and lives lost were calculated at $90.8 million. In addition, the province of Ontario spent $32 million on health care, lawyers and a public inquiry.[8]

American evidence of the impacts of environmental degradation on health care costs is also available. The U.S. Department of Health and Human Services has estimated that 50,000 premature deaths are associated with exposure to air pollutants annually, and that the health cost of human exposure to outdoor air pollutants ranges from $40 to $50 billion.[9] Additionally, the total cost of asthma in the U.S has been calculated to be $14 billion annually, which is nearly 2 per cent of all health care costs in the U.S. (including direct health care costs of $9.4 billion).[10]

This evidence seems to confirm that sound investments in public health and environmental protection have external benefits in the form of reduced health care expenditures. As well, it suggests that a health policy that excludes consideration of environmental quality may eventually result in increased expenditures.

Addressing Environmental Issues Affecting the Health of Canadians

Reduce the health burden of environmental risks. Reducing environmental threats may contribute to a reduction in Canadian health care costs, and other lost associated economic value.[11] Such expenditures could then be redirected to other aspects of social and human health.

In order to achieve environmental objectives at the least cost, policy-makers need to balance the relevant social costs and benefits. For example, the introduction of stricter regulation around the use of pesticides and herbicides, or planning for long-term mitigation and adaptation strategies to address climate change, should be subject to analyses examining cost-effective alternatives.

The valuation of environmental damages can play an important role in establishing environmental policy and regulatory standards, and can provide guidance in targeting mitigation efforts.[12] The number of cases of illness resulting from environmental factors can be determined by estimating the extent to which the environment contributes to the occurrence of illness, presumably showing a reduction in cases.

Improve information for decision-making. Aggregate information on the economic value of avoiding the human health impacts of environmental degradation is not readily available. There still remains considerable uncertainty about the valuation of health impacts. Furthermore, there is a deficiency in the database of knowledge which relates environmental hazards to health problems and their associated costs. As a recent Health Canada paper concluded,[13] there is a need to develop data that would allow us to provide more specific guidance on both the causes and implications of environmental policies on illness, the health care systems, economic burden and human welfare. Some data gaps that need to be filled in order to make more informed decisions are presented in Exhibit 2.

Exhibit 2
Information Needs

In order to gauge the health care costs of environmental degradation, we need to know the:

- Causes of the degradation
- Health effects of concern
- Current exposure to humans
- Actions taken in the past
- Actions that may be taken in the future
- Exposure, in the absence of any action
- Dose-response relationships
- Economic value of avoiding the health effects identified

And, we need all this information in a standardized form.
Source: Health Canada

[1] The Conference Board of Canada, *Performance and Potential 2003-04*.

[2] P. De Civita et al., "An Illustration of the Potential Health Care Costs of Environmental Pollutants", 2002, Economic Issues Note (EIN 0802 1), Economic Analysis and Evaluation Division, Healthy Environments and Consumer Safety Branch, Health Canada.

[3] P. De Civita et al., "An Illustration of the Potential Health Care Costs of Environmental Pollutants."

[4] That is, if the 2002 Climate Change Plan for Canada were to be implemented.
Source: Key Findings and Recommendations: Expert Panel Workshop on Climate Change and Health and Well-being In Canada, Ottawa, April 2002.

[5] M. Jerrett et al, "Environmental influences on healthcare expenditures: an exploratory analysis from Ontario, Canada," Journal of Epidemiology and Community Health 2003; 57:334-338.

[6] DSS Management Consultants Inc., submitted to the Ontario Medical Association, "Illness Costs of Air Pollution – Phase II: Estimating Health and Economic Damages," (July, 2000).

[7] David Suzuki Foundation: See <http://www.davidsuzuki.org/Climate_Change/BC/Impacts.asp>, cited January 2004.

[8] J. Livernois, "The Economic Costs of the Walkerton Water Crisis," The Walkerton Inquiry Commissioned Paper 14: Ontario Ministry of the Attorney General (Toronto, 2002).

[9] Methodist Health Care System: See <http://www.methodisthealth.com/environ/air.html>, cited January 2004.

[10] This figure is according to the American Lung Association Epidemiology and Statistics Unit, March 2003. *Trends in Asthma Morbidity and Mortality.* And Illinois Health Care Cost Containment Council. Asthma Hospital Guide 2000. Retrieved 9 July, 2003. See Environmental League of Massachusetts: See <http://environmentalleague.org/Issues/Environmental_Justice/afacts_l.html>, cited January 2004.

[11] P. De Civita et al., "An Illustration of the Potential Health Care Costs of Environmental Pollutants."

[12] Mark Delucchi et al., "The Health and Visibility Cost of Air Pollution: A Comparison of Estimation Methods" (February 1, 2002). Institute of Transportation Studies, See Working Paper: <http://repositories.cdlib.org/itsdavis/>, cited January 2004.

[13] The objective of this study was to use existing information to provide senior decision-makers with as much perspective as possible on the importance of environmental health illnesses and diseases and social values/costs. A significant effort was made to explore a functional methodology to address the objectives. Ideally, for such an endeavour, evidence of the relationship between human health and the environment would readily exist. However, a review of the literature suggested that this data is not available. In addition, no other information was found that put this linkage into perspective. Given the challenges described above, the authors conducted an economic assessment of the effect of environmental pollution on human health, using several resources.

Conclusion

Recent growth in total health expenditures has outpaced the rate of growth of the Canadian economy. A recent Conference Board study forecasts that the proportion of provincial and territorial revenues devoted to health will grow from approximately 32 per cent in 2001 to 44 per cent in 2020. The annual nominal growth over this period is projected to average 5.3 per cent, while real annual growth is projected to average 2.6 per cent.

This level of expenditures is becoming a challenge for provinces and territories, which have to meet other policy objectives and fiscal priorities within the health and health care sector, as well as other competing priorities, such as education, environment and physical infrastructure. These other policy priorities not only deserve a renewed focus in their own right, but also as they affect the health of Canadians.

In spite of this high level of spending, the performance of the health care systems in some areas needs improvement:

- Long waiting lists are seriously jeopardizing the public health care systems and the national health insurance program.
- Compared to OECD country averages, health outcomes in Canada are not improving in areas such as the high mortality rate from heart attacks, or are actually deteriorating in others, like premature mortality due to lung cancer.
- Patient satisfaction with the systems seems to be eroding, leading to a perception of diminished quality.[1]
- The systems have not been able to ensure the required workforce to adequately meet the needs of Canadians.

An aging population, increased demand for services, and a higher prevalence of chronic diseases are raising the need for health care services, making them major cost drivers of health care spending in Canada. In addition, recent changes in policy direction (e.g., home care, pharmacare and primary care reform) and greater spending on pharmaceuticals and other new technologies are escalating total health care costs. New priorities, such as the need to ensure patient safety and facilitate access to health services, are likely to require further investment.

At this juncture, it is important that governments understand the possibilities—and the limitations—of public health care dollars. Reshaping a more realistic mission, vision and objectives for the pan-Canadian health care systems should be the starting point for a serious re-evaluation. It is time to develop a firm financial foundation for Canada's health care systems—one which can ensure that Canadians will be able to sustain the level of health care they want and need. Once the boundaries of the desired health systems are defined, governments and decision-makers should focus on addressing key issues, including:

- Ensuring adequate and productive human resources;
- Alleviating difficulties in access to health services;
- Addressing patient safety concerns;
- Alleviating the burden of chronic care diseases;
- Fostering technology assessment; and
- Enhancing management of key programs like pharmacare and home care.

Governments may need to gain a better understanding of the costs and benefits of increased investment in health. The evidence seems to suggest that investing more in health care does not, necessarily, guarantee a better system. Therefore, it is necessary to balance the relative social costs and benefits of various investment options. Governments need to be cognizant that health care spending does not crowd out other important policy priorities, which could have a negative impact on the health of Canadians in the long run.

There is potential for some cost savings and efficiencies in our health and health care programs. By sharing a common vision of the expected outcomes and basing policy directions on sound scientific evidence, governments can collaborate to achieve their shared objectives for health care. Furthermore, governments can ensure a higher degree of success as they carry out new health strategies, by working together to create a

culture shift toward a unified approach and pooling their resources. There are challenges ahead. However, difficult decisions need to be made, and the time to make them is here. Otherwise, the effect on the health and prosperity of Canadians will be compromised. If such decisions are delayed, the ground lost, in terms of trust and belief that the system will be there for Canadians when they need it, will not easily be regained.

[1] The Conference Board of Canada, *Component 1: Acute Care Sector, Industry Analysis* (Ottawa: The Conference Board of Canada, 2004).

APPENDIX A

The Canadian Health Care Systems

INTRODUCTION

Canada has predominantly publicly financed health care systems (the overall public-private distribution in 2002 was 70:30).[1] Canadians enjoy a public health insurance program, which is managed and administered by 13 provincial and territorial health insurance plans, based on national principles set at the federal level. Canadians do not pay directly for medically necessary services, nor are they required to fill out forms for them. There are no deductibles, co-payments or dollar limits to coverage for insured services.

The cost of health care, as in other industrialized countries, continues to rise in Canada. In 1980, Canada spent just over $22 billion on health care;[2] this figure will likely reach $121 billion in 2003.[3] Health care in Canada is financed primarily through taxation, in the form of provincial and federal personal and corporate income taxes. Some provinces use ancillary funding methods, which are nominally targeted for health care, such as payroll levies and lottery proceeds.

Health care is a very resource-intensive industry. As an example, hospitals spent approximately 70 per cent of their budgets on salaries and benefits for their workers.[4] Patient care is typically provided by teams of a wide range of health professionals, including physicians, nurses, and other health professionals (pharmacists, nutritionists, technicians, etc.), who are supported by a large number of health support staff, including nursing aides, medical record clerks and volunteers.

Primary care physicians (e.g. general practitioners) account for about 51 per cent of all practicing physicians in Canada.[5] They are usually the initial contact with the formal health care systems and arrange for access to most specialists, hospital admissions, diagnostic testing and prescription drug therapy. Most doctors are private practitioners who work in independent or group practices. Physicians are generally paid on a fee-for-service basis and submit their service claims directly to the provincial/territorial health insurance plan for payment.

Nurses are generally employed in the hospital sector, which is comprised mostly of private non-profit entities that are run by community boards of trustees, voluntary organizations or provincial health authorities.[6] Nurses also provide community health care, including home care and public health services. There is an increasing reliance on nurse practitioners, especially in rural and remote areas.

CURRENT LEGISLATION AND REGULATIONS

Legislation covering health care services has existed in Canada since 1867, when the British North America Act came into force. Numerous Acts have been introduced and/or modified since those times to strengthen the financing, management and delivery of health services in Canada (see Appendix A). In 1984, the Canadian Parliament passed the Canada Health Act. This Act, which is the basis of the Canadian health care systems, is often viewed as representing the moral values of Canadian society. It establishes the criteria and conditions related to insured health care services that the provinces and territories must meet to receive the full federal cash transfer contribution, under the current transfer mechanism, the Canada Health and Social Transfer (CHST). The *Canada Health Act* confirmed the following principles or program criteria:

- Universality: all residents of Canada must be entitled to services.
- Comprehensive: all medically-necessary hospital and physician services must be covered.

- Accessibility: services must be provided on uniform terms and conditions, and reasonable access to services must not be impeded.
- Portability: persons must remain covered, while temporarily absent from their provinces (within Canada).
- Public administration: health plans must be administered by a non-profit, public authority.

There are two groups of services covered by the *Canada Health Act*:

- **Insured health care services**, which include medically-necessary hospital, physician and surgical-dental services provided to insured persons; and
- **Extended health care services**, which include certain aspects of long-term residential care (nursing home intermediate care and adult residential care services) and the health aspects of home care and ambulatory care services.[7]

The provinces have constitutional authority to legislate, regulate, administer and deliver health services locally. Provinces and territories have created legislation to regulate their own health systems. Examples of the Acts that govern health care services at the provincial or territorial level include:

- *The Public Hospital Act/Regional Health Authority Act,* which sets the regulatory framework from which hospitals or regional health authorities must operate. It describes in detail the environment, and the responsibilities and accountabilities of the Minister, the hospital and its Board.
- *The Regulated Health Professions Act*, which serves to regulate the health professions in Ontario, by granting the responsibility of self-governance and the protection of the public to Colleges. These colleges, which are directed by members of the profession and the public at large, examine, register and regulate the professions. The regulation of professions includes a defined scope of practice in some provinces, while other provinces allow more flexibility through a legislated acts model.
- *The Public Health Act*, which provides the framework for provincial population health and wellness initiatives. It includes provisions for such services as health education, communicable disease control, public health laboratories, sexually transmitted disease control and environmental sanitation.
- *The Health Insurance Act*, which describes the services publicly available and paid for by provincial governments. It describes the details of the provision of services and how they are funded.

Changes to current legislation that have an impact on delivery of health services are being suggested and implemented. Examples include new legislation for privacy, the legalization of medical marijuana, natural health products, the prescribing of pharmaceuticals for patients in the U.S., and regulations for the use of genetic testing and reproductive technologies.[8] New directions in legislative reform include revisions to allow:

- More privately-operated health care services (in Alberta, for example, legislation now permits and regulates the overnight stay in private surgical facilities for surgical procedures);
- More privately-operated diagnostic services, including diagnostic services like Magnetic Resonance Imaging (MRI) and Positron Emission Tomography (PET) technologies;
- De-listing of services that are not being considered medically necessary in some provinces (e.g., physical therapy) and considerations to list services that were not covered before (e.g., pharmacare); and
- More flexibility in roles and greater use of alternative delivery models. In British Columbia, for example, the entitlement to practice medicine has been modified to allow discretion to use complementary therapies. Legislation in Ontario has allowed the expansion of legislated acts for nurses to include diagnosis and drug prescription.

Exhibit 1 Legal Evolution of the Health Care Systems in Canada		
Date	**Act**	**Provisions**
1867	*British North America (BNA) Act*	Divided rights and powers between the federal and provincial governments. Section 92 of the Act states that provinces have the exclusive right to make laws in relation to the establishment, maintenance and management of hospitals. Thus, the responsibility of health care was established as an exclusive power of the provincial legislatures. The federal government, however, maintains specific responsibility for the indigenous community, the military, quality of food and drugs and spending powers.
1982	*Constitution Act*	No substantive amendments to health care legislation. Provinces maintained the exclusive rights to administer and deliver health care services by deciding where their hospitals will be located, how many physicians will be required, and how much money they will spend on their health care systems.
1957	*The Hospital Insurance and Diagnostic Services Act*	This Act was passed to provide hospital insurance coverage for Canadian Citizens. By 1961, the Act was operating in all provinces, covering 99 per cent of Canada's population. The ownership of hospitals and the voluntary governance bodies were maintained as a way of keeping existing traditions. The financing arrangement in the Act provided for a federal contribution of approximately 50 per cent towards the cost of hospital eligible services.
1966	*The Medical Care (Medicare) Act*	Appeared as a result of recommendations made by Justice Emmett Hall, chair of The Royal Commission on Health Services, to increase federal leadership and financial support for a broader basket of services. The Act provided coverage for physicians' services and additional services provided by dentists and chiropractors. Federal contributions were given when the principles of comprehensiveness, universality, portability and public administration were met. The federal government contributed to each province half of the average per capita cost of all provinces multiplied by the number of insured persons in that province.
1977	*The Established Program Financing (EPF)* Act	This Act developed a block fund for hospitals, medical care and post-secondary education. The federal government agreed to give up tax points to the provinces in exchange for reduced cash payments.
1984	*Canada Health Act*	Introduced to replace the *Hospital Insurance Act* and the *Medical Care Act.* The *Canada Health Act* establishes the criteria and conditions related to insured health care services that the provinces and territories must meet in order to receive the full federal cash transfer contribution under the current transfer mechanism (the Canada Health and Social Transfer –CHST).

HEALTH CARE FINANCING

Canadians, as individuals and as a society, have spent an increasing amount on health care over the last 20 years. This trend can also be observed in several other OECD countries. In Canada, this growth has not been steady, as budgetary constraints of the 1990s forced cost containment in spending for the public provision of health care, a development that was highly unusual in the international context. However, the easing of fiscal pressures since the late 1990s has accelerated public spending again.

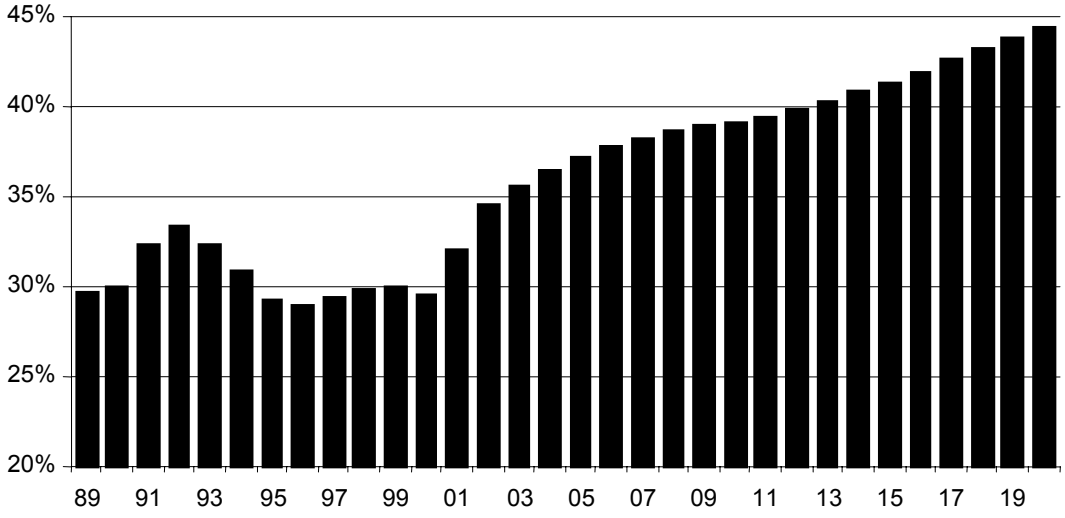
Total health expenditure, in current dollars, was estimated at $106 billion in 2001 and is forecast to have reached $121.4 billion in 2003.[9] Total health expenditure per capita was estimated at $3,416 in 2001 and is projected to be $3,839 in 2003. Overall public-private health care spending shifted from 76:24 in 1980 to 70:30 in 2002. Although the ratio of public-private health expenditures has increased slightly since 1980, it has remained practically unchanged during the last 20 years for certain categories, including hospitals (92:8); other institutions (71:29); physicians (99:1); and other health spending (85:15). These categories account for more than 68 per cent of total health spending in Canada.

The recent growth in total health expenditures has occurred at a rate that has outpaced the rate of growth of the Canadian economy. This has raised questions about the sustainability of such trends. With the exception of a brief period in the mid-1990s, the level of health care spending has grown, relative to other government programs, in virtually every province and territory.

In 1980, health care accounted for about 26 per cent of provincial/territorial government expenditures (program spending and debt charges). By 2001, this had increased to 32 per cent of expenditures. This pan-Canadian average masks significant variability: the territories allocated between 16 and 19 per cent of all spending to health services in 2001-2002, while the provinces allocated between 27 and 38 per cent (see Chart 1).[10]

Without structural change in how health care is delivered, the current systems will grow from consuming about 32 per cent of total provincial/territorial revenues to 44 per cent in 2020.[11] If the current inter-provincial differences remain the norm, with respect to the importance of health care in provincial/territorial expenditures, then some provinces could spend in excess of 50 per cent[12] of their budgets on health care by 2020, just as the demographic bulge of Canadian seniors starts to pass through the systems. This

Chart 1
Nominal Provincial/Territorial Health Expenditures as a Share of Total Government Revenues (%) – 1989-2020



Sources: The Conference Board of Canada; Statistics Canada; Health Canada; Canadian Institute for Health Information.

observation raises the issue of sustainability of the public health care systems.

Given this forecast pattern, political decision-makers face difficult choices about how to balance the spending of public money. Among the considerations with regard to balancing competing needs, are questions of structural change. Would more effective use of public resources be achieved by reducing the emphasis on health care and spending more on the "upstream" determinants of demand for health care? Are we moving towards the right balance of public spending on the various components of health care (i.e., preventive, restorative, acute and managed/continuing care)?

Structural change has occurred on both fronts. The relative share of health care in public expenditures was reduced in the early 1990s to a degree not observed in other OECD nations, but is now on the rise again. There have also been important shifts in how public health care dollars are spent. For example, between 1980 and 2000, the hospital sector's share of public resources declined by 16 per cent, from over 52 per cent of total provincial/territorial expenditures on health care to about 44 per cent.[13]

The Conference Board of Canada forecasts that this decline will continue over the next 20 years. Though hospitals will continue to be the largest share of public expenditure on health care, its relative share will shrink to just over a third of health spending by the provinces and territories in 2020 (see Table 1). This is not a result of decreased spending, but due to increased spending on:

- Home care (forecast to grow by 81 per cent over the next 20 years);
- Prescription drugs (forecast to more than double its share of provincial/territorial expenditures for health by 2020); and
- Technology (as an example, less invasive surgical procedures and pharmaceuticals to keep people out of hospitals).

These factors have meant that there is less reliance on hospitals than in the past. As noted earlier, the *Canada Health Act* primarily covers physicians and hospitals. The shift to home care and pharmacare has not come as a result of legislated changes, but rather, has resulted from policy decisions made by various levels of governments, without modification to the *Canada Health Act.*

The predicted rates of growth and decline may prove conservative. If the agreements and funding behind the February 2003 Health Accord accelerate, as intended, improvements in public coverage for the catastrophic costs of drugs and more widespread use of home and community-based modalities of health care may become a reality.

Table 1
Share of Nominal Provincial/Territorial Health Spending, by Component
2001 and 2020 (%)

Spending Component	2001	2020	Forecast Change in Importance of Share
Hospitals	43.9	36.6	-17%
Other institutions	9.7	8.7	-10%
Physicians	19.7	16.3	-17%
Other professionals	1.2	0.8	-50%
Home care	4.2	7.6	81%
Prescription drugs	7.2	14.6	117%
Other health expenditures	14	15.3	9%

Source: The Conference Board of Canada; Health Canada; Canadian Institute for Health Information

FEDERAL AND PROVINCIAL ROLES: A SHARED RESPONSIBILITY

Most sources agree that, although provincial governments have a firm jurisdictional basis for the delivery of health care services, the increasing overlap and expanding scope of services means that the federal government has become a major player in the area and it has a constitutional right to do so. The federal government can make transfer payments to provinces for health care purposes and attach conditions to those transfers, even if they appear to invade provincial jurisdiction.

The federal government's fiscal position will help to influence our health systems over time. It is unlikely that any significant future changes will be made through constitutional changes, but instead will occur through practice or agreement. We will be better off if the two orders of government can agree on the principles involved and enshrine it in an agreement with a co-operative dispute mechanism.[14] One example of such an agreement is the health covenant described by Romanow.

The federal government, all 10 provinces, and the three territories have distinctive roles to play in the health care systems in Canada. The federal government is responsible for:

- Setting and administering national principles or standards for the health care systems, through the *Canada Health Act*;
- Assisting in the financing of provincial health care services through fiscal transfers;
- Delivering direct health services to specific groups, including veterans, Aboriginal Canadians, persons living on reserves, military personnel, inmates of federal penitentiaries and the Royal Canadian Mounted Police; and
- Fulfilling other health-related functions such as health protection, disease prevention, and health promotion.

The provincial and territorial governments are responsible for:

- Managing and delivering insured health services;
- Planning, financing and evaluating the provision of hospital care, physician and allied health care services; and
- Managing some aspects of prescription care and public health.[15]

A key issue that has been examined is whether or not provincial governments have met the criteria and principles set out in the *Canada Health Act.* In 2002, a Canada Health Act Report was released.[16] The purpose of the report was to demonstrate the extent to which provincial and territorial plans fulfilled the requirements of the *Canada Health Act*. Each provincial and territorial government provided reports. A few of the key findings include:

- There is a trend towards the use of a population-based funding mechanism to fund hospital services.
- There is a trend towards the use of privately-provided publicly-paid day surgery.
- Manitoba has piloted a not-for-profit surgery model. Any operating surplus is used to reinvest in cutting edge diagnostics, surgical and other medical equipment.
- Most provinces allow physicians to opt out. However, none has done so. Most physicians are on a fee-for-service incentive model, except in NWT and Nunavut, where physicians are typically on salary.
- New Brunswick was the first to establish a quality council.[17]

There is no single government with clear constitutional authority over health care. Instead, there is a complex "system", based on intergovernmental relationships. Therefore, in order to improve the systems, it will be necessary to focus on ways to work more co-operatively. It is time to reconsider the use of a health covenant, as this can potentially clarify the roles and responsibilities of key stakeholders and end the inter-jurisdictional wrangling and debate. Governments and Canadians must also focus on a collective vision for health and health care, one with an emphasis on the outcomes from health care and not simply on the process of delivery. Romanow and Mazankowski have described this vision as[18]: *"The Vision of the Canadian Health Care System is to establish and maintain Canada as the country with the healthiest population in the world."*

HEALTH SYSTEMS GOVERNANCE AND ACCOUNTABILITY

The central challenge of governance is to create—through rules, principles, practices and structures—the best possible alignment between the actions of decision-makers or governors on the one hand, and the legitimate interests of communities on the other.

The Canadian health care systems have no single model of governance. Furthermore, existing models are continually evolving. Many issues and concerns have been raised regarding governments and their governance models and accountability. These concerns include the inhibition of innovation by micro-managing health

systems, not enough management in areas such as controlling demand, and the need to separate the functions of funding, regulation, planning and evaluation.[19]

At the provincial level, governance of the health systems is performed by elected members of provincial legislatures or members of parliament. In theory, the voice of the electorate leads to health care policies or legislation consistent with public opinion. Elected members then use public opinion and support to guide the policy direction of their ministries. The consistent incremental changes of policy and legislation in the health care systems are indicative of its importance to Canadians. Health care continues to be Canadians' first public policy priority.[20]

At the institutional level, voluntary boards of trustees are elected or appointed to provide strategic direction to health services organizations' staff. Boards exist to govern the organization on behalf of their communities.[21] Boards are accountable to both their communities and to the government. They are responsible for key actions, including:

- The development of a mission and vision statement;
- Financial reporting and auditing;
- Strategic planning;
- Board development;
- Evaluation and succession planning;
- Risk management;
- Regulatory compliance;
- Advisory role; and
- Advocacy role.

At the provider level, governance is undertaken by colleges, which regulate the professions. Governments set the regulatory framework for colleges, which must ensure members are competent and practice ethically. The central role of the governance of regulated professions is the protection of the public. College boards are made up of public members appointed by the minister and elected provider members. Most provinces maintain a slightly greater ratio of elected than appointed members. Ratios of elected/appointed representatives have been, and will continue to be, a contentious issue.

Provinces, with the exception of Ontario, have moved to regionalization, in an attempt to move decision-making and local planning closer to the level of service delivery. Regional Health Authorities (RHAs) have been given the task of planning and servicing the health needs of their communities, covering a broad range of integrated services. Ministries of health sign performance agreements with their RHAs and evaluate their performance at the end of the cycle. Most RHAs in the country do not include medical or pharmaceutical services as part of performance agreements. This alignment of services will be essential for the success of RHAs and their performance measurement.

The provincial ministries of health appoint the members of RHA boards. This new governance model may have the effect of greater accountability, however, the ongoing restructuring of RHAs across the country prevents the solid analysis of their achievements and successes. Ontario continues to be the control group in this analysis, with its attempts in the 1990s to develop regional structures. Ontario currently uses regional entities for its community care access centres. It is, however, in the process of developing performance agreements with the hospital sector, while maintaining its current health systems architecture. Interestingly, Québec is currently collapsing hospital boards to shrink provincial regions.

One key challenge facing RHAs and hospitals is to decide to whom the members of the board of these organizations will be primarily accountable. Many board members believe that their accountability lies primarily with the community they serve. However, legislation clearly shows that the board's accountability is ultimately to the ministry of health. This issue is especially important when board members are faced with financial deficits.

There is no best practice model of governance that can be used throughout the health care systems. Governance evolves with incremental changes to health care. Some questions must be answered, including: Have we created the rules, principles, practices and structures to align the actions of governors with the interests of their communities? Are we rowing or steering?[22] In other words, how can we end up where we intend? Or, do we

need to boldly reconsider health care governance models?

ACCOUNTABILITY: TO WHOM?

When a patient books and attends a doctor's appointment, he or she knows who is accountable for health and their health care. That patient subsequently understands the liability issue associated with health care, following a discussion on consent with the doctor. When a patient believes that he or she has received poor quality care, or worse, received negligent care, that person has the option to lodge a complaint with the provider's regulatory body or try to receive compensation through civil litigation. In this case, it is clear who is ultimately responsible. But, as a patient moves from the initial contact with the health care provider throughout the continuum of care, accountability becomes less and less evident. Our health systems have been created to support the provider-patient relationship. Liability and accountability, however, are not shared equitably. In a typical negligence suit, for example, all parties involved will be named in the litigation, but liability usually rests with the provider. With the potential for increased use of telemedicine, this accountability can become even more blurred and confusing.

Many stakeholders have become concerned with the issue of accountability. Accountability has become a substantial challenge because of the public's greater focus on outcomes, rather than processes in an increasingly complex health systems. These concerns have led to recommendations to establish a central organization that will enforce accountability in the health care sector. As long ago as 1980, Justice Emmett Hall recommended the formation of a health council to ensure accountability.

A number of national reports have tried recently to address these issues. Commissioner Romanow, in his report, *"Building on Values–The Future of Health Care in Canada,"* attempted to respond to the issue of accountability in four key recommendations:

- Create a health council to facilitate collaborative leadership in health and establish, measure and report on common indicators.
- Establish a new health covenant, as a tangible statement of Canadians' values. The health covenant would clearly articulate the roles, responsibilities and entitlements of individuals, health care providers and governments.
- Modify the *Canada Health Act* to include the principle of accountability. Governments would then have a collective responsibility to clarify the roles and responsibilities of governments, their processes and outcomes.
- Provide stable, predictable and long-term funding through a new, dedicated, cash-only transfer for Medicare, the key idea being the separation of funding for health, post-secondary education and other social services. A new Canada Health Transfer would replace the existing Canada Health and Social Transfer and would include an escalator clause, set at the growth rate of the economy, initially multiplied by 1.25.

Health care guarantees have also been recommended as a way to strengthen accountability and improve efficiency. Senator Kirby saw a health care guarantee as an important element of his report. He felt that such a guarantee would ensure improved access to services. Romanow, on the other hand, described the importance of a guarantee for wait times, but was concerned about the current ability of the systems to assess wait times.

Currently, accountability remains an elusive goal. Only small steps have been taken toward the implementation of a health council. We are likely to continue to struggle with the issue of accountability, and as long as our health systems continue to increase in complexity, the public will rightly continue to focus on outcomes, while liability continues not to be shared equitably.

[1] Canadian Institute for Health Information, *Health Expenditure Statistics* (Ottawa: CIHI, 2002).

[2] G. Brimacombe, *Every Number Tells a Story* (Ottawa: The Conference Board of Canada, 2002).

[3] Canadian Institute for Health Information, *National Health Expenditure Trends, 1975-2003* (Ottawa: CIHI, 2003).

[4] J. McIntyre, T. O'Sullivan, J. Frank, *Canada's Public Health Care System Through to 2020: Challenging Provincial and Territorial Financial Capacity* (Ottawa: Conference Board of Canada, 2003), p. 5.

[5] Health Canada Website: <http://www.hc-sc.gc.ca/english/> cited October 2003.

[6] Ibid.

[7] A. Crichton et al., *Canada's Health Care System – Its Funding and Organization* (Revised Edition 2000).
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[8] Program on Public Policy and Health Division of Health and Human Development, Pan American Health Organization, *Health Legislation Trends in the English-speaking American Region: 1997 – 2001,* Technical Reports Series No. 79 (Washington DC, 2002).

[9] Canadian Institute for Health Information, *National Health Expenditure Trends, 1975-2003*, (Ottawa: CIHI, 2003).

[10] CIHI, *National Health Expenditure 2002.*

[11] J. McIntyre, T. O'Sullivan, J. Frank, *Canada's Public Health Care System Through to 2020: Challenging Provincial and Territorial Financial Capacity* (Ottawa: Conference board of Canada, 2003), p. 5.

[12] Tony Clement, Ontario's Submission to the Commission on the Future of Health Care in Canada April 2, 2002 (Ministry of Health and Long-Term Care: April 2002), p. 4. See <http://www.health.gov.on.ca/english/public/updates/archives/hu_02/romanow/on_presentation.pdf> cited February 2004.

[13] Canadian Institute for Health Information, *National Health Expenditure Trends, 1975-2003*, (Ottawa: CIHI, 2003), p. 17.

[14] H. Leeson, *Constitutional Jurisdiction Over Health and Health Care Services in Canada*, Discussion Paper No. 12, (Commission on the Future of Health Care in Canada, 2002).

[15] Health Canada Website: <http://www.hc-sc.gc.ca/english/care>, cited October 2003.

[16] Health Canada, *Canada Health Act Annual Report, 2001-2002* (Ottawa: Health Canada, 2003).

[17] Health Canada, *Canada Health Act Annual Report, 2001-2002* (Ottawa: Health Canada, 2003).

[18] R. J. Romanow, *Building on Values: The Future of Health Care in Canada*, Final Report (Ottawa: National Library Catalogue, 2002), p. 53.
D. Mazankowski, *A Framework for Reform - Report of the Premier's Advisory Council on Health* (2001), p. 6.

[19] P. Leatt, J. Mapa, *Government Relations in the Health Care Industry* (2003), pp. 49-71.

[20] R. J. Romanow, *Building on Values: The Future of Health Care in Canada*, Final Report (Ottawa: National Library Catalogue, 2002).

[21] J. Carver, M. Mayhew, *A New Vision of Board Leadership* (1996), p. 5.

[22] C. Flood, D. Sinclair, *Steering and Rowing in Health Care: The Devolution Option?* (2003).

APPENDIX B

Methodology and Detailed Results of the Benchmarking Analysis

Our Benchmarking Methodology

Benchmarking has taken on a life of its own in Canada and throughout the world. It is fuelled by a growing interest in assessing performance and a desire for greater accountability from governments, corporations and other institutions.

Indicators

The 24 indicators selected for this analysis were organized into three broad categories: health status (seven indicators), non-medical factors (seven indicators), and health outcomes (11 indicators).

In addition, nine health care resource indicators were examined, but left unranked.

Countries

We chose to compare Canada to other OECD countries, since they are the leading industrialized countries and serve as a worthy peer group. The principal source of data for our international analysis was the OECD. Based on data availability and reliability, five countries were dropped from the analysis (Czech Republic, Hungary, Poland, Slovak Republic and Turkey). In addition, Luxembourg was excluded on the basis of its size. This left 24 countries, including Canada.

Table 1
List of Ranked Indicators Used, by Category

Health Status	Non-Medical Factors	Health Outcomes
Life expectancy males / females	Body weight	Lung cancer mortality rates males / females
Disability-free life expectancy males / females	Tobacco consumption	Acute myocardial infarction mortality rates males / females
Self-reported health status	Alcohol consumption	Stroke mortality rates males / females
Infant mortality rate	Road traffic accidents	PYLL* suicide – (males)
Low birth weight	Sulphur oxide emissions	PYLL lung cancer males / females
	Immunization - DTP	PYLL breast cancer
	Immunization for influenza	

*Potential Years of Life Lost

Table 2 List of Health Care Resource Indicators (unranked)
Health Care Resources
Health spending – total
Health spending public
Public expenditures on prevention and public health
Expenditures on pharmaceutical industry R&D
Number of physicians – general practitioners
Number of physicians – specialists
Number of nurses
MRI units
Radiation therapy equipment

Ranking Countries

Once the data has been inputted, countries' performances for each indicator are ranked by assigning a gold, silver or bronze level grade, based on countries' scores/rates. For each indicator, we take the difference between the scores of the top and bottom performers, and split this difference into thirds. A country achieves a gold-level performance if its indicator score is in the top third of all scores, a silver-level, if its score is in the middle third, and a bronze-level, if its score falls in the bottom third. For example, the top country on life expectancy is Japan, at 84.9 years. The bottom performer is Mexico at 77.1 years. Using our method, the ranges for gold, silver and bronze-level performances are as follows:

Gold:	82.4 to 84.9
Silver:	79.8 to 82.3
Bronze:	77.1 to 79.7

The performances are then counted up for each of the three categories of indicators (health status, non-medical factors and health outcomes). A gold-level performance is weighted as two points, while a silver-level performance is weighted as one point. Bronze-level performances did not receive any points, by virtue of finishing in the bottom group. We believe the gold, silver and bronze-level placing is important, since it places emphasis on indicator scores, rather than positional ranking. To illustrate, Country A may rank second on life-expectancy, but be behind the first-ranked country, Country B, by several years. Referring to Country A as number two in life-expectancy would therefore overlook the more important issue—that there is a huge performance gap between the first and second-ranked countries.

There are limitations with this methodology. For instance, comparing indicators at an international level can mask disparity within jurisdictions—for example, differences between urban and rural populations. While the average scores of two jurisdictions may be similar, there could, in fact, be a very uneven set of health conditions at play in one jurisdiction, while another has little variance.

Second, we realize that many of our selected indicators can only serve as proxies for assessing the true performance of our health systems. Unfortunately, there are not many indicators, particularly at the international level, that actually assess health system performance, and so, these proxies must be used.

Detailed Results

The overall results of our benchmarking analysis are presented in Table 3.

Details of the international results are provided for each of the three categories in the following sections.

Health Status

Health status indicators serve as the "bottom line" statement, when it comes to measuring the health of societies and the quality of years lived. We have included seven indicators in this category (refer to Table 1 for the list of health status indicators). It is important to remember that health status indicators are affected by performance in a wide range of factors beyond the health care systems, such as socio-economic and environmental conditions.

Among the three categories of indicators examined for this analysis, Canada's best performance is in health status, where it places fifth (see Table 4). Switzerland places first in health status, with four gold-level and three silver-level finishes. Japan places second, along with the Netherlands and Spain. The United States, the highest per capita spender on health care, places 20th among the 24 OECD countries.

Table 3
Overall results* (health status, non-medical factors and health outcomes)

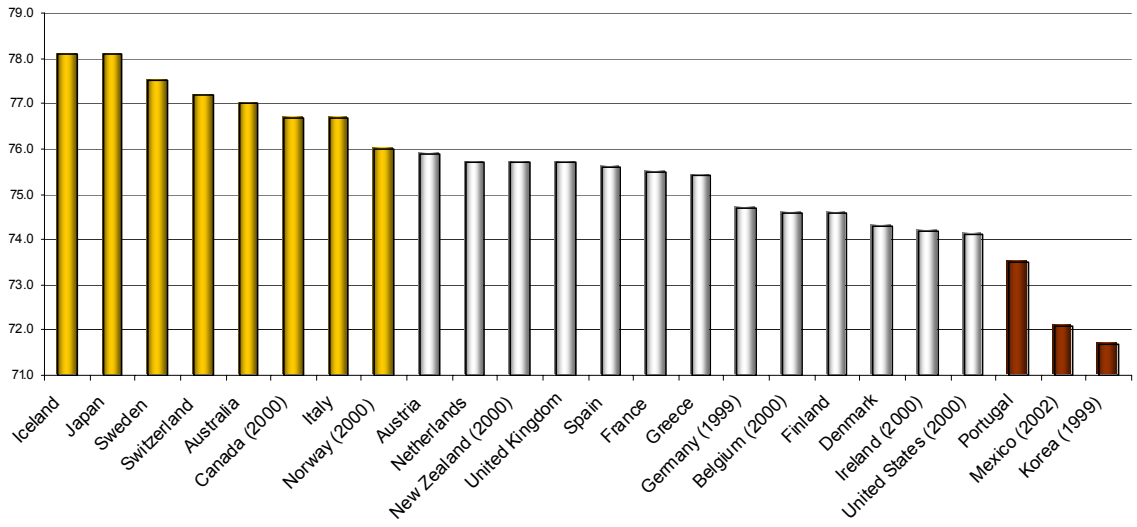
Rank	Country	Gold	Silver	Bronze	Weighted Medal Count
1	Switzerland	14	9	1	37
2	Sweden	14	7	0	35
3	Spain	12	9	3	33
3	France	12	9	2	33
3	Italy	11	11	0	33
3	Germany	9	15	0	33
7	Norway	13	6	2	32
8	Japan	14	3	7	31
8	Iceland	12	7	2	31
8	Australia	10	11	3	31
8	Netherlands	11	9	4	31
12	Finland	11	7	4	29
13	**Canada**	**7**	**13**	**4**	**27**
14	Mexico	12	4	4	26
14	Belgium	9	8	4	26
14	New Zealand	7	12	5	26
17	Austria	6	13	3	25
18	Denmark	8	8	6	24
19	Korea	9	5	9	23
19	Portugal	8	7	5	23
19	United Kingdom	6	11	7	23
22	Ireland	7	7	7	21
23	United States	5	9	10	19
24	Greece	5	8	5	18

*Gold = 2; Silver = 1; Bronze = 0

Table 4 Results on Health Status Indicators*					
Rank	**Country**	**Gold**	**Silver**	**Bronze**	**Weighted Medal Count**
1	Switzerland	4	3	0	11
2	Japan	5	0	2	10
2	Netherlands	3	4	0	10
2	Spain	3	4	0	10
5	Iceland	4	1	0	9
5	Norway	4	1	0	9
5	Sweden	4	1	0	9
5	**Canada**	**2**	**5**	**0**	**9**
5	Germany	2	5	0	9
10	Australia	3	2	2	8
11	Finland	2	3	0	7
11	Italy	2	3	0	7
11	France	1	5	0	7
14	Austria	1	4	0	6
14	Belgium	1	4	0	6
16	Ireland	2	1	2	5
16	New Zealand	1	3	3	5
16	Denmark	1	3	1	5
19	United Kingdom	1	2	4	4
20	Korea	1	1	5	3
20	United States	1	1	5	3
22	Portugal	0	2	3	2
22	Greece	0	2	2	2
22	Mexico	0	2	2	2
*Gold = 2; Silver = 1; Bronze =0					

Canada does well in terms of **life expectancy**, particularly for males. Life expectancy for Canadian males is 76.7 years (gold-level), compared to 78.1 for males in Iceland, the leader in this indicator (see Chart 1). Canadian females, by contrast, achieve a silver-level in life expectancy. Life expectancy for Japanese females is approximately three years higher than for Canadian females (see Chart 2).

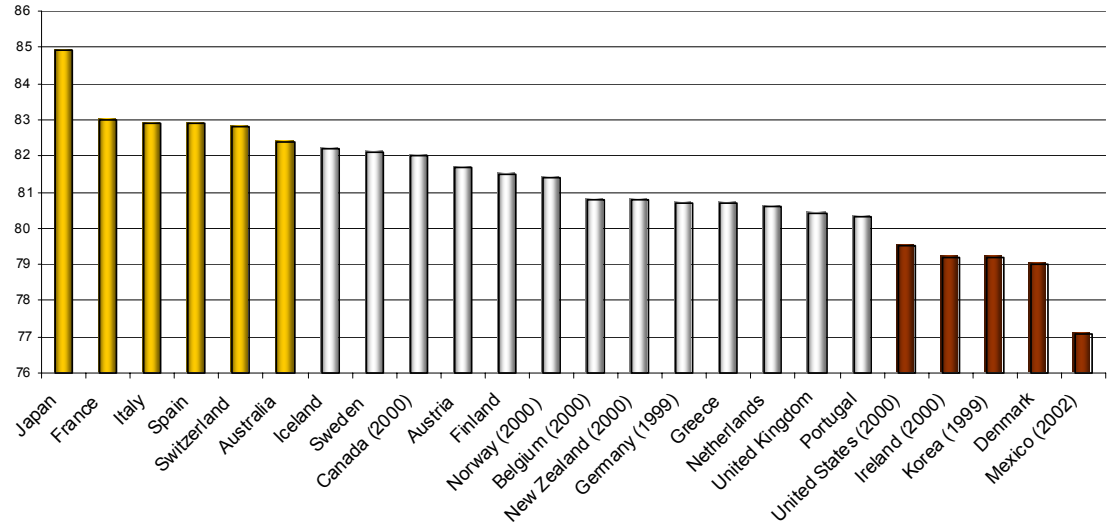
Chart 1
Life expectancy at birth, males, 2001 or latest year (years)



Sources: OECD; The Conference Board of Canada.

Chart 2

Life expectancy at birth, females, 2001 or latest year (years)



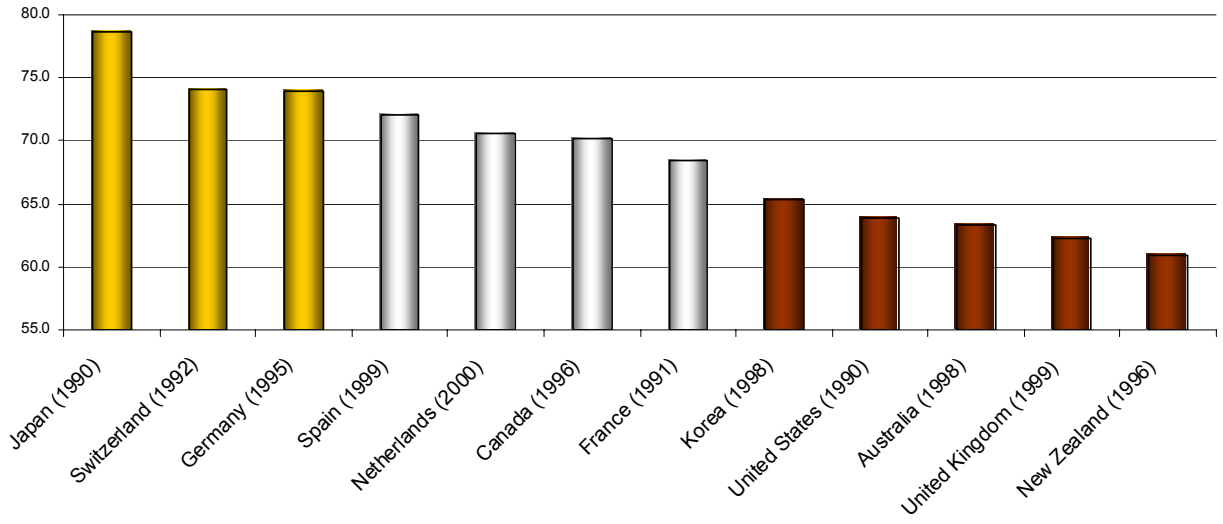
Sources: OECD; The Conference Board of Canada.

It should be noted that, for many OECD countries, including Canada, the gaps in life-expectancy are sometimes wider within regions of the country than they are between countries. For example, life expectancy for B.C. males is almost 10 years higher than for males in Nunavut. Furthermore, residents of rural and northern communities frequently have lower rates of life expectancy than urban populations.

Life expectancy does not speak to the issue of the quality of years lived. A person could live a long time, but in great pain or with a significant disability. **Disability-free life expectancy (DFLE)** indicates how many years an average person would be expected to live free of moderate or severe disability (including those living in an institution). It speaks more to the quality of years lived, particularly as the population ages. Ideally, we want to increase DFLE as life expectancy increases. Japan has the highest disability-free life expectancy for both males (74.2 years) and females (78.7 years). Canadian males have a disability-free life expectancy of only 66.9 years, and females, 70.2 years (see Chart 3). This means that Canadian females, on average, live 86 per cent of their years without disability, compared to 93 per cent for Japanese females.

Chart 3

Disability-free life expectancy at birth, females, 2000 or most recent year (years)

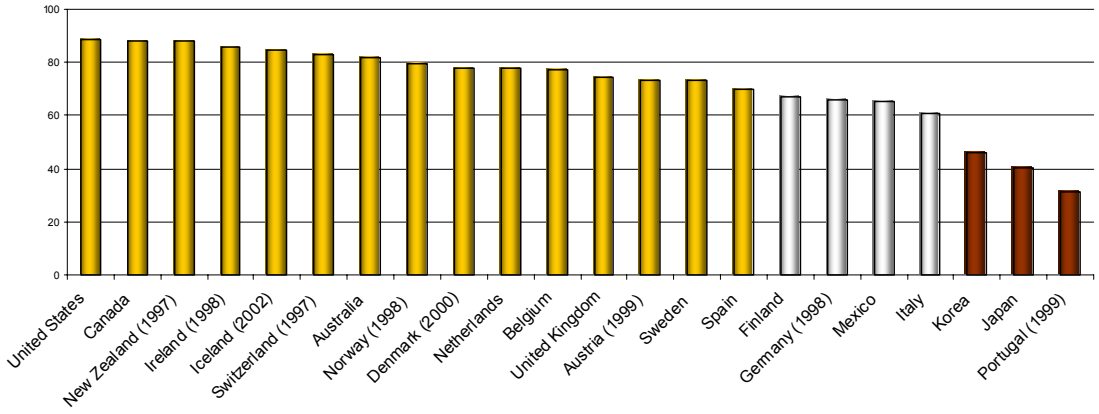


Note: Data for Austria, Belgium, Denmark, Finland, Greece, Iceland, Ireland, Italy, Mexico, Norway, Portugal and Sweden are not available.
Sources: OECD; The Conference Board of Canada.

Health is not just physical—how we feel about our health is also important. **Self-reported health status** reveals how citizens feel about their health. And in this respect, Canadians do very well. Canadians' self-reported health status is the second-highest among OECD countries, just slightly less than that of the United States (see Chart 4). Interestingly, several countries, such as Japan and Italy, with high levels of life-expectancy, report lower levels of self-reported health status.

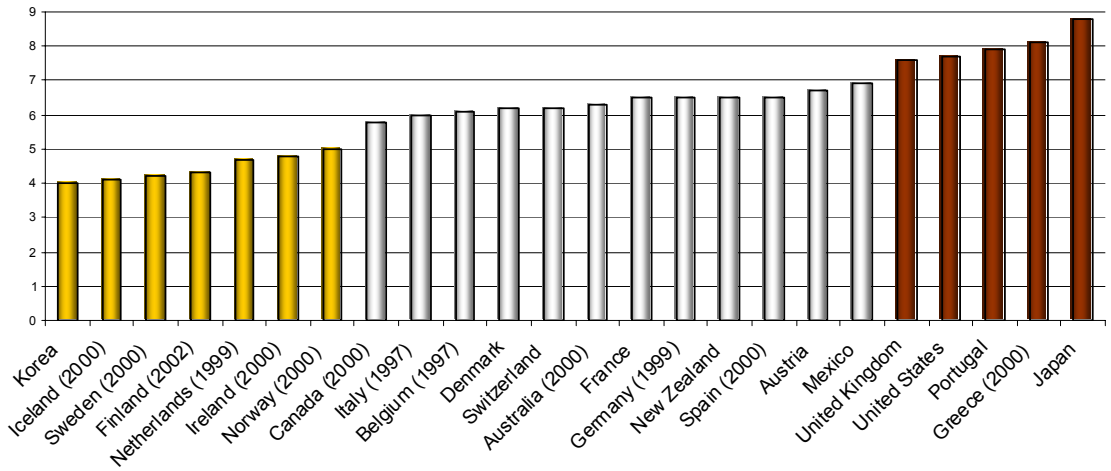
Low birth weight refers to the proportion of newborns whose weight at birth is between 500 and 2,500 grams. Low birth weight is an indicator that tells us both the health of newborns in a society and their chances for a healthy life. Low-birth weights are associated with higher infant mortality, increased risk of disease and disability, and learning disabilities. It is most prevalent among populations experiencing poor socio-economic conditions. Canada is an average performer (silver) for this indicator, at just under six per cent. Korea is the leading country, at four per cent (see Chart 5).

Chart 4
Self-reported health, both sexes, population aged 15+, 2001 or latest year
(per cent reporting good or better)



Note: Data for France and Greece are not available.
Sources: OECD; The Conference Board of Canada.

Chart 5
Low Birth Weight, 2001 or latest year (number of births under 2500 grams, as a per cent of all live births)



Sources: OECD; The Conference Board of Canada.

The **infant mortality rate** refers to the number of infants who die before they reach the age of one.[1] It is another indicator that can reveal much about the health of a society, since the rate can be negatively affected by factors affecting a successful birth and the first year of an infant's life. Such factors include maternal education, maternal smoking and relative deprivation, nutrition (maternal and infant), and the jurisdiction's system of child health and preventive care.

Canada's position internationally on this indicator has deteriorated significantly over the past decade, falling from 5th to 16th place among our 24 OECD countries (see Table 5) and is now only an average performer, compared to the OECD rate (see Chart 6). Many of the English-speaking countries have high rates, while the Scandinavian countries have the lowest.

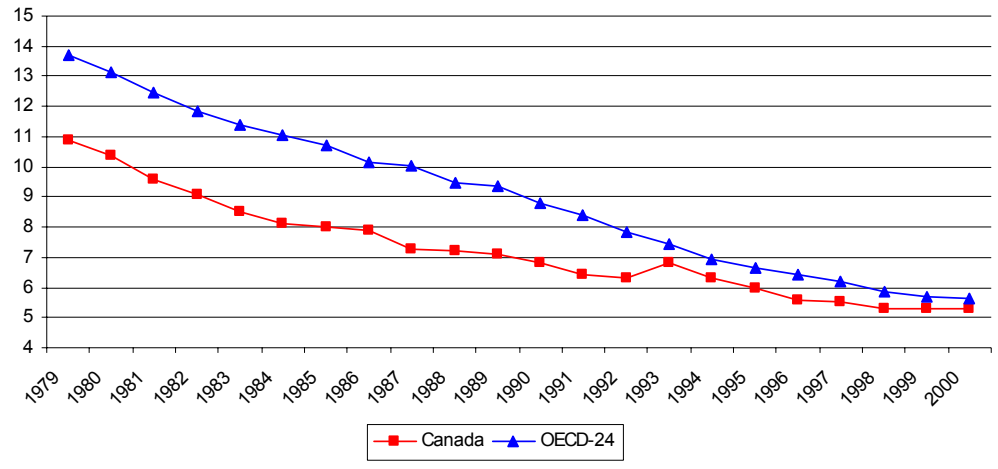
Table 5

Infant mortality rate among OECD countries (deaths per 1,000 live births)

Country	Rate
Iceland	2.7
Japan	3.1
Finland	3.2
Sweden	3.7
Norway	3.8
Spain	3.9
Italy	4.3
Germany	4.5
France	4.6
Austria	4.8
Denmark	4.9
Switzerland	4.9
Belgium	5.0
Portugal	5.0
Australia	5.3
Canada	**5.3**
Netherlands	5.3
United Kingdom	5.5
Ireland	5.8
New Zealand	5.8
Greece	5.9
Korea	6.2
United States	6.9
Mexico	21.4

Chart 6

Infant mortality rate, both sexes, 1979-2000 (number of infants who die in the first year of life per 1,000 live births)



Source: OECD.

Non-Medical Factors

We have included in this analysis an examination of Canada's performance in seven non-medical factors that can have a serious effect on the health of a population and a demand on its health care systems.[2] As shown in Chart 7, non-medical factors have been estimated to influence up to 75 per cent of health status.

Overall country results for non-medical factors are shown in Table 6.

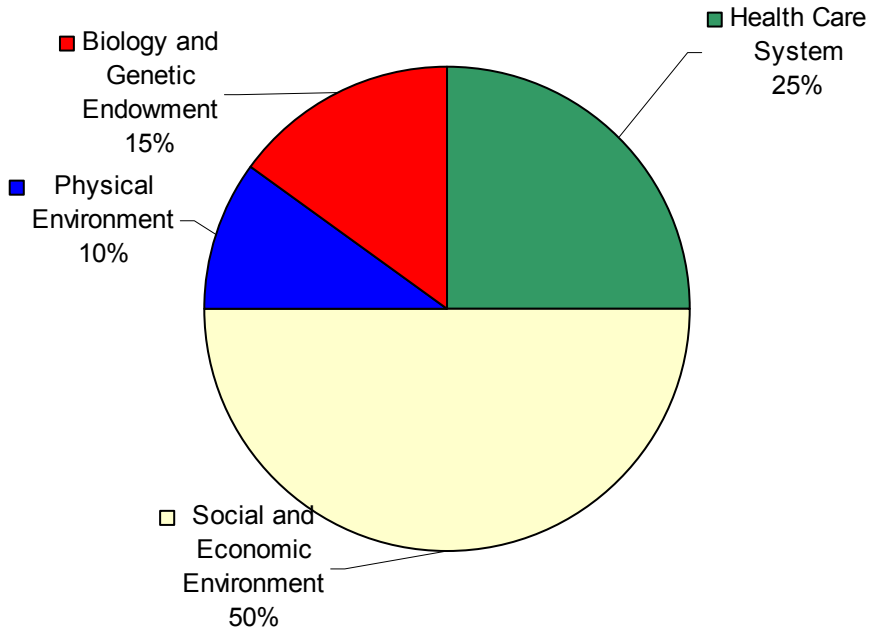
Canada places a disappointing 15th on these indicators. France and Sweden are the top nations in this category. Remarkably, both Japan and United States are among the poorest performers in this category.

The indicators examined in this category can also tell us about emerging pressures on our health care systems. For example, obese **body weight** (per cent of the population with a body mass index of over 30) should be a concern. The per cent of Canadians reporting a BMI of over 30 has increased since 1996 to just less than 15 per cent in 2001.

Canada is a silver-level performer on body weight, compared to other OECD countries (see Chart 8). Japan is the top performer, with only 3.2 per cent of its population reporting a BMI over 30. Most of the Scandinavian countries are among the top performers. However, like Canada, the percentage of obese body weight is rising among OECD countries, due, in part, to poor eating habits and lack of physical activity.[3] In Canada, the increase in levels of obesity in children and youth over the last 15 years is greater than that seen for any other disease or risk factor during the last century.[4]

Chart 7

Estimated Impact of Determinants of Health on the Health Status of the Population



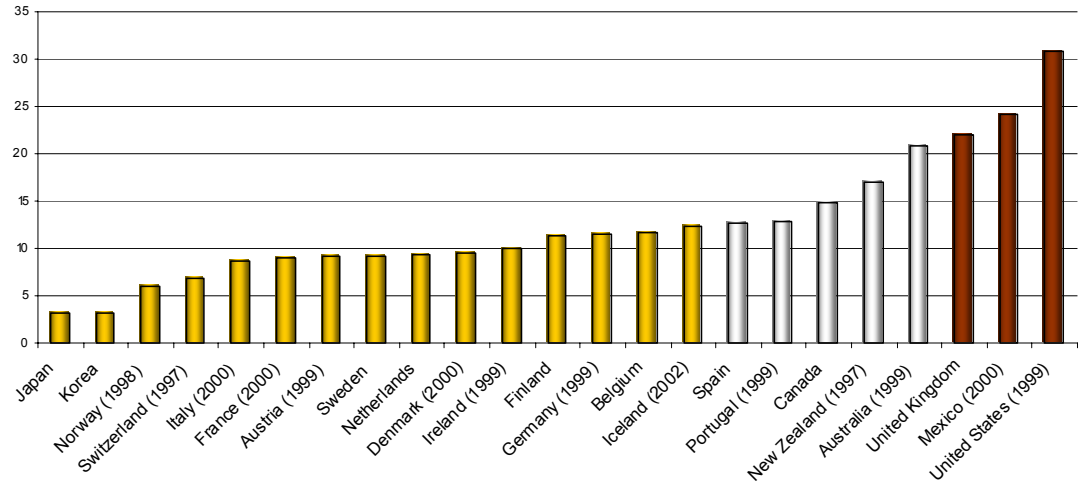
Source: Canadian Institute for Advanced Research.

Table 6
Non-Medical Factor Results*

Rank	Country	Gold	Silver	Bronze	Weighted Medal Count
1	Sweden	6	0	0	12
1	France	5	2	0	12
3	Netherlands	5	1	1	11
3	Iceland	5	1	0	11
5	Norway	5	0	1	10
5	Finland	4	2	1	10
5	Switzerland	4	2	1	10
5	Germany	3	4	0	10
5	New Zealand	3	4	0	10
10	Denmark	4	1	2	9
10	Mexico	4	1	1	9
10	Australia	3	3	1	9
10	Belgium	3	3	0	9
10	Italy	2	5	0	9
15	**Canada**	**3**	**2**	**2**	**8**
15	United Kingdom	2	4	1	8
17	Korea	3	1	2	7
17	Spain	2	3	2	7
17	Portugal	2	3	1	7
20	Austria	2	2	3	6
20	United States	2	2	3	6
20	Ireland	2	2	2	6
23	Japan	2	1	4	5
23	Greece	1	3	1	5

*Gold = 2; Silver = 1; Bronze = 0

Chart 8
Body weight, 2001 or latest year (per cent of population aged 15+ with a BMI > 30)

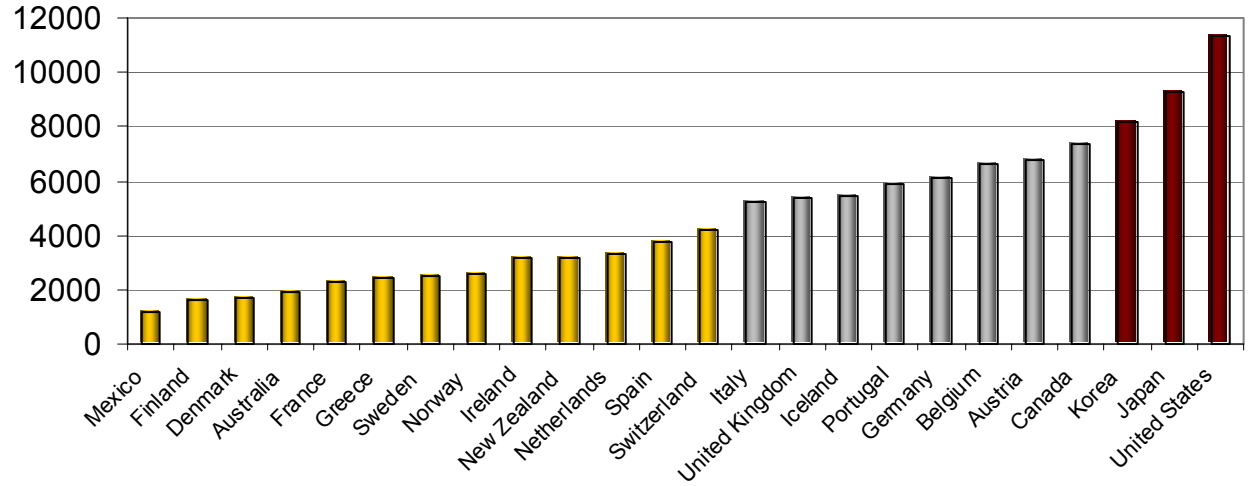


Note: Data for Greece are not available.
Sources: OECD; The Conference Board of Canada.

Canada also does poorly with respect to **road traffic accidents** and **sulphur oxide emissions**. Canada has an injury rate which is one-and-a-half times higher than the OECD average (see Chart 9). And, our country is the second worst performer in sulphur oxide emissions among OECD countries, at a rate three times higher than the OECD average (see Chart 10).

Chart 9

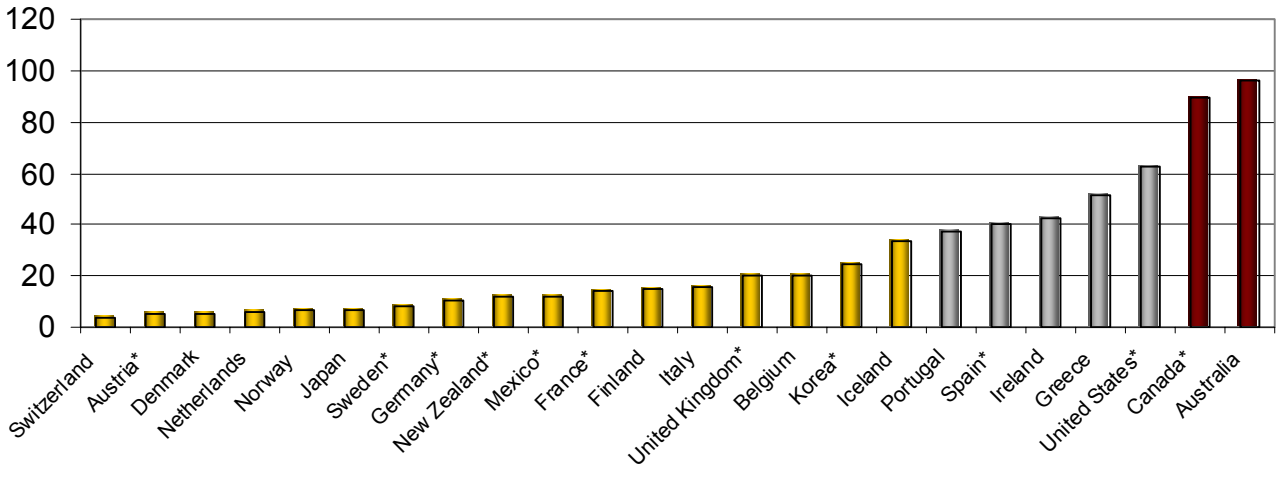
Road traffic injuries (injured per million population)



Source: OECD.

Chart 10

Per capita sulphur oxide emissions, late 1990s (kg/cap)

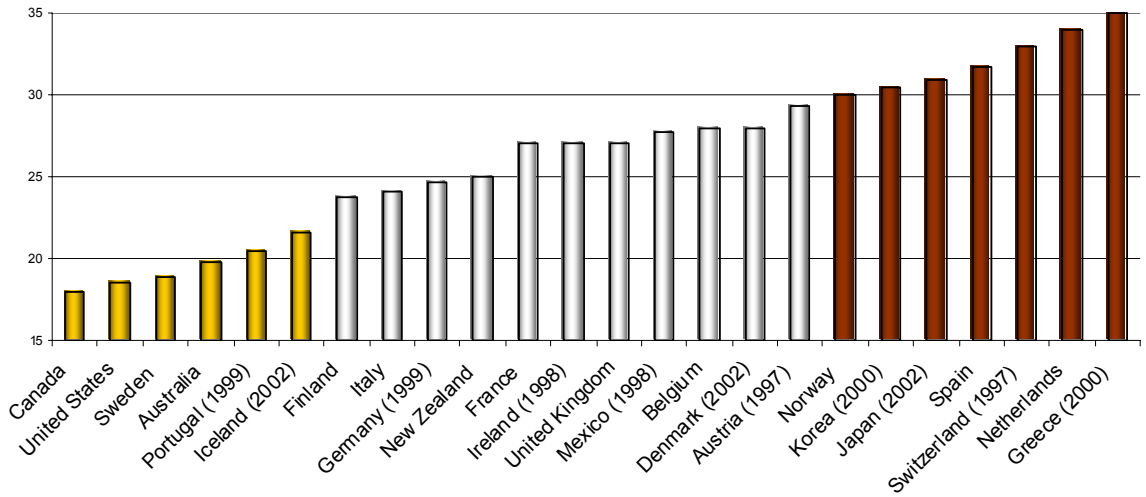


* Sulphur Oxides: Sulphur Dioxide only
Source: OECD.

Despite the relatively poor showing in this category, there is some good news for Canada on some of the indicators. Canada has the lowest percentage of **daily smokers** among all OECD countries (see Chart 11). This is a great achievement. Canadians also have one of the lowest **consumption rates of alcohol** (see Chart 12).

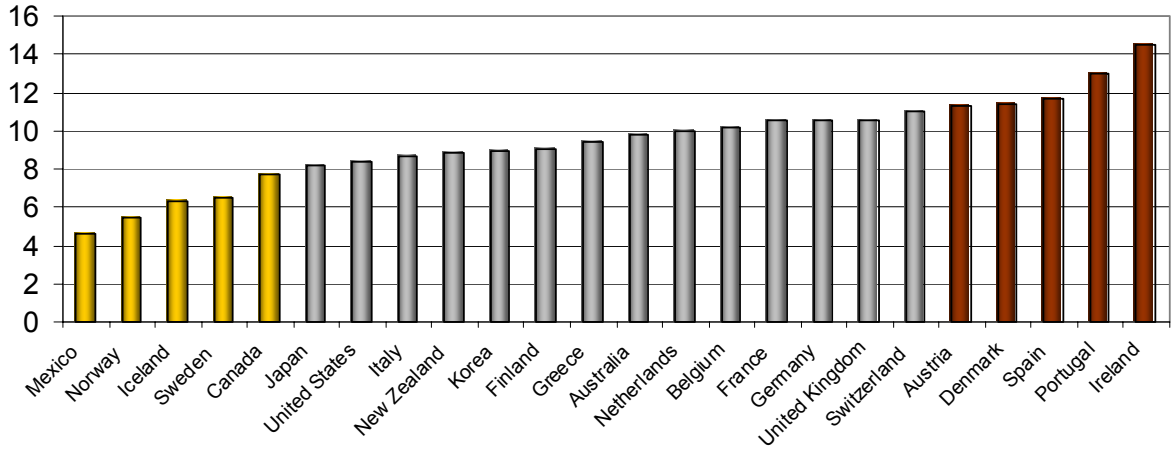
Efforts have been made in recent years by governments to increase **immunization rates for influenza** for persons 65 and over (see Chart 13). While rates are still low (63 per cent), Canada has one of the higher immunization rates among reporting OECD countries.

Chart 11
Per cent of population who are current daily smokers, 15 years of age and over, 2001 or latest year



Source: OECD.

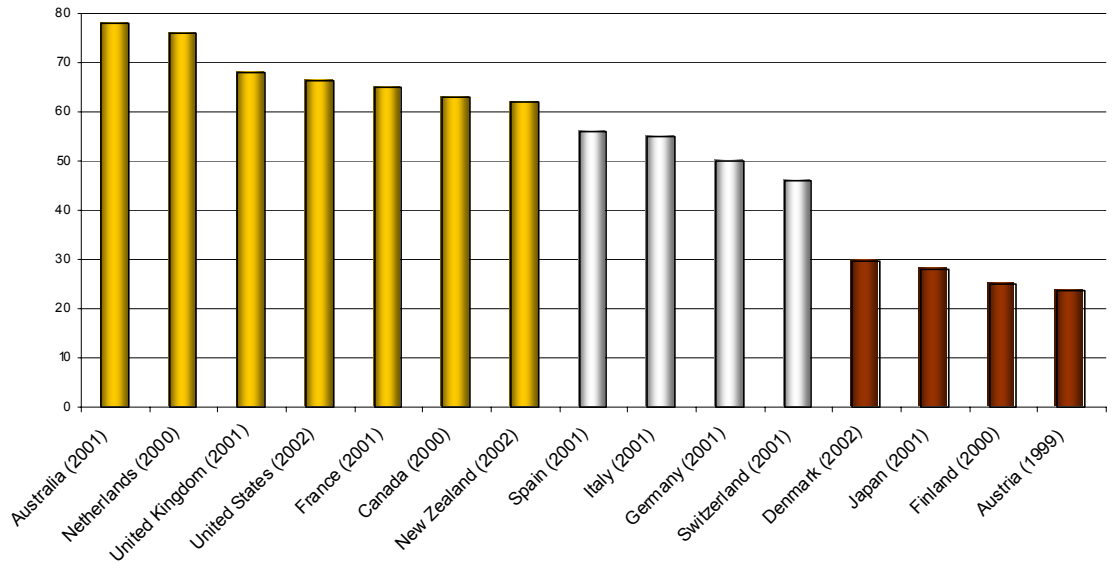
Chart 12
Alcohol consumption - Liters/capita (15+)



Source: OECD.

Chart 13

Immunization for influenza for population aged 65 years and over, most recent year of data
(per cent of population)



Note: Data for Belgium, Greece, Iceland, Ireland, Korea, Mexico, Norway, Portugal and Sweden are not available.
Sources: OECD; The Conference Board of Canada.

We recognize that this is only a partial list of non-medical factors or determinants. In its most recent *Performance and Potential* report, The Conference Board of Canada compared Canada and other OECD countries with respect to 31 determinants of health indicators.[7] The determinants of health analysis included indicators from nine categories: income and social status, social support networks, education, working conditions, social environments, physical environments, personal health practices and coping skills, healthy child development, and health services. We undertook this analysis in order to identify the relationship between the determinants of health and health outcomes.

As shown in Table 7, the Nordic countries proved to be the leading performers on the determinants of health indicators, with Sweden being the top performer. Canada placed ninth. Canada's result was hindered, in part, by its poor performance on environmental indicators (i.e., high rates of carbon dioxide, sulphur dioxide, and nitrogen dioxide emissions, and a poor record on waste management, including hazardous waste) and on social indicators, such as higher levels of poverty, a larger gender wage gap, and higher levels of reported crime than most other OECD countries.

Table 7
Performance and Potential's Determinants of Health Indicators: Top 12 Countries

Rank	Country
1	Sweden
2	Denmark
3	Norway
4	Finland
5	Switzerland
6	The Netherlands
7	Austria
8	Germany
9	**Canada**
10	Belgium
11	Japan
12	France

Although one would anticipate a time lag between strong performance on determinants of health indicators and improvements in health status, our analysis found a statistically significant positive correlation between high-performing OECD countries on the determinants of health and health status indicators, such as male and female life-expectancy and infant mortality. Our analysis also found that most of the countries with the best record on health determinants are among the top OECD spenders in health care. One possible explanation for this is that a country with a strong fiscal capacity has the ability to invest in both "health" and health care services. However, there are exceptions, such as the United States, which is the highest spender, but which did not place among the top half of the OECD countries. Similarly, Sweden, which finished first, overall, is not one of the highest health care spenders among the OECD.

Health Outcomes

Measures of health outcomes attempt to track the effects of policy, program or clinical interventions on quality of life.[8] The health outcome indicators chosen for this analysis are the leading causes of mortality and premature mortality rates for Canada. Accordingly, we focus on mortality rates for lung cancer, acute myocardial infarction and strokes. The rates are age standardized to account for differences in age that exist among OECD countries.[9] Lower rates can be attributed to both lower incidences, due, in part, to better health behaviours and treatment approaches.

The overall results are shown in Table 8. As one can see, Canada is not a top performer in this category of indicators, in which it placed 20th. Italy, Mexico, Japan, Spain and Switzerland are the top-performing countries in health outcomes. Canada's rates for mortality and premature mortality for lung cancer, heart attacks, and suicide rates are very high, in comparison to most other OECD countries. In addition, there are some substantial differences in health outcomes within Canada. For example, the mortality rate for lung cancer in B.C. males is 55.5 deaths per 100,000, compared to the rate for Quebec males, at 93.9.

Table 8
Results of Health Outcomes*

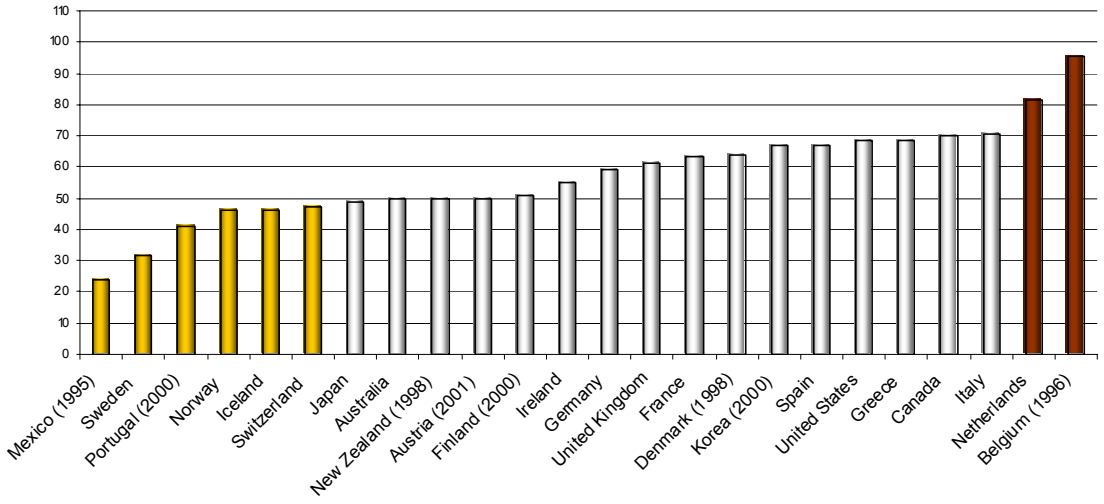
Rank	Country	Gold	Silver	Bronze	Weighted Medal Count
1	Mexico	8	1	1	17
1	Italy	7	3	0	17
3	Japan	7	2	1	16
3	Spain	7	2	1	16
3	Switzerland	6	4	0	16
6	France	6	2	2	14
6	Portugal	6	2	2	14
6	Australia	4	6	0	14
6	Germany	4	6	0	14
6	Sweden	4	6	0	14
11	Korea	5	3	2	13
11	Norway	4	5	1	13
11	Austria	3	7	0	13
14	Finland	5	2	3	12
14	Greece	4	4	2	12
16	Belgium	5	1	4	11
16	Iceland	3	5	2	11
16	New Zealand	3	5	2	11
16	United Kingdom	3	5	2	11
20	Denmark	3	4	3	10
20	Ireland	3	4	3	10
20	Netherlands	3	4	3	10
20	**Canada**	**2**	**6**	**2**	**10**
20	United States	2	6	2	10

*Gold = 2; Silver = 1; Bronze = 0

The mortality rate for **lung cancer** for both males and females in Canada is higher than most OECD countries (see charts 14 and 15). The good news is that the rate for males is much lower now than in 1989. However, the big issue is that Canada's rate has been rising for females during the past 20 years and is one of the highest rates among OECD countries (see Chart 16).

Chart 14

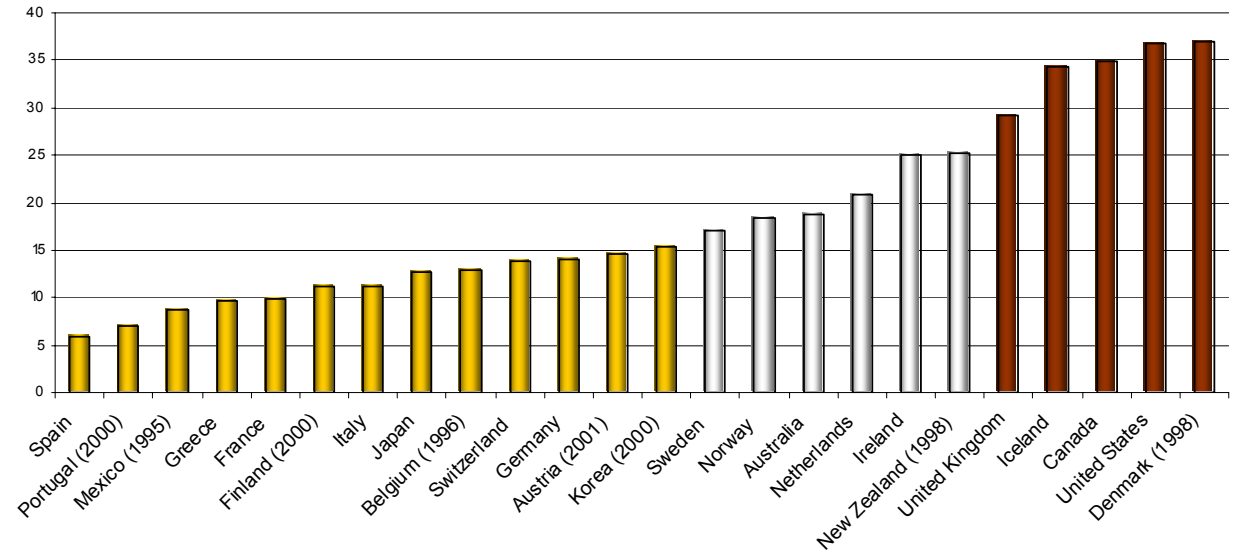
Mortality rate for lung cancer, males, 1999 or latest year (age standardized rate per 100,000 population)



Sources: OECD; Statistics Canada; The Conference Board of Canada.

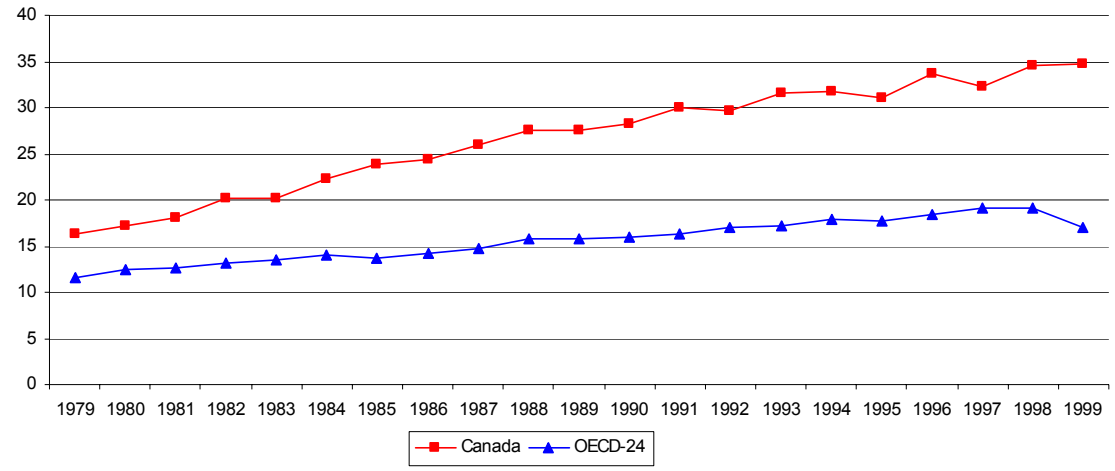
Chart 15

Mortality rate for lung cancer, females (age-standardized rate per 100,000 population)



Sources: OECD; Statistics Canada; The Conference Board of Canada.

Chart 16
Mortality rate for lung cancer, females (age-standardized rate per 100,000 population)



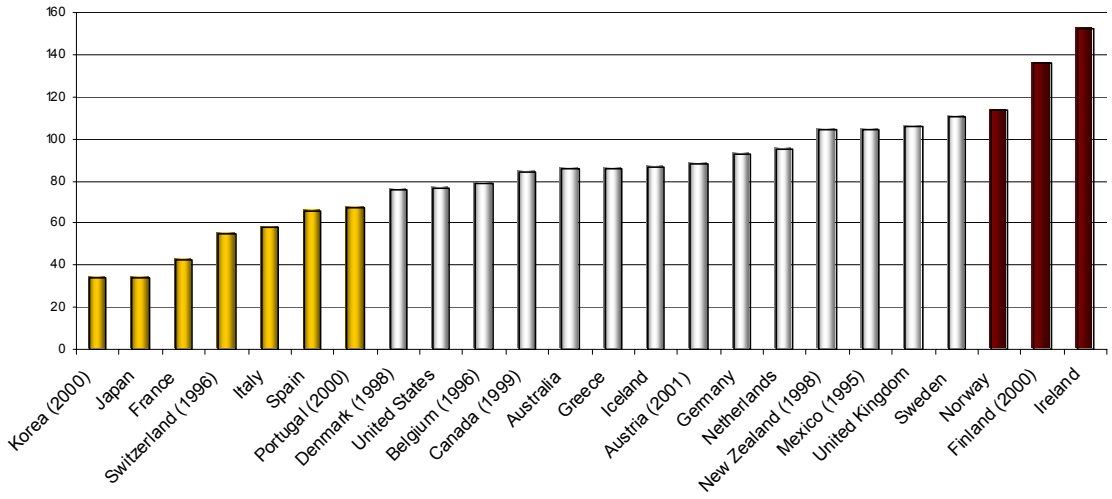
Sources: Statistics Canada; OECD.

Canada's **mortality rates for acute myocardial infarctions (heart attacks)** for both males and females are even with the OECD average, making it a silver-level performer in both cases (see charts 17 and 18).

There is good news, in terms of mortality rates for acute myocardial infarctions—they are decreasing for both males and females in Canada. With this indicator, Canada actually lagged behind the OECD average until 1989. Since then, our decreasing rates have been very much in step with the OECD average (see Chart 19).

Chart 17

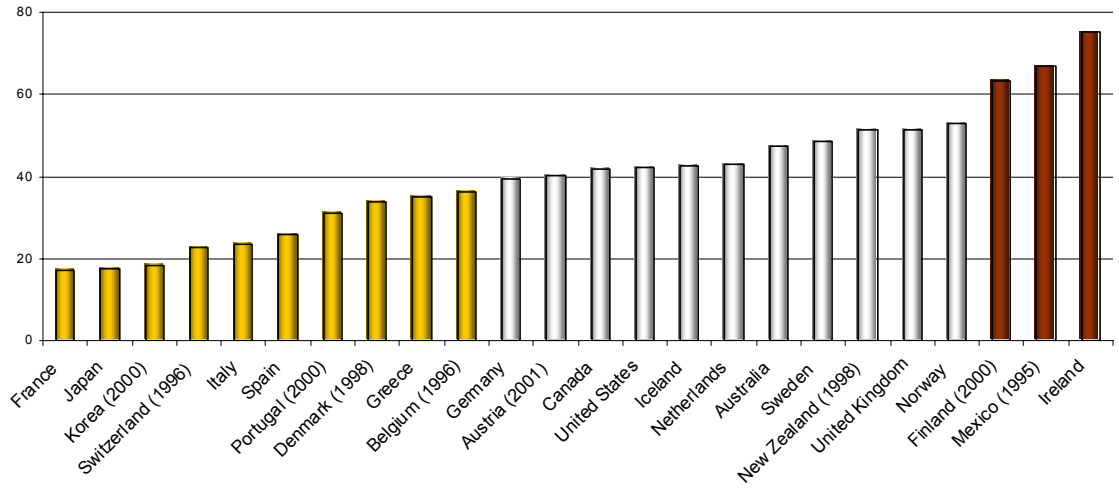
Mortality rate for heart attack, males, 1999 or latest year (age-standardized rate per 100,000 population)



Sources: OECD; Statistics Canada; The Conference Board of Canada.

Chart 18

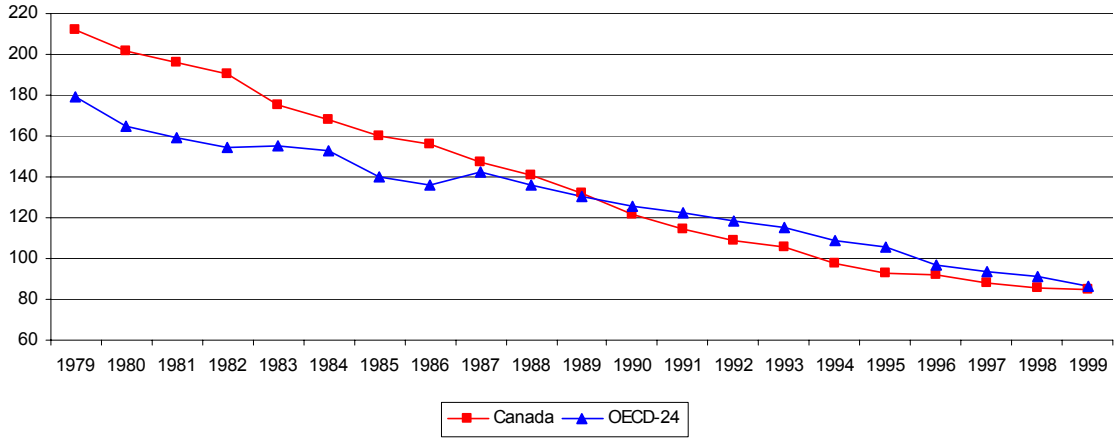
Mortality rate for heart attack, females, 1999 or latest year (age-standardized rate per 100,000 population)



Sources: OECD; Statistics Canada; The Conference Board of Canada.

Chart 19

Mortality rate for heart attack, males (age-standardized rate per 100,000 population)

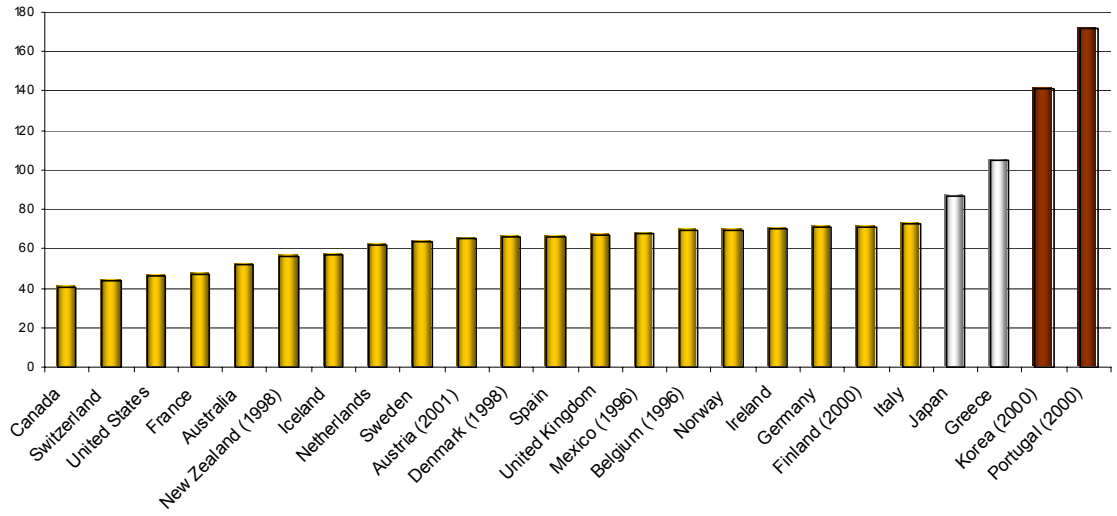


Sources: Statistics Canada; OECD.

Canada's best performance in health outcomes is in **mortality rates due to strokes,** for both males and females. Canada has the lowest male mortality rate for stroke among OECD countries and the third-lowest for females (see charts 20 and 21).

Chart 20

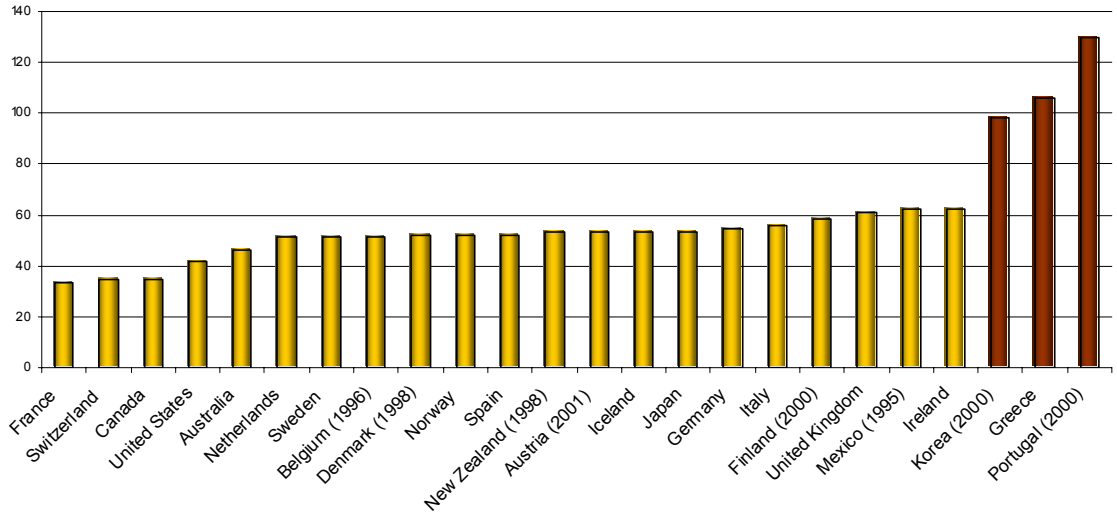
Mortality rate for stroke, males, 1999 or latest year (age-standardized rate per 100,000 population)



Sources: OECD; Statistics Canada; The Conference Board of Canada.

Chart 21

Mortality rate for stroke, females, 1999 or latest year (age-standardized rate per 100,000 population)



Sources: OECD; Statistics Canada; The Conference Board of Canada.

Premature Mortality (Potential Years of Life Lost or PYLL)

Premature mortality can be measured by the potential years of life lost (PYLL). PYLL is measured by adding up deaths occurring at each age and multiplying this with the number of remaining years to live until age 75. For example, a person dying at age 25 has lost 50 years of life. PYLL gives a higher weight to deaths occurring earlier in life than those which take place later in life.

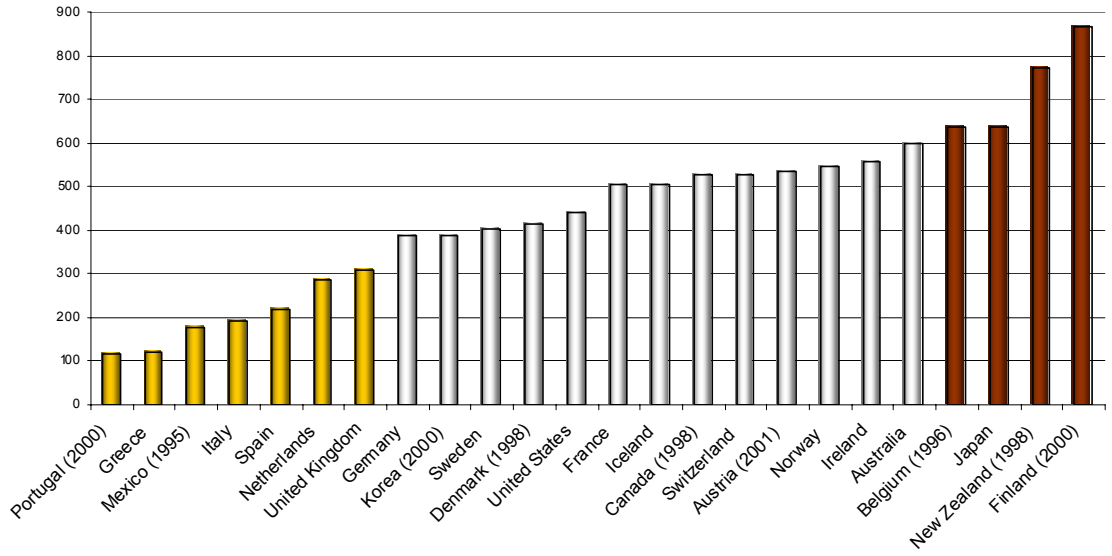
Compared with the life expectancy indicator, PYLL also provides information on the societal impact of mortality. Studies using OECD data on PYLL suggest that both social and medical factors need to be considered to explain the incidence of death before the age of 75.[10] Non-medical determinants include occupational status (e.g., non-manual workers have a lower PYLL) and income per capita (e.g., higher income per capita decreases PYLL). On the medical side, everything else being equal, higher health expenditures are associated with lower premature mortality for women.[11] The impact is not significant for men, perhaps due to the fact that a high proportion of premature mortality for males is due to accidents and acts of violence.

In Canada, data reveal that unintentional injuries, suicides and lung cancer are the three main causes of premature death among males, while unintentional injuries, lung cancer and breast cancer are the main causes for females. Due to data limitations, it is not possible to compare "unintentional injuries" at the international level. As a result, this analysis looks at the other two main causes of premature death.

The PYLL for Canadian males due to **suicide** (526 per 100,000 population) remains well above the OECD average (444 per 100,000, see Chart 22). Likewise, the PYLL for Canadian males due to **lung cancer** (257 per 100,000 population) continues to be above the OECD average (244 per 100,000), but the gap has been decreasing since 1990 (see Chart 23).

Chart 22

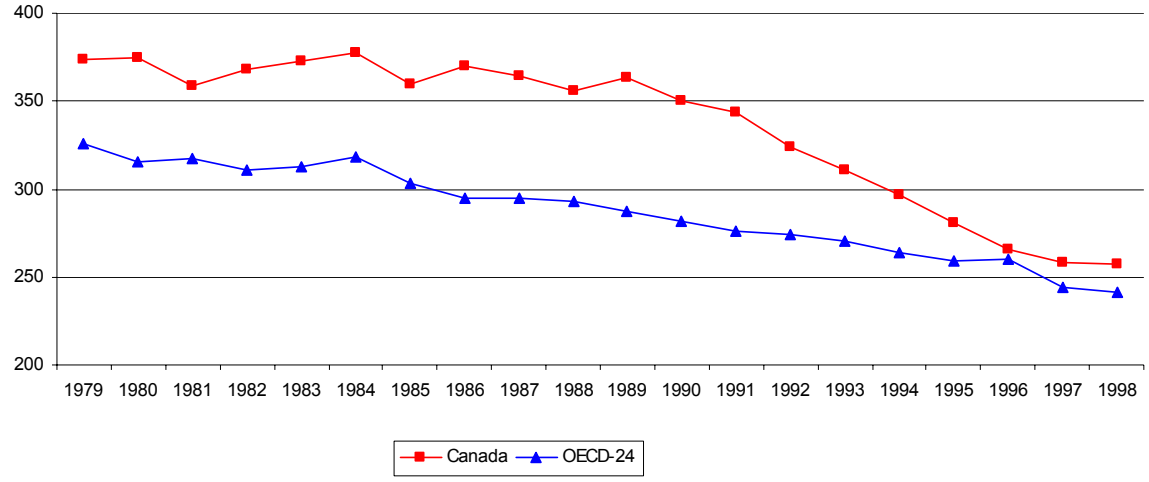
Potential years of life lost due to intentional self-harm, males aged 0 to 70 years, 1999 or latest year (age-standardized rate per 100,000 population)



Sources: OECD; The Conference Board of Canada.

Chart 23

Potential years of life lost due to lung cancer, males aged 0 to 70 years, (age-standardized rate per 100,000 population)



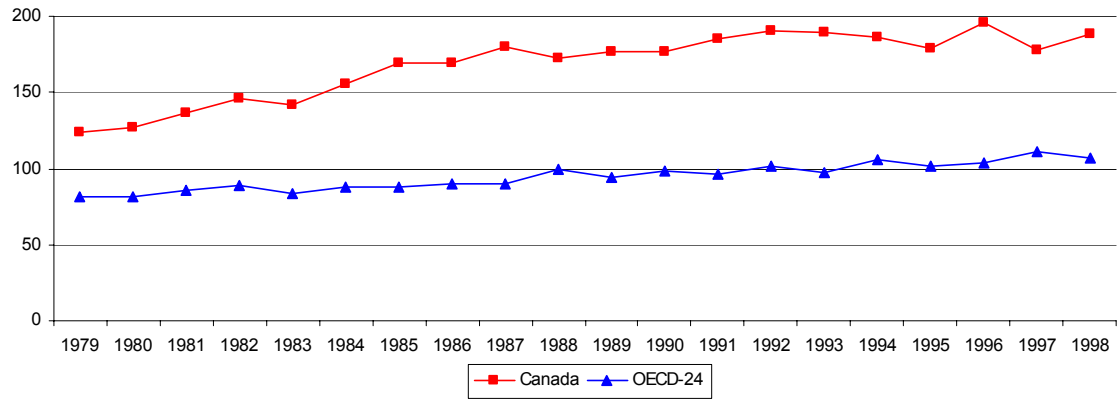
Sources: OECD.

In terms of females, Canada's PYLL rate for women due to **lung cancer** mirrors the poor situation discussed earlier, regarding lung cancer mortality rates. The rate is increasing and is among the highest of all OECD countries (see Chart 24).

Canada is only a silver-level performer among OECD countries for PYLL due to **breast cancer.** Our country historically has had higher rates than the OECD average. But, since the late 1980s, the gap has been narrowing (see Chart 25).

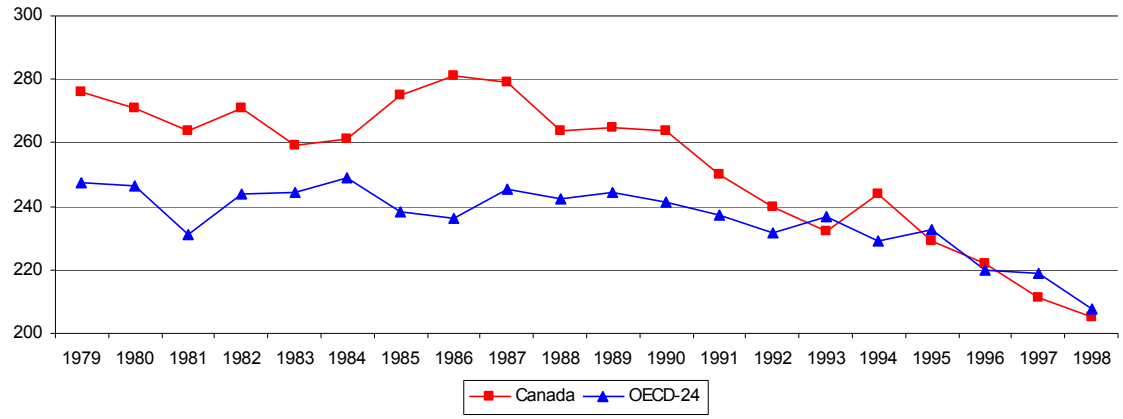
Chart 24

Potential years of life lost due to lung cancer, females aged 0 to 70 years, (age-standardized rate per 100,000 population)



Sources: OECD.

Chart 25
Potential years of life lost due to breast cancer, females aged 0 to 70 years,
(age-standardized rate per 100,000 population)



Sources: OECD.

Health Care Resources (Unranked)

The final piece of this comparative analysis covers health care resources. Since the amount of resources is not a clear indicator of systems performance, the nine selected indicators were not ranked. Nevertheless, a picture of the supply of resources among countries can be useful, when considering options for action. The listing of health care-related resources for each of the 24 OECD countries and the OECD average is presented below in Table 9.

Canada is the third-highest total spender on health care among the 24 OECD countries examined and the sixth-highest public spender. It falls below the average (of those countries reporting) for per capita total expenditures on pharmaceutical R&D. A review of total health care expenditure trends over the past three decades (see Chart 26) by country shows that Canada did not stray far from the OECD average between the periods of 1970-1980 and 1980-1990. However, it fell well below the OECD average during the past decade. Sweden had the lowest health expenditure growth rate among the 11 countries included.

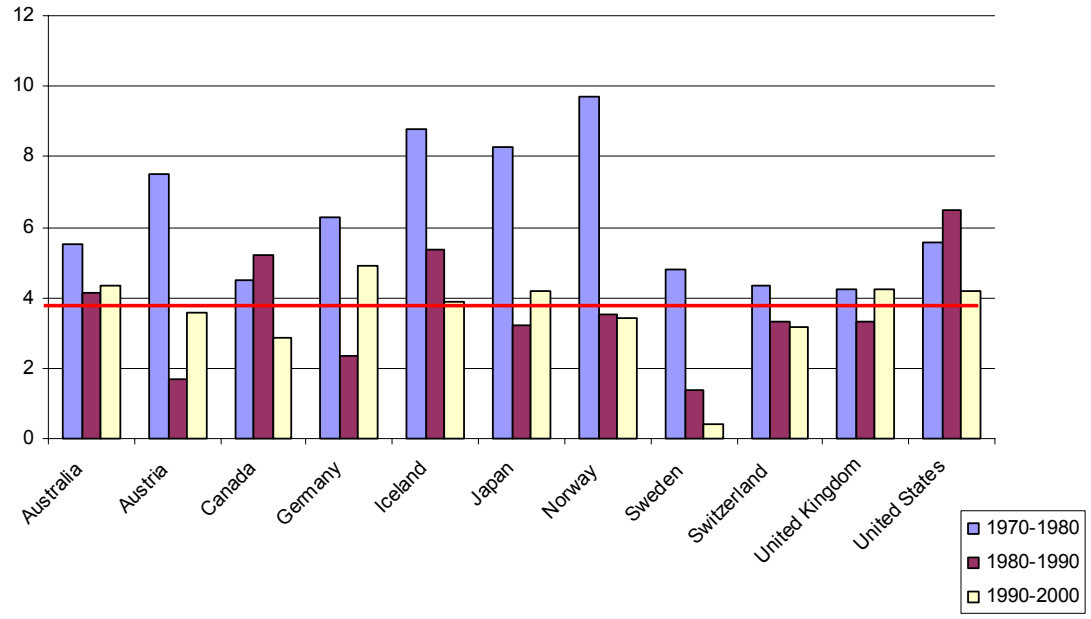
In terms of the health care workforce, Canada is higher than the OECD average for the number of general practitioners and nurses, but below average for specialists. In terms of medical equipment, Canada is well below the OECD average for MRI units, but above average for radiation therapy equipment.

There is no OECD country that appears to be overly abundant in all of the selected health care resources. For example, while the United States is the largest per capita spender, it falls below the OECD average for general practitioners, specialists, nurses and radiation therapy equipment.

There is wide variation in the availability of health care resources between countries. For example, Japan, Switzerland, Austria and Finland have 11 or more MRI units per million population, whereas 10 other countries, including Canada, have a ratio of less than five per million population. Spending levels do not seem to account for the variation in resource levels. There is little difference in the level of total spending between Canada and Germany, yet Germany has twice as many MRI units and specialists per capita as Canada. Clearly, the amount a country spends on health care does not seem to restrict the array and quantity of health care resources it wishes to fund.

Chart 26

Total Health Expenditures Growth Rate (average annual growth rate)



Source: OECD.

Table 9
Results of Health Care Resources

Country	Health spending - total (/capita, US$ PPP)	Health spending - public (/capita, US$ PPP)	Public expenditures on prevention and public health (/capita, US$ PPP)	Expenditures on pharmaceutical industry R&D (per capita US$ PPP)	Physicians-general practitioners (density /1000 pop.)	Physicians-specialists (density /1000 pop.)	Nurses (density /1000 pop.)	MRI units (/million population)	Radiation therapy equipment (/million pop.)
Australia	2196	1512.0	109.0	13	1.3	1.2	10.3	4.7	5.4
Austria	2074	1501.0	12.0	na	1.4	1.9	9.2	11.6	4.6
Belgium	2161	1626.0	na	67	1.4	1.7	10.8	3.2	6.4
Canada	**2809**	**1964.0**	**202.0***	**18**	**1**	**1.1**	**9.9**	**3.5**	**7.0**
Denmark	2430	1990.0	na	90	0.7	2.2	9.6	6.6	5.4
Finland	1777	1328.0	33.0	30	1.7	1.4	14.9	11	15.4
France	2503	1889.0	41.0	43	1.6	1.7	7	2.6	6.1
Germany	2729	2027.0	85.0	28	1.1	2.2	9.7	6.2	4.6
Greece	1448	831.0	na	na	na	2.9	3.9	2	4.2
Iceland	2339	1974.0	77.0	na	0.7	na	14	14	14
Ireland	1728	1339.0	na	24	0.5	na	14.8	na	na
Italy	2083	1615.0	29.0	11	0.9	na	5.2	8.6	3.8
Japan	1878	1519.0	19.0	38	na	na	7.8	23.2	na
Korea	843	386.0	15.0	4	0.6	0.9	3	7.9	4.5
Mexico	581	264.0	35.0	na	0.6	0.9	2.2	1.1	4.7
Netherlands	2503	1663.0	na	30	0.5	0.8	12.8	3.9	7.2
New Zealand	na	na	na	na	0.8	0.7	9.6	2.6	8.1
Norway	2791	2369.0	na	na	0.9	2.1	10.4	na	na
Portugal	1567	1066.0	na	na	0.5	2.3	3.8	2.8	2.9
Spain	1549	1098.0	18.0	8	na	1.8	6.9	5.7	3.8
Sweden	2159	1855.0	na	110	0.5	2.2	8.8	7.9	na
Switzerland	3077	1675.0	48.0	na	0.4	2.1	10.7	12.9	9.7
United Kingdom	1904	1585.0	30.0	75	0.6	1.6	9	4.6	4.9
United States	4819	2153.0	176.0	46	0.8	1.4	8.1	8.1	4.1
OECD average	**2172**	**1531.7**	**61.9**	**39.7**	**0.9**	**1.7**	**8.9**	**7.0**	**6.3**

na= not available

* The figure for Canada includes spending on administration by government health departments, other than for health insurance programs.

[1] Infant mortality can either be calculated based on all live births, or on those infants with birth weights of more than 500 grams. The latter approach will usually lead to lower rates, since these infants face a lower risk for health complications. However, for the purposes of comparing with OECD countries, all live births are used.

[2] Unfortunately, there were no viable international data that addressed diet or levels of physical activity, both of which also have a significant impact on health.

[3] OECD, *OECD Data Show Health Expenditures at an All-time High,* Release June 23, 2003. <http://www.oecd.org/document/39/0,2340,en_2649_37407_2789735_1_1_1_37407,00.html >, cited October 2003.

[4] M.S. Tremblay et al, "Temporal Trends in Overweight and Obesity in Canada, 1981–1996*", International Journal of Obesity Related Metabolic Disorders*, Vol. 26, No. 4, pp. 538–43.

[7] The Conference Board of Canada, *Performance and Potential 2003-04* (Ottawa: The Conference Board of Canada, 2003), Chapter 1.

[8] Government of Canada, *Healthy Canadians: A Federal Report on Comparable Health Indicators 2002*. (Ottawa: Health Canada, 2002). <http://www.hc-sc.gc.ca/iacb-dgiac/arad-draa/english/accountability/indicators.html>.

[9] Mortality rates are significantly affected by the age distribution of the population. Mortality rates for most diseases will be higher in populations with a greater proportion of older persons. Comparisons of unadjusted mortality rates among countries is misleading if the age distributions of the populations are different. The mortality and incidence rates used in this report are standardized, to remove the effect of the differences in age distribution. Age-standardized mortality rates represent the theoretical risk of mortality for a population, if the population had an age distribution identical to that of a standard population.

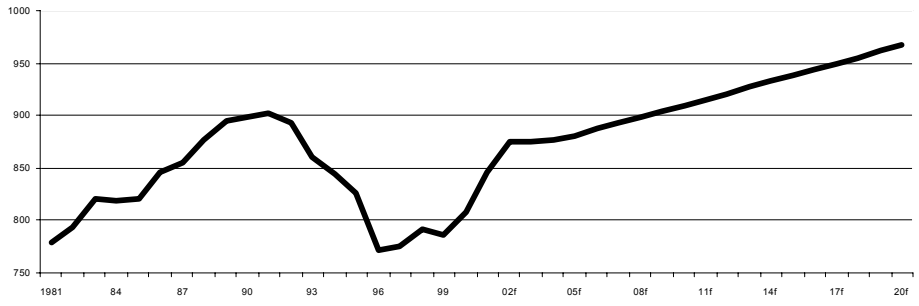
[10] Z. Or, "Determinants of health outcomes in industrialized countries: a pooled, cross-country, time series analysis," *OECD Economic Studies*, no. 30, (2000), pp. 53-78.

[11] OECD, *Health at a Glance* (2001), p. 18.

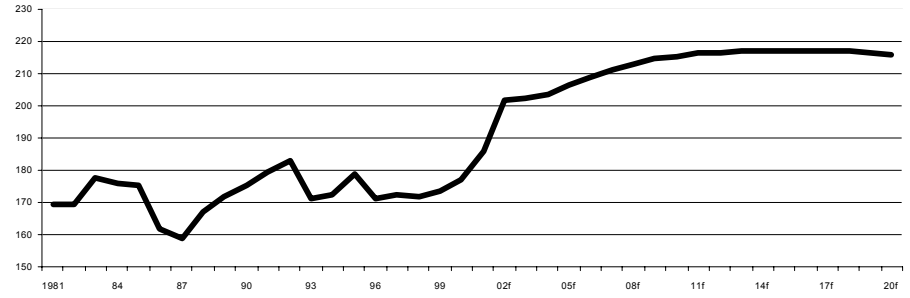
APPENDIX C

Real Per Capita Provincial and Territorial Components Spending

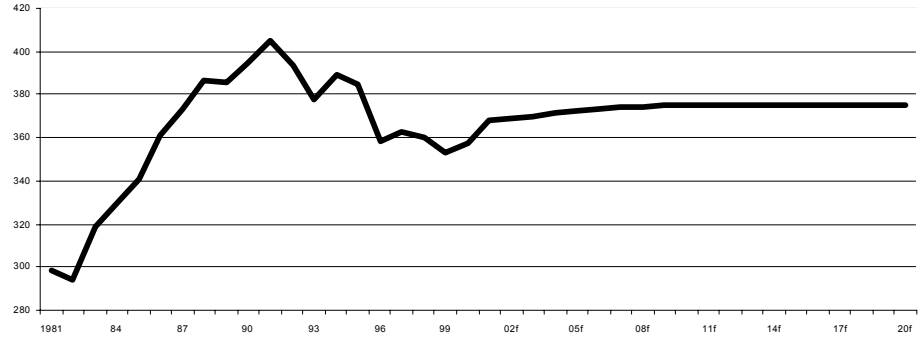
Real Per Capita Provincial and Territorial Health Care Components Spending
1981–2020 (1997 $)*



Hospitals



Other Institutions

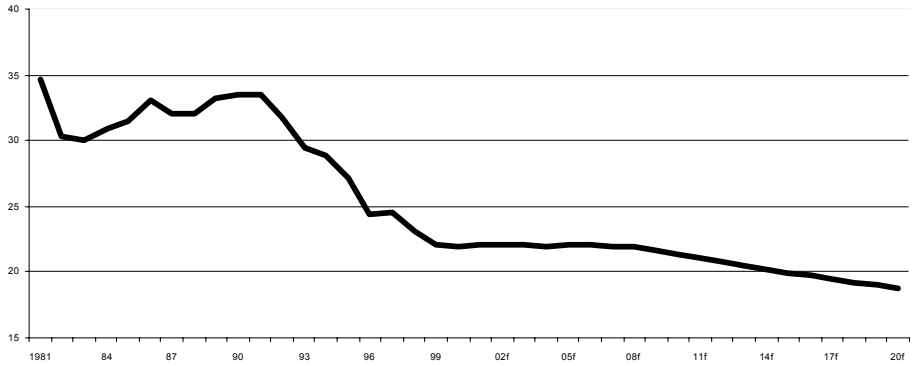


Physicians

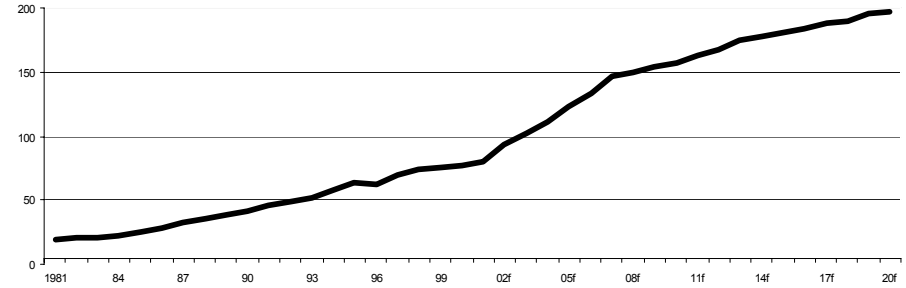
f = forecast
* Note differences in scales between charts

Sources: The Conference Board of Canada; Statistics Canada; Health Canada; Canadian Institute for Health Information.

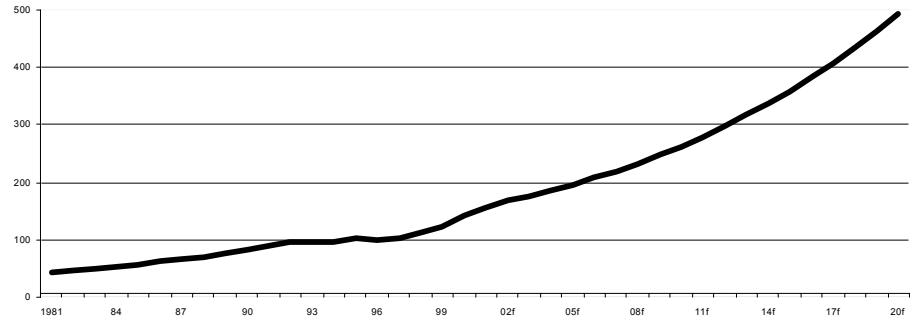
Real Per Capita Provincial and Territorial Health Care Components Spending 1981–2020 (1997 $)*



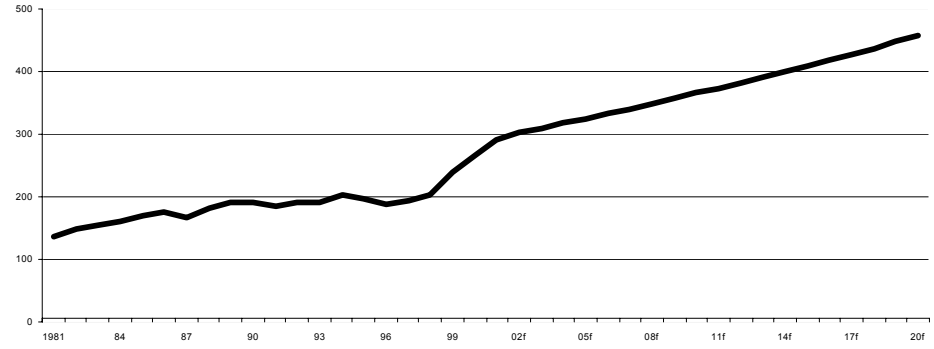
Other Health Professionals



Home Care



Drugs



Other Expenditures

f = forecast
* Note differences in scales between charts

Sources: The Conference Board of Canada; Statistics Canada; Health Canada; Canadian Institute for Health Information.

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